SIMPSON
Strong-Tie®

WOOD CONSTRUCTION CONNECTORS

2013-2014

C-2013

(800) 999-5099
www.strongtie.com

Quality

Support

Innovation

Times have changed since 1956 when Barclay Simpson made his first connector and launched the company that would come to define the structural connector industry. However, what has not changed is the Simpson Strong-Tie commitment to setting the standards for quality, customer support and innovation. That commitment is genuine.

Genuine means conducting tens of thousands of product tests each year. It means working closely with builders, specifiers and code officials to ensure Simpson Strong-Tie delivers the highest quality products to the jobsite on time.

Being genuine does not ebb or flow. And a genuine leader is always innovative, always delivering high quality and always supporting the customer. You can bet that in good times and in difficult ones, our commitment to customers never wavers. Simpson Strong-Tie will be there on the job to train installers, in the specifier's office to offer expertise and in the stores to help our dealers succeed. That is being genuine. That is Simpson Strong-Tie.

GENUINE

Simpson Strong-Tie® Connectors

ALPHABETICAL INDEX

SIMPSON Strong-Tie®

VALUE ENGINEERED *This icon indicates a product that is preferable to similar connectors because of a) easier installation, b) higher loads, c) lower installed cost, or a combination of these features.*

ALPHABETICAL INDEX

SIMPSON Strong-Tie®

SUBJECT INDEX

KEEP THIS CATALOG – IT IS VALID FOR TWO YEARS

Simpson Strong-Tie publishes the *Wood Construction Connectors* catalog every two years. In an effort to continue to provide our customers with current information on our ever-expanding product line, we publish an addendum on years we don't print a catalog. The addendums contain new product information, updated testing information and any other information needed to keep our customers up to date with our product line. As always, please be sure to visit our website regularly for updates that occur throughout the year – ***www.strongtie.com***.

INTRODUCTION

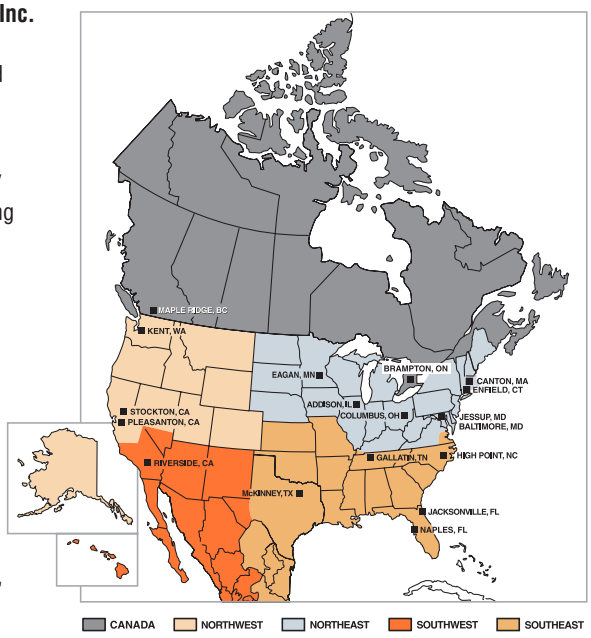
For more than 50 years, Simpson Strong-Tie has focused on creating structural products that help people build safer and stronger homes and buildings. A leader in structural systems research and technology, Simpson Strong-Tie is one of the largest suppliers of structural building products in the world. The Simpson Strong-Tie commitment to product development, engineering, testing and training is evident in the consistent quality and delivery of its products and services. Simpson Strong-Tie® product lines include:

- Structural connectors for wood and cold-formed-steel construction
- Strong-Wall® prefabricated shearwalls
- Strong Frame® moment frames
- Rod systems for multi-story buildings
- Fastening systems including Quik Drive® auto-feed screw driving systems
- Simpson Strong-Tie® anchors and fasteners for concrete and masonry

For more information, visit the company's Web site at ***www.strongtie.com***.

The Simpson Strong-Tie Company Inc. "No Equal" pledge includes:

- Quality products value-engineered for the lowest installed cost at the highest rated performance levels
- Most thoroughly tested and evaluated products in the industry
- Strategically located manufacturing and warehouse facilities
- National code agency listings
- Largest number of patented connectors in the industry
- European locations with an international sales team
- In-house R&D and tool and die professionals
- In-house product testing and quality control engineers
- Member of AITC, ASTM, ASCE, AWPA, ACI, AISC, CSI, ICFA, NBMDA, NLBMDA, SETMA, STAFDA, SREA, NFBA, WTCA and local engineering groups.



THE SIMPSON STRONG-TIE QUALITY POLICY

We help people build safer structures economically. We do this by designing, engineering and manufacturing "No Equal" structural connectors and other related products that meet or exceed our customers' needs and expectations. Everyone is responsible for product quality and is committed to ensuring the effectiveness of the Quality Management System.

Karen Colonias
Chief Executive Officer

Terry Kingsfather
President

GETTING FAST TECHNICAL SUPPORT

When you call for engineering technical support, we can help you quickly if you have the following information at hand. This will help us to serve you promptly and efficiently.

- Which Simpson Strong-Tie® catalog are you using? *(See the front cover for the catalog number)*
- Which Simpson Strong-Tie product are you using?
- What is your load requirement?
- What is the carried member's width and height?
- What is the supporting member's width and height?
- What is the carried and supporting members' material and application?

WE ARE ISO 9001-2008 REGISTERED

Simpson Strong-Tie is an ISO 9001-2008 registered company. ISO 9001-2008 is an internationally-recognized quality assurance system which lets our domestic and international customers know that they can count on the consistent quality of Simpson Strong-Tie® products and services.

800-999-5099 | www.strongtie.com

CONNECTOR SELECTION KEY

Products are divided into fifteen general categories, identified by tabs along the page's outer edge.

NEW PRODUCTS FOR 2013

HTHMQ Heavy Multiple Truss Hanger

This heavy-duty hanger is designed to carry 2 or 3 trusses to enable a greater range of structural designs. Designed with versatility in mind, the HTHMQ will accommodate various lumber types and widths and multiple-ply trusses. The HTHMQ also facilitates right- or left-hand hips *(at 30°- 60° skews)* and can be used for terminal hip trusses with or without the center common jack.

See page 149 for more information.

HTHGQ Truss Girder Hanger

The HTHGQ is a high-capacity girder hanger designed to carry multi-ply trusses or composite lumber. The HTHGQ can accommodate various width for installation flexibility by enabling up to 5-ply girder trusses. The Strong-Drive® SDS screws used help transfer the load between the plies of the supporting girder when they penetrate all plies.

See page 144 for more information.

HHSUQ Heavy Severe-Skew Truss Hanger

The HHSUQ is a new high load capacity, face-mount, truss-to-truss hanger designed to accommodate severe skews *(45° to 84°)*. This allowable skew for hip trusses enables a greater range of installation applications. The HHSUQR model is skewed right and the HHSUQL version is skewed left.

See page 138 for more information.

HHRC Hip Ridge Connectors

The HHRC is a 12-gauge hip ridge connector that attaches hip roof beams to the end of a ridge beam. The HHRC is suitable for light commercial construction and may be sloped down a maximum of 35° *(12:17 hip slope)*.

See page 88 for more information.

NEW PRODUCTS FOR 2013

33° Structural Collated Nails

The 33° collated, structural-connector nail is designed to provide installers a pneumatically-driven alternative to hand-driven nails. This hot-dip galvanized nail is approved for use in many Simpson Strong-Tie® connector applications. These nails are available in 25-nail, paper-collated strips, and are compatible with a wide variety of popular pneumatic nailers.

See page 23 for more information.

SDWS/SDWH Structural Wood Screws

Simpson Strong-Tie has expanded the Strong-Drive® SDW wood screw product line with two new screws designed to provide an easy-to-install, high-strength alternative to through-bolting and traditional lag screws. The new SDWS *(6-lobe drive)* and SDWH *(hex head)* structural wood screws are ideal for the contractor and do-it-yourselfer alike in both structural and general-purpose applications.

See page 194 for more information.

SDWC Structural Wood Screws

The new Strong-Drive® SDW structural wood screw delivers a stud-to-bottom plate or stud-to-top plate connection in addition to fastening rafters or trusses to top plates. The fully-threaded shank engages the entire length of the fastener providing a secure connection. The SDWC is tested in accordance with ICC-ES AC233 *(screw)* and AC13 *(wall assembly)* for uplift and lateral loads between wall plates and vertical wall framing.

See page 184 for more information.

CPTZ Concealed Post Tie

This new concealed post base incorporates a knife plate with a standoff base. They achieve a clean, concealed look while providing a 1" standoff height above concrete. The CPTZ is installed with ½" diameter galvanized pins *(supplied)*. The 1" standoff height is code-required when supporting permanent structures that are exposed to weather or water splash, or in basements. The standoff also reduces the potential for decay at post or column ends.

See page 56 for more information.
(Available May 2013)

DISCONTINUED PRODUCTS

Products that will be discontinued in 2013

Simpson Strong-Tie is dedicated to continuously expanding our line of structural connectors with innovative new products that address the changing needs of our customers. As new connectors are introduced that improve upon older designs, it becomes necessary to discontinue the old versions in the name of efficiency and product-line simplicity.

The table below lists products that are no longer included in the *Wood Construction Connectors* catalog as well as the products recommended to replace them. While technical information for discontinued products will be maintained on our website for a number of months, Simpson Strong-Tie asks that our customers begin to substitute the replacement products shown below in their designs and inventories. While it is hard to say when they will no longer be available from our distribution partners, production of some of these connectors ended in 2012 and others will be phased out of production in 2013. Verify with Designer prior to substituting replacement product for specified product.

For the most current information on discontinued products visit ***www.strongtie.com/discontinued***. If you have questions about any of the products shown below, please call (800) 999-5099 for assistance.

DISCONTINUED PRODUCT		REPLACEMENT PRODUCT *(C-2013 Page #)*	
STRAPS			
 **HSA32** *(HSA41, HSA50, HSA59 and HSA68 similar)*	HSA32 *(Limited availability)*	HDU2-SDS2.5 *(page 46)*	 **HDU4-SDS2.5** *(HDU2, HDU8, HDU11 and HDU14 similar)*
	HSA41 *(Limited availability)*	HDU4-SDS2.5 *(page 46)*	
	HSA50 *(Limited availability)*	HDU8-SDS2.5 *(page 46)*	
	HSA59 *(Limited availability)*	HDU11-SDS2.5 *(page 46)*	
	HSA68 *(Limited availability)*	HDU14-SDS2.5 *(page 46)*	
 **HCST2** *(HCST3, HCST4 similar)*	HCST2 *(No availability)*	HCSTR2 *(page 180)*	 **HCSTR2** *(HCSTR3, HCSTR4 similar)*
	HCST3 *(No availability)*	HCSTR3 *(page 180)*	
	HCST4 *(No availability)*	HCSTR4 *(page 180)*	

DISCONTINUED PRODUCTS

SIMPSON Strong-Tie®

DISCONTINUED PRODUCT		REPLACEMENT PRODUCT *(C-2013 Page #)*
HANGERS		
 **F26P**  **IUS1.56/11.88** *(IUS1.56/19.5 similar)*	F26P →	HF26N *(page 90)*
	IUS1.56/9.5 →	LU210 *(page 69)*
	IUS1.56/11.88 →	LU210 *(page 69)*
 **HF26N**  **LU210**		
PURLIN ANCHORS		
 **PATM25** *(HPAT28, HPAT35, PAT18, PAT23 and PAT28 similar)*	HPAT28 →	HPA28 *(page 54)*
	HPAT35 →	HPA35 *(page 54)*
	PAT18 →	PA18 *(page 54)*
	PAT23 →	PA23 *(page 54)*
	PAT28 →	PA28 *(page 54)*
 **HPA35** *(HPA28 similar)*  **PA18** *(PA23, PA28 similar)*		
TRUSS ANCHORS		
 **META14**	META14 →	META12 or META16 *(page 166)*
 **META12** *(META16 similar)*		
PLATED TRUSS CONNECTORS		
 **TBE4Z** *(TBE6Z similar)*	TBE4Z →	TBE4 *(page 153)*
	TBE6Z →	TBE6 *(page 153)*
 **TBE4** *(TBE6 similar)*		
WEDGE FORM TIE		
 **WT10/125** *(WT12/125 similar)*	WT10/125 →	N/A *(WT10 similar)*
	WT12/125 →	N/A *(WT12 similar)*
N/A		

HOW TO USE THIS CATALOG

- **NEW PRODUCTS**
  New products are shown with the NEW symbol. There are also many new sizes within existing model series.
- **CHANGES IN RED**
  Significant changes from last year's catalog are indicated in red.

VALUE ENGINEERED
This icon indicates a product that is preferable to similar connectors because of a) easier installation, b) higher loads, c) lower installed cost, or a combination of these features.

EXTRA CORROSION PROTECTION
This icon identifies products that are available with additional corrosion protection *(ZMAX®, hot-dip galvanized, stainless steel or the SDS double-barrier coating).* Other products may also be available with additional protection, contact Simpson Strong-Tie for options. The end of the product name will indicate what type of extra corrosion protection is provided *(Z = ZMAX, HDG = hot-dip galvanized or SS = stainless steel).* See page 14-15 for information on corrosion, and visit our website ***www.strongtie.com/info*** for more technical information on this topic.

STRONG-DRIVE® SD SCREW COMPATIBLE
This icon identifies products approved for installation with the Simpson Strong-Tie Strong-Drive® SD structural-connector screw. See page 27 for more information.

HOW WE DETERMINE ALLOWABLE LOADS

Allowable loads in this catalog are determined using calculations and/or one or more of the following methods:

- a minimum of 3 static load tests in wood assemblies;
- a minimum of 3 static load tests in steel jigs;
- a minimum of 3 static load tests of products embedded in concrete or masonry.

Where available, testing is performed to test criteria established by industry *(ASTM or ICC-ES Acceptance Criteria)* or if unavailable testing is per sound engineering principles. Some tests include only portions of a product such as purlin anchor tests—only the embedded hook is tested, not the nailed or bolted section of the strap, which is calculated. Testing to determine allowable loads in this catalog is not done on connection systems in buildings. Testing is conducted under the supervision of an independent laboratory. Typically the allowable load is limited to the lowest of ⅛" deflection, test ultimate/3 or calculation value.

For detailed information regarding how Simpson Strong-Tie tests specific products, contact Simpson Strong-Tie.

CATALOG DEFINITION:

Deflection: The distance a point moves when a load is applied.

Model No.: This is the Simpson Strong-Tie product name.

Nails: This shows the fastener quantity and type required to achieve the table loads.

Allowable Design Loads: The maximum load that a connection is designed to provide. There may be multiple design loads acting in different directions *(up, down, lateral, perpendicular, etc.)* imposed on a connection.

Code Ref: See page 13 for the Code Reference Key Chart, to determine which code reports include this product.

Load Duration: Assumed duration factor used to determine the allowable load.

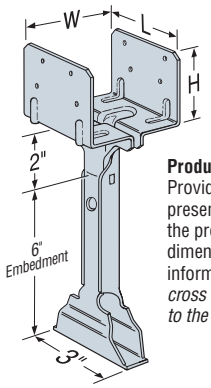
Model No.	W	L	H	Nails	Allowable Loads (DF/SP) (160) Uplift	(160) F_1	(160) F_2	Down (100)	Code Ref.
EPB44A	3⁹⁄₁₆	3	2⅜	8-16d	1100	815	935	2670	IL8
EPB44	3⁹⁄₁₆	3¼	2⁵⁄₁₆	8-16d	800	985	1135	3465	
EPB46	5½	3⁵⁄₁₆	3	12-16d	800	985	1135	3465	
EPB66	5½	5½	3	12-16d	1500	985	1135	3465	

Dimensions W, L, H: This shows the product dimensions *(width, length and height in this case)* referenced in the product drawing.

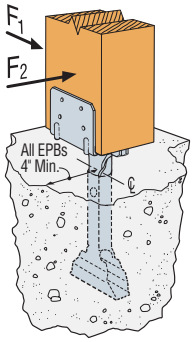
NAILS: 16d = 0.162" dia. x 3½" long. See page 22-23 for other nail sizes and information.

Throughout this catalog a footnote will typically be provided indicating the required nail diameter and length.

All installations should be designed only in accordance with the allowable load values set forth in this catalog.



Product Drawing: Provides a graphic presentation of the product with dimensional information *(often cross referenced to the table).*



CODE REPORTS

CODES

Code Reference Column in Load Tables

The alpha-numeric "Code Reference numbers" that appear in the "Code Reference" column in load tables throughout this catalog are intended to identify products listed in evaluation agency reports, typically called "code reports", and the specific reports that cover them. The letter designates which evaluation agency from which the report was obtained. The Code reference column, used in conjunction with the chart at right, indicates which code listing applies to a product. The reference numbers also clearly identify:

- Products submitted for evaluation report listing (160)
- Products with no evaluation report listing (170)
- Products not submitted because they have no load rating and an evaluation report listing is not necessary (180)
- Products that meet prescriptive or conventional construction code requirements (190)

Where a model has been submitted for listing (160) or does not have an evaluation report listing (170), Simpson Strong-Tie can supply complete test data to support our published loads. Please contact us for a copy of our product test documentation at (800) 999-5099. Product acceptance may be obtained through the Alternate Methods and Materials section of the applicable building code.

Some loads and applications may not be covered in the code report and specific reductions and restrictions may be required by other product evaluation agencies. Visit ***www.strongtie.com*** or visit the product evaluation agencies' web sites for the current evaluation reports.

Simpson Strong-Tie® connectors are recognized by most product evaluation agencies. Agencies that recognize some or all of our products include ICC-ES *(formerly ICBO, BOCA, SBCCI)*; IAPMO UES; the City of Los Angeles, California; and State of Florida.

Multiple types of ICC-ES evaluation reports are shown in the Code Reference Key Chart. ICC-ES NER, ICC-ES ER, and ICC-ES ESR reports are referred to as Legacy Reports and have been obtained over the years to verify that Simpson Strong-Tie products are in compliance with the code. These Legacy reports were evaluated under the 1997 UBC and/or the 2000 IBC codes. In order to obtain evaluation for the newer I-codes, manufacturers must submit for ICC-ES ESR reports.

Simpson Strong-Tie currently maintains more than 50 ICC-ES "ESR" and IAPMO UES ER reports evaluated to the 2006/2009/2012 IBC and IRC. We continue to submit product information to ICC-ES in order to receive additional reports in compliance with these codes.

To help understand which of our stamped and welded connector products are listed in an ESR report, we have obtained an ICC-ES index evaluation services report, ICC-ES ESR-2523, for these products. This report is a reference document to other ESR reports held by Simpson Strong-Tie and will be updated frequently by ICC-ES as new stamped and welded connector evaluation services reports are issued or converted. Please visit ***www.strongtie.com*** for the latest information or contact ICC Evaluation Services at ***www.icc-es.org***.

IAPMO Uniform Evaluation Service has been evaluating products for more than 80 years and has the same ANSI accreditation as ICC Evaluation Services for evaluating structural building products to the building codes. IAPMO UES began evaluating structural building products in 2004, utilizing licensed structural engineers to perform quality reviews, and currently are reviewing many other manufacturers' products. Please visit ***www.strongtie.com*** for the latest information or contact IAPMO Uniform Evaluation Services at ***www.iapmoes.org***.

In November 2007 the Department of State Architecture, California, issued a revised IR 23-1. The Revised Interpretation of Regulation addresses and clarifies issues relating to Pre-fabricated Wood Construction Connectors. IR 23-1 defines the Purpose and Scope and clarifies Listing Requirements, Acceptable Load Capacities, Design Requirements, Installation Requirements and Connector Fabrication which addresses corrosion resistant material and/or coatings. Please contact the DSA at ***www.dsa.dgs.ca.gov/Publications/default.htm*** for more information.

On October 1, 2003, the State of Florida's Statewide Product Approval System became effective. The purpose of this system is to provide a single product evaluation and approval system that applies statewide to operate in coordination with the Florida Building Code. This Florida product evaluation and approval system is governed by Florida Statutes, Chapter 553, Section 553.842. Since this law specifies that the product approval system is to apply statewide, Notice of Acceptance are no longer necessary where a product has a statewide approval that is applicable in the High Velocity Hurricane Zone (HVHZ) and is installed in accordance with its conditions of use.

To access pertinent code reports related to Simpson Strong-Tie® products, you can access our Code Report Finder Software at *www.strongtie.com/software*.

CODE REFERENCE KEY CHART

AGENCY	CODE LISTING	CODE REF.
ICC-ES LEGACY REPORTS	ER1211	IL1
	ER4935	IL2
	ER5313	IL3
	ER5349	IL4
	ER5357	IL5
	ER5655	IL6
	ER5672	IL7
	ER5708	IL8
	ER5709	IL9
	ER5952	IL11
	NER393	IL13
	NER432	IL15
	NER694	IL19
ICC-ES ESR	ESR-1161	I1
	ESR-2203	I2
	ESR-1622	I3
	ESR-2105	I4
	ESR-2236	I5
	ESR-2330	I6
	ESR-2549	I7
	ESR-2551	I8
	ESR-2552	I9
	ESR-2553	I10
	ESR-2554	I11
	ESR-2604	I12
	ESR-2605	I13
	ESR-2606	I14
	ESR-2607	I15
	ESR-2608	I16
	ESR-2613	I17
	ESR-2614	I18
	ESR-2615	I19
	ESR-2616	I20
	ESR-2877	I21
	ESR-2555	I22
	ESR-2611	I23
	ESR-3046	I24
	ESR-2920	I25
	ESR-2320	I26
IAPMO UES ER	ER-112	IP1
	ER-130	IP2
	ER-143	IP3
	ER-192	IP4
	ER-262	IP5
Submitted for Listing	Call us for Status and Test Data	160
No Code Listing	Call us for Test Data	170
No Load Rating	—	180
Prescriptive Code	—	190

AGENCY	CODE LISTING	CODE REF.
City of Los Angeles, California	RR 25711	L1
	RR 25712	L2
	RR 25713	L3
	RR 25714	L4
	RR 25716	L5
	RR 25718	L6
	RR 25719	L7
	RR 25720	L8
	RR 25725	L9
	RR 25726	L10
	RR 25800	L11
	RR 25801	L12
	RR 25803	L14
	RR 25804	L15
	RR 25806	L16
	RR 25807	L17
	RR 25814	L18
	RR 25818	L19
	RR 25827	L20
	RR 25828	L21
	RR 25851	L22
State of Florida	FL10849	F1
	FL10852	F2
	FL10854	F3
	FL11496	F4
	FL10441	F5
	FL10655	F6
	FL10447	F7
	FL10531	F8
	FL10856	F9
	FL10444	F10
	FL10860	F11
	FL10861	F12
	FL10446	F13
	FL15895	F14
	FL10864	F15
	FL10456	F16
	FL10865	F17
	FL10667	F18
	FL10866	F19
	FL9589	F20
	FL11166	F21
	FL11169	F22
	FL11468	F23
	FL13904	F24
	FL11478	F25
	FL11470	F26
	FL11473	F27
	FL12708	F28
	FL13326	F29
	FL13628	F30
	FL14101	F31
	FL13975	F32
	FL14571	F33
	FL15957	F34

* Because code reports can be issued throughout the year, we encourage the user to visit ***www.strongtie.com***, ***www.icc-es.org***, ***www.iapmoes.org***, ***www.ladbs.org***, ***www.dsa.dgs.ca.gov***, and ***www.floridabuilding.org*** for the most current information, call Simpson Strong-Tie at 800-999-5099, or contact the code agency directly.

CORROSION INFORMATION

Understanding the Issues

Metal connectors, anchors, and fasteners will corrode and may lose load-carrying capacity when installed in corrosive environments or exposed to corrosive materials. There are many environments and materials which may cause corrosion including ocean salt air, fire retardants, fumes, fertilizers, preservative-treated wood, dissimilar metals, and other corrosive elements.

The many variables present in a single building environment make it impossible to accurately predict if, or when, significant corrosion will begin or reach a critical level. This relative uncertainty makes it crucial that specifiers and users be knowledgeable of the potential risks and select a product coating or metal suitable for the intended use. It is also important that regular maintenance and periodic inspections are performed, especially for outdoor applications.

It is common to see some corrosion on connectors especially in outdoor applications. Even stainless steel can corrode. The presence of some corrosion does not mean that load capacity has necessarily been affected or that a failure will occur. If significant corrosion is apparent or suspected, then the wood, fasteners and connectors should be inspected by a professional engineer or general contractor and may need to be replaced.

Preservative-treated wood formulations have changed significantly and some of the new formulations are more corrosive to steel connectors and fasteners than the traditionally used formulation of CCA-C. Simpson Strong-Tie testing has shown that ACQ-C, ACQ-D (Carbonate) and CA-B treated woods are approximately 2 times more corrosive than CCA-C, while SBX-DOT (Sodium Borate) treated woods were shown to be less corrosive than CCA-C. Refer to technical bulletin T-PTWOOD for more information.

Due to the many different preservative formulations, fluctuating retention levels, moisture content, and because the formulations may vary regionally, or change without warning, understanding which connectors and fasteners to use with these materials has become a complex task. We have attempted to provide basic knowledge on the subject here, but it is important to fully educate yourself by reviewing our technical bulletins on the topic, and also by viewing information and literature provided by others. This information pertains to Simpson Strong-Tie® connectors only. For corrosion information on other product lines, such as fasteners, see the specific Simpson Strong-Tie product line catalogs. Additionally, because the issue is evolving, it is important to get the very latest connector information on the topic by visiting our website at ***www.strongtie.com/info***.

Stainless steel is always the most effective solution to corrosion risk. However, it is also more expensive and sometimes more difficult to obtain. To best serve our customers, Simpson Strong-Tie is evaluating the options to identify the safest and most cost-effective solutions. Based on our testing and experience there are some specific applications that are appropriate for ZMAX/HDG or G90 connectors *(see chart below)*.

Because increased corrosion from some newer preservative-treated wood is a new issue with little historical data, we have to base our recommendations on the testing and experience we have to date. It is possible that as we learn more, our recommendations may change, but these recommendations are based on the best information we have at this time.

See *www.strongtie.com/info* for additional critical information.

General Simpson Strong-Tie Recommendations

- Outdoor environments are generally more corrosive to steel. If you choose to use ZMAX® or HDG finish on an outdoor project *(i.e. deck, patio cover)*, you should periodically inspect your connectors and fasteners or have a professional inspection performed. Regular maintenance including water-proofing of the wood used in your outdoor project is also a good practice.
- For wood with actual retention levels greater than 0.40 pcf for ACQ, 0.34 for MCQ, 0.21 pcf for CA-B, 0.15 pcf for CA-C and MCA or 0.14 pcf for µCA-C (Ground Contact), stainless-steel connectors and fasteners are recommended. Verify actual retention level with the wood treater.
- When using stainless-steel connectors, use stainless-steel fasteners. When using applications require the use of ZMAX/HDG galvanized connectors, use fasteners with a coating that meets the specifications of ASTM A153 or equivalent coating offered on Simpson Strong-Tie® fasteners.
- Testing indicates wood installed dry *(moisture content less than 19%)* reduces potential corrosion. If dry wood is used, see our website for additional information.
- Using a barrier membrane can provide additional corrosion protection, see technical bulletin T-PTBARRIER.

Due to the many variables involved, Simpson Strong-Tie cannot provide estimates on service life of connectors, anchors or fasteners. We suggest that all users and Designers also obtain recommendations for HDG, ZMAX (G185), mechanically galvanized, or other coatings from the treated wood supplier for the type of wood used. However, as long as Simpson Strong-Tie recommendations are followed, we stand behind product performance and our standard warranty applies.

COATINGS AVAILABLE

Not all products are available in all finishes.
Contact Simpson Strong-Tie for product availability, ordering information and lead times.

Finish/Material	Description	Level of Corrosion Resistance
Gray Paint	Water-based paint intended to protect the product while it is warehoused and in transit to the jobsite.	Low
Powder Coating	Baked on paint finish that is more durable than our standard paint and produces a better looking finished product.	Low
Standard G90 Zinc Coating	Zinc galvanized coating containing 0.90 oz. of zinc per square foot of surface area *(total both sides)*.	Low
ZMAX G185	Galvanized (G185) 1.85 oz. of zinc per square foot of surface area *(hot-dip galvanized per ASTM A653 total both sides)*. These products require hot-dip galvanized fasteners *(fasteners which meet the specifications of ASTM A153)*.	Medium
HDG HOT-DIP GALVANIZED	Products are hot-dip galvanized after fabrication (14 ga. and thicker). The coating weight increases with material thickness. The minimum specified coating weight is 2.0 oz./ft² *(per ASTM A123 total both sides)*. These products require hot-dip galvanized fasteners *(fasteners which meet the specifications of ASTM A153)*.	Medium
Type 410 Stainless Steel with Protective Top Coat	Carbon martensitic grade of stainless steel which is inherently magnetic, with an added protective top coat. This material can be used in mild atmospheres and many mild chemical environments.	Medium
Mechanically-Galvanized Coating, Class 55 *(SD screws)*	Simpson Strong-Tie Strong-Drive® SD structural-connector screws are manufactured with a mechanically-applied zinc coating in accordance with ASTM B695, Class 55 with a supplemental overcoat. These fasteners are compatible with painted and zinc-coated (G90 and ZMAX) connectors.	Medium
Double-Barrier Coating *(SDS Screws)*	Simpson Strong-Tie Strong-Drive SDS screws are manufactured with two different finishes that together provide a level of corrosion protection that equals that provided by the previous HDG coating.	Medium
SSt300 STAINLESS STEEL	Connectors are manufactured from Type 316L stainless steel, and provide greater durability against corrosion. Stainless-steel nails are required with stainless-steel products, and are available from Simpson Strong-Tie.	High

See Corrosion Information for more specific performance and application information on these finishes.

CORROSION INFORMATION

Guidelines for Selecting the Proper Connector

1. Evaluate the Application.
Consider the type of connection and how critical it is. These recommendations may not apply to non-structural applications such as fences.

2. Evaluate the Environment.
Testing and experience indicate that indoor dry environments are less corrosive than outdoor environments. Determining the type of environment where a fastener will be used is an important factor in selecting the most appropriate material and coating for fastener use. To help in your decision making, consider the following general exposure information:

Interior Dry Use: Includes wall and ceiling cavities, and raised floor applications in enclosed buildings that have been designed to ensure that condensation and other sources of moisture do not develop. Prolonged exposure during construction should also be considered, as this may constitute an exterior-wet or higher exposure.

Exterior – Dry: Includes outdoor installations in low rainfall environments and no regular exposure to moisture.

Exterior – Wet: Includes outdoor installations in higher moisture and rainfall environments.

Higher Exposure Use: Includes exposure to ocean salt air, de-icing salts, fire retardants, large bodies of water *(e.g. dock boards)*, fumes, fertilizers, soil, some preservative-treated woods, industrial zones, acid rain, and other corrosive elements.

3. Evaluate the material to be fastened.
When fastening most untreated wood and other common building materials, additional corrosion risk caused by the fastened material is not a significant factor. For preservative-treated wood applications, proceed to step four otherwise proceed to step five.

When fastening dissimilar metals carefully consider the correct combination of fastener and material necessary to avoid galvanic corrosion.

4. Familiarize yourself with the preservative-treated wood.
The preservative-treated-wood supplier should provide all of the pertinent information about the wood being used. This information should include the specific type of wood treatment used, if ammonia was used in the treatment and the chemical retention level. If this information is not available, then Simpson Strong-Tie Company Inc. recommends stainless steel connectors and fasteners. It is also advisable to obtain a recommendation from the treated-wood supplier for a fastener coating or material that is suitable for use with their formulation in the intended environment. If this recommendation differs from those shown in the table below, Simpson Strong-Tie Company Inc. recommends that the most conservative recommendation be followed.

5. Use the Environment/Treatment Classification Chart below to match the classification for the environment and base material application. Then use the Materials and Coatings Available listing on page 14 to select the proper coating or material.
If the material or preservative-treated wood product to be used is not show on the chart, Simpson Strong-Tie has not evaluated it and cannot make any other recommendation than the use of coatings/materials shown in the "high" category shown below. Manufacturers may independently provide test results or other product use information; Simpson Strong-Tie Company Inc. expresses no opinion regarding such information.

Environment/Treatment Classification Chart

Environment	Material to be Fastened							
	Untreated Wood or Other Material	Preservative-Treated Wood					ACZA	Other or Uncertain
		SBX/DOT & Zinc Borate	MCQ/ MCA	ACQ-C, ACQ-D (Carbonate), CA-B, CA-C/μCA-C				
				Without Ammonia	With Ammonia	Higher Chemical Content		
Interior Dry	Low	Low	Low	Med[3]	Med	High	High	High
Exterior-Dry	Low	N/A	Med	Med	High	High	High	High
Exterior-Wet	Med	N/A	Med	Med	High	High	High	High
Higher Exposure	High	N/A	High	High	High	High	High	High
Uncertain	High	High	High	High	High	High	High	High

1. Higher chemical content refers to wood for ground contact with actual retention levels greater than 0.40 pcf for ACQ, 0.34 pcf for MCQ, 0.21 pcf for CA-B, 0.15 pcf for CA-C and MCA, or 0.14 pcf for μCA-C. In these cases, stainless-steel products are recommended. Verify actual retention levels with the wood treater.
2. Borate treated woods are not appropriate for outdoor use.
3. Where noted in the table, applications where the wood is dry *(moisture content less than 19%)* when installed and will remain dry in-service may use a minimum classification coating recommendation of "Low" for connectors.
4. Some treated wood may have excess surface chemicals making it potentially more corrosive. If uncertain, use types 304/305/316 stainless steel products.
5. Test results indicate that ZMAX®, hot-dip galvanized, mechanically galvanized *(class 55 and 65)* and double-barrier coatings *(SDS screws)* will perform adequately, subject to regular maintenance and periodic inspection. However, the test protocol followed was a modified version of the nationally recognized test method AWPA E12-94. This test method is an accelerated test, so data over an extended period of time is not available. Also noteworthy is that tests run in a laboratory may not correlate to service conditions. If uncertain, use stainless steel.
6. Type 316 stainless-steel products are the minimum recommendation for ocean-salt air and other chloride environments.
7. Ammonia is typically used as a chemical carrier for difficult to treat wood species, such as, but not exclusive to, Douglas Fir and Hem Fir, which are usually found in the western United States. Amine carriers are used in some of the eastern species, such as Southern Yellow Pine. If uncertain, verify chemical with wood treater.
8. Exterior Dry applications only apply to connectors. For anchors, use Exterior Wet for any exterior application.
9. Mechanically galvanized Titen HD® anchors *(medium classification)* are only recommended for temporary exterior applications.

For the latest Simpson Strong-Tie® coating information and additional technical information on this topic, visit our website at ***www.strongtie.com/info***.

Interior Dry

Exterior

Higher Exposure

IMPORTANT INFORMATION & GENERAL NOTES

WARNING

Simpson Strong-Tie Company Inc. structural connectors, anchors, and other products are designed and tested to provide specified design loads. To obtain optimal performance from Simpson Strong-Tie Company Inc. products and achieve maximum allowable design load, the products must be properly installed and used in accordance with the installation instructions and design limits provided by Simpson Strong-Tie Company Inc. To ensure proper installation and use, Designers and installers must carefully read the following General Notes, General Instructions for the Installer and General Instructions tor the Designer, as well as consult the applicable catalog pages for specific product installation instructions and notes.

Proper product installation requires careful attention to all notes and instructions, including these basic rules:

1. Be familiar with the application and correct use of the connector.
2. Follow all installation instructions provided in the applicable catalog, website, *Installer's Pocket Guide* or any other Simpson Strong-Tie publications.
3. Install all required fasteners per installation instructions provided by Simpson Strong-Tie Company Inc.: a) use proper fastener type; b) use proper fastener quantity; c) fill all fastener holes; d) do not overdrive or underdrive nails, including when using gun nailers; and e) ensure screws are completely driven.
4. Only bend products that are specifically designed to be bent. For those products that required bending, do not bend more than once.
5. Cut joists to the correct length, do not "short-cut". The gap between the end of the joist and the header material should be no greater than ⅛" unless otherwise noted.

In addition to following the basic rules provided above as well as all notes, warnings and instructions provided in the catalog, installers, designers, engineers and consumers should consult the Simpson Strong-Tie Company Inc. website at ***www.strongtie.com*** to obtain additional design and installation information, including:

- Instructional builder/contractor training kits containing an instructional video, an instructor guide and a student guide in both English and Spanish;
- *Installer's Pocket Guide* (form S-INSTALL, see page 229 for details) which is designed specifically for installers and uses detailed graphics and minimal text in both English and Spanish to explain visually how to install many key products;
- Information on workshops Simpson Strong-Tie conducts at various training centers throughout the country;
- Product specific installation videos;
- Specialty catalogs;
- Code reports – Simpson Strong-Tie® Code Report Finder software;
- Technical fliers and bulletins;
- Master format specifications;
- Material safety data sheets;
- Corrosion information;
- Connector selection guides for engineered wood products *(by manufacturer)*;
- Simpson Strong-Tie Connector Selector™ software;
- Simpson Strong-Tie Autocad menu;
- Simpson Strong-Tie Strong-Wall® Selector software;
- Simpson Strong-Tie Anchor Tiedown System Selector and anchor-related software; and
- Answers to frequently asked questions and technical topics.

Failure to follow fully all of the notes and instructions provided by Simpson Strong-Tie Company Inc. may result in improper installation of products. Improperly installed products may not perform to the specifications set forth in this catalog and may reduce a structure's ability to resist the movement, stress, and loading that occurs from gravity loads as well as impact events such as earthquakes and high velocity winds.

Simpson Strong-Tie Company Inc. does not guarantee the performance or safety of products that are modified, improperly installed or not used in accordance with the design and load limits set forth in this catalog.

GENERAL NOTES

These general notes are provided to ensure proper installation of Simpson Strong-Tie Company Inc. products and must be followed fully.

a. Simpson Strong-Tie Company Inc. reserves the right to change specifications, designs, and models without notice or liability for such changes.

b. Steel used for each Simpson Strong-Tie® product is individually selected based on the product's steel specifications, including strength, thickness, formability, finish, and weldability. Contact Simpson Strong-Tie for steel information on specific products.

c. Unless otherwise noted, dimensions are in inches, loads are in pounds.

d. Unless otherwise noted, welds, screws, bolts and nails may not be combined to achieve highest load value. 8d (0.131"x2½"), 10d (0.148"x3"), and 16d (0.162"x3½") specify common nails that meet the requirements of ASTM F1667. When a shorter nail is specified, it will be noted *(for example 8dx1½)*. Refer to Simpson Strong-Tie Nailing Guide, NDS *(National Design Specification)* and ASTM F1667 *(American Society of Testing and Materials)* for more nail info.

e. Do Not Overload. Do not exceed catalog allowable loads, which would jeopardize the connection.

f. Unless otherwise noted, allowable loads are for Douglas Fir-Larch under continuously dry conditions. Allowable loads for other species or conditions must be adjusted according to the code. In many cases, Simpson Strong-Tie code reports will indicate loads derived from Doug Fir header material only. However under ICC-ES AC13, loads for Douglas Fir are the same as LVL, LSL, PSL, Glulam's and Southern Pine, since the specific gravity of these wood species fall within the specific gravity range of the AC13 criteria. The section from the AC13 criteria indicating the range of specific gravity reads as follows: **3.2.3** The species of lumber used shall have a specific gravity not greater than 0.55 as determined in accordance with the NDS. This chart shows specific gravity for the different wood species:

Species	Fc⊥	Specific Gravity
Douglas Fir-Larch (DF)	625 psi	0.50
Southern Pine (SP)	565 psi	0.55
Spruce-Pine-Fir (SPF)	425 psi	0.42
Hem Fir (HF)	405 psi	0.43
Glulam	650 psi	0.50
LVL (DF/SP)	750 psi	0.50
LSL (E=1.3x10^6)	680 psi	0.50
LSL (E≥1.5x10^6)	880 psi	0.50
Parallam® PSL	750 psi	0.50

g. Simpson Strong-Tie Company Inc. will manufacture non-catalog products provided prior approval is obtained and an engineering drawing is included with the order. Steel specified on the drawings as ⅛", 3⁄16", and ¼" will be 11 gauge (0.120"), 7 ga (0.179"), and 3 gauge (0.239"), respectively. The minimum yield and tensile strengths are 33 ksi and 52 ksi, respectively.

h. All references to bolts or machine bolts (MBs) are for structural quality through bolts *(not lag screws or carriage bolts)* equal to or better than ASTM Standard A307, Grade A.

i. Unless otherwise noted, bending steel in the field may cause fractures at the bend line. Fractured steel will not carry load and must be replaced.

j. A fastener that splits the wood will not take the design load. Evaluate splits to determine if the connection will perform as required. Dry wood may split more easily and should be evaluated as required. If wood tends to split, consider pre-boring holes with diameters not exceeding .75 of the nail diameter (2005 NDS 11.1.5.3). Use a 5⁄32" bit for SDS screws and a 3⁄32" bit for SD9/SD10 screws.

k. Wood shrinks and expands as it loses and gains moisture, particularly perpendicular to its grain. Take wood shrinkage into account when designing and installing connections. Simpson Strong-Tie manufactures products to fit common dry lumber dimensions. If you need a connector with dimensions other than those listed in this catalog, Simpson Strong-Tie may be able to vary connector dimensions; contact Simpson Strong-Tie. The effects of wood shrinkage are increased in multiple lumber connections, such as floor-to-floor installations. This may result in the vertical rod nuts becoming loose, requiring post-installation tightening. *(Contact Simpson Strong-Tie for information on Takeup Devices.)*

l. Top flange hangers may cause unevenness. Possible remedies should be evaluated by a professional and include using a face mount hanger, and routering the beam or cutting the subfloor to accommodate the top flange thickness.

m. Built-up lumber *(multiple members)* must be fastened together to act as one unit to resist the applied load *(excluding the connector fasteners)*. This must be determined by the Designer/Engineer of Record.

n. Some model configurations may differ from those shown in this catalog. Contact Simpson Strong-Tie for details.

o. Hanger Options *(Simpson Strong-Tie Hanger Options Matrix and Hanger Option General Notes pages 215-224)* – some combinations of

GENERAL NOTES (cont.)

hanger options are not available. In some cases, combinations of these options may not be installable. Horizontal loads induced by sloped joists must be resisted by other members in the structural system. A qualified Designer must always evaluate each connection, including carried and carrying member limitations, before specifying the product. Fill all fastener holes with fastener types specified in the tables, unless otherwise noted. Hanger configurations, height, and fastener schedules may vary from the tables depending on joist size, skew and slope. See the allowable table load for the non-modified hanger, and adjust as indicated. Gauge may vary from that specified depending on the manufacturing process used.

p. Simpson Strong-Tie will calculate the net height for a sloped seat. The customer must provide the H1 joist height before slope.

q. Truss plates shown are the responsibility of the Truss Designer.

r. Do not weld products listed in this catalog unless this publication specifically identifies a product as acceptable for welding, or unless specific approval for welding is provided in writing by Simpson Strong-Tie. Some steels have poor weldability and a tendency to crack when welded. Cracked steel will not carry load and must be replaced. See Simpson Strong-Tie Hanger Options Matrix and Hanger Option General Notes pages 215-224 for hangers that may be welded.

s. Unless noted otherwise, all references to standard cut washers refer to Type A plain washers (W) conforming to the dimensions shown in ASME B18.22.1 for the appropriate rod size in accordance with 2012 NDS Appendix L. Some products require SAE narrow washers (N) to fit in a tight space and are noted accordingly.

GENERAL INSTRUCTIONS FOR THE INSTALLER

These general instructions for the installer are provided to ensure proper selection and installation of Simpson Strong-Tie Company Inc. products and must be followed carefully. These general instructions are in addition to the specific installation instructions and notes provided for each particular product, all of which should be consulted prior to and during installation of Simpson Strong-Tie Company Inc. products.

a. All specified fasteners must be installed according to the instructions in this catalog. Incorrect fastener quantity, size, placement, type, material, or finish may cause the connection to fail. Prior to using a particular fastener, please consult the Fastener Guide in this catalog.
   - 16d fasteners are common nails (0.162" dia. x 3½" long) and cannot be replaced with 16d sinkers (0.148" dia. x 3¼" long) for full load value unless otherwise specified.
   - Unless otherwise noted screws may not be used to replace nails in connectors unless approved and recommended by the Designer/Engineer of Record. Unless stated otherwise, Simpson Strong-Tie cannot and does not make any representations regarding the suitability of use or load-carrying capacities of connectors with screws replacing nails.
   - When using stainless-steel connectors, use stainless-steel fasteners. When using ZMAX®/HDG galvanized connectors, use fasteners that meet the zinc coating specifications of ASTM A153 or other fasteners allowed in this catalog.

b. Fill all fastener holes as specified in the installation instructions for that product. Refer to page 23 for the requirements of the various shapes of fastener hole.

c. Do not overdrive nails. Overdriven nails reduce shear capacity.

d. Use the materials specified in the installation instructions. Substitution of or failure to use specified materials may cause the connection to fail.

e. Do not add fastener holes or otherwise modify Simpson Strong-Tie Company Inc. products. The performance of modified products may be substantially weakened. Simpson Strong-Tie will not warrant or guarantee the performance of such modified products.

f. Install products in the position specified in the catalog.

g. Do not alter installation procedures from those set forth in this catalog.

h. The proper use of certain products requires that the product be bent. For those products, installers must not bend the product more than one time *(one full cycle)*.

i. Bolt holes shall be at least a minimum of 1/32" and no more than a maximum of 1/16" larger than the bolt diameter *(per the 2005 NDS, section 11.1.2. and AISI NASPEC, section E3a if applicable)*.

j. Install all specified fasteners before loading the connection.

k. Some hardened fasteners may have premature failure if exposed to moisture. These fasteners are recommended to be used in dry interior applications.

l. Use proper safety equipment.

m. Welding galvanized steel may produce harmful fumes; follow proper welding procedures and safety precautions. Welding should be in accordance with A.W.S. *(American Welding Society)* standards. Unless otherwise noted Simpson Strong-Tie® connectors cannot be welded.

n. Pneumatic or powder-actuated fasteners may deflect and injure the operator or others. Pneumatic nail tools may be used to install connectors, provided the correct quantity and type of nails *(length and diameter)* are properly installed in the nail holes. Tools with nail hole-locating mechanisms should be used. Follow the manufacturer's instructions and use the appropriate safety equipment. Overdriving nails may reduce allowable loads. Contact Simpson Strong-Tie. Powder-actuated fasteners should not be used to install connectors.

o. Joist shall bear completely on the connector seat, and the gap between the joist end and the header shall not exceed 1/8" per ICC-ES AC261, ASTM D1761 and ASTM D7147 test standards *(unless specifically noted otherwise)*.

p. For holdowns, anchor bolt nuts should be finger-tight plus 1/3 to 1/2 turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used as they may preload the holdown.

q. Holdowns and Tension Ties may be raised off the sill as dictated by field conditions to accommodate an anchor mislocated no more than 1½". The holdown shall be raised off the sill at least 3" for every ¼" that the anchor is offset from the model's centerline. Anchor bolt slope shall be no greater than 1:12 *(or 5 degrees)*. Contact the Designer if the holdown anchor is offset more then 1½" or raised more than 6". Raised holdown height is measured from the top of concrete to the top of the holdown bearing plate.

r. Fasteners are permitted to be installed through metal truss plates when approved by the Truss Designer in accordance with ANSI/TPI 1-2007, Section 7.5.3.4 and 8.9.2. Installation of Simpson Strong-Tie® Strong-Drive® screws (SDS) through metal connector plates requires the plates to be pre-drilled using a maximum of a 5/32" bit. Do not drive nails through the truss plate on the opposite side of single-ply trusses which could force the plate off the truss.

s. For cold-formed steel applications, all screws shall be installed in accordance with the screw manufacturer's recommendations. All screws shall penetrate and protrude through the joined materials a minimum of 3 full exposed threads per AISI Standard for Cold Formed Steel Framing – General Provisions, section D1.3, if applicable.

t. Nuts shall be installed such that the end of the threaded rod or bolt is at least flush with the top of the nut.

u. When installing hurricane ties on the inside of the wall special considerations must be taken to prevent condensation on the inside of the completed structure in cold climates.

v. Unless otherwise noted, connectors shown in this catalog have been designed to be installed at the time the framing members are installed. Contact Simpson Strong-Tie for retrofit suitability of specific connectors including those manufactured in accordance with the hanger options section of this catalog.

IMPORTANT INFORMATION & GENERAL NOTES

GENERAL INSTRUCTIONS FOR THE DESIGNER

These general instructions for the Designer are provided to ensure proper selection and installation of Simpson Strong-Tie Company Inc. products and must be followed carefully. These general instructions are in addition to the specific design and installation instructions and notes provided for each particular product, all of which should be consulted prior to and during the design process.

a. The term "Designer" used throughout this catalog is intended to mean a licensed/certified building design professional, a licensed professional engineer, or a licensed architect.

b. All connected members and related elements shall be designed by the Designer.

c. All installations should be designed only in accordance with the allowable load values set forth in this catalog.

d. Unless otherwise noted, connector allowable loads published in this catalog are limited to the lowest of: average recorded test load at ⅛" deflection, lowest ultimate recorded test load of 3 tests specimens divided by 3 *(or the average of 6 specimens divided by 3)*, or the calculated value based on steel, wood bearing, and/or fastener capacity.

e. 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:

Design Uplift/Allowable Uplift + Design Lateral Parallel to Plate / Allowable Lateral Parallel to Plate + Design Lateral Perpendicular to Plate / Allowable Lateral Perpendicular to Plate < 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 166 and 167, seismic and hurricane ties, pages 164-165, and twist straps, page 187)* 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.

f. Loads are based on the 2005 National Design Specifications (NDS) and the 2001 AISI Standard - North American Specification for the Design of Cold-Formed Steel Structural Members (NASPEC) if applicable, unless otherwise specified. Other code agencies may use different allowable loads.

g. Duration of load adjustments as specified by the code are as follows:
"FLOOR" and "DOWN" (100)—no increase for duration of load.
"SNOW" (115)—115% of design load for 2 month duration of load.
"ROOF LOAD" (125)—125% of design load for 7 day duration of load.
"EARTHQUAKE/WIND" (160)—160% of design load for earthquake/wind loading.

h. Unless otherwise noted, wood shear is not considered in the loads given; reduce allowable loads when wood shear is limiting.

i. Simpson Strong-Tie strongly recommends the following addition to construction drawings and specifications: "Simpson Strong-Tie® connectors are specifically required to meet the structural calculations of plan. Before substituting another brand, confirm load capacity based on reliable published testing data or calculations. The Engineer/Designer of Record should evaluate and give written approval for substitution prior to installation."

j. Verify that the dimensions of the supporting member are sufficient to receive the specified fasteners, and develop the top flange bearing length.

k. Some catalog illustrations show connections that could cause cross-grain tension or bending of the wood during loading if not sufficiently reinforced. In this case, mechanical reinforcement should be considered.

l. For holdowns, anchor bolt nuts should be finger-tight plus ⅓ to ½ turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used as they may preload the holdown.

m. Simpson Strong-Tie will provide upon request code testing data on all products that have been code tested.

n. The allowable loads published in this catalog are for use when utilizing the traditional Allowable Stress Design methodology. A method for using Load and Resistance Factor Design (LRFD) for wood has been published in AF&PA/ASCE 16. A method for using LRFD for cold-formed steel has also been published in the 2001 AISI NASPEC. When designing with LRFD, reference lateral resistances must be used. Contact Simpson Strong-Tie for reference lateral resistances of products listed in this catalog. For more information, refer to the American Forest and Paper Association "Guideline to Pre-engineered Metal Connectors" and ASCE 16. The "Guideline" contains a soft-conversion procedure that can be used to derive reference lateral resistances.

o. For joist hangers, Simpson Strong-Tie recommends the hanger height shall be at least 60% of joist height for stability.

p. For cold-formed steel applications, as a minimum all screws must comply with Society of Automotive Engineers (SAE) Standard J78, Steel Self-Drilling/Tapping Screws, and must have a Type II coating in accordance with ASTM B 633, Electrodeposited Coatings of Zinc on Iron and Steel. Screw strength shall be calculated in accordance with 2001 AISI NASPEC Section E4, if applicable, or shall be based on the manufacturer's design capacity determined from testing.

q. Local and/or regional building codes may require meeting special conditions. Building codes often require special inspection of anchors installed in concrete and masonry. For compliance with these requirements, it is necessary to contact the local and/or regional building authority. Except where mandated by code, Simpson Strong-Tie products do not require special inspection.

r. Holdown and Tension Tie allowable loads are based on installations with an anchor rod length of 6" from the concrete to top of holdown seat, yet these products may be raised to any height with consideration of the increased deflection due to additional bolt elongation. For cases where the anchor bolt is offset, Simpson Strong-Tie offers recommendations, subject to the approval of the Designer, which permit holdowns to be raised up to 18" maximum with a corresponding horizontal anchor bolt offset of 1½". See "General Instructions for the Installer" *(page 17 note q)*.

s. Throughout the catalog there are installation drawings showing the load transfer from one element in the structure to another. Additional connections may be required to safely transfer the loads through the structure. It is the Designer's responsibility to specify and detail all necessary connections to ensure that a continuous load path is provided as required by the building code.

t. Top flange hanger allowable loads are typically based on testing with solid headers. Load reductions may apply when using headers comprised of multiple plies of dimensioned lumber or SCL. See technical bulletin T-MPLYHEADER for more information *(see page 231 for details)*.

IMPORTANT INFORMATION & GENERAL NOTES

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 catalog. 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 *www.strongtie.com* for current information.

TERMS & CONDITIONS OF SALE

PRODUCT USE

Products in this catalog are designed and manufactured for the specific purposes shown, and should not be used with other connectors not approved by a qualified Designer. Modifications to products or changes in installations should only be made by a qualified Designer. The performance of such modified products or altered installations is the sole responsibility of the Designer.

INDEMNITY

Customers or Designers modifying products or installations, or designing non-catalog products for fabrication by Simpson Strong-Tie Company Inc. shall, regardless of specific instructions to the user, indemnify, defend, and hold harmless Simpson Strong-Tie Company Inc. for any and all claimed loss or damage occasioned in whole or in part by non-catalog or modified products.

NON-CATALOG AND MODIFIED PRODUCTS

Consult Simpson Strong-Tie Company Inc. for applications for which there is no catalog product, or for connectors for use in hostile environments, with excessive wood shrinkage, or with abnormal loading or erection requirements.

Non-catalog products must be designed by the customer and will be fabricated by Simpson Strong-Tie in accordance with customer specifications.

Simpson Strong-Tie cannot and does not make any representations regarding the suitability of use or load-carrying capacities of non-catalog products. Simpson Strong-Tie provides no warranty, express or implied, on non-catalog products. F.O.B. Shipping Point unless otherwise specified.

CONVERSION CHARTS

Metric Conversion

Imperial	Metric
1 in	25.40 mm
1 ft	0.3048 m
1 lb	4.448N
1 Kip	4.448 kN
1 psi	6895 Pa

Bolt Diameter

in.	mm
⅜	9.5
½	12.7
⅝	15.9
¾	19.1
⅞	22.2
1	25.4

If Common Rafter Roof Pitch is…

Rise/Run	Slope
1/12	5°
2/12	10°
3/12	14°
4/12	18°
5/12	23°
6/12	27°
7/12	30°
8/12	34°
9/12	37°
10/12	40°
11/12	42°
12/12	45°

Then Hip/Valley Rafter Roof Pitch becomes…

Rise/Run	Slope
1/17	3°
2/17	7°
3/17	10°
4/17	13°
5/17	16°
6/17	19°
7/17	22°
8/17	25°
9/17	28°
10/17	30°
11/17	33°
12/17	35°

→ Use these Roof Pitch to Hip/Valley Rafter Roof Pitch conversion tables only for hip/valley rafters that are skewed 45° right or left. All other skews will cause the slope to change from that listed.

US Standard Steel Gauge Equivalents in Nominal Dimensions

Ga	Min. Thick. (mils)	Approximate Dimensions		Decimals (in.)		
		in.	mm	Uncoated Steel	Galvanized Steel (G90)	ZMAX (G185)
3	229	¼	6.0	0.239	—	—
7	171	3/16	4.5	0.179	0.186	—
10	118	9/64	3.5	0.134	0.138	0.140
11	111	⅛	3.1	0.120	0.123	0.125
12	97	7/64	2.7	0.105	0.108	0.110
14	68	5/64	2.0	0.075	0.078	0.080
16	54	1/16	1.6	0.060	0.063	0.065
18	43	3/64	1.3	0.048	0.052	0.054
20	33	1/32	1.0	0.036	0.040	0.042
22	27	1/32	1.0	0.030	0.033	0.035

Steel thickness varies according to mill standards.

INTEGRATED COMPONENT SYSTEMS

New Program Blends Truss Expertise, Technology and State-of-the-Art Manufacturing

As a supplier of connectors for trusses and engineered-wood products, Simpson Strong-Tie has been involved in the structural building component industry for decades. This experience has provided invaluable insights into the needs of the component manufacturer and resulted in the latest addition to the Simpson Strong-Tie® product line for light-frame construction.

For more information about Simpson Strong-Tie Integrated Component Systems, visit ***www.strongtie.com***.

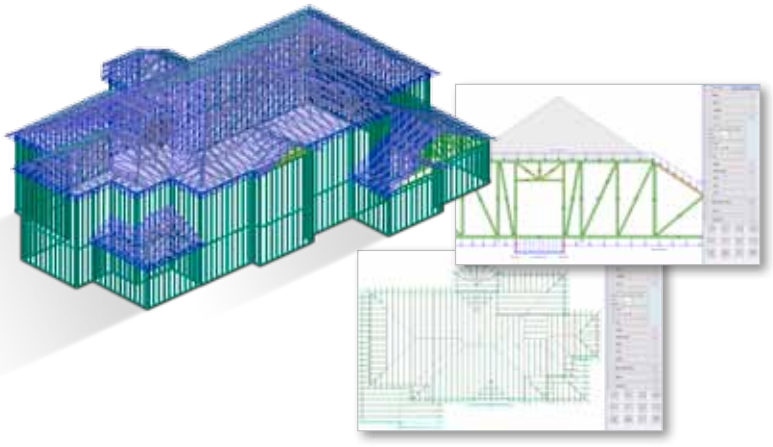
Simpson Strong-Tie Integrated Component Systems

We have created a powerful program that provides manufacturers with the tools they need to efficiently design and manufacture trusses.

- User-friendly Simpson Strong-Tie Component Solutions™ software
- A full line of high-quality, code-listed truss connector plates
- Comprehensive training designed to get users up and running quickly, minimizing the impact of a transition on your business
- Industry-leading customer service from the office and manufacturing plant to the jobsite and every point in between
- Leverage the wide range of Simpson Strong-Tie structural connector and fastening solutions to create value for your customer

Component Solutions™ Software for Roof and Floor Trusses and Wall Panels

Our new Components Solutions software brings precision and efficiency to the truss design by first modeling structures in an intuitive 3-D environment. The software then creates truss and panel designs and optimizes them for production efficiency. With a design in place, costs can be estimated before sent off for manufacturing.



Full line of High-Quality, Code-Listed Truss Connector Plates

When it comes to manufacturing metal connectors, our new connector-plate-manufacturing facility incorporates state-of-the art technology to consistently produce top-quality, code-listed plates with some of the highest loads in the industry.

Leveraging Technology to Educate and Communicate

At Simpson Strong-Tie, we've always been about designing connectors and other structural building materials that make structures safer and stronger. However, now more than ever, we also understand that projects need to be completed as effectively and efficiently as possible. With that in mind, Simpson Strong-Tie has created a broad range of mobile and Web-based software tools designed to quickly and easily help you to select the best product or the best amount of product for the job at hand.

Not at your desk? Not a problem. Simpson Strong-Tie has created new apps for both iPhone and Android smartphones to help you locate the dealers who sell our products, access our product literature and more. Check back often as we have more apps on the way.

In addition to our mobile apps, Simpson Strong-Tie offers software and Web calculators that deliver speed and accuracy to your design and product selection processes. Whether it's finding a code report, selecting the right amount of coil strap, discerning the best connector to use or designing a truss, Simpson Strong-Tie places powerful technology in your hands to help you make the best possible decisions for your project.

New calculators, selector software and mobile apps are being created all the time. Be sure to visit ***www.strongtie.com/software*** to see the latest software technology from Simpson Strong-Tie.

Keep in Touch with Simpson Strong-Tie® Newsletters

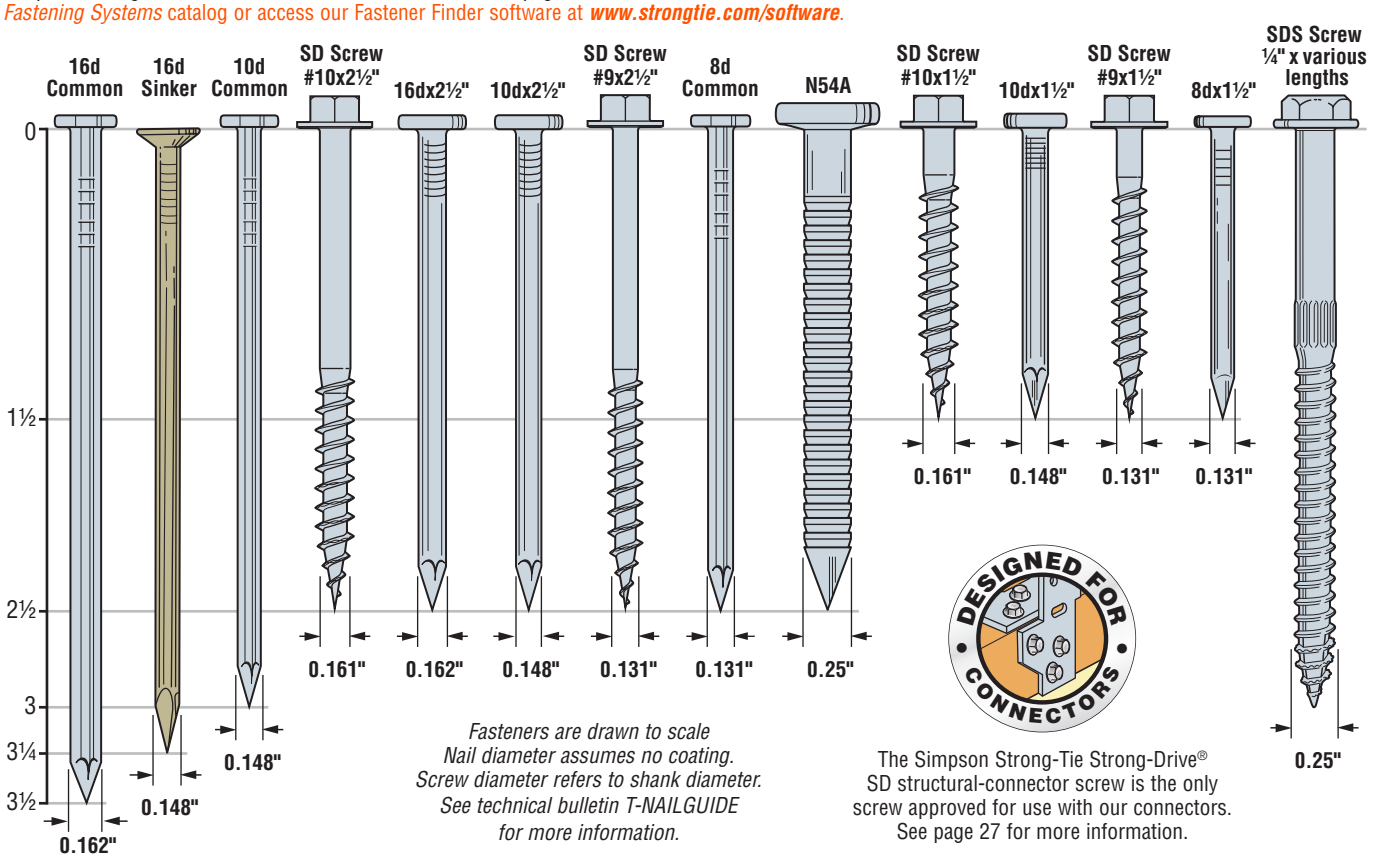
Our monthly News & Updates and quarterly Structural Report newsletters deliver important company and industry news right to your inbox. Specifiers and building officials turn to Structural Report each quarter for the latest technical and product information. News & Updates keeps you abreast of changes to our catalogs, code reports, new products and our training offerings. To learn more about Simpson Strong-Tie newsletters or to sign up for one, visit ***www.strongtie.com/newsletters***.

FASTENER TYPES

Fastener Types and Sizes Specified for Simpson Strong-Tie® Connectors

Many Simpson Strong-Tie connectors have been designed and tested for use with specific types and sizes of fasteners. The specified quantity, type and size of fastener must be installed in the correct holes on the connector to achieve published loads. Other factors such as fastener material and finish are also important. Incorrect fastener selection or installation can compromise connector performance and could lead to failure.

Simpson Strong-Tie does not offer all of these fasteners, see page 23 for more information. For more information about fasteners, see our *Fastening Systems* catalog or access our Fastener Finder software at ***www.strongtie.com/software***.



Fasteners are drawn to scale
Nail diameter assumes no coating.
Screw diameter refers to shank diameter.
See technical bulletin T-NAILGUIDE for more information.

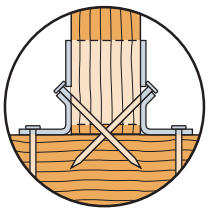
The Simpson Strong-Tie Strong-Drive® SD structural-connector screw is the only screw approved for use with our connectors. See page 27 for more information.

FASTENER DESIGN INFORMATION

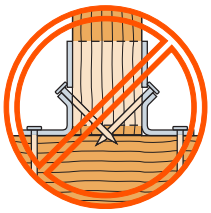
In some cases it is desirable to install Simpson Strong-Tie face mount joist hangers and straight straps with nails that are a different type or size than what is called out in the load table. In these cases these reduction factors must be applied to the allowable loads listed for the connector.

Load Adjustment Factors for Optional Fasteners Used with Face Mount Hangers and Straight Straps

Catalog Nail	Replacement	Allowable Load Adjustment Factor	
		Face Mount Hangers	Straight Straps
16d common (0.162"x3½")	10dx1½ (0.148"x1½")	0.64	0.84[9]
16d common (0.162"x3½")	10d common (0.148"x3") 12d common (0.148"x3¼") 16d sinker (0.148"x3¼")	0.84	0.84
16d common (0.162"x3½")	16dx2½ (N16) (0.162"x2½")	1.00	1.00
10d common (0.148"x3")	10dx2½ (0.148"x2½")	0.85	1.00
10d common (0.148"x3") 16d sinker (0.148"x3¼")	10dx1½ (0.148"x1½")	0.77	1.00[10]
10d common (0.148"x3") 16d sinker (0.148"x3¼")	10dx1¼ (0.148"x1¼")	0.64	1.00[10]
10d common (0.148"x3")	16d sinker (0.148"x3¼")	1.00	1.00
8d common (0.131"x2½")	8dx1½ (0.131"x1½")	0.85	1.00
10d common (0.148"x3")	8d common (0.131"x2½")	0.83	0.83
16d common (0.162"x3½") 16dx2½ (N16) (0.162x2½)	SD#10x1½ (0.161x1½")	1.00[5]	1.00
10d common (0.148"x3") 16d sinker (0.148"x3¼") 10d x1½ (0.148"x1½) 8d common (0.131"x2½") 8dx1½ (0.131"x1½")	SD#9x1½ (0.131x1½")	1.00[5]	1.00



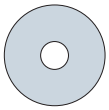
Double-shear nailing should use full length common nails



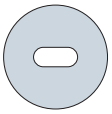
Shorter nails may not be used as double shear nails

1. Allowable load adjustment factors shown in the table are based on calculated reduction factors and are applicable for all face mount hangers and straight straps throughout this catalog, except as noted in the footnotes below.
2. Some products have been tested specifically with alternate fasteners and have allowable load adjustment factors or reduced capacities published on the specific product page which may differ from the values calculated using this table.
3. This table does not apply to hangers modified per the Hanger Options described on pages 215-224, or steel thicker than 10 gauge.
4. Unless noted otherwise, fasteners shorter than 3" in length may not be substituted for joist nails in double-shear hangers *(i.e. LUS, MUS, HUS, HHUS, HGUS)*. For applications involving pneumatic nails, refer to technical bulletin T-PNEUMATIC *(see page 231 for details)*.
5. Strong-Drive® SD screw substitutions in this table do not apply to sloped, skewed or double-shear hangers. For additional information and specific allowable loads, refer to ***www.strongtie.com/sd***.
6. Nails and Strong-Drive SD screws may not be combined in a connection.
7. Do not substitute 10dx1½" nails for face nails on slope and skew combinations or skewed only LSU and LSSU.
8. For straps installed over sheathing use a 2½" long fastener minimum.
9. Where noted, use 0.80 for 10 ga, 11 ga, and 12 ga products when using SPF lumber.
10. Where noted, use 0.92 for 10 ga, 11 ga, and 12 ga products when using SPF lumber.

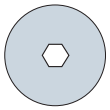
FASTENING IDENTIFICATION



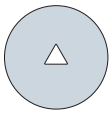
Round Holes
Purpose: to fasten a connector.
Fill Requirements: always fill, unless noted otherwise.



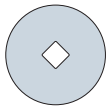
Obround Holes
Purpose: to make fastening a connector in a tight location easier.
Fill Requirements: always fill.



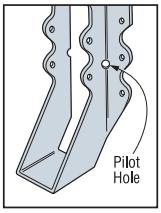
Hexagonal Holes
Purpose: to fasten a connector to concrete or masonry.
Fill Requirements: always fill when fastening a connector to concrete or masonry.



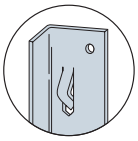
Triangular Holes
Purpose: to increase a connector's strength or to achieve Max strength.
Fill Requirements: when the Designer specifies Max nailing.



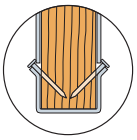
Diamond Holes
Purpose: to temporarily fasten a connector to make installing it easier.
Fill Requirements: none.



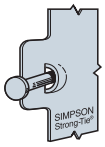
Pilot Holes
Tooling holes for manufacturing purposes. No fasteners required.



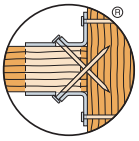
Speed Prongs
Used to temporarily position and secure the connector for easier and faster installation.



Positive Angle Nailing (PAN)
Provided when wood splitting may occur, and to speed installation.



Dome Nailing
This feature guides the nail into the joist and header at a 45° angle.
U.S. Patent 5,603,580



Double-Shear Nailing
The nail is installed into the joist and header, distributing the load through two points on each joist nail for greater strength.

ITS Strong-Grip™
(IUS Similar)
The Strong-Grip™ seat allows the I-joist to "snap" in securely without the need for joist nails.

SIMPSON STRONG-TIE® NAILS

Simpson Strong-Tie nails and structural fasteners have been developed as the optimum fasteners for connector products. Special lengths afford economy of purchase and installation, and depth compatibility with framing members.

For pneumatic nail use, see Instructions to the Installer, page 17 and visit ***www.strongtie.com*** for technical bulletins.

Retail Packaging

1 lb. Retail Tub

5 lb. Retail Bucket

Simpson Strong-Tie hot-dip galvanized nails are packed in 1 lb. and 5 lb. plastic retail containers for easy handling.

Nails Sold by the Pound

Nail	Simpson Model No.	Dimensions	Wire Gauge	Finish
8dx1½"	N8	0.131" x 1½" (3.3mm x 38.1mm)	10¼	HDG
	SSN8			SS
8d Common	SS8D	0.131" x 2½" (3.3mm x 63.5mm)	10¼	SS
10dx1½"	N10	0.148" x 1½" (3.8mm x 38.1mm)	9	HDG
	SSN10			SS
10d Common	10DHDG	0.148" x 3" (3.8mm x 76.2mm)	9	HDG
	SS10D		9	SS
16dx2½"	N16	0.162" x 2½" (4.1mm x 63.5mm)	8	Bright
16d Common	16DHDG	0.162" x 3½" (4.1mm x 88.9mm)	8	HDG
	SS16D			SS
N54A	N54A	0.250" x 2½" (6.4mm x 63.5mm)	3	Bright
	N54AHDG			HDG

1. HDG = hot-dip galvanized; SS = stainless steel; Bright = no finish.
2. For pneumatic fastener info, request additional technical information.
3. Recommended minimum end distance to prevent splitting with a steel side member is 10 x the nail diameter per 2005 NDS Commentary Table 11.1.5.6.
4. Use HDG nails with ZMAX® and HDG products.
5. 16d sinker with GV finish is not acceptable for ZMAX or HDG applications.
6. HDG nails sold by Simpson Strong-Tie meet the specifications of ASTM A153. Stainless-steel nails are type 316 stainless.

33° COLLATED STRUCTURAL CONNECTOR NAILS

The 33° collated structural-connector nail is designed to provide installers a pneumatically-driven alternative to hand-driven nails. The nail is approved for use in many popular Simpson Strong-Tie® products and serves as a replacement for 8d, 10d, and 16d hand-driven common nails in a variety of Simpson Strong-Tie connector applications. Available in 25-nail, paper-collated strips in both carbon steel and stainless steel.

MATERIAL: Heat-treated carbon steel **FINISH:** Hot-dip galvanized, stainless steel

INSTALLATION: • Use all specified fasteners; see General Notes.
- Follow the manufacturer's instructions and use the appropriate safety equipment.
- Tools with nail hole-locating mechanisms should be used.
- Overdriving nails may reduce allowable loads.
- Compatible with a wide variety of popular pneumatic nailers. For more information, visit ***www.strongtie.com/SCN***.
- For applications involving pneumatic nails, refer to technical bulletin T-PNEUMATIC.

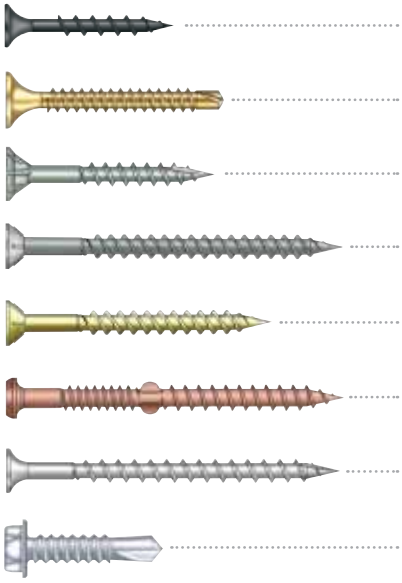
Model No.	Nominal Size	Diameter (in.)	Length (in.)
Hot-Dip Galvanized			
NEW 8DHDGPT500	8d	0.131	2½
NEW N10HDGPT500	10d	0.148	1½
NEW N16HDGPT500	16d	0.162	2½
Stainless Steel			
NEW T9A150MCN	10d	0.148	1½
NEW T9A250MCN	10d	0.148	2½

T9A250MCN
(Other sizes similar)

QUIK DRIVE® FASTENERS AND ATTACHMENTS

SIMPSON Strong-Tie®

Simpson Strong-Tie® Quik Drive offers labor saving auto-feed systems and specialty fasteners engineered for a wide range of commercial and residential construction applications.



Drywall

Fiberglass-Backed Gypsum Sheathing

Fiber Cement Backerboard and Composite Underlayment

Deck and Dock

Subfloor, Sheathing, Wall Plates and Stair Treads

Composite Deck

Tile Roofing

Steel

See the *Fastening Systems* catalog *(C-FS)* for more information *(see page 228 for details)* or access our Fastener Finder software at ***www.strongtie.com/software***.

AUTO-FEED SCREW DRIVING SYSTEMS

The systems offer several easy-to-use attachments bringing speed and reliability to applications that require the fastening power of screws. Our attachments provide tough, reliable performance in specific fastening applications.

QUIK DRIVE FASTENERS

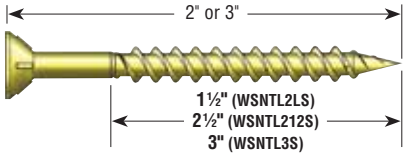
Featuring patented collation technology, Quik Drive fasteners are designed to meet or exceed industry standards for strength and longevity while offering easy-to-load, tangle-free strips for efficient performance in auto-feed systems.

For more information, visit *www.strongtie.com*

QUIK DRIVE® FASTENERS AND ATTACHMENTS

WSNTL COLLATED SCREW SYSTEM

Simpson Strong-Tie® Quik Drive auto-feed screw driving systems offer superior performance and reduced installation time in subfloor applications. The holding power of screws reduces the gaps that cause floor squeaks and the tool extension enables stand-up-and-drive installation.
CODES: ICC-ES ESR-1472; City of L.A. RR25661; Florida FL 13731



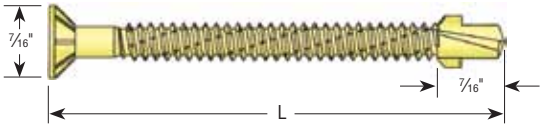
Allowable Shear (in Pounds per Foot) for Wood Structural Panel Diaphragms with Framing of Douglas Fir-Larch or Southern Pine for Wind or Seismic Loading

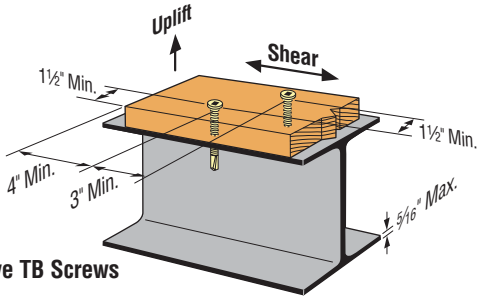
Panel Grade	Minimum Nominal Panel Thickness (in.)	Minimum Nominal Width of Framing Members at Adjoining Panel Edges and Boundaries (in.)[4,5]	BLOCKED DIAPHRAGMS				UNBLOCKED DIAPHRAGMS	
			Screw spacing (inches) at diaphragm boundaries (all cases), at continuous panel edges parallel to load (Cases 3 and 4), and at all edges (Cases 5 and 6)[6]				Screws spaced 6 inches, maximum, at support edges[6]	
			6	4	2½[7]	2[7]	Case 1 (no unblocked edges or continuous joints parallel to load)	All other configurations (Cases 2,3,4,5 and 6)
			Screw Spacing (inches) at Other Panel Edges					
			6	6	4	3		
Structural 1/OSB	3/8	2	270	360	530	600	240	180
		3	300	400	600	675	265	200
	15/32	2	320	425	640	730	285	215
		3	360	480	720	820	320	240
Sheathing single floor, and other grades covered in DOC PS1 and PS2	3/8	2	240	320	480	545	215	160
		3	270	360	540	610	240	180
	7/16	2	255	340	505	575	230	170
		3	285	380	570	645	255	190
	15/32	2	290	385	575	655	255	190
		3	325	430	650	735	290	215
	19/32	2	320	421	640	730	285	215
		3	360	480	720	820	320	240

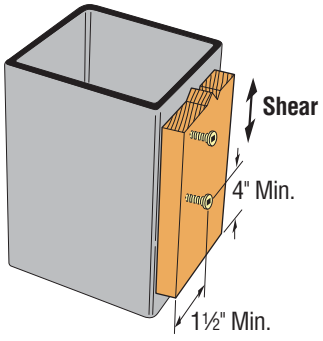
1. Minimum fastener penetration of 1¼" into the framing member is required.
2. For wind design, shear capacities may be increased 40% per section 2306.3.2 of the 2006 IBC and 2306.2.1 of the 2009 IBC.
3. For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above must be multiplied by 0.63 or 0.56, respectively.
4. The minimum nominal width of framing members not located at boundaries or adjoining panel edges must be 2 inches.
5. Framing at adjoining panel edges must be 3 inches nominal or wider, and screws must be staggered where both of the following conditions are met: (1) screws having penetration into framing of more than 1½ inches and (2) screws are spaced 3 inches o.c. or less.
6. Space screws maximum 12 inches o.c. along intermediate framing members (6 inches o.c. where supports are spaced 48 inches o.c.).
7. Framing at adjoining panel edges must be 3-inch nominal or wider, and screws must be staggered where screws are spaced 2 inches or 2½ inches on center.
8. See ESR-1472, Table 1 for illustrations showing Cases 1 through 6.
9. See ESR-1472 for allowable shear loads for high load diaphragms.
10. WSNTL withdrawal and pull-thru values exceed those for a 10d common nail.
11. See ESR-1472 for high load diaphragm design values.

TB SCREW

Simpson Strong-Tie Quik Drive auto-feed systems with TB series screw strips are a fast and reliable way to fasten wood to steel members. Available in loose and collated options. They are self-drilling so no predrilling is required.







Allowable Loads for Wood Attachment to Steel with Quik Drive TB Screws (Steel Members 16 ga - 5/16" Thick)

Model No.	L (mm)	Wood Size	Steel Thickness	DF/SP Allowable Load			
				Uplift		Shear	
				(100)	(160)	(100)	(160)
TBP1460S TB1460S TBG1460S	2⅜" (60)	2x	16 ga - 14 ga	210	210	210	335
			12 ga - 5/16"	245	390	215	345
TBP1475S TB1475S TBG1475S	3" (75)		16 ga - 14 ga	210	210	210	335
			12 ga - 5/16"	245	390	215	345

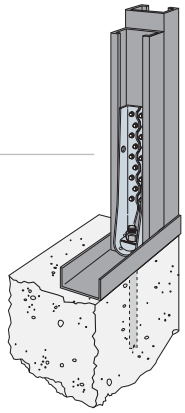
1. For use with structural steel members up to 5/16" thick or cold-formed steel members 16 gauge (54 mil) or thicker.
2. Product available in a black phosphate (TBP), yellow zinc dichromate (TB), or N2000 (TBG) finish.
3. For use with 2x (1½") DF/SP only.
4. For use with Quik Drive HSD60 or HSD75 Tool.
5. (160) loads shall only be used when resisting wind or seismic loads.
6. Also available in hand drive *(sold by the piece)*
   TBP1460-EA
   TBP1475-EA

WARNING: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, use this product in dry, interior, and noncorrosive environments only.

Designing with Steel?

If you are designing a structure using Cold-Formed Steel, comprehensive design information on using connectors, Simpson Strong-Tie anchoring products and Quik Drive® screws in your project can be found in the latest issue of the Simpson Strong-Tie *Cold-Formed Steel Connectors* catalog *(C-CFS, see page 228 for details)*. You can access this information via the web at ***www.strongtie.com***.

For more information, visit *www.strongtie.com*



SDS & SD *Wood Screws*

The Simpson Strong-Tie® Strong-Drive® screw (SDS) is a ¼" diameter structural wood screw ideal for various connector installations as well as wood-to-wood applications. It installs with no predrilling and has been extensively tested in various applications. The new SDS is improved with a patented easy driving 4CUT™ tip and a corrosion resistant double-barrier coating.

The SD8 #8x1¼" wafer head screw is ideal for miscellaneous fastening applications. The needle point ensures fast starts and deep #2 Phillips drive reduces cam-out and stripping.

SDS FEATURES:

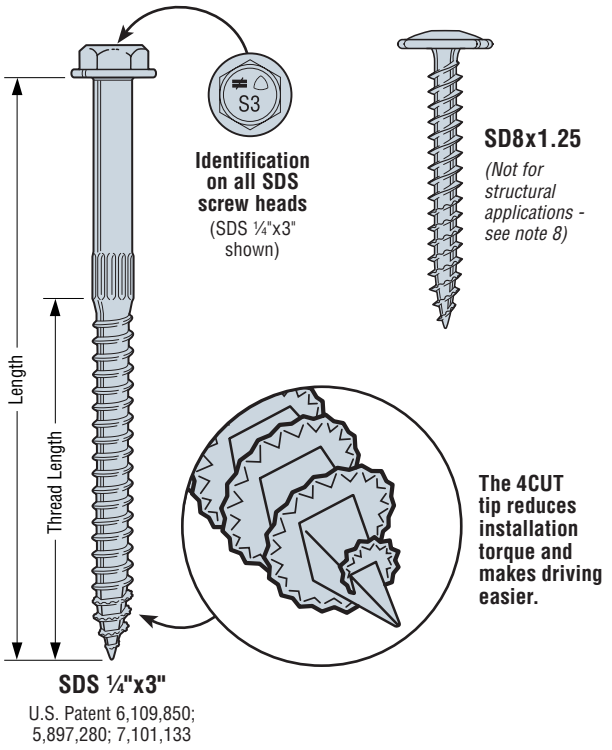
- The patented 4CUT tip has a square core and serrated threads to reduce installation torque and make driving easier with no predrilling and minimal wood splitting.
- A double-barrier coating finish provides corrosion resistance equivalent to hot-dip galvanization. Now one screw can handle interior, exterior and certain pressure-treated wood applications *(see Corrosion Information on page 14-15 for more information).*
- ⅜" hex washer head is stamped with the No-Equal sign and fastener length for easy identification after installation.

MATERIAL: Heat-treated carbon steel, Type-316 stainless steel

FINISH: SDS—Double-barrier coating. SDS screws may also be available yellow zinc dichromate or HDG *(Not all sizes are available in all coatings – Contact Simpson Strong-Tie for product availability and ordering information)*; SD8x1.25—Electro Galvanized.

CODES: See page 13 for Code Reference Key Chart.

WARNING: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, the SD8x1.25 should be used in dry, interior, and noncorrosive environments only.



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

SDS and SD Wood Screws

Size (in.)	Model No.	Thread Length (in.)	Fasteners per Carton[6]	DF/SP Allowable Loads[4]						SPF/HF Allowable Loads[4]						Code Ref.
				Shear (100)[1]					Withdrawal[5] (100)	Shear (100)					Withdrawal[5] (100)	
				Wood Side Plate[3]		Steel Side Plate				Wood Side Plate[3]		Steel Side Plate				
				1½"	1¾" SCL	16 ga	14 ga & 12 ga	10 ga or Greater	Wood or Steel Side Plate	1½"	1¾" SPF LVL	16 ga	14 ga & 12 ga	10 ga or Greater	Wood or Steel Side Plate	
5/32 x 1¼	SD8x1.25[8]	—	—	—	—	50	50	50	—	—	—	45	45	45	—	170
¼ x 1½	SDS25112	1	1500	—	—	250	250	250	170	—	—	180	180	180	120	
¼ x 2	SDS25200	1¼	1300	—	—	250	290	290	215	—	—	180	210	210	150	
¼ x 2½	SDS25212	1½	1100	190	—	250	390	420	255	135	—	180	280	300	180	
¼ x 3	SDS25300	2	950	280	—	250	420	420	345	200	—	180	300	300	240	I5,
¼ x 3½	SDS25312	2¼	900	340	340	250	420	420	385	245	245	180	300	300	270	L1,
¼ x 4½	SDS25412	2¾	800	350	340	250	420	420	475	250	245	180	300	300	330	F20
¼ x 5	SDS25500	2¾	500	350	340	250	420	420	475	250	245	180	300	300	330	
¼ x 6	SDS25600	3¼	600	350	340	250	420	420	560	250	245	180	300	300	395	
¼ x 8	SDS25800	3¼	400	350	340	250	420	420	560	250	245	180	300	300	395	

Stainless-Steel SDS Wood Screws

Size (in.)	Model No.	Thread Length (in.)	Fasteners per Carton[6]	DF/SP Allowable Loads[4]						SPF/HF Allowable Loads[4]						Code Ref.
				Shear (100)					Withdrawal[5] (100)	Shear (100)					Withdrawal[5] (100)	
				Wood Side Plate		Steel Side Plate				Wood Side Plate		Steel Side Plate				
				1½"	1¾" SCL	16 ga	14 ga & 12 ga	10 ga or Greater	Wood or Steel Side Plates	1½"	1¾" SCL	16 ga	14 ga & 12 ga	10 ga or Greater	Wood or Steel Side Plates	
¼ x 1½	SDS25112SS	1	1500	—	—	250	250	250	170	—	—	180	180	180	120	
¼ x 2	SDS25200SS	1¼	1300	—	—	250	290	290	215	—	—	180	210	210	150	I5,
¼ x 2½	SDS25212SS	1½	1100	190	—	250	390	420	255	135	—	180	280	300	180	L1,
¼ x 3	SDS25300SS	2	950	280	—	250	420	420	345	200	—	180	300	300	240	F20
¼ x 3½	SDS25312SS	2¼	900	340	340	250	420	420	385	245	245	180	300	300	270	

1. Screws may be provided with the 4CUT or Type 17 tip.
2. SDS screws install best with a low speed ½" drill with a ⅜" hex head driver.
3. All applications are based on full thread penetration into the main member. For other wood side plate values, see *Fastening Systems* catalog (C-FS).
4. Allowable loads are shown at the wood load duration factor of C_D=1.00. Loads may be increased for load duration per the building code up to a C_D=1.60.
5. Withdrawal loads shown are in pounds (lbs.) and are based on the entire threaded section installed into the main member. If thread penetration into the main member is less than the Thread Length as shown in the table, reduce allowable load by 172 lbs. x inches of thread not in main member. Use 121 lbs./inch for SPF.
6. Fasteners per Carton represent the quantity of screws which are available in bulk packaging. Screws are also available in mini bulk and retail packs. Refer to Simpson Strong-Tie® List Price book. Contact Simpson Strong-Tie for more information.
7. LSL wood-to-wood applications that require 4½", 5", 6" or 8" SDS screws are limited to interior-dry use only.
8. SD8x1.25 requires ¾" minimum penetration. DO NOT USE SD8x1.25 wood screws with structural connectors unless specified and stated in this catalog.
9. Where predrilling is required for SDS, predrill diameter is 5/32".
10. Minimum spacing edge and end distance requirements are listed in ICC-ES ESR-2236.

SD *Structural-Connector Screw*

SIMPSON Strong-Tie®

Ideally suited for use with many Simpson Strong-Tie® connectors

Simpson Strong-Tie offers the Strong-Drive® SD structural-connector screw for use with our connectors. Designed to replace nails in certain products, the load-rated SD screw has been tested and approved for use in many popular Simpson Strong-Tie® connectors. In certain applications screws are easier and more convenient to install than nails, and the single-fastener load values achieved by the SD9 and SD10 exceed those of typical 10d common or 16d common nails, respectively. In addition, the galvanized coating makes the SD screw ideal for interior and most exterior conditions.

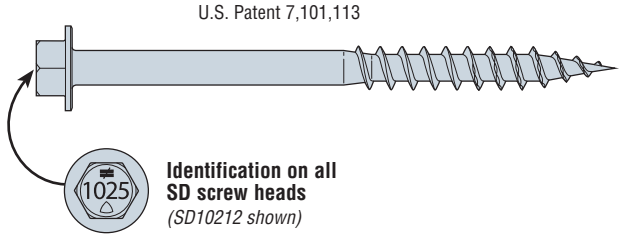
The SD structural-connector screw features an optimized shank which is specifically designed to be compatible with the fastener holes in Simpson Strong-Tie connectors. The hex head virtually eliminates cam-out and helps avoid stripping of the head during installation. The sharp point of the screw enables fast starts, and the patented serrated threads reduce torque for improved drivability.

FEATURES:

- Tested and approved for use in many of our best-selling connectors for both interior and most exterior applications
- The single-fastener steel-side-plate load capacity of the SD9 exceeds the capacity of a 10d common nail, while the single-fastener load capacity of the SD10 exceeds that of the 16d common nail
- Ideal for use in tight spaces where using a hammer is inconvenient
- Optimized heat-treating for ductility and strength
- Mechanically-galvanized coating meets ASTM B695 Class 55, is recommended for use with certain preservative-treated woods and is compliant with the 2006 International Residential Code® (R319.3) and the 2009 International Residential Code (R317.3)
- ¼" hex drive
- Head identification

MATERIAL: Heat-treated carbon steel
FINISH: Mechanically galvanized *(ASTM Class 55)*
CODES: See page 13 for Code Reference Key Chart.

SD10
(SD9 similar)
U.S. Patent 7,101,113



Identification on all SD screw heads
(SD10212 shown)

These products feature additional corrosion protection.

Product Information

Model No.	Shank Size	Length (in.)
SD9112R100	#9 (0.131")	1½
SD9112R500		
SD9112MB		
SD9212R100		2½
SD9212R500		
SD9212MB		
SD10112R100	#10 (0.161")	1½
SD10112R500		
SD10112MB		
SD10212R100		2½
SD10212R500		
SD10212MB		

Since testing of the SD structural-connector screw is ongoing, Simpson Strong-Tie continues to add connectors to the approved-connector list. For the most current list of approved connectors, load values and applications, visit ***www.strongtie.com/sd***.

Simpson Strong-Tie is in the process of seeking evaluation reports that include SD structural-connector screws. Check with your local building department to determine whether the correct size of SD structural-connector screw may be used as a suitable substitute for nails.

Size (in.)	Model No.	Thread Length (in.)	DF/SP Allowable Loads (lbs) (100)		SPF/HF Allowable Loads (lbs) (100)		Code Ref.
			Shear Steel Side Plate 20 ga - 12 ga	Withdrawal	Shear Steel Side Plate 20 ga - 12 ga	Withdrawal	
#9x1½	SD9112	1	171	173	112	122	I24, F31
#9x2½	SD9212	1	200		112		
#10x1½	SD10112	1	173	173	138	122	
#10x2½	SD10212	1	215		165		

1. Withdrawal loads and steel-side-plate shear loads are based on testing per AC233.
2. Allowable loads are shown at the wood load duration factor of $C_D = 1.00$. Loads may be increased for load duration per the building code up to a $C_D = 1.60$.
3. Withdrawal loads are based on the entire threaded section installed into the main member.
4. Visit ***www. strongtie.com*** for wood-to-wood shear values and wood-side-plate details.

UFP *Universal Foundation Plate*

The UFP provides a retrofit method to anchor the mudsill to the side of the foundation in applications where minimum vertical clearance exists. The UFP is also designed to perform when the mudsill is offset from the foundation up to 2½" or extended beyond the foundation up to ½".

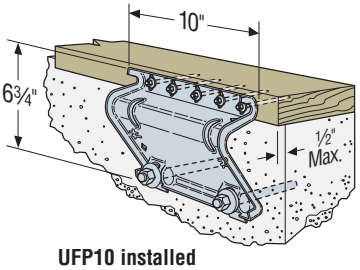
The UFP may be used in place of the FA, HFA and FAP connectors.

MATERIAL: 14 gauge

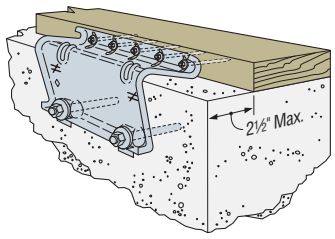
FINISH: Galvanized. May be ordered HDG, contact Simpson Strong-Tie. See Corrosion Information, page 14-15.

INSTALLATION: • Use all specified fasteners; see General Notes.
- Loads are based on test results using Simpson Strong-Tie® SDS ¼"x3" screws, which are supplied with the UFP10.
- Alternate lag screws will not achieve published loads.

CODES: See page 13 for Code Reference Key Chart.

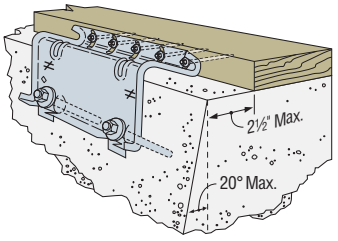


UFP10 installed on a Straight Foundation with ½" Offset Mudsill



UFP10 installed on a Straight Foundation

U.S. Patent 5,732,519



UFP10 installed on a Trapezoid Foundation

Model No.	Max Spacing to replace Anchor Bolt ½" or ⅝" dia.	Fasteners			Allowable Load DF/SP Parallel to Plate (160)	Code Ref.
		Anchor Bolt		Plate		
		Qty.	Dia.			
UFP10-SDS3	6'	2	½	5-SDS ¼"x3"	1340	I20, L10, F19

1. Allowable loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other load durations apply.
2. Each anchor bolt requires a standard cut washer, see technical bulletin T-ANCHORSPEC for more information.
3. Designer must specify anchor bolt type, length and embedment.

FAP/FJA/FSA *Foundation Anchors*

The FAP Plate connects the mudsill to the foundation, and is designed to provide lateral load resistance.

The FJA Foundation Joist Anchor nails or bolts directly into floor joists, providing a direct connection between the foundation and joist to resist uplift and lateral forces.

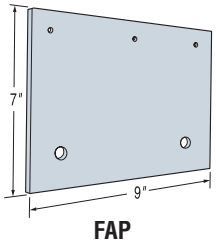
FSA Foundation Stud Anchor nails or bolts to floor joists, or nails to the stud. Plywood sheathing may require notching with stud-to-foundation installation. See technical bulletin T-ANCHORSPEC for anchoring solutions.

MATERIAL: FAP—7 gauge; all others—12 gauge

FINISH: Galvanized. May be ordered HDG, contact Simpson Strong-Tie. See Corrosion Information, page 14-15.

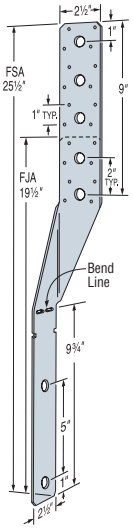
INSTALLATION:
- Use all specified fasteners; see General Notes.
- FSA may be bent along bend line up to 20° to accommodate installation. Bend one time only.

CODES: See page 13 for Code Reference Key Chart.

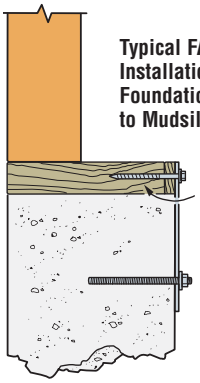


FAP
(screws not included)

FJA/FSA



Typical FAP Installation Foundation to Mudsill

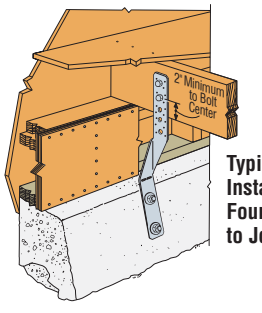


Add a shim between plate and sill when space is between 3⁄16" and 1½". When space exceeds 1½" use the UFP. The shim must be fastened to the mudsill by means other than the FAP SDS wood screw.

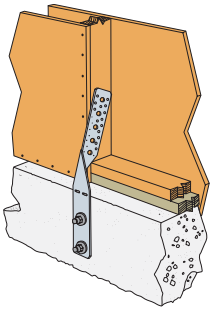
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Max Spacing to Replace Anchor Bolts		Fasteners			Allowable Loads DF/SP			Code Ref.
			Anchor Bolt		Stud/Joist/ Plate	(160)			
	½"	⅝"	Qty.	Dia.		Uplift	F_1	F_2	
FAP	5½'	4'	2	½	3-SDS ¼"x2½" + shim thickness	—	950	365	—
FJA	—	—	2	½	8-10dx1½	1205	185	60	I20, L10, F19
					2-½MB	690	185	60	
FSA	—	—	2	½	8-10dx1½	1205	—	—	
					2-½MB	690	—	—	

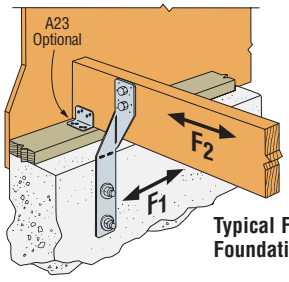
1. Allowable loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other load durations govern.
2. For redwood mudsills, reduce F_1 on FAP to 840 lbs.
3. Spacing to be specified by the Designer.
4. FAP shall use a minimum SDS wood screw length of 2½" plus the shim thickness.
5. The shim must be fastened to the mudsill by means other than the FAP SDS wood screw.
6. FAP may be installed with ¼" HDG lag bolts. Follow code requirements for predrilling.
7. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



Typical FSA Installation Foundation to Joist



Typical FSA Installation Foundation to Stud



Typical FJA Installation Foundation to Joist

MASA/MASAP *Mudsill Anchors*

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.

Mudsill anchors have always been a time-saving alternative to anchor bolts, and the MASA anchors provide even greater load-carrying capacity alternative for ⅝" and ½" mudsill anchor bolts on 2x, double-2x and 3x mudsills. It also eliminates the need for 3" square plate washers for seismic design and, in some cases, has load capacities that meet or exceed the parallel and perpendicular to plate shear capacity of other cast-in-place anchors. Two versions of the MASA are available – the standard MASA for installation on standard forms and the MASAP for panelized forms.

The MASA and MASAP are code listed by ICC-ES under the 2006, 2009 and 2012 IBC® and IRC® and have been tested to meet the requirements of ICC-ES acceptance criteria AC-398 for cracked and uncracked concrete.

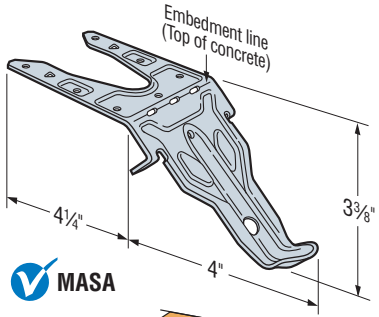
MATERIAL: 16 gauge

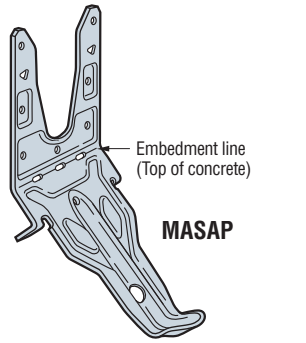
FINISH: Galvanized, all available in ZMAX® coating.
See Corrosion Information, page 14-15.

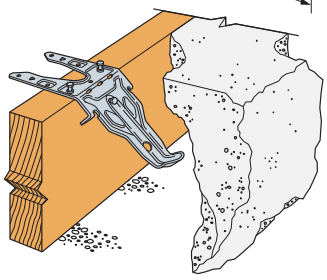
INSTALLATION: • Use all specified fasteners. See General Notes.

- **MASA/MASAP**
  - Concrete shall have a minimum f'_c = 2500 psi.
  - Spalling—Full loads apply for spalls up to a maximum height of 1¼" and a maximum depth of ⅞". Any exposed portion of the mudsill anchor must be protected against possible corrosion.
  - For prescriptive anchor spacing refer to page 30.
  - Testing shows that these mudsill anchors can be used in lieu of code required anchor bolts and square washer in high seismic zones. Refer to flier F-MASA for additional information.
  - Minimum MASA end distance is 4" and minimum center-to-center spacing is 8" for full load.
  - For continuous load path, MASA should be installed on the same side of wall as uplift connectors.

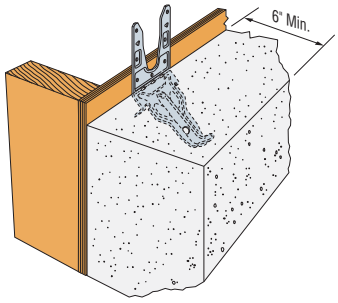
CODES: See page 13 for Code Reference Key Chart.
ICC-ES ESR-2555, City of L.A. RR 25851; Florida FL13326



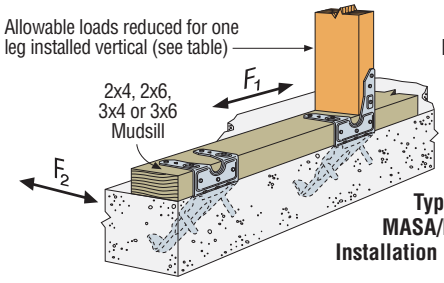




Typical MASA Installation in Concrete



Typical MASAP Installation in Concrete



Typical MASA/MASAP Installation on Sill Plate

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.

Model No.	Sill Size	Fasteners		Allowable Loads (lbs)												Code Ref.
				Non Cracked						Cracked						
				Wind and SDC A&B[5,6]			SDC C-F[6]			Wind and SDC A&B[5,6]			SDC C-F[6]			
		Sides	Top	Uplift	F_1	F_2	Uplift	F_1	F_2	Uplift	F_1	F_2	Uplift	F_1	F_2	
STANDARD INSTALLATION – Attached to DF/SP Sill Plate																
MASA or MASAP	2x4, 2x6	3-10dx1½	6-10dx1½	920	1515	1095	745	1235	1045	785	1515	910	660	1235	765	I22, L22, F29
	3x4, 3x6	5-10dx1½	4-10dx1½	650	1215	725	550	1020	725	495	1215	725	415	1020	640	
ONE LEG UP INSTALLATION – Attached to DF/SP Sill Plate																
MASA or MASAP	2x4, 2x6	6-10dx1½	3-10dx1½	785	1005	995	660	845	995	595	1005	965	500	845	810	I22, L22, F29
	3x4, 3x6	7-10dx1½	2-10dx1½	—	815	—	—	685	—	—	815	—	—	685	—	
BOTH LEGS OVER MAX. ½" PLYWOOD OR OSB INSTALLATION – Attached to DF/SP Sill Plate and Rimboard																
MASA or MASAP	2x4, 2x6	9-10dx1½	—	810	1150	900	740	965	755	665	1150	660	560	965	550	I22, L22, F29
DOUBLE 2x INSTALLATION – Attached to DF/SP Sill Plate																
MASA or MASAP	Dbl 2x4, Dbl 2x6	5-10dx1½	2-10dx1½	875	1075	785	735	900	785	660	1075	785	555	900	785	I22, L22
STANDARD INSTALLATION – Attached to Hem Fir Sill Plate																
MASA or MASAP	2x4, 2x6	3-10dx1½	6-10dx1½	790	1305	940	640	1060	900	675	1305	785	570	1060	660	170
	3x4, 3x6	5-10dx1½	4-10dx1½	560	1045	625	475	875	625	425	1045	625	355	875	550	
ONE LEG UP INSTALLATION – Attached to Hem Fir Sill Plate																
MASA or MASAP	2x4, 2x6	6-10dx1½	3-10dx1½	675	865	855	565	725	855	510	865	830	430	725	695	170
	3x4, 3x6	7-10dx1½	2-10dx1½	—	700	—	—	590	—	—	700	—	—	590	—	
BOTH LEGS OVER MAX. ½" PLYWOOD OR OSB INSTALLATION – Hem Fir Sill Plate and Rimboard																
MASA or MASAP	2x4, 2x6	9-10dx1½	—	700	990	775	635	830	650	570	990	565	480	830	475	170
DOUBLE 2x INSTALLATION – Attached to Hem Fir Sill Plate																
MASA or MASAP	Dbl 2x4, Dbl 2x6	5-10dx1½	2-10dx1½	750	925	675	630	775	675	660	925	675	555	775	675	170

1. Loads are based on allowable stress design (ASD) and include the load duration factor C_D (with C_D = 1.6) for wind/earthquake loading. No further increase is allowed. Reduce where other loads govern.
2. Minimum concrete compression strength, f'_c is 2500 psi.
3. Allowable loads are based on a minimum stemwall width of 6".
4. For simultaneous loads in more than one direction, the connector must be evaluated using the Unity Equation.
5. Per Section 1613 of the 2009 and 2012 IBC, detached one- and two-family dwellings in SDC C may use the "Wind and SDC A&B" allowable loads.
6. For designs under the 2009 and 2012 IBC, sill plate size shall comply with the shearwall requirements of the 2008 Special Design Provisions for Wind and Seismic.
7. MASA/MASAP may be installed using 7-nails (triangle holes not filled) when being used to replace a ½" diameter sill bolt for use on a 2x mudsill.
8. **NAILS:** 10dx1½" = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

MASA/MASAP *Mudsill Anchors*

Prescriptive Spacing for MASA/MASAP to Replace Sill Anchor Bolts

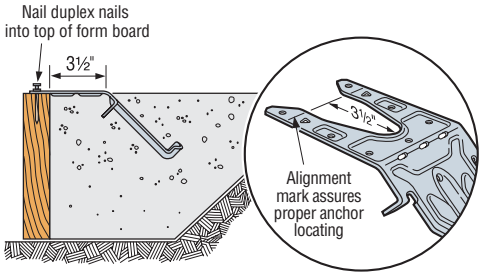
Anchor Bolt Size	Anchor Bolt Spacing	DF/SP 2x Sill Plate		HF 2x Sill Plate	
		Wind & SDC A&B	SDC C - E	Wind & SDC A&B	SDC C - E
½" Diameter	6' o.c.	6'-0"	6'-0"	6'-0"	6'-0"
	4' o.c.	4'-0"	4'-0"	4'-0"	4'-0"
⅝" Diameter	6' o.c.	5'-7"	4'-7"	5'-4"	4'-4"
	4' o.c.	3'-9"	3'-1"	3'-6"	2'-11"

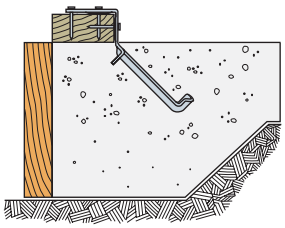
1. "Prescriptive" denotes designs per the IRC or conventional provisions of the IBC for wind speeds 100 mph or less, or for Seismic Design Category D and less (SDC E and less in IBC).
2. Detached one- and two-family dwellings in SDC C may use the "Wind & SDC A&B" spacing.
3. Spacing is based on the parallel to plate load direction for MASA Standard installation only.
4. ⅝" diameter AB required in SDC E.
5. When replacing ½" diameter sill bolts use 7-10dx1½" nails *(minimum nailing)* for standard installation. 1 out of 3 MASAs (33%) may be installed in One Leg Up installation along a wall line.
6. When replacing ⅝" diameter sill bolts use 9-10dx1½" nails *(maximum nailing)* for standard installation. 1 out of 5 MASAs (20%) may be installed in One Leg Up installation along a wall line.
7. Per Section 1613 of the 2009/2012 IBC, detached one- and two-family dwellings in SDC C may use the "Wind & SDC A&B" spacing.

ALTERNATIVE MUDSILL ANCHOR INSTALLATIONS

ALTERNATE INSTALLATION FOR INSIDE OF WALL CONTINUITY

Full catalog loads apply.



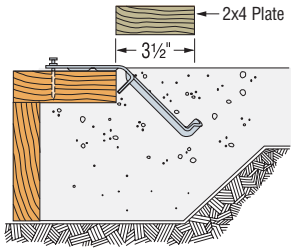


1 **STEP 1:**
Attach MASA 3½" from inside of form. After concrete cures, remove nails and bend straps up 90°

2 **STEP 2:**
Place mudsill on concrete and nail MASA over mudsill

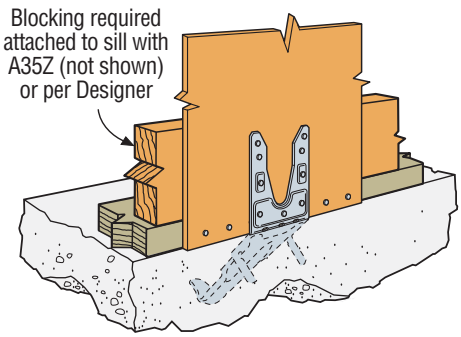
ALTERNATE INSTALLATION FOR BRICK LEDGES

Full catalog loads apply.



Alternate MASA Installation for Brick Ledges

ALTERNATE INSTALLATION FOR RIM JOIST OR BLOCKING



Max. ½" Sheathing

LMAZ/MA/MAB/MASB *Mudsill Anchors*

Mudsill anchors provide an alternative to anchor bolts. They easily mount on forms and make finishing easier. The unique design pro-vides installation flexibility, eliminating problems with misplaced anchor bolts. Suitable for stem wall or slab foundations, mudsill anchors are one piece so there are no more nuts and washers to lose.

LMAZ—an economical replacement for ½" sill plate anchor bolts
MA—for slab or stem wall construction
MAB—anchors mudsill to concrete block, poured walls or slab foundations

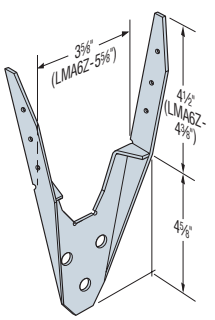
MATERIAL: LMAZ, MAB—18 gauge; MA/MASB—16 gauge

FINISH: MA, MAB, MASB—Galvanized *(some available in ZMAX® coating)*; LMAZ—ZMAX only. See Corrosion Information, page 14-15.

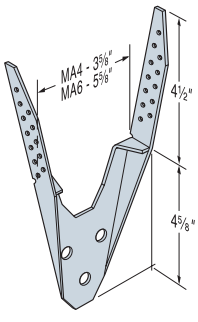
INSTALLATION: • Use all specified fasteners. See General Notes.

- **LMAZ/MA/MAB:**
  - CMU shall have a minimum f'_m = 1500 psi and concrete shall have a minimum f'_c = 2000 psi.
  - Not for use where a horizontal cold joint exists between the slab and foundation wall or footing beneath, unless provisions are made to transfer the load.
  - Not for use in slabs poured over foundation walls formed of concrete block or with brick and 4" masonry block stemwalls.
- **MASB:**
  - Fill CMU cell with concrete grout first, then place MASB into the grouted cell and adjust into position. Attach mudsill to anchor only after the concrete grout cures.
  - CMU shall have a minimum f'_m = 1500 psi.
  - The MASB Mudsill Anchors were tested in standard 8" CMU.

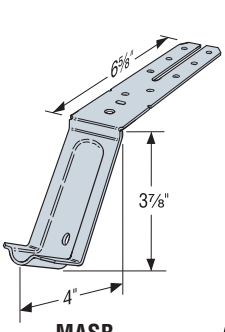
CODES: See page 13 for Code Reference Key Chart.



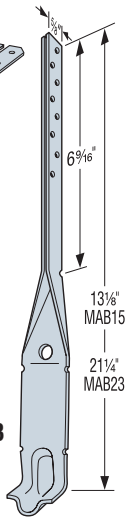
LMA4Z
(LMA6Z similar)



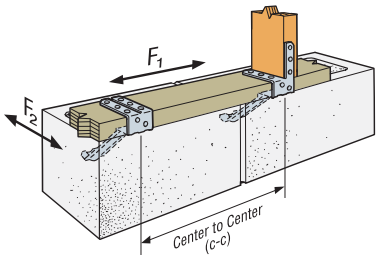
MA4 and MA6



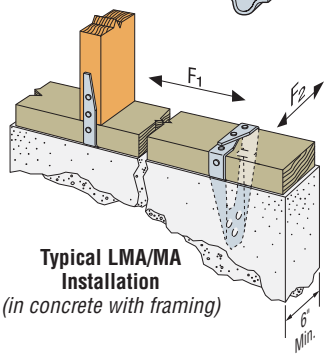
MASB



MAB



Typical MASB Installation

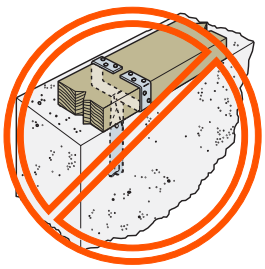


Typical LMA/MA Installation
(in concrete with framing)

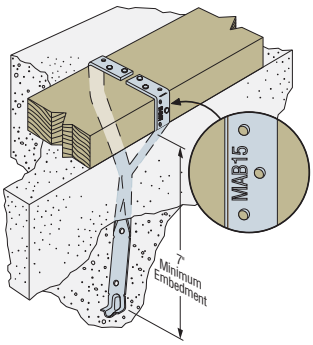
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Sill Size	Fasteners		Allowable Loads[1] DF/SP (160)			Code Ref.
		Sides	Top	Uplift[2]	Parallel to Plate (F_1)	Perp. to Plate (F_2)	
MASB *(Standard)*	2x4,6	2-10dx1½	6-10dx1½	130	930	410	IL5
MASB *(One Leg Up)*	2x4,6	3-10dx1½	4-10dx1½	—	960	360	
LMA4Z	2x4	2-10dx1½	4-10dx1½	905	675	520	170
	3x4	4-10dx1½	2-10dx1½	905	675	520	
LMA6Z	2x6	2-10dx1½	4-10dx1½	905	825	650	
	3x6	4-10dx1½	4-10dx1½	1110	825	650	
MA4	2x4	2-10dx1½	2-10dx1½	830	575	430	IL16
	3x4	4-10dx1½	2-10dx1½	915	680	430	
MA6	2x6	2-10dx1½	4-10dx1½	915	680	430	
	3x6	4-10dx1½	4-10dx1½	915	680	430	
MAB15	2x4,6	2-10dx1½	4-10dx1½	565	500	500	IL8
MAB23	2x4,6	2-10dx1½	4-10dx1½	565	500	500	

1. Loads have been increased for short-term loading.
2. For uplift loads, provide attachment from mudsill to building's structural components to prevent cross-grain bending.
3. MA installed attached to the stud has no load reduction for parallel loads, has a perpendicular load of 670 lbs. and an uplift of 835 lbs.
4. LMAZ installed attached to the stud has no load reduction for parallel and perpendicular loads and an uplift of 600 lbs. for LMA4 and 835 lbs. for LMA6.
5. For stemwall applications, allowable loads are based on a minimum stemwall width of 6".
6. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



MAB Misinstallation
(MAB straps must be separated before the concrete is poured)

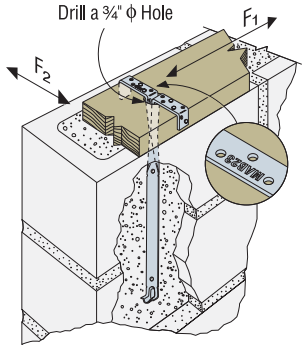


Typical MAB15 Installation in Concrete
(MAB23 similar, with 15" minimum embedment)
Not applicable for concrete block installation

Prescriptive Anchor Spacing

Model No.	O.C. Spacing To Replace ½" Anchor Bolt 6' O.C. (160)	O.C. Spacing To Replace ⅝" Anchor Bolt 6' O.C. (160)	Minimum Concrete End Distance	Minimum C–C Spacing
MASB	5'-6"	4'-8"	3¾"	7½"
LMA4Z	3'-8"	2'-7"	4⅝"	9¼"
LMA6Z	4'-6"	3'-2"		
MA4	3'-2"	2'-2"	4⅝"	9¼"
MA6	3'-9"	2'-7"		
MAB15	2'-9"	1'-11"	6½"	13"
MAB23	2'-9"	1'-11"	12"	24"

1. "Prescriptive" denotes designs per the IRC or conventional provisions of the IBC for wind speeds 100 mph or less, or for Seismic Design Category D and less (SDC E and less in IBC).
2. Spacing is based on parallel to plate load direction only.
3. Place anchors not more than 12" from the end of sill and splices per code.
4. CMU shall have a minimum f'_m = 1500 psi and concrete shall have a minimum f'_c = 2500 psi.
5. Spacings apply to DF, SP, and HF sill plates.



Typical MAB23 Installation in Concrete Block
(MAB15 similar)
MAB23 provides a two block embedment, if required by the local code jurisdiction. Concrete installation similar.

FWAZ/FWANZ *Foundation Wall Angle*

FWA foundation anchors connect the foundation or basement walls to the floor system to resist out-of-plane forces imposed by soil pressure. The FWAZ attaches through the mudsill into the foundation using the Simpson Strong-Tie® Titen HD® heavy-duty screw anchor, eliminating the need for separate anchor bolts into the rim joist. The FWANZ fastens to the mudsill with nails, relying on other anchorage *(by Designer)* to anchor the rim joist to the foundation. The spacing of the FWA anchors is independent of the joist spacing, allowing for a multitude of options based on soil pressures.

Special Features:

- Compatible with solid sawn joists, I-joists and floor trusses.
- Testing performed on most common rim materials and types.
- Addresses design needs set forth in Section 1610.1 in the IBC and Section R404 in the IRC.
- Eliminates the need of costly cantilevered foundation designs.

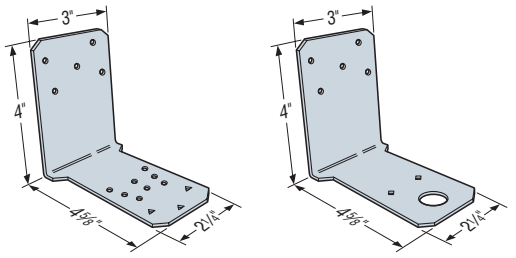
MATERIAL: 14 gauge

FINISH: ZMAX® coating. See Corrosion Information, page 14-15.

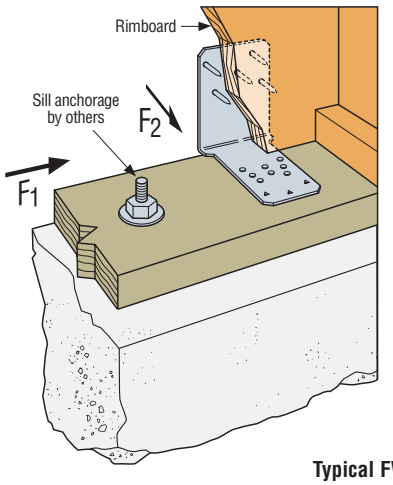
INSTALLATION: • Use all specified fasteners. See General Notes.

- Connectors must be fastened directly to the outside face of the rim board with 5-10dx1½ (0.148" dia. x 1½") long nails.
- Connectors must be located within 4" of adjacent joist/blocking for floor joist spacing up to 48" o.c. and may be centered between joists/blocking for 16" o.c. floor joist spacing.
- When floor joists are parallel to the rim board, full depth blocking shall be used in the first two bays of the floor per 2006 IRC Section R404.1.
- Splice joint not permitted on rim board in same bay unless blocking is placed on both sides of the splice. The maximum sill plate thickness to be used for the FWAZ only shall be 1½".
- FWAZ only—must be anchored to the foundation wall with ⅝"x6" mechanically galvanized Titen HD anchor *(included)*.
- Cast-in-place anchor bolts may not be used as a substitute.
- When I-joist rim material is used, backer blocks must be used. Installed per manufacturer's recommendations.

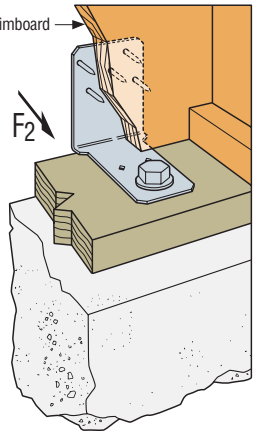
CODES: See page 13 for Code Reference Key Chart. Refer to IBC 1610.1.



FWANZ **FWAZ**



Typical FWANZ Installation



Typical FWAZ Installation

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.

Model No.	Fasteners: Rim	Fasteners: Concrete	Foundation Wall Thickness	Rim Board Material	Allowable Lateral F_2 Loads: Concrete f'c=2500 psi	Concrete f'c=3000 psi	Concrete f'c=4000 psi	CMU f'm=1500 psi	Code Ref.
FWAZ	5-10dx1½	1-⅝"x6" Titen HD Anchor (Included)	6"	1" OSB Rim	705	705	705	—	170
				1¾" I-joist Rim	880	880	880		
				1⅛" OSB Rim	880	880	880		
				2x Rim	880	880	880		
				1¼" LSL Rim	880	880	880		
				1¾" LVL Rim	880	880	880		
			8"	1" OSB Rim	705	705	705	615	
				1¾" I-joist Rim	880	1000	1000		
				1⅛" OSB Rim	880	1050	1050		
				2x Rim	880	1055	1170		
				1¼" LSL Rim	880	1055	1280		
				1¾" LVL Rim	880	1055	1280		

1. Lateral (F_2) loads are based on load duration factor C_D = 0.90 with no further increase allowed.
2. FWAZ spacing shall be per Designer.
3. FWAZ must be located within 4" of adjacent joist/blocking for floor joist spacing up to 48" o.c. and may be centered between joists/blocking for 16" o.c. floor joist spacing.
4. Maximum sill plate thickness shall be 1½".
5. The Titen HD anchor used in the FWAZ to resist the out-of-plane (F_2) forces may also be used to resist in-plane shear forces provided the Designer determines the Titen HD anchor allowable loads *(refer to C-SAS catalog, see page 228 for details)* and evaluates the combined loading condition with the published F_2 loads.
6. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

Model No.	Sill Plate	Fastener (Quantity–Type): Sill Plate	Fastener (Quantity–Type): Rim Board	Rim Board Material	Allowable F_2 Load (DF/SP Sill Plate): (90)[7]	(100)	(160)	Allowable F_2 Load (HF Sill Plate): (90)[7]	(100)	(160)	Code Ref.
FWANZ	2x4, 2-2x4, 3x4, 4x4	(8) 10dx1½	(5) 10dx1½	1" OSB Rim	895	895	895	815	895	895	170
				1⅛" OSB Rim	945	970	970	815	905	970	
				1¾" I-Joist Rim	945	1050	1275	815	905	1275	
				1¼" LSL Rim	945	1050	1315	815	905	1315	
				2x Rim	945	1050	1410	815	905	1345	
				1¾" LVL Rim	945	1050	1485	815	905	1345	
	2x6, 2-2x6, 3x6, 4x6	(11) 10dx1½	(5) 10dx1½	1" OSB Rim	895	895	895	895	895	895	
				1⅛" OSB Rim	1110	1110	1110	1110	1110	1110	
				1¾" I-Joist Rim	1135	1135	1135	1120	1135	1135	
				1¼" LSL Rim	1220	1220	1220	1120	1220	1220	
				2x Rim	1300	1440	1445	1120	1245	1445	
				1¾" LVL Rim	1300	1440	1645	1120	1245	1645	

1. FWANZ may be used to transfer F_1 loads up to 310 lbs. No further increase in load permitted.
2. For simultaneous F_1 and F_2 loads, the connector must be evaluated using the unity equation *(see page 18)*.
3. Designer shall evaluate rim board and sill plate design based on demand load.
4. FWANZ spacing and sill plate anchorage to be specified by the Designer.
5. FWANZ must be located within 4" of adjacent joist/blocking for floor joist spacing up to 48" o.c. and may be centered between joists/blocking for 16" o.c. floor joist spacing.
6. When floor joists are parallel to the rimboard, Designer must ensure proper load transfer from rimboard into diaphragm.
7. Values based on a load duration factor C_D = 0.90.
8. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

SB *Anchor Bolt*

The SB⅝x24 anchor bolt offers a load-tested anchorage solution that exceeds the capacity of all of our holdowns that call for a ⅝" dia. anchor. Similarly, the SB1x30 covers holdowns utilizing a 1" diameter anchor that exceed the capacity of our SSTB bolts. The SB⅞x24 is designed to maximize performance with minimum embedment for holdowns utilizing a ⅞" dia. anchor.

SB anchor bolts are code listed by ICC-ES under the 2009 and 2012 IBC and IRC to meet the requirements of ICC-ES acceptance criteria – AC 399. ICC-ES ESR-2611 is the industry's first code report issued for proprietary anchor bolts evaluated to the criteria of AC 399.

Special Features:

- Indentification on the bolt head showing embedment angle and model
- Sweep geometry to optimize position in form
- Rolled thread for higher tensile capacity
- Hex nuts and plate washer fixed in position
- Available in HDG for additional corrosion resistance

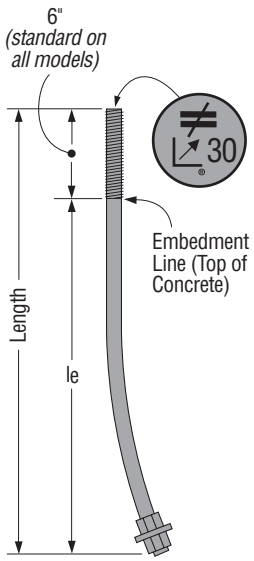
MATERIAL: ASTM F-1554, Grade 36

FINISH: None. May be ordered HDG. Contact Simpson Strong-Tie.

INSTALLATION:

- SB is only for concrete applications poured monolithically except where noted.
- Top nuts and washers for holdown attachment are not supplied with the SB; install standard nuts, couplers and/or washers as required.
- On HDG SB anchors, chase the threads to use standard nuts or couplers or use overtapped products in accordance with ASTM A563, for example Simpson Strong-Tie® NUT5/8-OST, NUT7/8-OST and NUT1-OST.
- Install SB before the concrete pour using AnchorMates®. Install the SB per the plan view detail.
- Minimum concrete compressive strength is 2500 psi.
- When rebar is required it does not need to be tied to the SB.

CODES: See page 13 for Code Reference Key Chart.



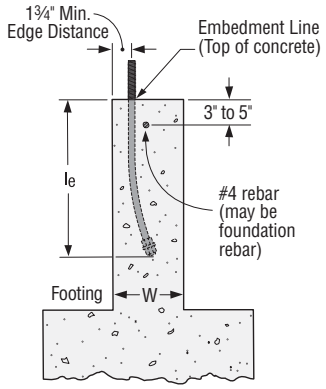
SB1x30
(Other models similar)

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.

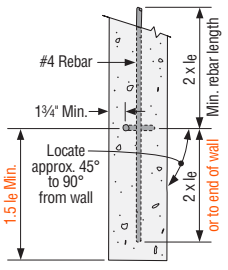
SB Bolts at Stemwall

Model No.	Dimensions (in.)				Allowable Tension Loads (lbs.)						Code Ref.
	Stemwall Width	Dia.	Length	Min. Embed. (l_e)	Wind & SDC A&B			SDC C-F			
					Midwall	Corner	End Wall	Midwall	Corner	End Wall	
SB⅝x24	6	⅝	24	18	6675	6675	6675	6675	5730	5730	I23, F30, L20
SB⅞x24	8	⅞	24	18	10470	9355	6820	8795	7855	5730	
SB1x30	8	1	30	24	13665	9905	7220	11470	8315	6065	

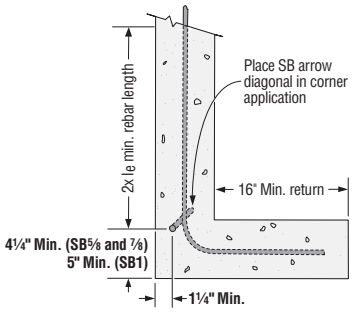
1. See page 34 for notes to the Designer.



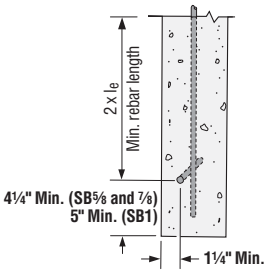
Typical SB Installation



Midwall

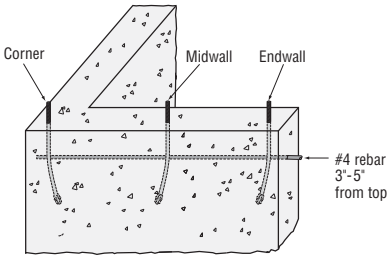


Corner

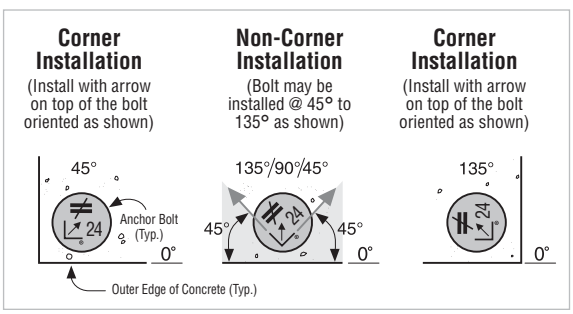


End Wall

STEMWALL PLAN VIEWS



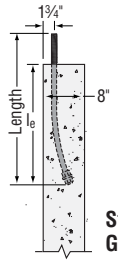
Perspective View



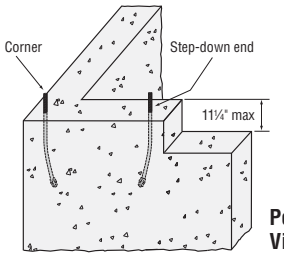
Plan View of SB Placement in Concrete

SB Bolts at Stemwall: Garage Front

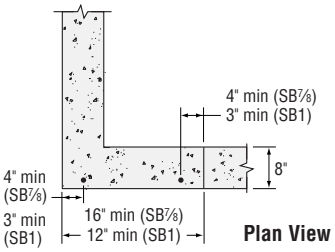
Model No.	Dimensions (in.)				Allowable Tension Loads (lbs.)				Code Ref.
	Stemwall Width	Dia.	Length	Min. Embed. (l_e)	Wind & SDC A&B		SDC C-F		
					Step-Down End	Corner	Step-Down End	Corner	
SB⅞x24	8	⅞	24	18	7225	7660	6070	6435	I23
SB1x30	8	1	30	24	11750	9635	9870	8030	



Stemwall Garage Front



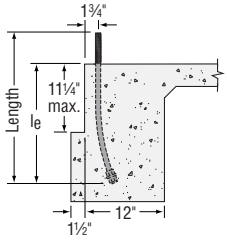
Perspective View



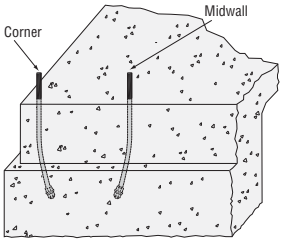
Plan View

SB Bolts at Slab on Grade: Edge

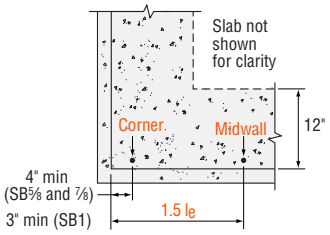
Model No.	Dimensions (in.)				Allowable Tension Loads (lbs.)				Code Ref.
	Footing Width	Dia.	Length	Min. Embed. (l_e)	Wind & SDC A&B		SDC C-F		
					Midwall	Corner	Midwall	Corner	
SB⅝x24	12	⅝	24	18	6675	6675	6675	5730	I23
SB⅞x24	12	⅞	24	18	13080	12135	12320	10190	
SB1x30	12	1	30	24	17080	15580	16300	13090	



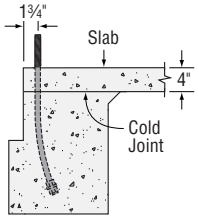
Slab Edge



Perspective View



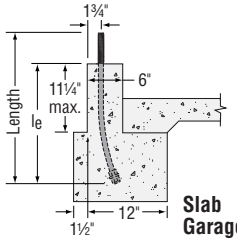
Plan View



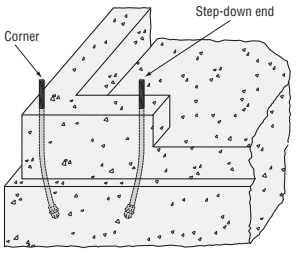
Two-Pour Installation

SB Bolts at Slab on Grade: Garage Curb

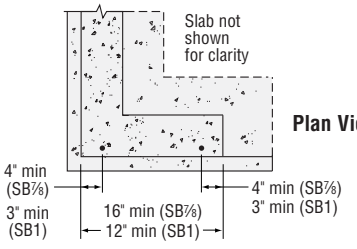
Model No.	Dimensions (in.)				Allowable Tension Loads (lbs.)				Code Ref.
	Curb Width	Dia.	Length	Min. Embed. (l_e)	Wind & SDC A&B		SDC C-F		
					Step-down End	Corner	Step-down End	Corner	
SB⅞x24	6	⅞	24	18	9175	10570	7705	8880	I23
SB1x30	6	1	30	24	15580	15580	13090	13090	



Slab Garage Curb



Perspective View



Plan View

Notes to the Designer:

1. Rebar is required at top of stemwall foundations but is not required for Slab-on-Grade Edge and Garage Curb, or Stemwall Garage Front installations.
2. Minimum end distances for SB bolts are as shown in graphics.
3. Multiply the tabulated ASD wind or seismic loads by 1.6 or 1.4, respectively, to obtain LRFD capacities.
4. Per Section 1613 of the IBC, detached one- and two-story dwellings in SDC C may use "Wind and SDC A&B" allowable loads.
5. See ESR-2611 for additional information.
6. Midwall loads apply when anchor is 1.5 l_e or greater from the end. For bolts acting in tension simultaneously, the minimum bolt center-to-center spacing is 3 l_e.
7. Full catalog loads apply for two-pour installation for slab-on-grade: edge.

SSTB® Anchor Bolts

The SSTB anchor bolt is designed for maximum performance as an anchor bolt for holdowns and Simpson Strong-Tie® Strong-Wall® shearwalls. Extensive testing has been done to determine the design load capacity of the SSTB when installed in many common applications.

The Simpson Strong-Tie® SSTB anchor bolts are now code listed by ICC-ES under the 2009 and 2012 IBC® and IRC® to meet the requirements of ICC-ES acceptance criteria AC 399. ICC-ES ESR-2611 is the industry's first code report issued for proprietary anchor bolts evaluated to the criteria of AC 399.

Special Features:

- Identification on the bolt head showing embedment angle and model
- Offset angle reduces side bursting, and provides more concrete cover
- Rolled thread for higher tensile capacity
- Stamped embedment line aids installation
- Available in HDG for additional corrosion resistance

MATERIAL: ASTM F-1554, Grade 36

FINISH: None. May be ordered HDG; contact Simpson Strong-Tie.

INSTALLATION:

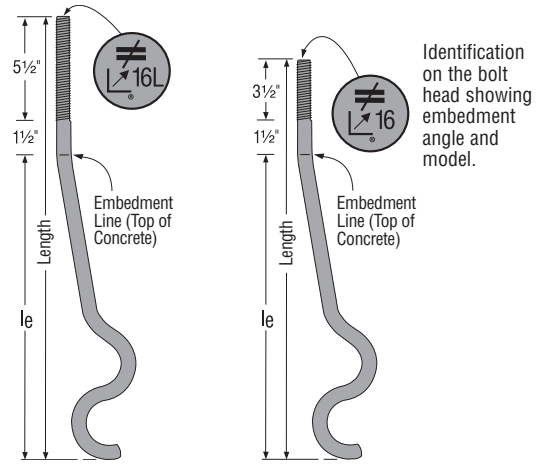
- SSTB is suitable for monolithic and two-pour concrete applications.
- Nuts and washers for holdown attachment are not supplied with the SSTB; install standard nuts, couplers and/or washers as required.
- On HDG SSTB anchors, chase the threads to use standard nuts or couplers or use overtapped products in accordance with ASTM A563, for example Simpson Strong-Tie® NUT⅝-OST or NUT⅞-OST.
- Install SSTB before the concrete pour using AnchorMates®. Install the SSTB per the plan view detail.
- Minimum concrete compressive strength is 2500 psi.
- When rebar is required it does not need to be tied to the SSTB.
- Order SSTBL Models *(example: SSTB16L)* for longer thread length (16L= 5½", 20L = 6½", 24L = 6", 28L = 6½"). SSTB and SSTBL load values are the same. SSTB34 and SSTB36 feature 4½" and 6½" of thread respectively and are not available in "L" versions.

CMU

- One horizontal #4 rebar in the second course.
- One vertical #4 rebar in adjacent cell for ⅝" diameter SSTB.
- One vertical #4 rebar in an adjacent cell and additional vertical #4 rebar(s) at 24" o.c. max. for ⅞" diameter SSTBs *(2 total vertical rebars for end wall corner, 3 total vertical rebars for midwall).*

CODES: See page 13 for Code Reference Key Chart.

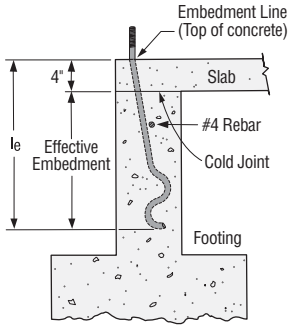
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.



SSTB16L
(other models similar)

SSTB16
(other models similar)

See pages 36-37 for additional installation details.



Two Pour Installation
(SSTB20, 24, 34 and 36)

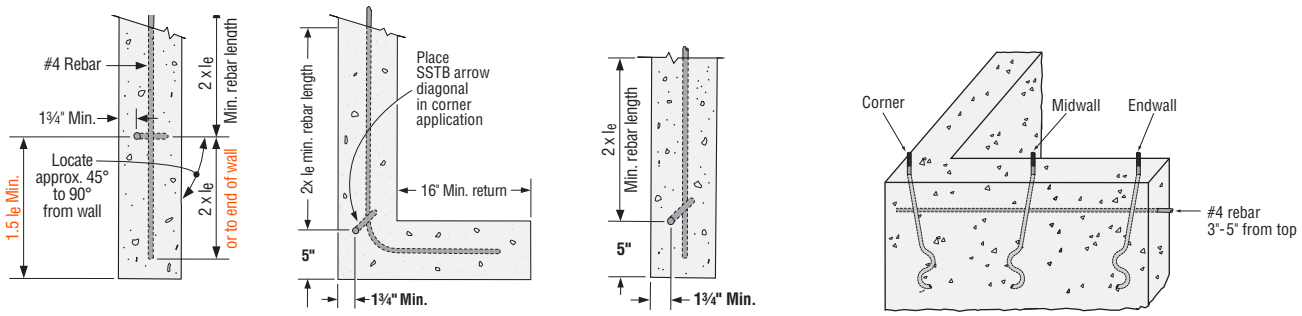
For two-pour (4" slab) installation loads:

- When using the SSTB20, use the equivalent loads of the SSTB16.
- When using the SSTB24, use the equivalent loads of the SSTB20.
- When using the SSTB34 or 36, use the equivalent loads of the SSTB28.

SSTB Bolts at Stemwall

Model No.	Dimensions				Allowable Tension Loads (lbs.)						Code Ref.
	Stemwall Width (in.)	Dia. (in.)	Length (in.)	Min. Embed. (l_e)	Wind & SDC A&B			SDC C - F			
					Midwall	Corner	End Wall[2]	Midwall	Corner	End Wall[2]	
SSTB16	6	⅝	17⅝ (16L = 19⅝)	12⅝	3610	3610	3610	2550	2550	2550	I23, F30, L20
SSTB20	6	⅝	21⅝ (20L = 24⅝)	16⅝	4315	4040	4040	3145	2960	2960	
SSTB24	6	⅝	25⅝ (24L = 28⅛)	20⅝	5025	4470	4470	3740	3325	3325	
SSTB28	8	⅞	29⅞ (28L = 32⅞)	24⅞	9900	8710	7615	8315	7315	6395	
SSTB34	8	⅞	34⅞	28⅞	9900	8710	7615	8315	7315	6395	
SSTB36	8	⅞	36⅞	28⅞	9900	8710	7615	8315	7315	6395	

1. See page 36 for notes to the Designer.
2. SSTB28, SSTB34 and SSTB36 with 3⅞" end distance allowable loads are 6605 lbs. (Wind and SDC A&B) and 5550 lbs (SDC C-F).

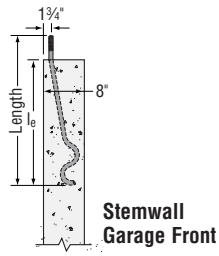


Midwall **Corner** **End Wall** **Perspective View**

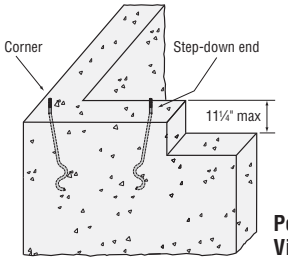
STEMWALL PLAN VIEWS

SSTB Bolts at Stemwall: Garage Front

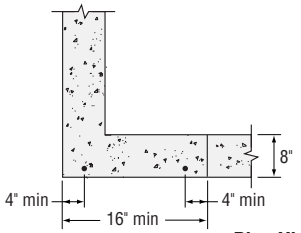
Model No.	Dimensions (in.)				Allowable Tension Loads (lbs.)				Code Ref.
	Stemwall Width	Dia.	Length	Min. Embed. (l_e)	Wind & SDC A&B		SDC C-F		
					Step-Down End	Corner	Step-Down End	Corner	
SSTB28	8	⅞	29⅞	24⅞	7,015	7,045	5,895	5,920	I23



Stemwall Garage Front



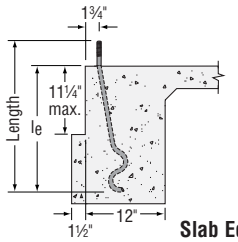
Perspective View



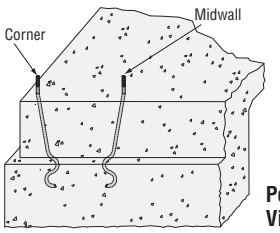
Plan View

SSTB Bolts at Slab on Grade: Edge

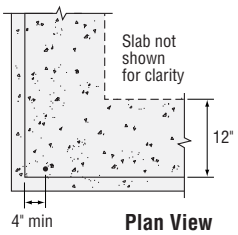
Model No.	Dimensions (in.)				Allowable Tension Loads (lbs.)				Code Ref.
	Footing Width	Dia.	Length	Min. Embed. (l_e)	Wind & SDC A&B		SDC C-F		
					Midwall	Corner	Midwall	Corner	
SSTB16	12	⅝	17⅝	12⅝	5,355	5,355	3,780	3,780	I23
SSTB20	12	⅝	25⅝	16⅝	6,550	6,550	4,785	4,785	
SSTB24	12	⅝	25⅝	20⅝	6,675	6,675	5,790	5,790	
SSTB28	12	⅞	29⅞	24⅞	13,080	13,080	11,060	11,675	
SSTB34	12	⅞	34⅞	28⅞	13,080	13,080	11,060	11,675	
SSTB36	12	⅞	36⅞	28⅞	13,080	13,080	11,060	11,675	



Slab Edge



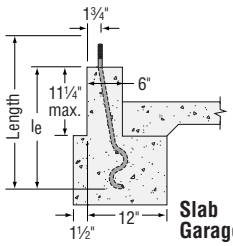
Perspective View



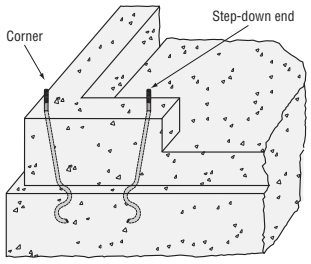
Plan View

SSTB Bolts at Slab on Grade: Garage Curb

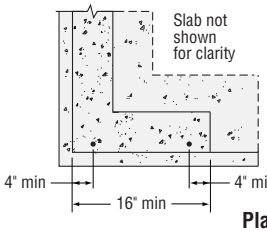
Model No.	Dimensions (in.)				Allowable Tension Loads (lbs.)				Code Ref.
	Curb Width	Dia.	Length	Min. Embed. (l_e)	Wind & SDC A&B		SDC C-F		
					Step-Down End	Corner	Step-Down End	Corner	
SSTB28	6	⅞	29⅞	24⅞	10,460	12,375	8,785	10,395	I23



Slab Garage Curb



Perspective View

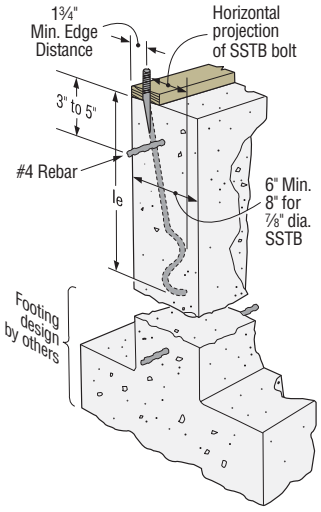


Plan View

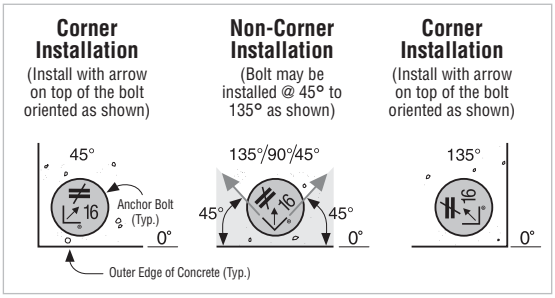
Notes to the Designer:

1. Rebar is required at top of stemwall foundations but is not required for Slab-on-Grade Edge and Garage Curb, or Stemwall Garage Front installations.
2. Minimum end distances for SSTB bolts are as shown in graphics.
3. Multiply the tabulated ASD wind or seismic loads by 1.6 or 1.4, respectively, to obtain LRFD capacities.
4. Per Section 1613 of the IBC, detached one- and two-story dwellings in SDC C may use "Wind and SDC A&B" allowable loads.
5. See ESR-2611 for additional information.
6. Midwall loads apply when anchor is 1.5 l_e or greater from the end. For bolts acting in tension simultaneously, the minimum bolt center-to-center spacing is 3 l_e.

SSTB® Anchor Bolts



Typical SSTB Installation in Concrete Foundation
Maintain minimum rebar cover, per ACI-318 concrete code requirements

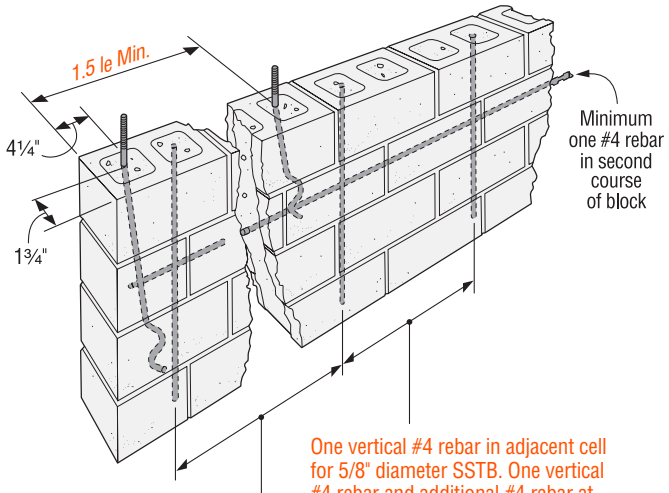


Plan View of SSTB Placement in Concrete

SSTB Bolts in 8" CMU

Model No.	Dia. (in.)	Length (in.)	Min. Embed. (l_e)	Allowable Tension Load (lbs.)		Code Ref.
				Midwall	Corner/ End Wall	
SSTB16	⅝	17⅝ (16L = 19⅝)	12⅝	4780	1850	170
SSTB20	⅝	21⅝ (20L = 24⅝)	16⅝	4780	1850	
SSTB24	⅝	25⅝ (24L = 28⅛)	20⅝	4780	1850	
SSTB28	⅞	29⅞ (28L = 32⅞)	24⅞	6385	4815	
SSTB34	⅞	34⅞	28⅞	6385	4815	
SSTB36	⅞	36⅞	28⅞	6385	4815	

1. Loads are based on a minimum CMU compressive strength, f'_m, of 1500 psi.
2. Minimum end distance required to achieve midwall table loads is 1.5 l_e.
3. Minimum end distance for corner/end wall loads is 4¼".
4. Loads may not be increased for duration of load.



Typical SSTB Installation in Grouted Concrete Block

GH Girder Hangers

A girder-to-foundation wall connection.

MATERIAL: 12 gauge

FINISH: Simpson Strong-Tie® gray paint, hot-dip galvanized, specify HDG. See Corrosion Information, page 14-15.

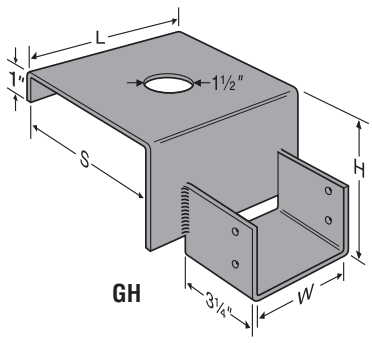
INSTALLATION: • Use all specified fasteners. See General Notes.
- Insert four 16d commons into girder.
- H = girder height – mudsill thickness.
- 1½" clearance hole accommodates rebar or anchor. This is not required.

OPTIONS: For skewed and saddle hangers, see Hanger Options on page 215-224. Contact Simpson Strong-Tie for other sizes available.

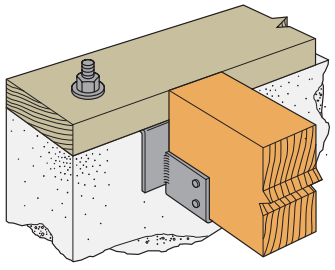
CODES: See page 13 for Code Reference Key Chart.

Model No.	Girder	Dimensions					Fasteners	Allowable Loads		Code Ref.
		W	L	H 2x Plate	H 3x Plate	S		Floor (100)	Roof (125)	
GH46-6	4x6	3⁹⁄₁₆	6	4	3	6⅛	4-16d	2000	2000	I20, L10, F19
GH46-8	4x6	3⁹⁄₁₆	6	4	3	8⅛	4-16d	2000	2000	
GH48-6	4x8	3⁹⁄₁₆	6	6	5	6⅛	4-16d	2000	2000	
GH48-8	4x8	3⁹⁄₁₆	6	6	5	8⅛	4-16d	2000	2000	
GH66-6	6x6	5½	8	4	3	6⅛	4-16d	4000	4000	170
GH66-8	6x6	5½	8	4	3	8⅛	4-16d	4000	4000	
GH68-6	6x8	5½	8	6	5	6⅛	4-16d	4000	4000	
GH68-8	6x8	5½	8	6	5	8⅛	4-16d	4000	4000	

1. Loads may not be increased for short-term loading.
2. A mudsill on top of the GH is required to achieve the table loads.
3. Models listed are for a 2x plate, specify "H" dimension when ordering for use with a 3x plate.
4. Uplift loads do not apply for this hanger.
5. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 22-23 for other nail sizes and information.



GH



Typical GH Installation

PAB *Pre-Assembled Anchor Bolt*

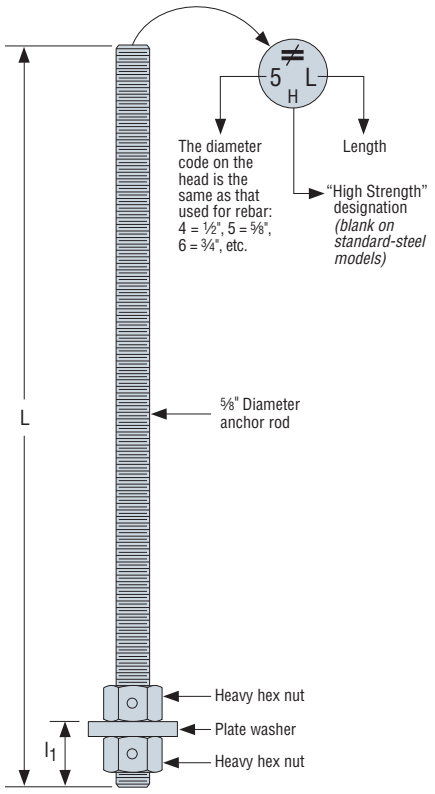
The PAB anchor bolt is a versatile cast-in-place anchor bolt ideal for high-tension-load applications. It features a plate washer at the embedded end sandwiched between two fixed hex nuts and a head stamp for easy identification after the pour.

- Available in diameters from ½" to 1¼" in lengths from 12" to 36" *(in 6" increments)*
- Available in standard and high-strength steel
- Head stamp contains the No Equal sign, diameter designation and an "HS" on high-strength rods

MATERIAL: Standard Steel – ASTM F1554 Grade 36, A36 or A307 – F_u = 58 ksi
High-Strength Steel *(up to 1" dia.)* – ASTM A449 – F_u = 120 ksi
High-Strength Steel *(1⅛" and 1¼" dia.)* – ASTM A193 B7 or F1554 Grade 105 – F_u = 125 ksi

FINISH: None

The Simpson Strong-Tie® Anchor Designer Software™ analyzes and suggests anchor solutions using the ACI 318 Appendix D strength-design methodology *(or CAN/CSA A23.3 Annex D Limit States Design methodology)*. It provides cracked and uncracked-concrete anchorage solutions for numerous Simpson Strong-Tie mechanical and adhesive anchors as well as the PAB anchor bolt. With its easy-to-use graphical user interface, the software makes it easy for the Designer to identify anchorage solutions without having to perform time-consuming calculations by hand.



PAB

PAB Anchor Bolt – Standard Steel

Diameter (in.)	Plate Washer Size (in.)	l_1 (in.)	Root Model No.	Lengths (in.)
½	¼ x 1¼ x 1¼	1	PAB4-XX	12" to 36" *(in 6" increments)*
⅝	⅜ x 1½ x 1½	1¼	PAB5-XX	
¾	⅜ x 2 x 2	1⅜	PAB6-XX	
⅞	⅜ x 2¼ x 2¼	1½	PAB7-XX	
1	⅜ x 2½ x 2½	1⅝	PAB8-XX	
1⅛	⅜ x 2¾ x 2¾	1¾	PAB9-XX	
1¼	½ x 3 x3	2	PAB10-XX	

PAB Anchor Bolt – High-Strength Steel

Diameter (in.)	Plate Washer Size (in.)	l_1 (in.)	Root Model No.	Lengths (in.)
½	¼ x 1¼ x 1¼	1	PAB4H-XX	12" to 36" *(in 6" increments)*
⅝	⅜ x 1½ x 1½	1¼	PAB5H-XX	
¾	⅜ x 2 x 2	1⅜	PAB6H-XX	
⅞	⅜ x 2¼ x 2¼	1½	PAB7H-XX	
1	⅜ x 2½ x 2½	1⅝	PAB8H-XX	
1⅛	⅜ x 2¾ x 2¾	1¾	PAB9H-XX	
1¼	½ x 3 x 3	2	PAB10H-XX	

How to specify and order:

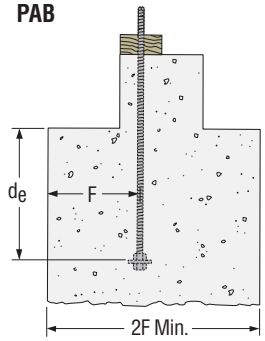
When calling out PAB anchor bolts, substitute the desired length for the "XX" in the Root Model Number.

For a ⅝"x18" anchor bolt, the model number would be PAB5-18 *(or PAB5H-18 for high strength)*.

1. Plate washers are designed to develop the capacity of the bolt.

PAB Anchor Bolt – Anchorage Solutions

Design Criteria	Diameter (in.)	Anchor Bolt Model No.	2500 psi Concrete				3000 psi Concrete			
			Dimensions (in.)		Tension Load (lbs.)		Dimensions (in.)		Tension Load (lbs.)	
			de (in.)	F (in.)	ASD	LRFD	de (in.)	F (in.)	ASD	LRFD
Wind	½	PAB4	4	6	3705	6175	4	6	3705	6175
	⅝	PAB5	4	6	4030	6720	4	6	4415	7360
			5½	8½	5900	9830	5	7½	5900	9830
	¾	PAB6	5½	8½	6500	10835	5	7½	6175	10290
			7	10½	8730	14550	6½	10	8730	14550
	⅞	PAB7	6	9	7405	12345	5½	8½	7120	11870
			8½	13	12050	20085	8	12	12050	20085
		PAB7H	8½	13	12490	20815	8	12	12495	20820
			13½	20½	24935	41555	13	19½	24935	41555
	1	PAB8	8	12	11405	19005	7½	11½	11340	18900
			10	15	15810	26350	9½	14½	15810	26350
		PAB8H	10	15	15940	26565	9½	14½	16165	26945
			16	24	32710	54515	15	22½	32710	54515
	1⅛	PAB9	9	13½	13610	22680	8	12	12495	20820
			12	18	19920	33200	11	16½	19920	33200
	1¼	PAB10	12	18	21135	35225	11	16½	20025	33375
Seismic	½	PAB4	5	7½	4320	6175	4½	7	4320	6175
	⅝	PAB5	6½	10	6880	9830	6	9	6880	9830
	¾	PAB6	7½	11½	9060	12940	7	10½	8945	12780
			8½	13	10185	14550	8	12	10185	14550
	⅞	PAB7	9	13½	11905	17010	8½	13	11970	17100
			10½	16	14060	20085	9½	14½	14060	20085
		PAB7H	14½	22	25350	36215	13½	20½	24650	35215
			16	24	29090	41555	15	22½	29090	41555
	1	PAB8	11	16½	15995	22850	10½	16	16435	23480
			12	18	18445	26350	11½	17½	18445	26350
		PAB8H	17	25½	33045	47205	16	24	32720	46740
			19	28½	38160	54515	18	27	38160	54515
	1⅛	PAB9	12½	19	19795	28275	12	18	20255	28940
			14	21	23240	33200	13½	20½	23240	33200
	1¼	PAB10	14½	22	25350	36215	14	21	26190	37415
			16	24	29510	42155	15½	23½	29510	42155



Design loads are calculated using a full shear cone. Coverage on each side of the bolt shall be a minimum of F or reductions must be taken.

Naming Scheme:

PAB5H-12

PAB Anchor Bolt | Diameter* and Grade | Length (12", 18", 24", 30" or 36")

*** Units in ⅛" Increments (Ex: 9 = ⅝" or 1⅛")**

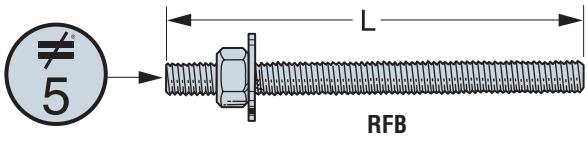
1. Anchorage designs conform to ACI 318-11 Appendix D and assume cracked concrete with no supplementary reinforcement.
2. Seismic indicates Seismic Design Category C through F. Detached one- and two-family dwellings in SDC C may use wind anchorage solutions. Seismic anchorage designs conform to ACI 318-11 Section D3.3.4.
3. Wind includes Sesmic Design Category A and B.
4. Foundation dimensions are for anchorage only. Foundation design *(size and reinforcement)* by Designer. The registered design professional may specify alternate embedment, footing size, and anchor bolt.
5. Allowable Stress Design (ASD) values are obtained by multiplying Load Factor Resistance Design (LRFD) capacities by 0.7 for Seismic and 0.6 for Wind.

RFB *Retrofit Bolts*

RFBs are clean, oil-free, pre-cut threaded rod, supplied with nut and washer. Offers a complete engineered anchoring system when used with Simpson Strong-Tie® adhesive. Inspection is easy; the head is stamped with rod length and "No Equal" symbol for identification after installation.

MATERIAL: ASTM F1554 Grade 36

FINISH: Zinc Plated *(unless otherwise noted)*, available in HDG (per ASTM A153); stainless steel (RFB#5x8SS only).



RFB

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

Model No.	Length L (in)	Bolt Diameter
RFB#4X4	4	½
RFB#4X5	5	½
RFB#4X6	6	½
RFB#4X7	7	½
RFB#4X10	10	½
RFB#4x8HDG-R	8	½
RFB#5X5	5	⅝
RFB#5X8	8	⅝
RFB#5X10	10	⅝
RFB#5X12HDG-R	12	⅝
RFB#5X16	16	⅝
RFB#6X10.5	10½	¾

1. RFB#4X8HDG-R and RFB#5X12HDG-R are only available with a hot-dip galvanized coating. They are retail packaged and are sold 10 per carton.
2. Washer provided on all RFB *(except RFB#5x8SS)*.

CNW/HSCNW *Coupler Nuts*

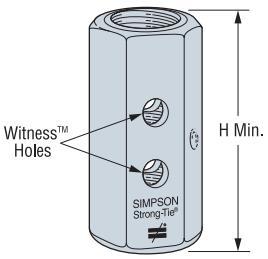
Simpson Strong-Tie® coupler nuts are a tested and load-rated method to join threaded rod and anchor bolts. "Witness" holes in the nut provide a means to verify when rods are properly installed. The positive stop feature helps ensure even threading into each end of the nut. CNW's meet and exceed the tensile capacity of corresponding ASTM A36 bolts and threaded rod. HSCNW's meet and exceed the tensile capacity of corresponding ASTM A449 bolts and threaded rod. Contact Simpson Strong-Tie for other coupler nut sizes.

FINISH: Zinc Plated

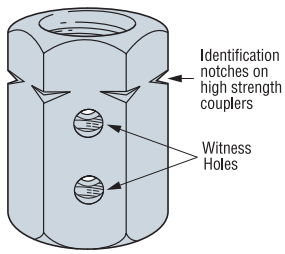
INSTALLATION:

- Tighten the two rods until each all-thread rod is visible in the witness hole.
- For non-hot-dip galvanized all-thread rod only.
- ⅝" and ⅞" diameter couplers available with oversized threads for installation to hot-dip galvanized bolts *(order CNW⅝-⅝OST and CNW⅞-⅞OST).*

CODES: See page 13 for Code Reference Key Chart.



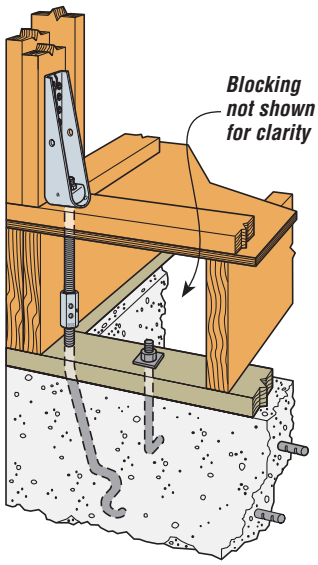
CNW
Allows fast visual check for correct all thread rod installation



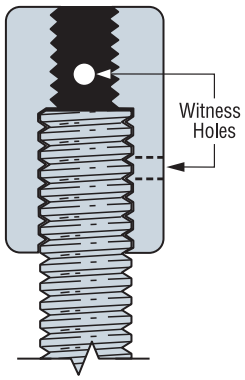
HSCNW
High Strength Coupler Nut

Model No.	Rod Diameter	H Min	Allowable Tension Capacity (lbs.) (100)	Code Ref.
CNW½	0.500	1½	4265	I1, F34
CNW⅝	0.625	1⅞	6675	
CNW¾	0.750	2¼	9610	
CNW⅞	0.875	2½	13080	170
CNW1	1.000	2¾	17080	
CNW1¼	1.250	3	26690	
HSCNW¾	0.750	2¼	19880	
HSCNW1	1.000	2¾	35345	
Transition Couplers				
CNW⅝-½	0.625 to 0.500	1½	4265	I1, F34
CNW¾-⅝	0.750 to 0.625	1¾	6675	
CNW⅞-⅝	0.875 to 0.625	2	6675	170
CNW1-⅞	1.000 to 0.875	2¼	13080	

1. Allowable loads shown are based on AISC 13th Edition A36 and A449 (HS) threaded rod capacities.



Typical CNW Rim Joist Installation



CNW Transition Coupler Nut

BP/LBP *Bearing Plates*

Bearing plates give greater bearing surface than standard cut washers, and help distribute the load at these critical connections.

The BP½-3 and BP⅝-3 are 3"x3" bearing plates that meet the latest requirements of the IRC and IBC. These plate washers are available uncoated or with a hot-dip galvanized (HDG) coating.

The BPS and LBPS are bearing plates that offer increased flexibility while meeting the latest requirements of the code for 2x4 and 2x6 walls. The slotted hole allows for adjustability to account for bolts that are not in the middle of the sill plate.

The BP⅝SKT uses SDS ¼"x1½" screws to provide lateral resistance when ⅝" diameter sill holes are overdrilled *(screws are provided)*. The shear capacity of the connection and the sill/anchor bolt shall be determined by the Designer for each installation.

MATERIAL: See table

FINISH: LBP, LBPS & BP⅝S—Galvanized; BP⅞-2—Zinc Plated; BPS, BP—None. BP's and BPS's may be ordered HDG; LBP and LBPS products may be ordered ZMAX®; contact Simpson Strong-Tie. Refer to page 14-15 for Corrosion Information.

INSTALLATION: • See General Notes.

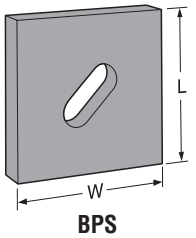
- BP/BPS—For shearwall applications, position edge of plate washer within ½" of sheathed edge of sill plate.

CODES: See page 13 for Code Reference Key Chart.
2012 IRC R602.11.1, 2008 SDPWS 4.3.6.4.3 *(see footnote 2 below)*

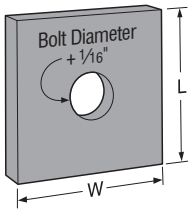
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Thickness	Dimensions W	Dimensions L	Bolt Dia.	Code Ref.
LBP½	9/64	2	2	½	180
LBP⅝	9/64	2	2	⅝	
LBPS½	9/64	3	3	½	
LBPS⅝	9/64	3	3	⅝	
BPS½-3	3 ga	3	3	½	
BPS½-6	3 ga	3	4½	½	
BPS⅝-3	3 ga	3	3	⅝	
BPS⅝-6	3 ga	3	4½	⅝	
BP⅜-2	3/16	2	2	⅜	
BP½	3/16	2	2	½	
BP½-3	3 ga	3	3	½	I1, F34
BP⅝-2	3/16	2	2	⅝	
BP⅝SKT	3 ga	4	2	⅝	180
BP⅝	¼	2½	2½	⅝	
BP⅝-3	3 ga	3	3	⅝	
BP¾	5/16	2¾	2¾	¾	I1, F34
BP¾-3	3 ga	3	3	¾	
BPS¾-3	3 ga	3	3	¾	180
BPS¾-6	3 ga	3	4½	¾	
BP⅞-2	⅜	1 15/16	2¼	⅞	
BP⅞	5/16	3	3	⅞	
BP1	⅜	3½	3½	1	

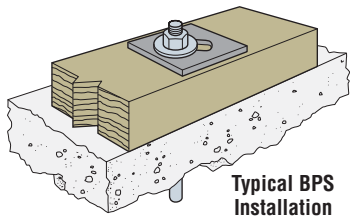
1. BP⅝SKT sold as a kit.
2. Standard cut washer required with BPS½-3, BPS⅝-3, BPS¾-3, BPS½-6, BPS⅝-6 and BPS¾-6 *(not provided)* per the 2012 IRC and 2008 SPDWS.



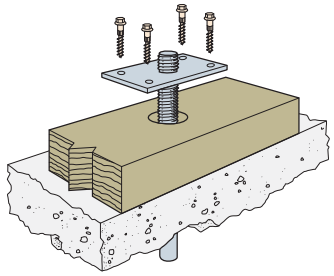
BPS
(LBPS similar)



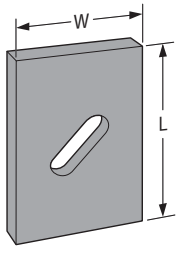
BP
(LBP similar)



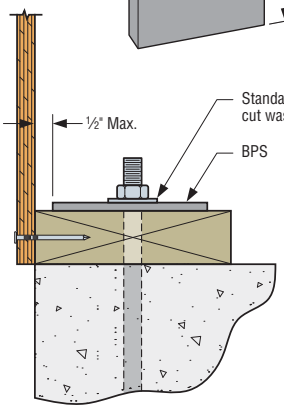
Typical BPS Installation



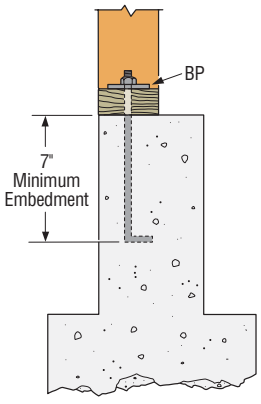
The BP⅝SKT is used when ⅝" diameter sill bolt holes are overdrilled



BPS½-6
(Other models similar)



Typical BPS Installed as a Shear Anchor



Typical BP Installed with a Mudsill Anchor Bolt

WT *Wedge Form Ties*

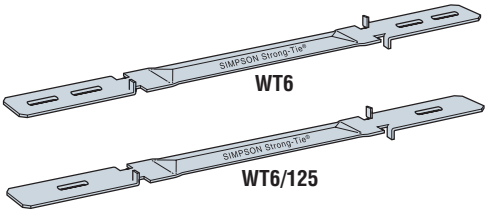
Designed for low foundation wall applications. ⅝" wide formed "V" design for rigidity allows accurate form spacing and support. Sizes now available for composite form board.

MATERIAL: Wedges—14 gauge, WT—18 gauge **FINISH**: Galvanized

INSTALLATION: • Use two 3½" long wedges for each tie.

- Not recommended for wall pours greater than 4' high.
- Wall thickness from 6" to 12".
- Refer to technical bulletin T-WT for recommended spacing *(see page 232 for details)*.

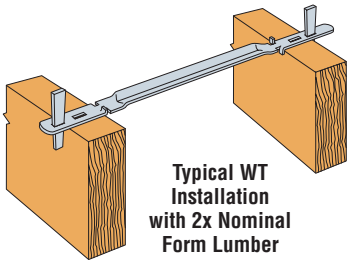
Model No.	Form Board	Wall Thickness
WT6	2x Solid Sawn	6
WT8		8
WT10		10
WT12		12
WT6/125	1¼" Composite	6
WT8/125		8



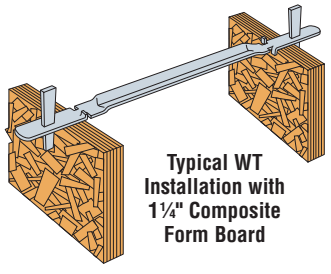
WT6

WT6/125

Order wedges separately. Specify W1.



Typical WT Installation with 2x Nominal Form Lumber



Typical WT Installation with 1¼" Composite Form Board

ANCHORMATE® *Anchor Bolt Holders*

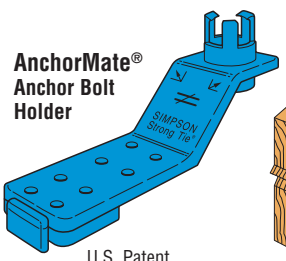
These reusable anchor bolt holders are designed to hold the anchor in place before the concrete pour, as required in some jurisdictions. The gripping section secures the bolt in place without a nut for quicker set up and tear down. It also protects the threads from wet concrete and simplifies trowel finishing.

- Built-in 2x4 and 2x6 stops eliminate measuring.
- Color-coded for easy size identification.
- Use the 5/8" and 7/8" AnchorMate to secure the SSTB to the formboard before the concrete pour. Alignment arrows *(left or right)* match the SSTB bolt head arrow.

MATERIAL: Nylon

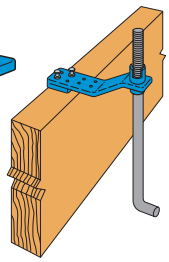
CODES: See page 13 for Code Reference Key Chart.

Model No.	Dia.	Color	Code Ref.
AM1/2	1/2	Yellow	180
AM5/8	5/8	Blue	
AM3/4	3/4	Red	
AM7/8	7/8	Green	
AM1	1	Black	

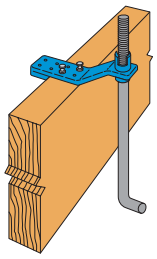


AnchorMate® Anchor Bolt Holder

U.S. Patent 6,065,730



Typical AnchorMate Installation for a 2x6 Mudsill



Typical AnchorMate Installation for a 2x4 Mudsill

ABS *Anchor Bolt Stabilizer*

The ABS stabilizes the anchor bolt to prevent it from being pushed against the form during the concrete pour.

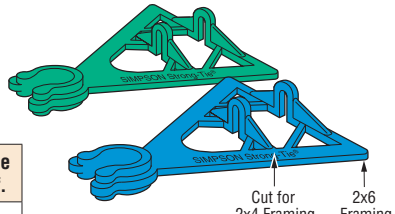
FEATURES:

- Supports the bolt approx. 8" below the top of the concrete.
- Model ABS5/8 is for the 5/8" SSTB and ABS7/8 is for the 7/8" SSTB.
- Thin section limits the effect of a cold joint.
- Sized for 2x4 and 2x6 mudsills.

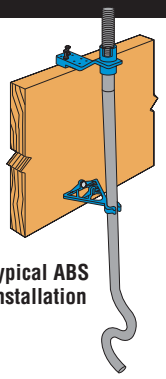
MATERIAL: Engineered Composite Plastic.

CODES: See page 13 for Code Reference Key Chart.

Model No.	Dia.	Color	Code Ref.
ABS5/8	5/8	Blue	180
ABS7/8	7/8	Green	



ABS Anchor Bolt Stabilizer



Typical ABS Installation

STRAPMATE® *Strap Holder*

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

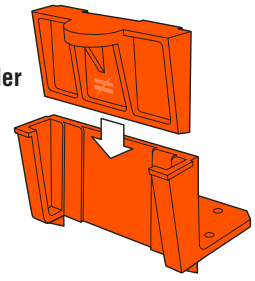
- The StrapMate is reusable.
- Works with STHD, LSTHD, HPAHD, PAHD.

MATERIAL: Engineered Composite Plastic.

- Designed to fit 3/4" plywood forms up to 1 3/4" LVL forms and larger.
- The strap is positioned off the front edge of the form board.

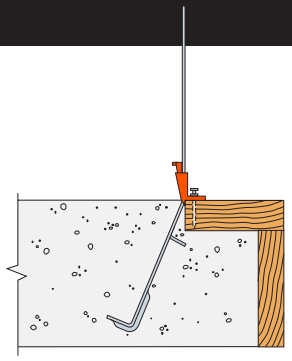
CODES: See page 13 for Code Reference Key Chart.

Model No.	Nails	Code Ref.
SM1	2-8d Duplex	180



StrapMate Strap Holder

U.S. Patent 6,796,099



Alternate StrapMate Installation for Brick Ledges

ABL *Anchor Bolt Locator*

The ABL enables the accurate and secure placement of anchor bolts on concrete-deck forms prior to concrete placement. The structural heavy-hex nut is attached to a pre-formed steel "chair", which eliminates the need for an additional nut on the bottom of the anchor bolt. Electro-galvanized versions available for HDG anchor bolts. Order ABL-OST when using HDG anchor bolts.

FEATURES:

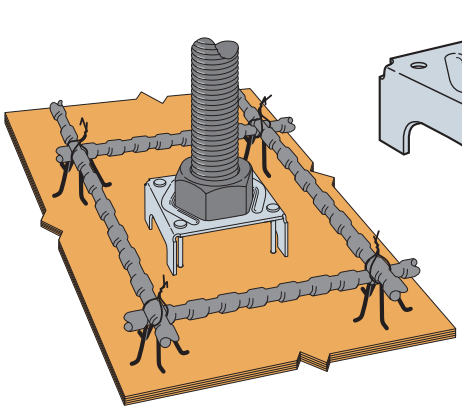
- Designed for optimum concrete flow
- Installed with nails or screws
- Meets code requirement for 1" stand off

MATERIAL: Nut - Heavy hex, Chair – Steel

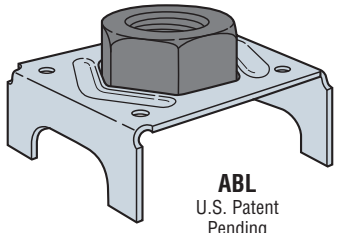
FINISH: Nut – None or Electro-galvanized; Chair – G90

CODES: See page 13 for Code Reference Key Chart.

Model No.	Anchor Bolt Dia.	Code Ref.
ABL4-1	1/2"	180
ABL5-1	5/8"	
ABL6-1	3/4"	
ABL7-1	7/8"	
ABL8-1	1"	
ABL9-1	1 1/8"	
ABL10-1	1 1/4"	



Typical ABL Installation



ABL
U.S. Patent Pending

ANCHORING SYSTEMS *Sill Plate Anchor Solutions*

Simpson Strong-Tie offers several post-installed solutions for sill plate anchorage to concrete or concrete block foundations. Often times these products are used in retrofit applications or when cast-in-place anchors are omitted or mislocated. Some products are available in galvanized and stainless steel versions to address most preservative-treated wood applications.

For complete information on product performance, installation requirements, corrosion information and appropriate code listings for Simpson Strong-Tie® products please refer to the *Anchoring and Fastening Systems for Concrete and Masonry* catalog or visit ***www.strongtie.com.***

SILL PLATE ANCHORAGE SOLUTIONS

The Titen HD® anchor and RFB Retrofit Bolt with Simpson Strong-Tie® adhesive may be used for sill plate applications. Use bearing plates as required by the building code. Refer to the appropriate code report or use Simpson Strong-Tie Anchor Selector software for anchor design information. For more information about this and other Simpson Strong-Tie software solutions, visit ***www.strongtie.com/software***.

Titen HD®

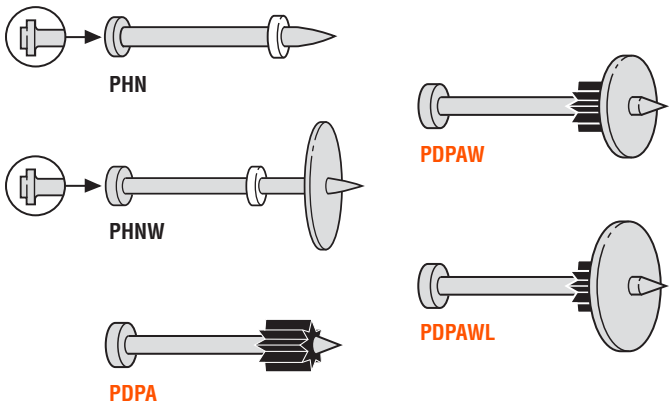
RFB

Simpson Strong-Tie offers a full line of powder-actuated tools, fasteners and powder loads for fastening to concrete and steel. Powder-actuated pins are often used to fasten sill plates to concrete slabs.

For complete information on product performance, installation requirements and appropriate code listings for Simpson Strong-Tie products please refer to the *Anchoring and Fastening Systems for Concrete and Masonry* catalog or visit ***www.strongtie.com.***

Model No.	Overall Length (in.)	Head Diameter (in.)	Shank Diameter (in.)	Washer Thickness (in.)	Washer Bearing Area (in.)
PHN-72[1]	2⅞	0.315	0.145	—[1]	—[1]
PHNW-72	2⅞	0.315	0.145	0.070	0.770
PDPAW-287	2⅞	0.291	0.157	0.070	0.424
PDPAWL-287	2⅞	0.291	0.157	0.070	0.767
PDPAWL-287MG[4]					
PDPAWLS-287	2⅞	0.291	0.157	0.055	0.970
PDPAWLS-287MG[4]					

1. Fasteners must be installed with a minimum ¾-inch-diameter, No. 16 gauge (0.0598") steel washer.
2. Fasteners shall not be driven until the concrete has reached a compressive strength of 2,000 psi, or the minimum compressive strength specified in the applicable building code, whichever is greater. Minimum edge distance is 1¾".
3. Sill plate connected to the concrete must be investigated for compliance with the applicable building code for lateral resistance and fastener pull-through.
4. Only the fasteners with machanically galvanized (MG) coating may be used to attach preservative-treated wood to concrete.



Concrete Anchors Designed to Meet the 2009 and 2012 IBC

Cracked & Uncracked CONCRETE — AC308 AC193

Building Codes Have Changed – New Anchor Designs Now Required

Most states across the country have now adopted the 2009 or 2012 International Building Code® (IBC) and many jurisdictions within each state are now enforcing the code. As a result, Designers are increasingly being required to specify anchors designed and tested to meet the new requirements of the code. The 2009 and 2012 IBC requires that Ultimate Strength Design methodology be used when designing structural anchorages within buildings and other structures. This affects how and when post-installed concrete anchors are specified and what products will be suitable for use.

When designing concrete anchorages, designers are now being required to consider, among other things, whether conditions exist that may cause the concrete to crack. If it's determined such conditions do exist, anchors designed and tested for use in cracked concrete must be specified. If it's determined there is no risk of concrete cracking, the designer may choose to specify anchors approved for use in uncracked concrete. In either case, Ultimate Strength Design methodology is required as part of the 2009 and 2012 IBC.

Common conditions that cause cracking of concrete:

- Concrete in tension such as in the underside of a slab
- Concrete elements located in areas prone to seismic activity
- Other factors that contribute to cracking include:
  - External short term loads *(such as high winds)*
  - Temperature variations
  - Shrinkage during curing

Simpson Strong-Tie has, for years, been at the forefront of developing and testing anchors for use in both cracked and uncracked concrete. In fact, one of our test labs was the first lab in the U.S. to be accredited in testing for cracked concrete. With our technical expertise and support you can rely on us to be the trusted source for concrete anchors.

Software Tools to Help You Select the Right Products

AS — Anchor Selector™ ACI 318

SIMPSON Strong-Tie ACE — Adhesive Cartridge Estimator

For more information, visit ***www.strongtie.com/software***.

ANCHORING SYSTEMS

SET-XP®

SET-XP is a 1:1 two component, high solids epoxy-based anchoring adhesive formulated for optimum performance in both cracked and uncracked concrete. SET-XP has been rigorously tested in accordance with ICC-ES AC308 as well as 2006 and 2009 IBC requirements and has proven to offer increased reliability in the most adverse conditions, including performance in cracked concrete under static and seismic loading. SET-XP is teal in color in order to be identified as a high performance adhesive for adverse conditions. Resin and hardener are dispensed and mixed simultaneously through the mixing nozzle. SET-XP exceeds the ASTM C881 specification for Type I and Type IV, Grade 3, Class C epoxy.

USES: When SET-XP® adhesive is used with all thread rod or rebar, the system can be used in tension and seismic zones where there is a risk of cracks occurring that pass through the anchor location. It is also suitable for uncracked concrete conditions.

CODES: ICC-ES ESR-2508; City of L.A. RR25744; Florida FL 15730 NSF/ANSI Standard 61 (216 in^2/1000 gal)

AT-XP™

NEW

AT-XP is a new high-strength acrylic adhesive for anchoring and doweling in concrete. A truly versatile formulation, AT-XP adhesive cures quickly in warmer temperatures and still dispenses easily and cures reliably in substrate temperatures as low as 14°F in hours, not days. AT-XP adhesive has passed the demanding adverse-condition tests of ICC-ES AC308 pertaining to reduced temperature, elevated temperature and long-term creep. To help ease installation, the AT-XP acrylic does not requires a power brush, making it the easiest hole-cleaning method.

USES: AT-XP is a versatile product that can be used in threaded rod anchoring into concrete, rebar doweling into concrete and is suitable for horizontal, vertical and overhead applications.

CODES: IAPMO UES ER-263

SET EPOXY

SET epoxy is a two-component, 1:1 ratio, high solids epoxy-based adhesive for use as a high strength, non-shrink anchor grouting material. Resin and hardener are dispensed and mixed simultaneously through the mixing nozzle. SET meets or exceeds the ASTM C-881 specification for Type I, II, IV and V, Grade 3, Class B and C.

CODES: ICC-ES ESR-1772 (CMU & URM); City of L.A. RR25279; Florida FL 15730; Caltrans approved; multiple DOT listings; NSF/ANSI Standard 61 (216 in^2/1000 gal), except SET1.7KTA.

SET-PAC-EZ™ covered by ICC-ES, City of L.A. and NSF/ANSI listings only

ET-HP EPOXY

ET-HP is a two-component, high solids epoxy-based system for use as a high strength, non-shrink anchor grouting material. Resin and hardener are dispensed and mixed simultaneously through the mixing nozzle. ET-HP meets the ASTM C-881 specifications for Type I, II, IV and V, Grade 3, Classes B and C, except gel time.

CODES: ICC-ES ER-4945 (URM); City of L.A. RR25185, RR25120; Multiple DOT Listings

AT ACRYLIC

AT is a two component, high solids, 10:1 ratio acrylic based adhesive for use as a high strength, anchor grouting material. Formulated for use in all types of weather, AT is designed to dispense easily and cure at temperatures down to 0°F. Resin and initiator are dispensed and mixed simultaneously through the mixing nozzle. AT meets the physical requirements of ASTM C881, Type I & IV, Grade 3, Classes A, B & C, except AT is a non-epoxy product formulated for fast cure time.

CODES: ICC-ES ER-5791* (CMU & URM); City of L.A. RR25459*; NSF/ANSI Standard 61 (11 in^2/5000 gal); Multiple DOT listings

**Applies to all AT products except AT10*

ANCHORING SYSTEMS

TITEN HD® Heavy Duty Screw Anchor

U.S. Patent
5,674,035 & 6,623,228

The Titen HD anchor is a patented, high-strength screw anchor for concrete and masonry. It is designed for optimum performance in both cracked and uncracked concrete; a requirement that the 2012 IBC places on post-installed anchors. The high strength, easy-to-install Titen HD anchor has been tested and shown to provide outstanding performance in cracked and uncracked concrete under both static and seismic-loading conditions. The self-undercutting, non-expansion characteristics of the Titen HD anchor make it ideal for structural applications, even at reduced edge distances and spacings. Recommended for permanent dry, interior non-corrosive environments or temporary outdoor applications.

CODES: ICC-ES ESR-2713 (Concrete); ICC-ES ESR-1056 (CMU); City of L.A. RR25741 (Concrete) and RR25560 (CMU); Florida FL 15730; Factory Mutual 3017082

STRONG-BOLT® 2 Wedge Anchor

This innovative, new wedge anchor features a redesigned, tri-segmented clip made of a special high-strength alloy that enables it to outperform many other cracked-concrete wedge anchors, including the original Strong-Bolt™. Strong-Bolt 2 has also received classification as a Category 1 anchor, which is the highest reliability rating as outlined by the ICC-ES AC193 acceptance criteria. It has been tested and code listed under the 2012 IBC requirements for installation in the most adverse conditions, including performance in cracked concrete under static and seismic loading.

CODES: ICC-ES ESR-3037 (Concrete); City of L.A. RR25891; Florida FL 15731; IAPMO UES ER-240 (CMU)

WEDGE-ALL® Wedge Anchor

The Wedge-All anchor is a non-bottom-bearing, wedge-style expansion anchor for use in solid concrete or grout-filled masonry. A one-piece clip ensures uniform holding capacity that increases as tension is applied. The threaded stud version is available in eight diameters and multiple lengths. A single-size, tie-wire version is available for wire supported fixtures. Threaded studs are set by tightening the nut. Tie-wire anchors are set with the claw end of a hammer.

CODES: ICC-ES ESR-1396 (CMU); City of L.A. RR24682; Factory Mutual 3017082 and 3031136; Florida FL 15730; Underwriters Laboratories File Ex3605; Meets requirements of Federal Specifications A-A-1923A, Type 4. The Tie-Wire anchor is not code listed.

TORQ-CUT™ Self-Undercutting Anchor

The Torq-Cut self-undercutting anchor is a heavy-duty, high-capacity anchor designed and tested for use in cracked and uncracked concrete under static and seismic loading conditions. It is designed to meet the requirements that the 2012 IBC places on post-installed anchors. The built in ring with hardened cutters expands with installation torque forming undercut grooves in the concrete. This interlocking connection between the anchor and the concrete provides superior load carrying capacity.

CODES: ICC-ES ESR-2705; City of L.A. RR25946; Florida FL 15731

HDU/DTT2Z *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.

HDU holdowns are pre-deflected during the manufacturing process, virtually eliminating deflection under load due to material stretch. They use Simpson Strong-Tie® Strong-Drive® SDS screws which install easily, reduce fastener slip and provide a greater net section when compared to bolts.

The HDU series of holdowns are designed to replace previous versions of the product such as PHD's as well as bolted holdowns. The HDU2, 4 and 5 are direct replacements for the PHD2, 5 and 6, respectively.

The DTT2Z tension tie is suitable for lighter-duty holdown applications on single or double 2x posts, and installs easily with Strong-Drive SDS screws *(included)*. The DTT2Z has been tested in accordance with the ICC-ES acceptance criteria for Holdowns Attached to Wood Members (AC155) and meets the minimum requirements for many alternate braced wall panels per section R602.10.3.2 of the 2009 IRC *(see table R602.10.6, item 1)*.

For more information on holdown options, contact Simpson Strong-Tie.

HDU SPECIAL FEATURES:

- Pre-deflected body virtually eliminates deflection due to material stretch.
- Uses SDS screws which install easily, reduce fastener slip, and provide a greater net section area of the post compared to bolts.
- SDS screws are supplied with the holdowns to ensure proper fasteners are used.
- No stud bolts to countersink at openings.

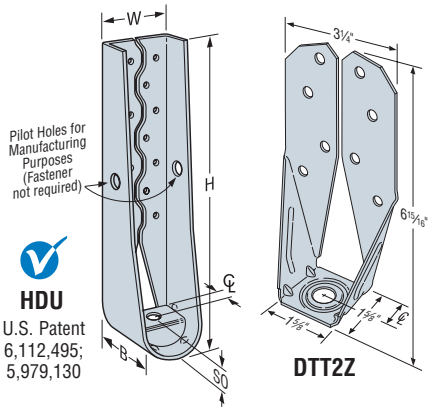
MATERIAL: See table

FINISH: HDU – Galvanized; DTT2Z – ZMAX® coating; DTT2SS – stainless steel

INSTALLATION:
- Use all specified fasteners. See General Notes.
- For use in vertical and horizontal applications.
- The HDU requires no additional washer, the DTT requires a standard cut washer *(included)* be installed between the nut and the seat.
- To tie multiple 2x members together, the Designer must determine the fasteners required to join the members without splitting the wood. See page 26 for SDS values.
- See SB and SSTB Anchor Bolts on pages 33-37 for anchorage options.
- SDS screws install best with a low speed high torque drill with a ⅜" hex head driver.

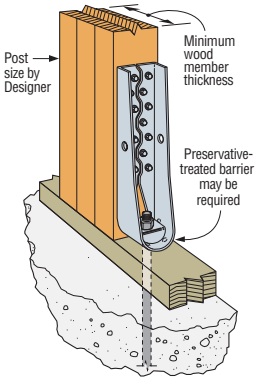
CODES: See page 13 for Code Reference Key Chart.

For holdowns, per ASTM test standards, anchor bolt nut should be finger-tight plus ⅓ to ½ turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used.

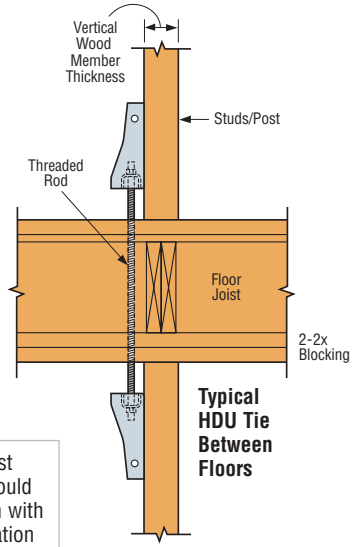


HDU
U.S. Patent 6,112,495; 5,979,130

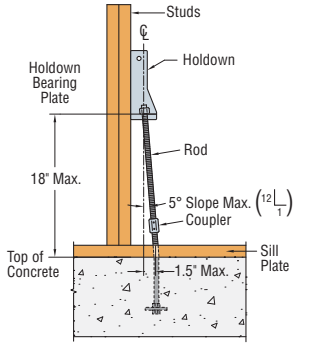
DTT2Z



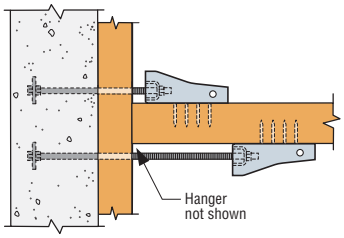
Vertical HDU Installation



Typical HDU Tie Between Floors



Holdown Raised Off Sill Plate



Horizontal HDU Offset Installation *(Plan View)*

See footnote 7

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.

Model No.	Ga	Dimensions (in.) W	H	B	℄	SO	Fasteners Anchor Bolt Dia. (in.)	SDS Screws	Minimum Wood Member Thickness[4] (in.)	Allowable Tension Loads (lbs.) (160)[1] DF/SP	SPF/HF	Deflection at Allowable Load (in.)	Code Ref.
DTT2Z	14	3¼	6¹⁵⁄₁₆	1⅝	¹³⁄₁₆	⅜	½	8-SDS ¼"x1½"	1½	1825	1800	0.105	I6, L8, F5
DTT2Z-SDS2.5								8-SDS ¼"x1½"	3	2145	1835	0.128	
								8-SDS ¼"x2½"	3	2145	2105	0.128	170
HDU2-SDS2.5	14	3	8¹¹⁄₁₆	3¼	1⅝	1⅜	⅝	6-SDS ¼"x2½"	3	3075	2215	0.088	
HDU4-SDS2.5	14	3	10¹⁵⁄₁₆	3¼	1⅝	1⅜	⅝	10-SDS ¼"x2½"	3	4565	3285	0.114	
HDU5-SDS2.5	14	3	13³⁄₁₆	3¼	1⅝	1⅜	⅝	14-SDS ¼"x2½"	3	5645	4065	0.115	
HDU8-SDS2.5	10	3	16⅝	3½	1⅜	1½	⅞	20-SDS ¼"x2½"	3	5980	4305	0.084	I6, L8, F5
									3½	6970	5020	0.116	
									4½	7870	5665	0.113	
HDU11-SDS2.5	10	3	22¼	3½	1⅜	1½	1	30-SDS ¼"x2½"	5½	9535	6865	0.137	
									7¼	11175	8045	0.137	
HDU14-SDS2.5	7	3	25¹¹⁄₁₆	3½	1⅝	1⅝	1	36-SDS ¼"x2½"	4x6[10]	10770	7755	0.122	170
									7¼	14375[9]	10435[9]	0.177	I6, L8, F5
									5½[8]	14445[8,9]	10350[9]	0.177	

1. Allowable loads have been increased for earthquake or wind load durations with no further increase allowed; reduce where other load durations govern.
2. The Designer must specify anchor bolt type, length and embedment. See SB and SSTB Anchor Bolts *(pages 33-37)*.
3. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 232 for details)*.
4. Post design by Specifier. Tabulated loads are based on a minimum 3½" wide post (in a 3½" wall). Post may consist of multiple members provided they are connected independently of the holdown fasteners. See pages 226-227 for common post allowable loads.
5. Tension values are valid for holdowns flush or raised off of sill plate.
6. Deflection at Allowable Tension Load includes fastener slip, holdown deformation and anchor rod elongation for holdowns installed up to 6" above top of concrete. Holdowns may be installed raised up to 18" above top of concrete with no load reduction provided that additional elongation of the anchor rod is accounted for.
7. Tabulated loads may be doubled when the holdowns are installed on opposite sides of the wood member provided either the post is large enough to prevent opposing holdown screw interference or the holdowns are offset to eliminate screw interferences.
8. Noted HDU14 allowable loads are based on a 5½" wide post *(6x6 min.)*.
9. Requires heavy hex anchor nut to achieve tabulated loads *(supplied with holdown)*.
10. Loads are applicable to installation on either narrow or wide face of post.

HDQ8/HHDQ *Holdowns*

The HHDQ series of holdowns combines low deflection and high loads with ease of installation. The unique seat design of the HDQ8 greatly minimizes deflection under load. Both styles of holdown employ the Simpson Strong-Tie® Strong-Drive® SDS screws which install easily, reduce fastener slip and provide a greater net section when compared to bolts. They may be installed either flush or raised off the mudsill without a reduction in load value.

SPECIAL FEATURES:

- Uses SDS screws which install easily, reduce fastener slip, and provide a greater net section area of the post compared to bolts.
- SDS screws are supplied with the holdowns to ensure proper fasteners are used.
- No stud bolts to countersink at openings.

MATERIAL: HDQ8—7 gauge; HHDQ—Body: 7 gauge, washer: ½" plate

FINISH: HDQ8—Galvanized; HHDQ— Simpson Strong-Tie® gray paint

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

- For use in vertical and horizontal applications.
- No additional washer is required.
- To tie multiple 2x members together, the Designer must determine the fasteners required to join members without splitting the wood.
- See SB and SSTB Anchor Bolts on pages 33-37 for anchorage options.
- SDS screws install best with a low speed high torque drill with a ⅜" hex head driver.

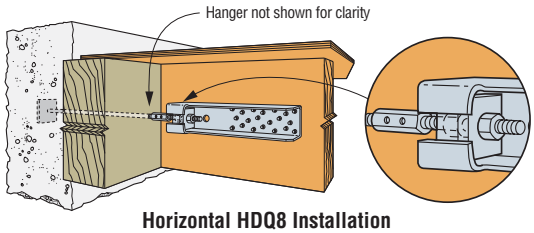
HDQ8:

- ⅝" of adjustability perpendicular to the wall.

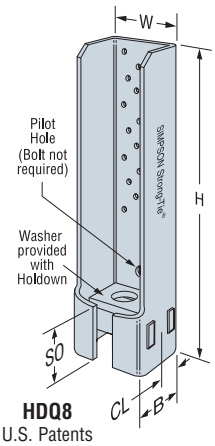
HHDQ11/14:

- No additional washer is required.
- HHDQ14 requires a heavy hex anchor nut *(supplied with holdown)*

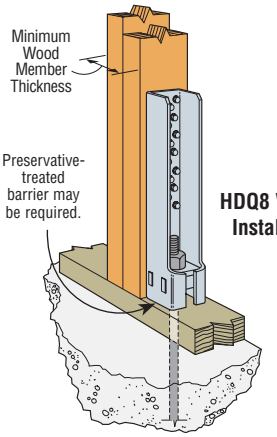
CODES: See page 13 for Code Reference Key Chart.



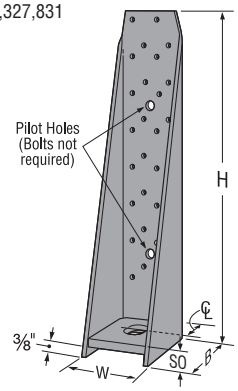
Horizontal HDQ8 Installation



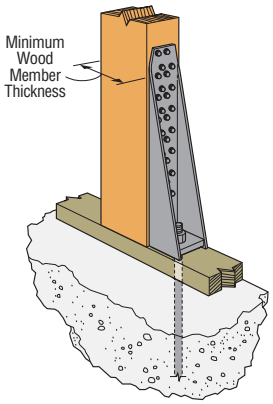
HDQ8
U.S. Patents 6,006,487 and 6,327,831



HDQ8 Vertical Installation



HHDQ11
(HHDQ14 similar)



Vertical HHDQ11 Installation
(HHDQ14 similar)

For holdowns, per ASTM test standards, anchor bolt nut should be finger-tight plus ⅓ to ½ turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used.

Not sure you have the right holdown?
The new Holdown Selector software is a great tool to help you select the best product for the job. Visit ***www.strongtie.com/software***.

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.

Model No.	Ga	Dimensions (in.)					Fasteners		Minimum Wood Member Thickness[4] (in.)	Allowable Tension Loads (lbs.) (160)			Code Ref.
		W	H	B	℄	SO	Anchor Bolt Dia. (in.)	SDS Screws		DF/SP	SPF/HF	Deflection at Allowable Load[6] (in.)	
HDQ8-SDS3	7	2⅞	14	2½	1¼	2⅜	⅞	20-SDS ¼"x3"	3	5715	4115	0.064	I6, L8, F5
								20-SDS ¼"x3"	3½	7630	5495	0.094	
								20-SDS ¼"x3"	4½	9230	6645	0.095	
HHDQ11-SDS2.5	7	3	15⅛	3½	1½	⅞	1	24-SDS ¼"x2½"	5½	11810	8505	0.131	
HHDQ14-SDS2.5	7	3	18¾	3½	1½	⅞	1	30-SDS ¼"x2½"	7¼	13015[9]	9370[9]	0.107	
									5½[8]	13710[8,9]	10745[9]	0.107	

1. Allowable loads have been increased for earthquake or wind load durations with no further increase allowed; reduce where other load durations govern.
2. The Designer must specify anchor bolt type, length and embedment. See SB and SSTB Anchor Bolts *(pages 33-37)*.
3. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 232 for details)*.
4. Post design by Specifier. Tabulated loads are based on a minimum 3½" wide post (in a 3½" wall). Post may consist of multiple members provided they are connected independently of the holdown fasteners. See pages 226-227 for common post allowable loads.
5. Tension values are valid for holdowns flush or raised off of sill plate.
6. Deflection at Allowable Tension Load includes fastener slip, holdown deformation and anchor rod elongation for holdowns installed up to 6" above top of concrete. Holdowns may be installed raised up to 18" above top of concrete with no load reduction provided that additional elongation of the anchor rod is accounted for.
7. Tabulated loads may be doubled when holdowns are installed on opposite sides of the wood member provided either the post is large enough to prevent opposing holdown screw interference or the holdowns are offset to eliminate screw interferences.
8. Noted HHDQ14 allowable loads are based on a 5½" wide post *(6x6 min.)*. All other loads are based on 3½" wide post minimum.
9. Requires heavy hex anchor nut to achieve tabulated loads *(supplied with holdown)*.
10. HDQ and HHDQ installed horizontally achieve compression loads with the addition of a standard nut on the underside of the load transfer plate. Refer to ICC-ES ESR-2330 for design values. HDQ8 requires a standard nut and BP⅞-2 *(sold separately)* load washer on the underside of the holdown for compression load. Design of anchorage rods for compression force shall be per the Designer.

HDC *Concentric Holdown*

SIMPSON Strong-Tie®

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.

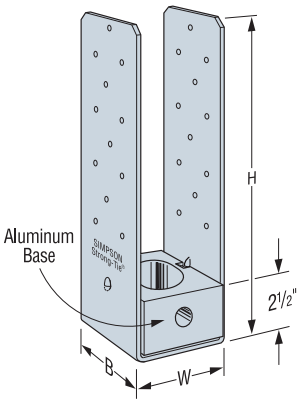
The unique design of the HDC holdowns eliminate eccentricity. They install with Simpson Strong-Tie® Strong-Drive® SDS screws *(included)* to reduce slip and provide a greater net section area of the post compared to bolts.

MATERIAL: 10 gauge strap **FINISH**: Galvanized strap, aluminum base

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

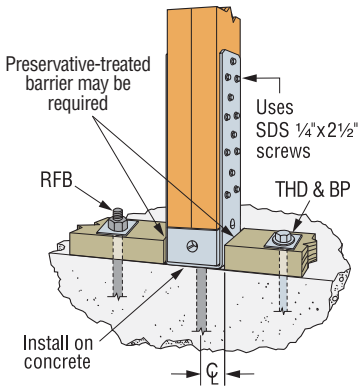
- Install on concrete.
- For use in vertical and horizontal applications.
- Sized for 2-2x, and 4x. Center 2-2x posts on holdown.
- Uses SDS screws supplied with the holdowns to ensure proper fasteners are used.
- Slot in the seat allows for ⅜" of adjustment perpendicular to plate.
- Cut washer required between base and anchor nut. HDC10 models use narrow cut washer with outside diameter of 1¾".
- Witness slot in the base to inspect the nut.
- Maximum anchor bolt height above concrete is 2⅛".
- To tie multiple 2x members together, the Designer must determine the fasteners required to join members without splitting the wood.
- Aluminum standoff cannot be in contact with preservative-treated wood.
- SDS screws install best with a low speed high torque drill with a ⅜" hex head driver.

CODES: See page 13 for Code Reference Key Chart.



HDC10

Patents:
U.S. 6,513,290; Can. 2,364,585



Typical HDC Installation with 2-2x4 Studs
(Similar with 2-2x6 studs)

For holdowns, per ASTM test standards, anchor bolt nut should be finger-tight plus ⅓ to ½ turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used.

Model No.	Post Size	W	H	B	℄	Anchor Bolt	Number of SDS ¼"x2½"	Allowable Tension Loads DF/SP (160)	Allowable Tension Loads SPF/HF (160)	Allowable Download DF/SP (100)	Allowable Download DF/SP (160)	Deflection at Highest Allowable Tension Load	Code Ref.
HDC10/22-SDS2.5	2-2x4	3⅛	14⅜	3	1⁹⁄₁₆	⅞	24	9135	6575	7070	9255	0.054	I6
HDC10/4-SDS2.5	4x4	3⁹⁄₁₆	14⅛	3	1¹³⁄₁₆	⅞	24	9135	6575	9600	10550	0.054	

1. The Designer must specify anchor bolt type, length and embedment. See SB and SSTB Anchor Bolts *(pages 33-37)*.
2. Loads are based on static tests on wood studs, limited by the lowest of 0.125" deflection, tested lowest ultimate divided by 3, or the wood screw value.
3. Deflection at Highest Allowable Tension Load includes fastener slip, holdown elongation, and anchor bolt elongation.
4. The HDCs will be limited by wood compression capacity if installed on a sill plate. HDC10/22 will achieve an allowable load of 4005 lbs. on a DFL plate. HDC10/4 will achieve an allowable load of 4940 lbs. on a DFL plate, which does not take deflection into account. Full tension values apply when installed on a sill, deflections may be higher.
5. Higher values may be obtained when HDC is not placed at an edge or with f'_c concrete strength > 2500 psi.
6. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 232 for details)*.
7. Post design by Designer. See pages 226-227 for common post allowable loads.

MSTD *Marriage Strap*

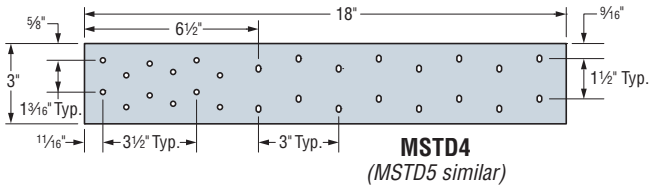
The MSTD marriage strap provides an overlapping, in-line splice between an HTT tension tie and a CMSTC16 coiled strap for panelized-roof applications where the roof member adjacent to the wall is too short to develop the required load into the roof diaphragm. The MSTD provides continuity of load without the need to splice the CMSTC16 alongside the HTT which requires additional blocking. Use MSTD4 with HTT4 and MSTD5 with HTT5.

MATERIAL: 16 gauge **FINISH:** Galvanized (G90)

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

- The CMSTC and HTT must be spliced end-to-end without any gap.
- Suitable for use with both 10d and 16d sinker nailing options for the HTT and CMSTC as specified per the Designer.
- To install:
  - Position HTT over the framing *(do not install fasteners yet)*.
  - Align CMSTC16 with the end of the HTT.
  - Position MSTD over the two connectors so that nail holes align correctly.
  - Install specified fasteners, filling all nail holes.

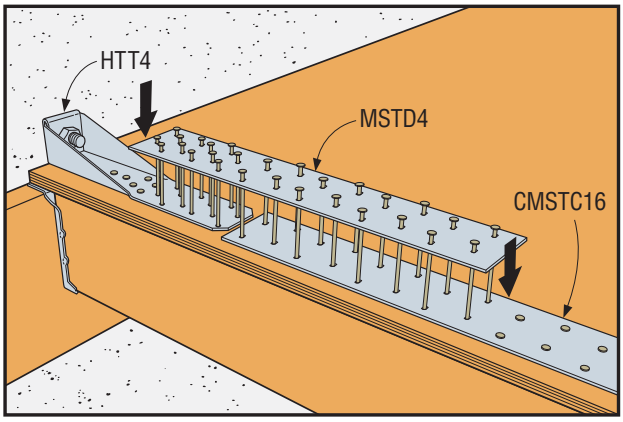
CODES: See page 13 for Code Reference Key Chart.



MSTD4
(MSTD5 similar)

Model No.	Total L	Tension Tie	Fasteners		Allowable Tension Loads	Code Ref.
			CMSTC16	HTT		
MSTD4	18	HTT4	16 - 16d Sinker	12 - 16d Sinker	3100	160
MSTD5	27	HTT5	24 - 16d Sinker	18 - 16 Sinker	4545	

1. Install on minimum 4x4 blocking.
2. 10d common nails may be substituted at 100% of table load.
3. Allowable tension loads include a load duration increase on the fasteners for wind or earthquake with no further increase allowed.
4. **NAILS:** 10d common = 0.148" dia. x 3" long, 16d sinker = 0.148" dia. x 3¼" long. See page 22-23 for other nail sizes and information.



Typical MSTD4 Installation

LTT/HTT *Tension Ties*

SIMPSON Strong-Tie®

Tension ties offer a solution for resisting tension loads that is fastened with nails. The entire line of tension ties has been tested and evaluated to the requirements of AC155.

The HTT4 and HTT5 are the latest generation of tension ties. They feature an optimized nailing pattern which results in better performance with less deflection. Designed to meet new code standards, the HTT4 and HTT5 offer higher loads than their predecessors.

The LTT19 Light Tension Tie is designed for 2x joists or purlins and the LTT20B is for nail- or bolt-on applications. The 3" nail spacing makes the LTT20B suitable for wood I-joists with 10dx1½. The LTTI31 is designed for wood chord open web truss attachments to concrete or masonry walls and may also be installed vertically on a minimum 2x6 stud.

MATERIAL: See table

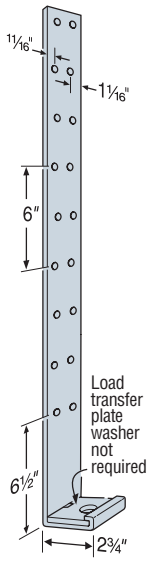
FINISH: Galvanized. May be ordered HDG; contact Simpson Strong-Tie.

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

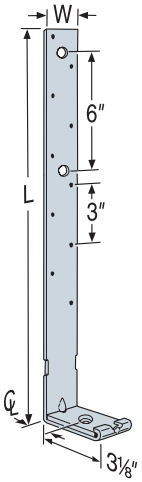
- For use in vertical and horizontal applications.
- To tie multiple 2x members together, the Designer must determine the fasteners required to join members without splitting the wood.
- The Designer shall specify anchor bolt type, length and embedment. See SB and SSTB anchor bolts on pages 33-37.

CODES: See page 13 for Code Reference Key Chart.

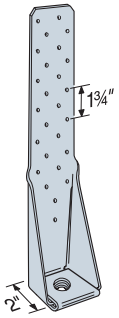
For tension ties, per ASTM test standards, anchor bolt nut should be finger-tight plus ⅓ to ½ turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used.



LTTI31



LTT20B
(LTT19 similar)



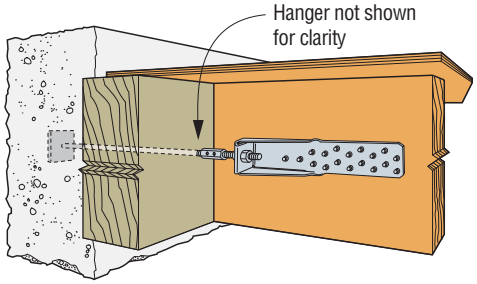
HTT5
(HTT4 similar)
U.S. Patent 5,467,570

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.

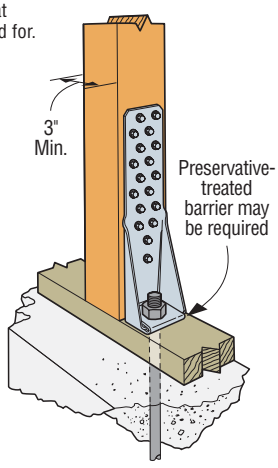
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Model No.	Material (Ga)		Dimensions			Seat Thick-ness	Fasteners		Allowable Tension Loads (160)		Deflection at Highest Allowable Load	Code Ref.
	Strap	Plate	W	L	℄		Anchor Bolts	Fasteners	DF/SP	SPF/HF		
LTT19[3]	16	3	1¾	19⅛	1⅜	⁵⁄₁₆	½, ⅝ or ¾	8-10dx1½	1310	1125	0.180	L19, IP2, F4
								8-10d	1340	1150	0.157	
LTT20B[3]	12	3	2	19¾	1½	⁵⁄₁₆	½, ⅝ or ¾	10-10dx1½	1355	1165	0.195	
								10-10d	1500	1290	0.185	
								2-½" Bolt	1625	1400	0.183	
LTTI31[5]	18	3	3¾	31	1⅜	¼	⅝	18-10dx1½	1350	1160	0.193	
HTT4	11	—	2½	12⅜	1⁵⁄₁₆	⁷⁄₁₆	⅝	18-10dx1½	3610	3105	0.086	
								18-16dx2½	4235	3640	0.123	
								18-SD #10x1½[9]	4455	3830	0.112	160
HTT5	11	—	2½	16	1⁵⁄₁₆	⁷⁄₁₆	⅝	26-10dx1½	4350	3740	0.120	L19, IP2, F4
								26-10d	4670	4015	0.116	
								26-16dx2½	5090[6]	4375	0.135	
HTT5KT[7]	11	¼	2½	16	1⁵⁄₁₆	⁷⁄₁₆	⅝	26-SD #10x2½	5445	5360	0.103	160

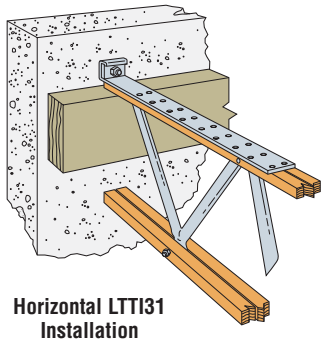
1. Allowable loads have been increased for wind or earthquake with no further increase allowed. Reduce where other loads govern.
2. Post design by Specifier. Tabulated loads are based on minimum 3"x3½" (2-2x4) post *(in 3½" wall)*. Post may consist of multiple members provided they are connected independently of the holdown fasteners. See pages 226-227 for common post allowable loads.
3. A standard cut washer is required under anchor nut for LTT19 and LTT20B when using ½" or ⅝" anchor bolts. No additional washer is required when using a ¾" anchor bolt.
4. Deflection at Highest Allowable Tension Load includes fastener slip holdown deformation, and anchor bolt elongation for holdowns installed up to 4½" above top of concrete. HTT4 and HTT5 may be installed raised up to 18" above top of concrete with no load reduction provided that additional elongation of the anchor rod is accounted for.
5. If the base of the LTTI31 is installed flush with a concrete or masonry wall, the allowable load is 2285 lbs.
6. Allowable tension load for HTT5 with a bearing plate washer BP5/8-2 *(sold separately)* installed in the seat of the holdown is 5295 for DF/SP and 4555 for SPF/HF.
7. HTT5KT is sold as a kit with the holdown, BP⅝-2 bearing plate washer and 26-SD #10x2½ screws.
8. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 232 for details)*.
9. HTT4 with SD #10x1½ screws achieves full load on a single 2x6 stud or joist.
10. **FASTENERS:** 10dx1½ = 0.148 dia. x 1½" long, 10d = 0.148" dia. x 3" long, 16dx2½ = 0.162" dia. x 2½" long, SD #10x2½ = 0.161" dia. x 2½", SD #10x1½ = 0.161" dia. x 1½".



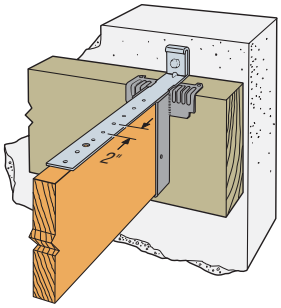
Horizontal HTT Installation



Vertical HTT4 Installation



Horizontal LTTI31 Installation



Horizontal LTT19 Installation
(LTT20B similar)

HDB/HD *Holdowns*

Simpson Strong-Tie offers a wide variety of bolted holdowns offering low-deflection performance for a range of load requirements. All of these holdowns have been tested in accordance with ICC-ES's AC 155 acceptance criteria and are approved for use in vertical and horizontal applications.

The HD3B is a light-duty holdown designed for use in shearwalls and braced-wall panels, as well as other lateral applications.

The HD5B, HD7B and HD9B bolted holdowns incorporate the proven design of our HDQ8 SDS-style holdown and feature a unique seat design which greatly minimizes deflection under load. HDB holdowns are self jigging, ensuring that the code-required minimum of seven bolt diameters from the end of the post is met. They can be installed directly on the sill plate or raised above it and are suitable for back-to-back applications where eccentricity is a concern. HDBs are designed to provide loads for intermediate-load-range shearwalls, braced-wall panels and lateral applications.

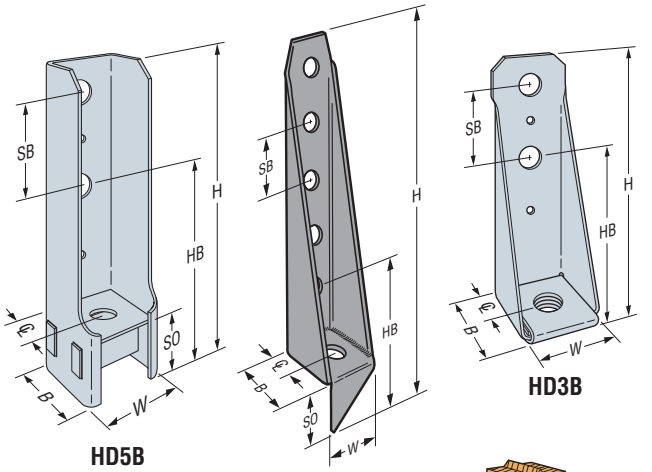
HD holdowns offer the highest allowable loads, providing high capacity for both vertical and horizontal applications. The HD12 and HD19 are self jigging, ensuring that the code-required minimum of seven bolt diameters from the end of the post is met. They can be installed back-to-back when eccentricity is an issue.

MATERIAL: See table

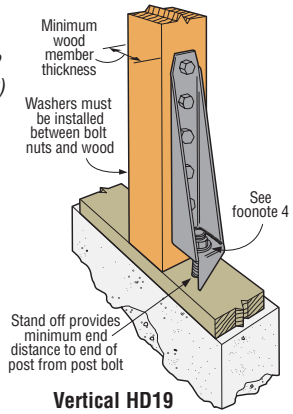
FINISH: HD3B/HD5B/HD7B/HD9B – Galvanized;
HD – Simpson Strong-Tie® gray paint

INSTALLATION: • Use all specified fasteners. See General Notes.
- Bolt holes shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt diameter *(per NDS, section 11.1.2)*.
- Stud bolts should be snugly tightened with standard cut washers between the wood and nut *(BP's are required in the City and County of Los Angeles)*.
- The Designer must specify anchor bolt type, length, and embedment. See SB and SSTB Anchor bolts *(pages 33-37)*.
- To tie multiple 2x members together, the Designer must determine the fasteners required to join members without splitting the wood.

CODES: See page 13 for Code Reference Key Chart.



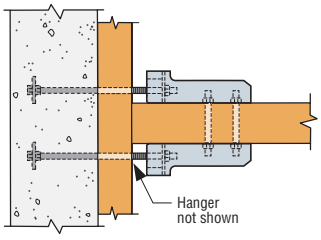
For holdowns, per ASTM test standards, anchor bolt nut should be finger-tight plus 1/3 to 1/2 turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used.



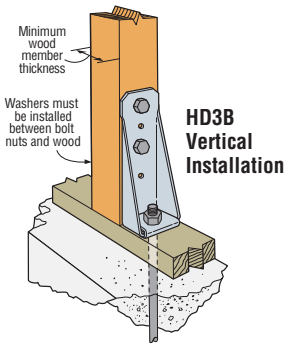
Vertical HD19 Installation

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.

Model No.	Material		Dimensions (in)							Fasteners		Minimum Wood Member Thickness[2]	Allowable Tension Loads (160)		Deflection at Highest Allowable Load	Code Ref.
	Base (in)	Body Ga	HB[4]	SB	W	H	B	℄	SO	Anchor Dia.	Stud Bolts		DF/SP	SPF/HF		
HD3B	—	12	4¾	2½	2½	8⅝	2¼	1⁵⁄₁₆	⅜	⅝	2 - ⅝	1½	1895	1610	0.156	IP3, F28, L21
												2½	2525	2145	0.169	
												3	3130	3050	0.120	
												3½	3130	3050	0.120	
HD5B	3⁄16	10	5¼	3	2½	9⅜	2½	1¼	2	⅝	2 - ¾	2½	3750	3190	0.129	
												3	4505	3785	0.156	
												3½	4935	4195	0.150	
HD7B	3⁄16	10	5¼	3	2½	12⅜	2½	1¼	2	⅞	3 - ¾	3	6645	5650	0.142	
												3½	7310	6215	0.154	
												4½	7345	6245	0.155	
HD9B	⅜	7	6⅛	3½	2⅞	14	2½	1¼	2⅜	⅞	3 - ⅞	3½	7740	6580	0.159	
												4½	9920	8435	0.178	
												5½	9920	8430	0.178	
												7¼	10035	8530	0.179	
HD12[9]	⅜	3	7	4	3½	20⁵⁄₁₆	4¼	2⅛	3⅝	1	4 - 1	3½	11350	9215	0.171	
												4½	12665	10765	0.171	
												5½x5½	14220	12085	0.162	
										1⅛	4 - 1	3½	11775	9215	0.171	
												4½	13335	11055	0.177	
												7¼	15435	13120	0.194	
												5½x5½	15510	12690	0.162	
HD19[9]	⅜	3	7	4	3½	24½	4¼	2⅛	3⅝	1⅛	5 - 1	7¼	16735	14225	0.191	
												5½x5½	16775	12690	0.200	
										1¼	5 - 1	7¼	19360	15270	0.180	
												5½x5½	19070	16210	0.137	



Horizontal HDB Installation
(Plan View)



HD3B Vertical Installation

1. Allowable loads have been increased for wind or earthquake with no further increase allowed: reduce where other loads govern.
2. Post design by Specifier. Tabulated loads are based on 3½" wide member minimum, unless noted otherwise. Post may consist of multiple members provided they are connected independently of the holdown fasteners. See pages 226-227 for common post allowable loads.
3. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 232 for details)*.
4. HD and HDB holdowns are self-jigging and will ensure minumum bolt end distance, HB, when installed flush with the sill plate.
5. Deflection at Highest Allowable Tension Load includes fastener slip holdown deformation, and anchor bolt elongation for holdowns installed up to 6" above top of concrete. Holdowns may be installed raised up to 18" above top of concrete with no load reduction provided that additional elongation of the anchor rod is accounted for.
6. To achieve published loads, machine bolts shall be installed with the nut on the opposite side of the holdown. If reversed, the Designer shall reduce the allowable loads shown per NDS requirements when bolt threads are in the shear plane.
7. Lag bolts will not develop the listed loads.
8. Tabulated values may be doubled when the HD holdown is installed on opposite sides of the wood member. The Designer must evaluate the capacity of the wood member and the anchorage.
9. Standard cut washer is required under anchor nut for HD12 with 1" anchor and HD19 with 1⅛" anchors.

LSTHD/STHD *Strap-Tie Holdown*

SIMPSON Strong-Tie®

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 holdown offering high load capacity 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

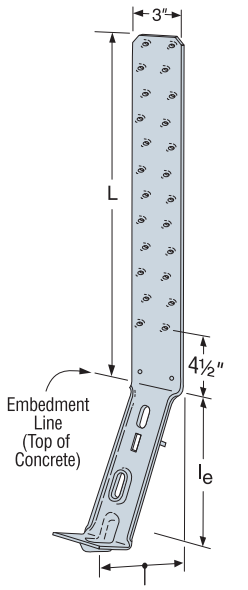
- The nailing pattern allows for nailing to the edges of double 2x's
- Strap nail slots are countersunk to provide a lower nail head profile
- The slots below the embedment line enable increased front-to-back concrete bond and help to reduce spalling
- Rim joist models accommodate up to a 17" clear span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

MATERIAL: LSTHD8, LSTHD8RJ—14 gauge, all others—12 gauge

FINISH: Galvanized

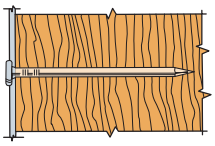
INSTALLATION: • Use all specified fasteners. See General Notes.

- Use table below 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.
- 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; or (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.

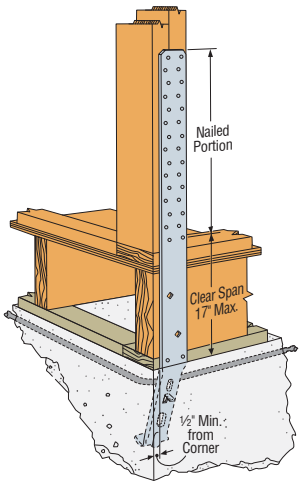


LSTHD8 varies from 4" to 4½"
STHD10, STHD14 varies from 4¾" to 5¼"

STHD
U.S. Patent 5,813,182



Nails are countersunk for a low-profile strap surface.



Typical STHD14RJ Rim Joist Application

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 page 13 for Code Reference Key Chart.

Tension Loads for STHD Installations

WIND AND SDC A & B – ALLOWABLE TENSION LOADS FOR DF/SP/SPF/HF (160)

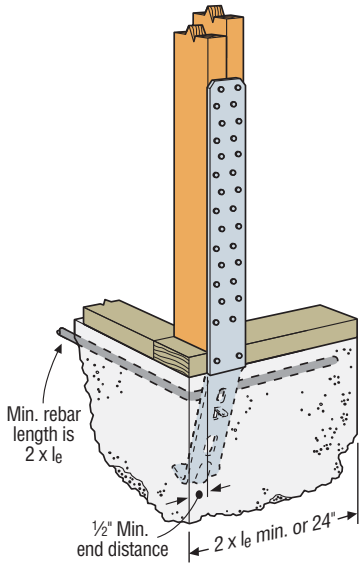
Min. Stem Wall (in)	Model No.		Strap Length (L)		le (in)	Req'd Nails	Non Cracked			Cracked			Code Ref.
	Standard	Rim Joist	Standard (in)	Rim Joist (in)			Midwall	Corner	Endwall	Midwall	Corner	Endwall	
6	LSTHD8	LSTHD8RJ	18⅝	32⅛	8	20 -16d Sinkers	3115	2700	1690	2675	2320	1455	I25. F33
	STHD10	STHD10RJ	24⅝	38⅛	10	24 -16d Sinkers	3820	3820	2050	3140	3140	1705	
	STHD14	STHD14RJ	26⅛	39⅝	14	30 -16d Sinkers	5150	5150	3200	5150	5150	3200	
8	LSTHD8	LSTHD8RJ	18⅝	32⅛	8	20 -16d Sinkers	3115	2700	2230	2675	2320	1915	
	STHD10	STHD10RJ	24⅝	38⅛	10	28 -16d Sinkers	4755	4120	3145	4195	3500	2585	
	STHD14	STHD14RJ	26⅛	39⅝	14	30 -16d Sinkers	5345	5345	4210	5345	5345	4210	

SDC C-F – ALLOWABLE TENSION LOADS FOR DF/SP/SPF/HF (160)

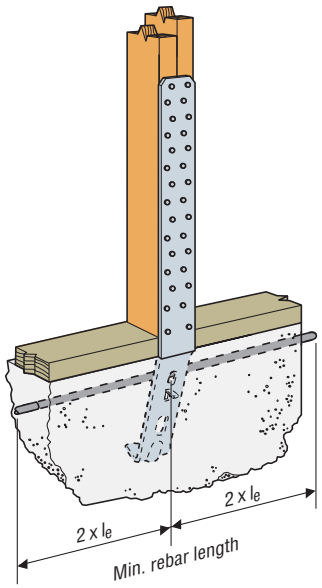
Min. Stem Wall (in)	Model No.		Strap Length (L)		le (in)	Req'd Nails	Non Cracked			Cracked			Code Ref.
	Standard	Rim Joist	Standard (in)	Rim Joist (in)			Midwall	Corner	Endwall	Midwall	Corner	Endwall	
6	LSTHD8	LSTHD8RJ	18⅝	32⅛	8	16 -16d Sinkers	2270	2090	1220	2250	1950	1220	I25. F33
	STHD10	STHD10RJ	24⅝	38⅛	10	18 -16d Sinkers	2750	2750	1615	2640	2640	1435	
	STHD14	STHD14RJ	26⅛	39⅝	14	22 -16d Sinkers	3695	3695	2685	3695	3695	2685	
8	LSTHD8	LSTHD8RJ	18⅝	32⅛	8	16 -16d Sinkers	2615	2125	1635	2250	1950	1610	
	STHD10	STHD10RJ	24⅝	38⅛	10	20 -16d Sinkers	3400	2940	2295	3400	2940	2175	
	STHD14	STHD14RJ	26⅛	39⅝	14	24 -16d Sinkers	3815	3815	3500	3815	3815	3500	

1. Allowable loads are for wind or seismic loading. Nail quantities reflect an increase for duration of load with no further increase allowed. Reduce where other loads govern.
2. Concrete shall have a minimum concrete strength, f'_c of 2500 psi.
3. 10d common (3" long x 0.148" diameter) nails may be used with no load reduction. 10dx2½ (2½" long x 0.148" diameter) nails may be used with no load reduction when installed directly over framing. For installation over structural sheathing, use 10d common or 16d sinkers.
4. Use the specified number of nails listed in table or as specified. In many cases, not all nail holes will be filled. Nail strap from the bottom up.
5. Deflection at highest allowable loads for install over wood double studs are as follows: Installed on framing: LSTHD8 = 0.089", STHD10 = 0.117" and STHD14 = 0.118". Installed over structural sheathing: LSTHD8 = 0.114", STHD10 = 0.146" and STHD14 = 0.164".
6. Multiply Seismic and Wind ASD load values by 1.4 or 1.6 respectively to obtain LRFD capacities.
7. Per 2009 and 2012 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.
8. Minimum center-to-center spacing is 3 times the required embedment ($S_{min} = 3 \times l_e$) for STHD's acting in tension simultaneously. Midwall install is based on $1.5 \times l_e$ end distance.
9. See T-SCLCOLUMN for installation on structural composite lumber posts or columns *(see page 232 for details)*.
10. For brick ledge applications, use full loads shown for STHD14 installed in 8" stemwall.
11. **NAILS:** 16d sinker = 0.148" dia. x 3¼" long. See page 22-23 for other nail sizes and information.

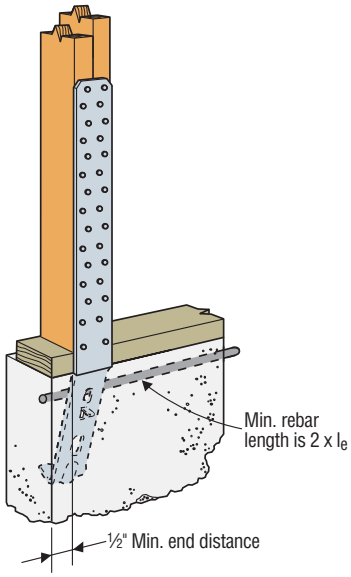
LSTHD/STHD *Strap-Tie Holdown*



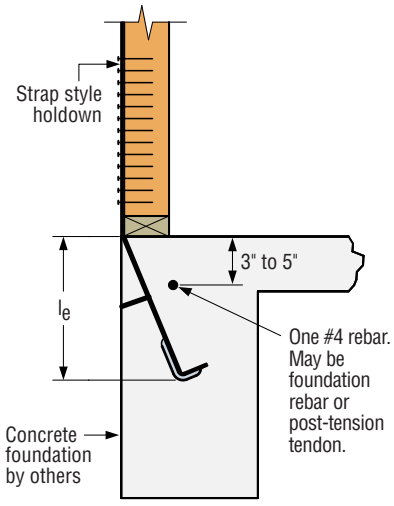
Typical STHD14 Corner Installation



Typical STHD14 Mid Wall Installation

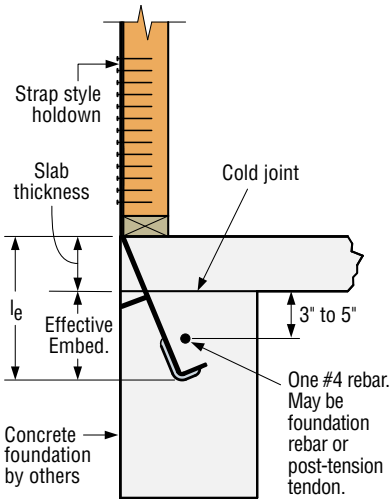


Typical STHD14 End Wall Installation

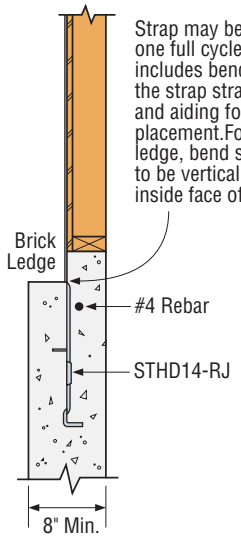


Single Pour Rebar Installation

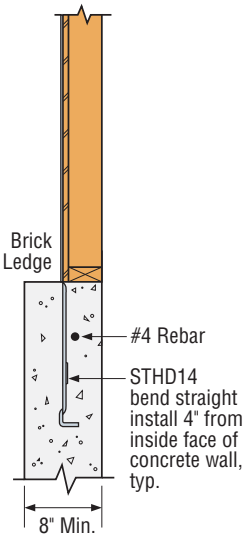
**Maintain minimum rebar cover, per ACI-318 concrete code requirements.*



Two Pour Installation for Downturn Footings



Brick Ledge Installation with Step



Brick Ledge Installation without Step

SPALL REDUCTION SYSTEM FOR STHD STRAP TIE HOLDOWN

FEATURES

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

BENEFITS

Built-in Tab:

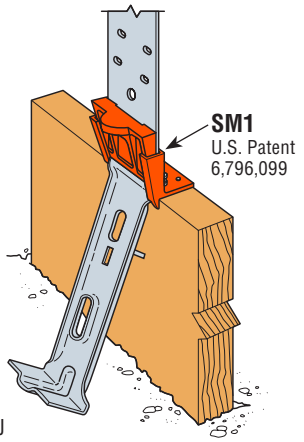
- Reduces spalling and costly retrofits.
- No additional labor to install.
- Holds STHD away from form board.

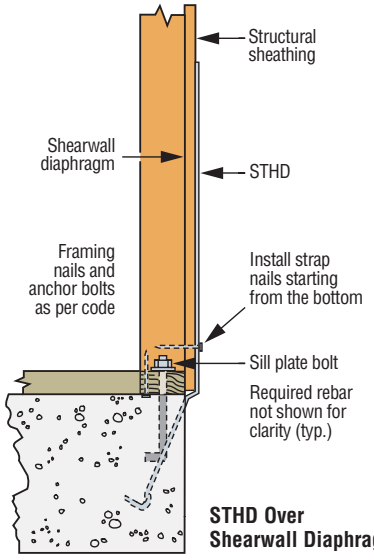
StrapMate Locator Line:

- 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.





STHD Over Shearwall Diaphragm

PA Strap Tie Holdowns

Wood-to-concrete connectors that satisfy engineering and code requirements. The PA is code listed in ICC-ES ESR-2920 under the 2009 and 2012 IBC and have been tested to meet the requirements of ICC-ES acceptance criteria AC-398 for cracked and un-cracked concrete.

MATERIAL: 12 gauge

FINISH: Galvanized or ZMAX® coating

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

- For additional length, an MST strap can be attached using ½" bolts through existing holes.
- Refer to technical bulletin T-PAUPLIFT *(see page 231 for details)* for additional information.

CODES: See page 13 for Code Reference Key Chart.

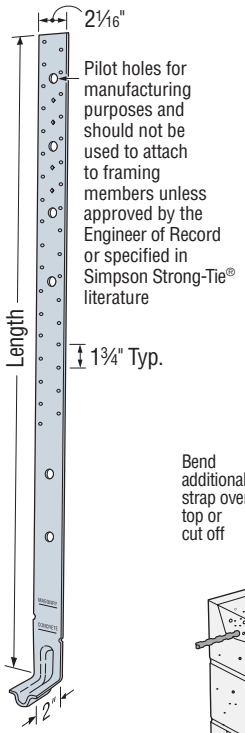
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

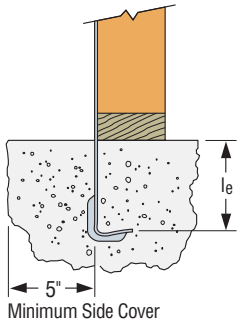
Wind and SDC A & B – Allowable Tension Loads (lbs.)							
Model No.	Strap Length, L (in.)	le (in.)	Non Cracked Concrete		Cracked Concrete		Code Ref.
			Required Nails	Tension	Required Nails	Tension	
PA51	51	4	10 -10d Common	2025	10 -10d Common	2025	I25
PA68	70	4	10 -10d Common	2025	10 -10d Common	2025	

SDC C-F – Allowable Tension Loads (lbs.)							
Model No.	Strap Length, L (in.)	le (in.)	Non Cracked Concrete		Cracked Concrete		Code Ref.
			Required Nails	Tension	Required Nails	Tension	
PA51	51	4	10 -10d Common	2025	10 -10d Common	1980	I25
PA68	70	4	10 -10d Common	2025	10 -10d Common	1980	

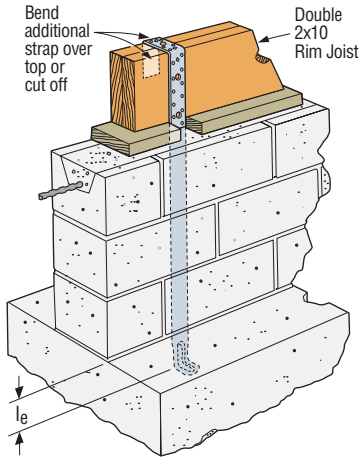
1. Allowable loads have been increased for earthquake or wind load durations with no further increases allowed.
2. Concrete shall have a minimum concrete strength, f'c of 2500 psi.
3. Strong-Drive® SD9x1½ (0.131"x1½") screws may be substituted for nails with no reduction.
4. **NAILS:** 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.



PA51
(PA68 similar)



Typical PA Connecting Stud To Foundation

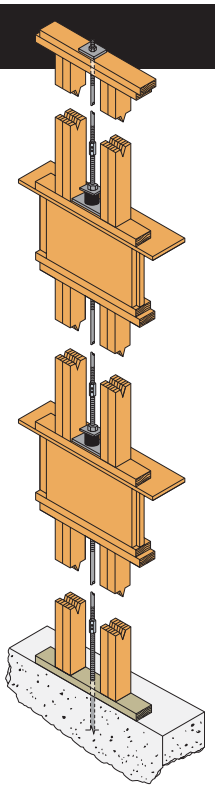


Typical PA51 Installation
(PA68 similar)

NEED A HIGHER CAPACITY HOLDOWN?

When one of our conventional holdowns doesn't offer enough overturning capacity for a multi-story project, consider specifying the Simpson Strong-Tie® Anchor Tiedown System (ATS). ATS is a high-capacity, overturning-restraint system commonly used in 3-6 story wood structures to anchor stacked shearwalls. This continuous rod system features our patented shrinkage take-up devices and extends from the foundation to the top of the structure and is restrained *(tied off)* at each level. Designed properly, it can provide more than 50,000 lbs. of overturning restraint; important when designing for the cumulative overturning forces in multi-story buildings.

For more information, see page 68 of this catalog; and for specification options, see our *Anchor Tiedown Systems Options for Specification* brochure (F-ATSD10) or visit ***www.strongtie.com/ats***.



PA/HPA *Purlin Anchors*

PA/HPA purlin anchors offer solutions for wood to concrete and concrete block connections which satisfy code requirements. The PAs dual embedment line allows installation in concrete or concrete block. The PA and HPA are code listed in ICC-ES ESR-2920 under the 2009 and 2012 IBC and IRC and have been tested to meet the requirements of ICC-ES acceptance criteria AC-398 for cracked and un-cracked concrete.

MATERIAL: PA—12 gauge; HPA—10 gauge

FINISH: Galvanized. PA's available HDG or ZMAX® coating

INSTALLATION: • Use all specified fasteners; some models have extra fastener holes. See General Notes.
- Purlin Anchor must hook around rebar.
- Allowable loads are for a horizontal installation into the side of a concrete or masonry wall.
- Strap may be bent one full cycle. *(Bent vertical 90° then bent horizontal.)*

EDGE DISTANCE—Minimum concrete edge distance is 5". Minimum concrete block left-to-right edge distance is 20".

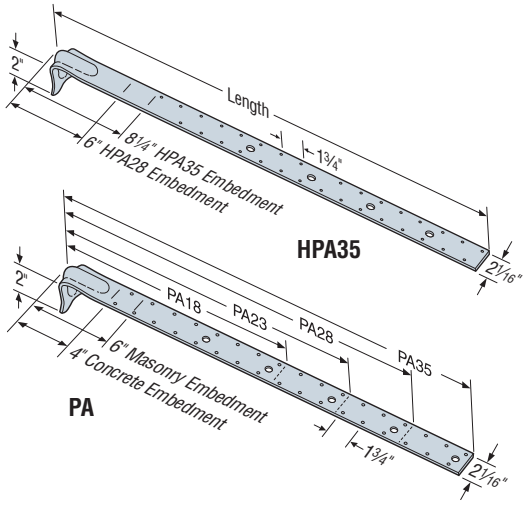
CONCRETE BLOCK WALL—The minimum wall specifications are:
- A One #4 vertical rebar, 32" long, 16" each side of anchor;
- B Two courses of grout filled block above and below the anchor *(no cold joints allowed)*;
- C A horizontal bond beam with two #4 rebars, 40" long, a maximum of two courses above or below the anchor.
- D Minimum masonry compressive strength, f'_m = 1500 psi.

OPTIONS: See LTT and HTT Tension Ties for alternate retrofit solutions.

CODES: See page 13 for Code Reference Key Chart.

ASCE7-10 12.11.2.2.5 states:

... Diaphragm to structural wall anchorage using embedded straps shall have the straps attached to or hooked around the reinforcing steel, or otherwise terminated to effectively transfer forces to the reinforcing steel.



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.

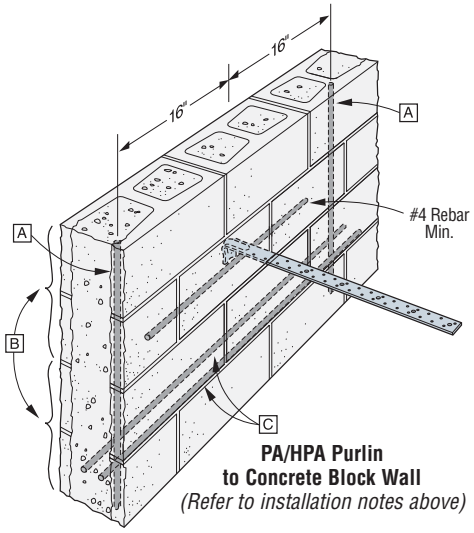
Wind and SDC A & B - Allowable Tension Loads (lbs.)

Max. Ledger Size	Model No.	Strap Length, L (in.)	l_e (in.)	Non Cracked Concrete		Cracked Concrete		Max. Allowable Strap Tensile Capacity	Masonry Installation	Code Ref.
				Required Nails	Tension	Required Nails	Tension			
4x Ledger	PA18	18½	4	12 -10d Common	2430	12 -10d Common	2360	NA	1895	I25
	PA23	23¾	4	16 -10d Common	3220	12 -10d Common	2360	NA	2815	
	PA28	29	4	16 -10d Common	3370	12 -10d Common	2360	NA	2815	
	PA35	35	4	16 -10d Common	3370	12 -10d Common	2360	NA	2815	
	HPA28	32½	6	22 -10d Common	5145	20 -10d Common	4675	NA	—	
	HPA35	38½	8¼	22 -10d Common	5145	22 -10d Common	5145	NA	—	

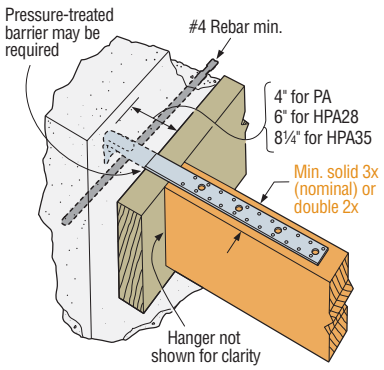
SDC C-F - Allowable Tension Loads (lbs.)

Max. Ledger Size	Model No.	Strap Length, L (in.)	l_e (in.)	Non Cracked Concrete		Cracked Concrete		Max. Allowable Strap Tensile Capacity	Masonry Installation	Code Ref.
				Required Nails	Tension	Required Nails	Tension			
4x Ledger	PA18	18½	4	12 -10d Common	2430	10 -10d Common	1980	3220	1895	I25
	PA23	23¾	4	14 -10d Common	2830	10 -10d Common	1980	3220	2815	
	PA28	29	4	14 -10d Common	2830	10 -10d Common	1980	3935	2815	
	PA35	35	4	14 -10d Common	2830	10 -10d Common	1980	3935	2815	
	HPA28	32½	6	22 -10d Common	5145	18 -10d Common	4090	5145	—	
	HPA35	38½	8¼	22 -10d Common	5145	22 -10d Common	5145	5145	—	

1. Allowable loads have been increased for earthquake or wind load durations with no further increases allowed.
2. Deflection at highest allowable loads are as follows: PA18 = 0.087", PA23 = 0.118", PA28 = 0.085", PA35 = 0.085", PA51 & 68 = 0.010", HPA28 = 0.133" and HPA35 = 0.132".
3. Multiply Seismic and Wind ASD load values by 1.4 or 1.6 respectively to obtain LRFD capacities.
4. Minimum center-to-center spacing is 3 times the required embedment. Standard installation is based on minimum 5" end distance.
5. For wall anchorage systems in SDC C-F, the maximum allowable strap tensile capacity shall not be less than 1.4 times the ASD anchor design load per ASCE7-10 12.11.2.2.2.
6. Nail quantities are based on Douglas Fir (DF) and Southern Pine (SP). For use on Spruce Pine-Fir (SPF) or Hem Fir (HF) nail quantities must be increased by 1.15 to achieve allowable loads – alternatively, loads may be decreased by a 1.15 factor.
7. Concrete shall have a minimum concrete strength, f'_c of 3000 psi.
8. For Masonry Installation Loads, see 'Non-Cracked Concrete' for Required Nails.
9. 10dx1½" nails may be substituted for 10d commons with no load reduction and with a 15% increase in deflection. For installation over sheathing use 3" minimum nail lengths.
10. Minimum f'_m = 1500 psi for masonry.
11. **NAILS:** 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.



PA/HPA Purlin to Concrete Block Wall
(Refer to installation notes above)



PA/HPA Purlin to Concrete Wall
For I-Joist applications see page 127.

ABA/ABU/ABW *Adjustable and Standoff Post Bases*

Additional standoff bases are on page 214.

The AB series of retrofit adjustable post bases provide a 1" standoff for the post, are slotted for adjustability and can be installed with nails, Strong-Drive® SD screws or bolts (ABU). Depending on the application needs, these adjustable standoff post bases are designed for versatility, cost-effectiveness and maximum uplift performance.

Features:

- The slot in the base enables flexible positioning around the anchor bolt, making precise post placement easier
- The 1" standoff helps prevent rot at the end of the post and meets code requirements for structural posts installed in basements or exposed to weather or water splash

MATERIAL: Varies (see table)

FINISH: All galvanized, most offered in ZMAX®; see Corrosion Information, page 14-15.

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

- See our *Anchoring and Fastening Systems for Concrete and Masonry* catalog, or visit ***www.strongtie.com*** for retrofit anchor options or reference technical bulletin T-ANCHORSPEC.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.
- Place the base, load transfer plate and nut on the anchor bolt. Loosely tighten the nut.

ABW—Place the standoff base and then the post in the ABW and fasten on three vertical sides, using nails or Strong-Drive SD structural-connector screws.

– Make any necessary adjustments to post placement and tighten the nut securely on the anchor bolt.

– Bend up the fourth side of the ABW and fasten using the correct fasteners.

ABU—Place the standoff base and then the post in the ABU.

– Fasten using nails or Strong-Drive SD structural connector screws or bolts *(ABU88, ABU1010 – SDS optional)*.

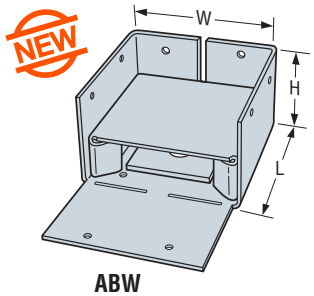
ABA—Place the post in the ABA.

– Fasten using nails or SD Screws.

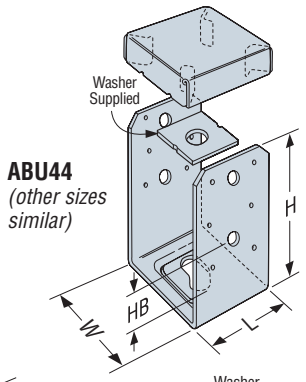
CODES: See page 13 for Code Reference Key Chart.

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.

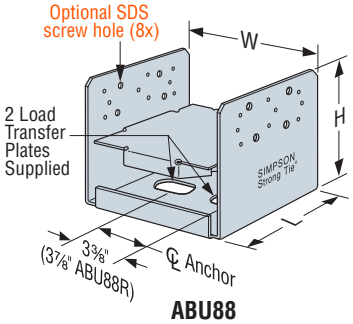
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.



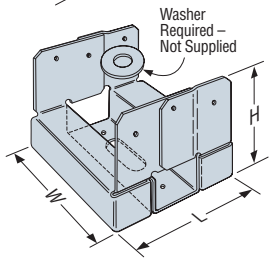
ABW



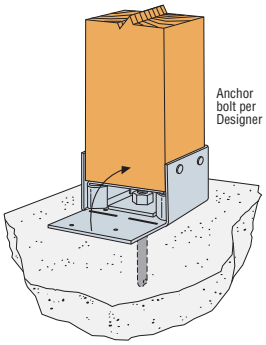
ABU44 *(other sizes similar)*



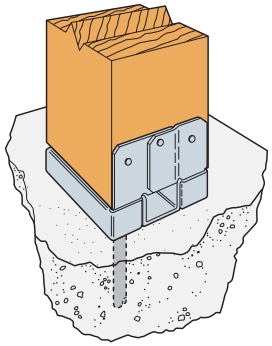
ABU88 *(ABU1010 similar)*



ABA44 *(other sizes similar)*



Typical ABW Installation



Typical ABA44 Installation

Model No.	Nominal Post Size	Material		Dimensions (in.)				Fasteners				Allowable Loads (DF/SP)			Code Ref.
									Post			Uplift (160)		Down (100)	
		Base (Ga)	Strap (Ga)	W	L	H	HB[6]	Anchor Dia. (in.)	Nails	Machine Bolts Qty.	Machine Bolts Dia.	Nails	Bolts		
ABA44Z	4x4	16	16	3⅜	3⅛	3⅛	—	½	6-10d	—	—	555	—	6000	I3, F1
ABW44Z	4x4	16	16	3⅜	3⅜	2¼	—	½	8-10d	—	—	1005	—	7180	170
ABU44	4x4	16	12	3⅜	3	5½	1¾	⅝	12-16d	2	½	2200	2160	6665	I3, L2, F1
ABA44R	Rough 4x4	16	16	4⅛	3⅛	2 13/16	—	½	6-10d	—	—	555	—	8000	I3, F1
ABW44RZ	Rough 4x4	16	16	4	4⅛	1 33/33	—	½	8-10d	—	—	1005	—	7180	170
ABW46Z	4x6	12	16	3⅜	5⅜	3	—	½	10-10d	—	—	845	—	4590	170
ABA46Z	4x6	14	14	3⅜	5⅜	3⅛	—	⅝	8-16d	—	—	700	—	9435	I3, F1
ABU46	4x6	12	12	3⅜	5	7	2⅝	⅝	12-16d	2	½	2300	2300	10335	I3, L2, F1
ABW46RZ	Rough 4x6	12	16	4	6	2 13/16	—	½	10-10d	—	—	845	—	4590	170
ABA46R	Rough 4x6	14	14	4⅛	5⅜	2⅞	—	⅝	8-16d	—	—	700	—	12000	I3, F1
ABU5-5	5⅛x5⅛	12	10	5¼	5	6⅛	1¾	⅝	12-16d	2	½	2235	2235	12000	
ABU5-6	5⅛x6	12	10	6⅛	5	6⅛	1¾	⅝	12-16d	2	½	2235	2235	12000	
ABA66Z	6x6	14	14	5½	5¼	3⅛	—	⅝	8-16d	—	—	720	—	10665	I3, F1
ABW66Z	6x6	12	14	5½	5⅜	3	—	½	12-10d	—	—	1190	—	12935	170
ABU66	6x6	12	10	5½	5	6⅛	1¾	⅝	12-16d	2	½	2300	2300	12000	I3, L2, F1
ABA66R	Rough 6x6	14	14	6	5⅜	2⅞	—	⅝	8-16d	—	—	720	—	12665	I3, F1
ABW66RZ	Rough 6x6	12	14	6	6	2 13/16	—	½	12-10d	—	—	1190	—	12935	170
ABU88[4]	8x8	14	12	7½	7	7	—	2-⅝	18-16d	—	—	2320	—	24335	I3, F1
ABU88R[4]	Rough 8x8	14	12	8	7	7	—	2-⅝	18-16d	—	—	2320	—	24335	170
ABU1010Z	10x10	12	12	9½	9	7¼	—	2-⅝	22-16d	—	—	2270	—	32020	
ABU1010RZ	Rough 10x10	12	12	10	9	7	—	2-⅝	22-16d	—	—	2270	—	32020	

1. Uplift loads have been increased for wind or earthquake with no further increase allowed; reduce where other loads govern.
2. Downloads may not be increased for short-term loading.
3. Specifier to design concrete for uplift capacity.
4. ABU products may be installed with either bolts or nails *(not both)* to achieve table loads. ABU88 and ABU88R may be installed with 8-SDS ¼"x3" wood screws *(sold separately)* for the same table load.
5. For AB bases, higher download can be achieved by solidly packing grout under 1" standoff plate before installation. Base download on column, grout, or concrete according to the code.
6. HB dimension is the distance from the bottom of the post up to the first bolt hole.
7. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners for these products should always be installed in the wide face.
8. Downloads shall be reduced where limited by the capacity of the post. See pages 226-227 for common post allowable loads.
9. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.

CPTZ *Concealed Post Tie*

Available May 2013

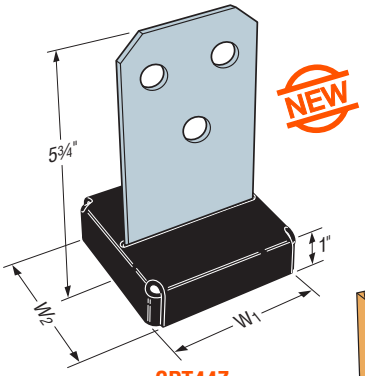
The new CPTZ post base incorporates a knife plate with a standoff base. It achieves a clean, concealed look while providing a 1" standoff height above concrete. The CPTZ is installed with ½" diameter galvanized pins *(supplied)*. The 1" standoff height is code-required when supporting permanent structures that are exposed to weather or water splash, or in basements. The standoff reduces the potential for decay at post or column ends.

The anchorage for the CPTZ can be either cast-in-place or retrofit with adhesive or mechanical anchors. See our *Anchoring and Fastening Systems for Concrete and Masonry* catalog for additional information concerning retrofit solutions. The graphic and table below detail a possible cast-in-place solution. This solution has been tested to determine capacity per the requirements of ICC-ES acceptance criteria AC399.

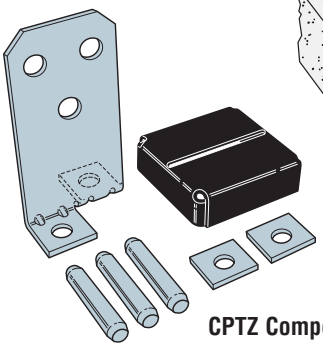
MATERIAL: 10 gauge **FINISH**: ZMAX®

INSTALLATION:
- Use all specified fasteners. See General Notes.
- Use knife blade portion of CPTZ as a template to mark pin/bolt locations on post
- Drill ½" diameter holes perpendicular to post at marked locations
- Cut a 3/16" wide slot in the end of the post. Cut slot on face adjacent to the one with the holes. If using a circular saw cut the slot roughly 6½" up the post. Test that the knife blade slides freely in the slot.
- Install the knife blade portion of the connector on the anchor bolts and then place the supplied washers over top of the connector's tabs and on the anchor bolt. Use nuts to attach the knife blade and washers to the anchors.
- The Designer must specify anchor bolt type, length and embedment.
- Slide the stand off base on to the knife blade assembly
- Stand the post on the knife blade and drive in the pins supplied with the connector.
- See flier F-CPTZ13 for additional information and details.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.

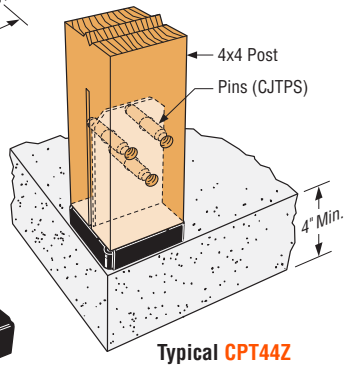
CODES: See page 13 for Code Reference Key Chart.



CPT44Z
(others similar)



CPTZ Components

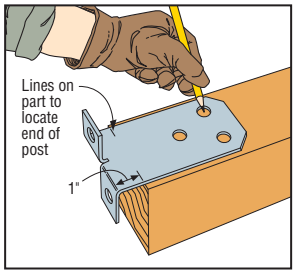


Typical CPT44Z Installation

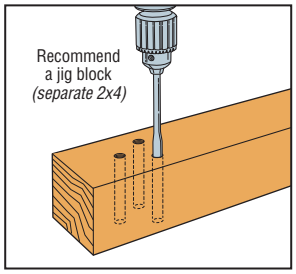
Model No.	Post Size	Base (Ga)	Knife Plate (Ga)	Dimensions (in.) W	L	H	Fasteners Anchor Qty.	Anchor Dia.	Post Qty.	Post Type[3]	Allowable Loads (DF/SP) Uplift (160)	Down (100)	Code Ref.
CPT44Z	4x4, RGH 4x4	12	10	3½	3½	5⅞	2	½	3	½x2¾ dowel	3035	11455	160
										½" MB	3350		
CPT66Z	6x6, RGH 6x6	12	10	5⅜	5⅜	5⅞	2	½	3	½x4¾ dowel	4430	22315	
										½" MB	4475		
CPT88Z	8x8, RGH 8x8	12	10	7¼	7¼	5⅞	2	½	3	½x4¾ dowel	3625	22805	
										½" MB	4475		

1. Uplift loads have been increased for wind or earthquake load with no further increase allowed; reduce where other loads govern.
2. Downloads may not be increased for short-term loading and shall not exceed the post capacity. See pages 226-227 for common post allowable loads.
3. Bases come with (3) ½" diameter dowel pins. Alternate Hex head ½" diameter machine bolts may be used for loads listed. Lag bolts are not permitted.
4. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. installation into the wide face. Values in the tables reflect dowel or bolt.

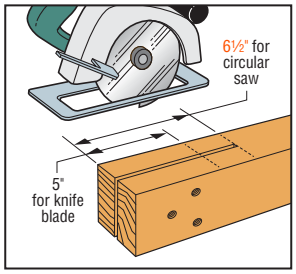
INSTALLATION SEQUENCES



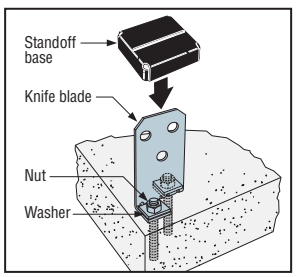
1. Using parts as template



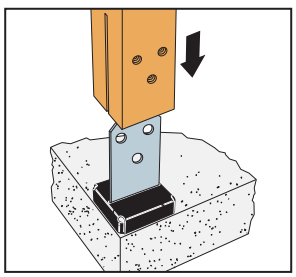
2. Drilling holes



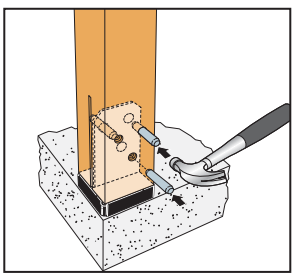
3. Cutting slot



4. Installing CPTZ on concrete



5. Installing post on CPTZ



6. Installing pins

EPB44T/EPB44PHDG *Elevated Post Bases*

EPB44PHDG can be used both for pier block and cast-in-place installation for 4x4 posts.

MATERIAL: 12 gauge base EPB44T—Threaded rod support ⅝"x5" *(shipped assembled)*. EPB44PHDG—Threaded rod support ¾"x6", nut and washer are shipped assembled

FINISH: EPB44T: Base—Galvanized, Threaded Rod—Zinc Plate
EPB44PHDG: HDG; see Corrosion Information, page 14-15.

INSTALLATION: • **Secured with Epoxy**: EPB44T—Drill a ¾" hole 3" deep minimum into the concrete. Clean the hole and fill half full with epoxy *(per installation instructions)*. Insert the EPB44T and adjust to the desired height. The threaded rod shall be embedded a minimum of 2½". To adjust after the epoxy cures, drill a hole in the center of the post and rotate the post base up or down to the desired height.
EPB44PHDG—Drill a ⅞" diameter hole 4" deep minimum and fill the hole halfway with SET epoxy or drill a 13⁄16" diameter hole 4" deep minimum and fill the hole halfway with AT adhesive. Insert the EPB44PHDG and adjust to the desired height. The threaded rod shall be embedded a minimum of 3½". Minimum sidecover is 3" from the center of the threaded rod for both products.

- **Supported by a Nut**: EPB44T—Drill a ¾" hole 2½" deep minimum into concrete. Install a ⅝-11 NC nut and cut washer on the threaded rod. *(Nut and washer not supplied)*. Insert EPB44T into the hole and adjust to the desired height. EPB44PHDG—Drill a 1" diameter hole 3½" deep minimum. Insert the EPB44PHDG and adjust to the desired height.
- **Embedded in Wet Concrete:** Embed ⅝" rod minimum 4" embedment.
- Minimum sidecover is 3" from the center of the threaded rod.
- Fully engage at least three threads in the base.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.

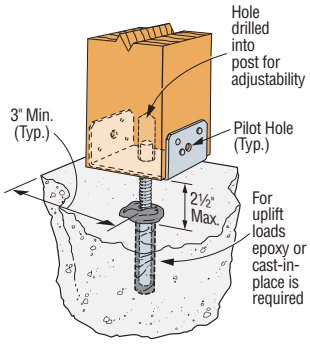
CODES: See page 13 for Code Reference Key Chart.

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.

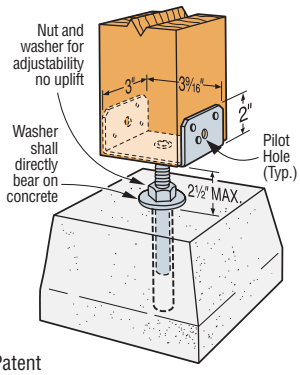
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Model No.	Nails	Anchor Bolt	Allowable Loads (DF/SP)			Code Ref.
			Download (100)	Uplift (160)		
				SET	AT	
EPB44T	6-16d	⅝	3275	1130	1140	IL15
EPB44PHDG	8-16d	¾	3670	1265	985	170

1. Loads may not be increased for short term loading.
2. Uplift loads require the threaded rod to be set in wet concrete or attached to cured concrete with SET epoxy or AT adhesive. Uplift loads do not apply when installed to a pier block.
3. Specifier to design concrete for uplift capacity.
4. Downloads shall be reduced where limited by the capacity of the post. See pages 226-227 for common post allowable loads.
5. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners for these products should always be installed in the wide face.
6. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 22-23 for other nail sizes and information.

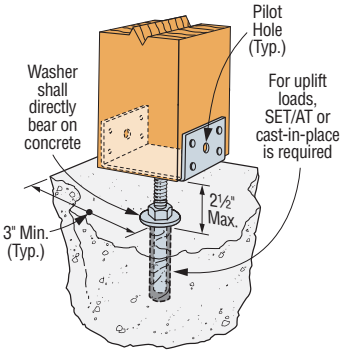


Typical EPB44T Installed with SET Epoxy or AT Adhesive

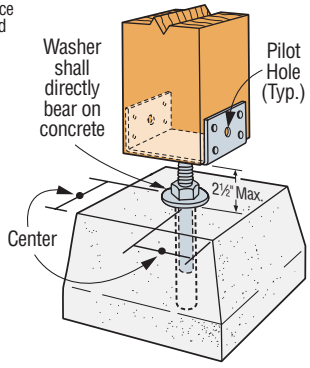


U.S. Patent 5,666,774

Typical EPB44T installed with nut and washer *(not supplied)*



Typical EPB44PHDG Installed with SET Epoxy or AT Adhesive



Typical EPB44PHDG Pier Block Installation *(Supported by a nut)*

EPB *Elevated Post Bases*

MATERIAL: EPB44A—14 gauge; others—12 gauge base plate, 1 1⁄16" OD x 8" pipe

FINISH: EPB44A—Galvanized; all others—Simpson Strong-Tie® gray paint *(may be ordered HDG)*; see Corrosion Information, page 14-15.

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

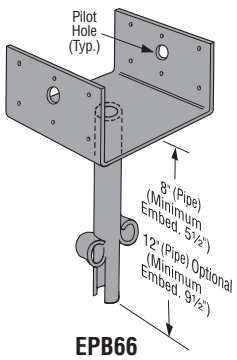
- Allows 1" to 2½" clearance above concrete, 2" for EPB44A.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.

OPTIONS: 12" pipe available for EPB44, 46, 66; specify "-12" after model number.

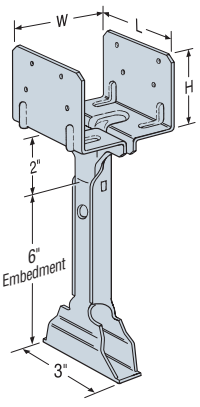
CODES: See page 13 for Code Reference Key Chart.

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.

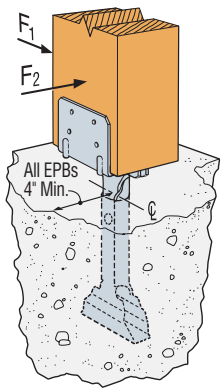
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.



EPB66
(EPB44 and EPB46 similar)



EPB44A



Typical EPB44A Installation

Model No.	W	L	H	Nails	Allowable Loads (DF/SP)				Code Ref.
					(160)			Down (100)	
					Uplift	F_1	F_2		
EPB44A	3⅜6	3	2⅜	8-16d	1100	815	935	2670	IL8
EPB44	3⅜6	3¼	2⅝6	8-16d	800	985	1135	3465	
EPB46	5½	3⅝6	3	12-16d	800	985	1135	3465	
EPB66	5½	5½	3	12-16d	1500	985	1135	3465	

1. Loads may not be increased for short-term loading.
2. EPB44 and EPB46 have extra nail holes; only eight must be filled to achieve table loads.
3. Specifier to design concrete for uplift capacity.
4. Downloads shall be reduced where limited by the capacity of the post. See pages 226-227 for common post allowable loads.
5. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners for these products should always be installed in the wide face.
6. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 22-23 for other nail sizes and information.

PB/PBS *Regular and Standoff Post Bases*

The PBS features a 1" standoff height. It reduces the potential for decay at post and column ends.

MATERIAL: PB—12 gauge; PBS—see table

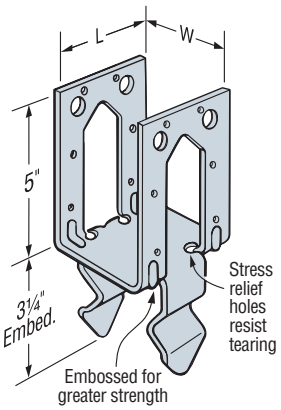
FINISH: Galvanized. Some products available in ZMAX® or HDG coating; see Corrosion Information, page 14-15.

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

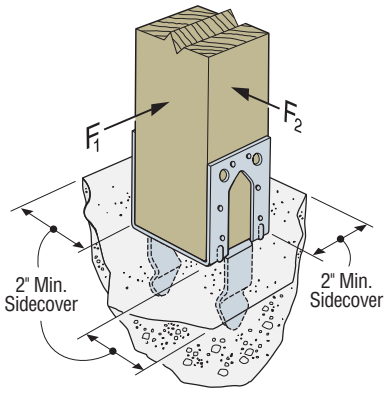
- Install either nails or bolts *(see page 16, note d)*.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.
- PB—Holes are provided for installation with either 16d commons or ½" bolts for PB66 and PB66R; all other models use 16d commons only. A 2" minimum sidecover is required to obtain the full load.
- PBS—Embed into wet concrete up to the bottom of the 1" standoff base plate. A 2" minimum side cover is required to obtain the full load. Holes in the bottom of the straps allow for free concrete flow.

OPTIONS: PBS available in rough sizes, contact Simpson Strong-Tie.

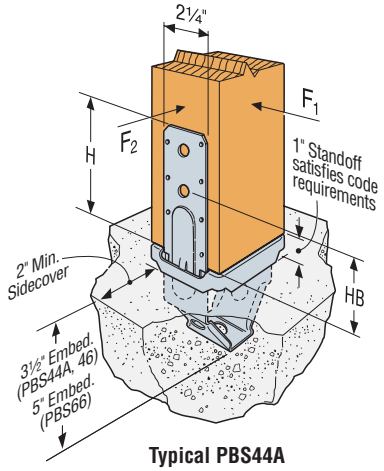
CODES: See page 13 for Code Reference Key Chart.



PB



Typical PB Installation



Typical PBS44A Installation

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.

Model No.	Dimensions W	Dimensions L	Allowable Loads (DF/SP) 12-16d Nails (160) Uplift	F_1	F_2	2-½MB Uplift (160)	Code Ref.
PB44	3⁹⁄₁₆	3¼	1365	765	1325	—	IL16
PB44R	4	3¼	1365	765	1325	—	
PB46	5½	3¼	1365	765	1325	—	
PB66	5½	5¼	1640	765	1325	1640	
PB66R	6	5¼	1640	765	1325	1640	

1. Allowable loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Download capacity is based on either the post design or concrete design calculated per code.
3. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners for these products should always be installed in the wide face.
4. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 22-23 for other nail sizes and information.

These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Model No.	Nominal Post Size	Material Base (Ga)	Material Strap (Ga)	Dimensions W	L	H	HB	Fasteners Anch. Dia.	Post Nails	Post Machine Bolts Qty.	Post Machine Bolts Dia.	Allowable Loads (DF/SP) Uplift (160) Nails	Uplift (160) Bolts	F_1 (160) Nails	F_1 (160) Bolts	F_2 (160) Nails	F_2 (160) Bolts	Down (100)	Code Ref.
PBS44A	4x4	12	14	3⁹⁄₁₆	3½	6¼	3⁷⁄₁₆	—	14-16d	2	½	2400	2400	1165	230	885	885	6665	IL9
PBS46	4x6	12	14	3⁹⁄₁₆	5⁷⁄₁₆	6⁹⁄₁₆	3⅜	—	14-16d	2	½	2400	2400	1165	360	885	885	9335	
PBS66	6x6	12	12	5½	5⅜	6½	3¹¹⁄₁₆	—	14-16d	2	½	3160	4000	1865	570	1700	1700	9335	

1. Allowable loads have been increased for wind or earthquake with no further increase allowed; reduce where other loads govern.
2. PBS—Downloads may not be increased for short-term loading.
3. PBS—Designer to design concrete for shear and uplift capacity.
4. PBS—For higher downloads, solidly pack grout under 1" standoff plate before installing into concrete. Base download on column or concrete, according to the code.
5. Downloads shall be reduced where limited by the capacity of the post. See pages 226-227 for common post allowable loads.
6. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners for these products should always be installed in the wide face.
7. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 22-23 for other nail sizes and information.

EPS4Z *Post Bases*

The EPS4Z provides a light-duty connector for attachment of posts to concrete.

MATERIAL: 14 gauge

FINISH: ZMAX® coating; see Corrosion Information, page 14-15.

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

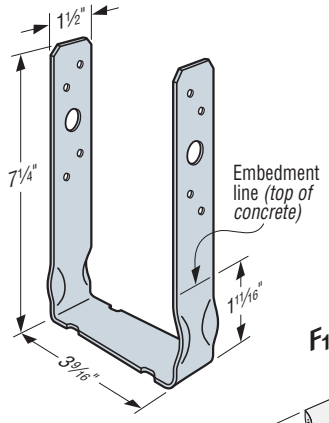
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.
- Embed into wet concrete up to the embedment line. A 2" minimum side cover is required to obtain the full load.
- Posts shall be preservative-treated wood to meet building code requirements.

CODES: See page 13 for Code Reference Key Chart.

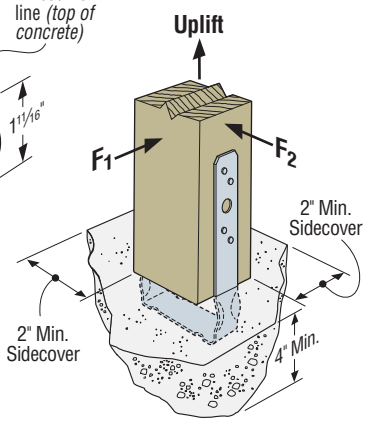
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Fasteners	Allowable Loads (DF/SP)			Code Ref.
		Uplift (160)	F_1 (160)	F_2 (160)	
EPS4Z	8-10dx1½	1250	575	680	170

1. Loads may not be increased for short-term loading.
2. Download capacity is based on either the post design or concrete design calculated per code. See pages 226-227 for common post allowable loads.
3. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the table reflect installation into the wide face.
4. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



EPS4Z



Typical EPS4Z Installation

CBSQ *Column Bases*

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 CBSQ uses Simpson Strong-Tie® Strong-Drive® SDS screws, which allow for fast installation, reduced reveal and high capacity, provides a greater net section area of the column compared to bolts.

MATERIAL: See table

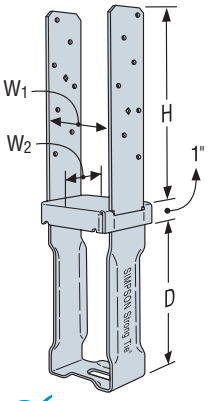
FINISH: Galvanized, available in HDG with HDG screws

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

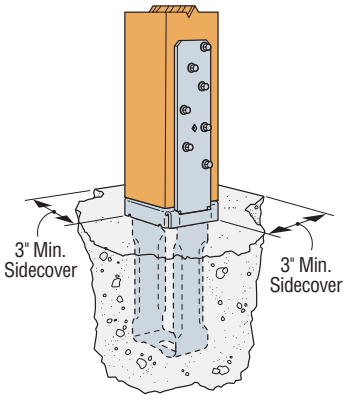
- Install Simpson Strong-Tie SDS ¼"x2" wood screws, which are provided with the column base. *(Lag screws will not achieve the same load.)*
- For full loads, a minimum of 3" side cover shall be provided.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.

ORDERING: To order with screws, specify CBSQ-SDS2. To order without screws, specify CBSQ.

CODES: See page 13 for Code Reference Key Chart.



CBSQ-SDS2



Typical CBSQ-SDS2 Installation

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.

Model No.	Nominal Column Size	Material		Dimensions				Number of Simpson Strong-Tie SDS Screws	Allowable Loads (DF/SP)		Code Ref.
		Base (Ga)	Strap (Ga x Width)	W_1	W_2	D	H		Uplift (160)	Down (100)	
CBSQ44-SDS2	4x4	12	10 ga x 2¼	3⁹⁄₁₆	3½	7⅛	8⅜	14-SDS ¼"x2"	5335	10975	IL11
CBSQ46-SDS2	4x6	12	10 ga x 3	3⁹⁄₁₆	5⁵⁄₁₆	7¹³⁄₁₆	8¹¹⁄₁₆	14-SDS ¼"x2"	5335	14420	
CBSQ66-SDS2	6x6	12	10 ga x 3	5½	5½	6⅞	8¾	14-SDS ¼"x2"	6855	14420	
CBSQ86-SDS2	6x8	12	7 ga x 3	7½	5⅜	6⅛	8¹¹⁄₁₆	12-SDS ¼"x2"	4580	20915	170
CBSQ88-SDS2	8x8	12	7 ga x 3	7½	7⅜	6⅛	8¹¹⁄₁₆	12-SDS ¼"x2"	4580	22225	

1. For higher downloads, solidly pack grout under 1" standoff plate before installing CBSQ into concrete. Base download on column or concrete, according to the code.
2. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 232 for details)*.
3. Downloads shall be reduced where limited by the capacity of the column. See pages 226-227 for common post allowable loads.
4. Designer is responsible for concrete design.

LCB/CB *Column Bases*

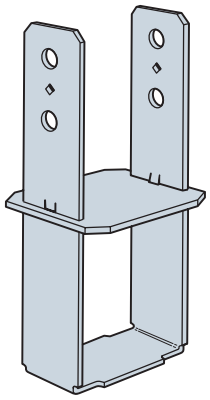
MATERIAL: See table

FINISH: LCB, CB44, CB46, CB48, CB66, CB68, CB610—galvanized; all other CB—Simpson Strong-Tie® gray paint or HDG. Some models available in HDG or stainless steel

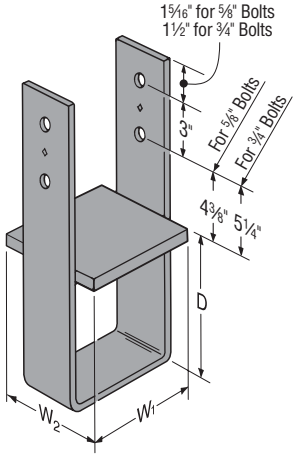
INSTALLATION: • Use all specified fasteners. See General Notes.
- For full loads, minimum side cover required is 3" for CB, 2" for LCB.
- Install all models with bottom of base plate flush with concrete.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.

OPTIONS:
- LCB and CB are available in rough size. Other sizes available for CB specify W_1 and W_2 dimensions. Consult Simpson Strong-Tie for bolt sizes and allowable loads.

CODES: See page 13 for Code Reference Key Chart.



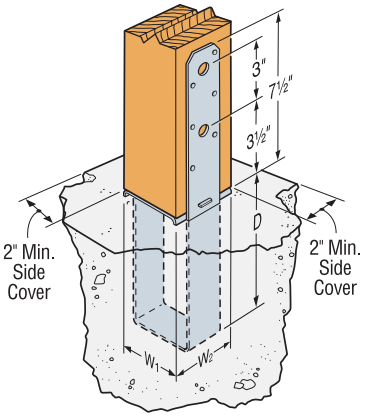
CB44
(CB46, CB48, CB64, CB66, CB68, CB86, CB88, CB610 similar)



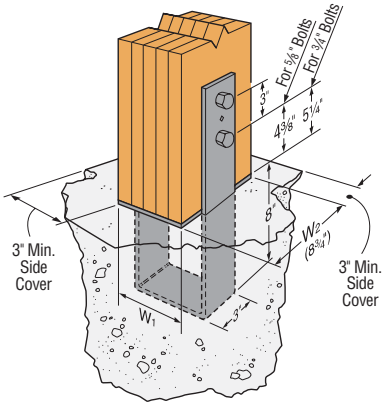
Configuration of all other CB sizes

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.

Model No.	Nominal Column Size	Material: Strap (Ga x Width)	Material: Base (Ga)	Dimensions: W_1	Dimensions: W_2	Dimensions: D	Column Fasteners: Nails	Column Fasteners: Machine Bolts Qty.	Column Fasteners: Machine Bolts Dia.	Allowable Uplift Loads (DF/SP): Nails (160)	Allowable Uplift Loads (DF/SP): Bolts (160)	Code Ref.
LCB44	4x4	12 ga x 2	16	3⁹⁄₁₆	3½	6½	12-16d	2	½	2705	4250	IL8
CB44	4x4	7 ga x 2	7	3⁹⁄₁₆	3⁹⁄₁₆	8	—	2	⅝	—	4200	
LCB46	4x6	12 ga x 2	16	3⁹⁄₁₆	5½	6½	12-16d	2	½	2705	4240	
CB46	4x6	7 ga x 2	7	3⁹⁄₁₆	5½	8	—	2	⅝	—	4200	
CB48	4x8	7 ga x 2	7	3⁹⁄₁₆	7½	8	—	2	⅝	—	4200	
CB5-4.5	GLULAM	7 ga x 3	7	4½	5⅛	8	—	2	⅝	—	4200	
CB5-6	GLULAM	7 ga x 3	7	6	5⅛	8	—	2	⅝	—	4200	
LCB66	6x6	12 ga x 2	16	5½	5½	5½	12-16d	2	½	2705	4230	
CB64	6x4	7 ga x 3	7	5½	3⁹⁄₁₆	8	—	2	⅝	—	4200	170
CB66	6x6	7 ga x 3	7	5½	5½	8	—	2	⅝	—	4200	IL8
CB6-7	6x	7 ga x 3	7	5½	7	8	—	2	⅝	—	4200	
CB68	6x8	7 ga x 3	7	5½	7½	8	—	2	⅝	—	4200	
CB610	6x8	7 ga x 3	7	5½	9½	8	—	2	⅝	—	4200	
CB612	6x12	7 ga x 3	7	5½	11½	8	—	2	⅝	—	4200	
CB7⅛-4	PSL	3 ga x 3	7	7⅛	3½	8	—	2	¾	—	6650	170
CB7⅛-6	PSL	3 ga x 3	7	7⅛	5½	8	—	2	¾	—	6650	
CB7⅛-7	PSL	3 ga x 3	7	7⅛	7	8	—	2	¾	—	6650	
CB7-6	GLULAM	3 ga x 3	7	6	6¾	8	—	2	¾	—	6650	
CB7-7.5	GLULAM	3 ga x 3	7	7½	6¾	8	—	2	¾	—	6650	
CB7-9	GLULAM	3 ga x 3	7	9⁹⁄₁₆	6¾	8	—	2	¾	—	6650	
CB7-10.5	GLULAM	3 ga x 3	7	10⁹⁄₁₆	6¾	8	—	2	¾	—	6650	
CB86	8x6	3 ga x 3	7	7½	5½	8	—	2	¾	—	6650	170
CB88	8x8	3 ga x 3	7	7½	7½	8	—	2	¾	—	6650	IL8
CB9-6	GLULAM	3 ga x 3	7	6	8¾	8	—	2	¾	—	6650	
CB9-7.5	GLULAM	3 ga x 3	7	7½	8¾	8	—	2	¾	—	6650	
CB9-9	GLULAM	3 ga x 3	7	9	8¾	8	—	2	¾	—	6650	
CB9-10.5	GLULAM	3 ga x 3	7	10½	8¾	8	—	2	¾	—	6650	
CB1010	10x10	3 ga x 3	3	9½	9½	8	—	2	¾	—	6650	
CB1012	10x12	3 ga x 3	3	9½	11½	8	—	2	¾	—	6650	
CB1212	12x12	3 ga x 3	3	11½	11½	8	—	2	¾	—	6650	



LCB



CB9
(CB5, CB7 similar)
for Glulam Column

1. Uplift loads have been increased for wind or earthquake with no further increase allowed; reduce where other loads govern.
2. PSL is parallel strand lumber.
3. LCB products may be installed with either bolts OR nails *(not both)* to achieve table loads.
4. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 232 for details)*. LCB bases installed with nails must be installed into the wide face.
5. Designer is responsible for concrete design.
6. See pages 226-227 for common post allowable loads.
7. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 22-23 for other nail sizes and information.

BC/BCS *Post Caps*

The BCS allows for the connection of 2-2x's to a 4x post or 3-2x's to a 6x post. Double shear nailing between beam and post gives added strength! The BC series offers dual purpose post cap/base for light cap or base connections.

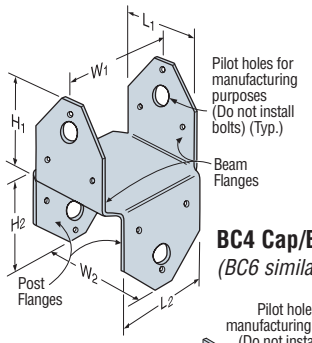
MATERIAL: 18 gauge **FINISH**: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 14-15.

INSTALLATION:
- Use all specified fasteners. See General Notes.
- Do not install bolts into pilot holes.
- BCS: install dome nails on beam; drive nails at an angle through the beam into the post below to achieve the table loads
- BC: install with 16d commons or 16dx2½" joist hanger nails.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.
- To tie multiple 2x members together, the Designer must determine the fasteners required to join members to act as one unit without splitting the wood.

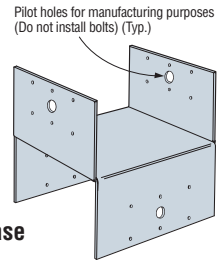
CODES: See page 13 for Code Reference Key Chart.

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.

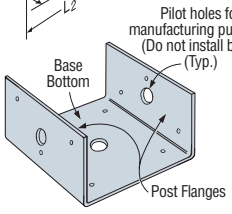
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.



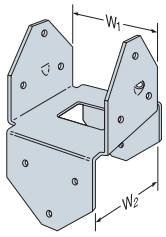
BC4 Cap/Base
(BC6 similar)



BC8 Cap/ Base



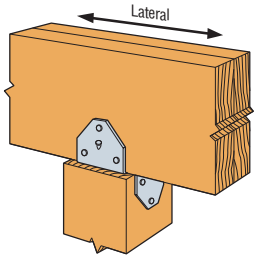
BC60 Half Base
(other similar)



BCS2-2/4
U.S. Patent 5,603,580

Model No.	Dimensions						Fasteners			Allowable Loads (DF/SP) (160)[1]		Code Ref.
	W_1	W_2	L_1	L_2	H_1	H_2	Beam Flange	Post Flange	Base Bottom	Uplift	Lateral	
CAPS												
BC4	3⁹⁄₁₆	3⁹⁄₁₆	2⅞	2⅞	3	3	6-16d	6-16d	—	980	1000	I12, L4, F11
BC46	3⁹⁄₁₆	5½	4⅞	2⅞	3½	2½	12-16d	6-16d	—	980	1000	
BC4R	4	4	4	4	3	3	12-16d	12-16d	—	980	1000	
BC6	5½	5½	4⅜	4⅜	3⅜	3⅜	12-16d	12-16d	—	1050	2000	
BC6R	6	6	6	6	3	3	12-16d	12-16d	—	1050	2000	
BC8	7½	7½	7½	7½	4	4	12-16d	12-16d	—	1800	2000	
BCS2-2/4	3⅛	3⁹⁄₁₆	2⅞	2⅞	2¹⁵⁄₁₆	2¹⁵⁄₁₆	8-10d	6-10d	—	780	1025	
BCS2-3/6	4⅝	5⁹⁄₁₆	4⅜	2⅞	3⁵⁄₁₆	2¹⁵⁄₁₆	12-16d	6-16d	—	800	1495	
BASES												
BC40	3⁹⁄₁₆	—	3¼	—	2¼	—	—	6-16d	4-16d	510	735	170
BC40R	4	—	4	—	3	—	—	6-16d	4-16d	510	735	
BC460	5½	—	3⅜	—	3	—	—	6-16d	4-16d	450	735	
BC60	5½	—	5½	—	3	—	—	6-16d	4-16d	450	735	
BC60R	6	—	6	—	3	—	—	6-16d	4-16d	450	735	
BC80	7½	—	7½	—	4	—	—	6-16d	4-16d	450	735	
BC80R	8	—	8	—	4	—	—	6-16d	4-16d	450	735	

1. Allowable loads have been increased for wind or earthquake with no further increase allowed; reduce where other loads govern.
2. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 232 for details)*.
3. Base allowable loads assumes nails have full penetration into supporting member. Loads do not apply to end grain post installations.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.



Typical BCS Installation

LCC *Lally Column Caps* / CCOS *Steel Column Caps*

Lally column caps and steel column caps provide adequate bearing length for larger girder reactions.

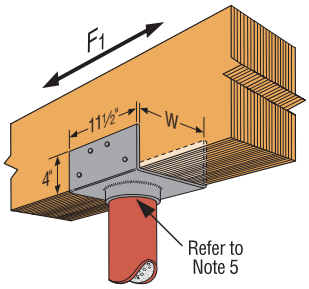
MATERIAL: LCC—12 gauge; CCOS—7 gauge **FINISH**: LCC—Simpson Strong-Tie® gray paint; CCOS—G90 Galvanized

INSTALLATION:
- Use all specified fasteners. See General Notes.
- LCC—Fit the lally column cap over the lally column and attach to the girder.
- CCOS—Attach steel column cap to column end plate with (4) Simpson Strong-Tie Quik Drive® XQ112S1224 self-tapping screws *(provided)* and attach to girder. Install with ⁵⁄₁₆" hex driver. See flier F-CCOS for additional CCOS applications.

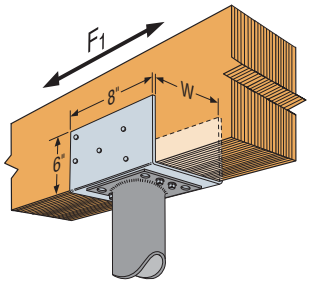
CODES: See page 13 for Code Reference Key Chart.

Model No.	W	Girder	Nails[7]	Lally Column Outside Diameter	Allowable Loads				Code Ref.
					Download[1,2,3,4]		Uplift	F_1[5]	
					DF/SP/SPF	LVL/PSL/LSL	(160)	(160)	
LCC4.5-3.5	4⅝	Triple 2x10/12	8-16d	3½	15820	—	—	1615	170
CCOS3.12	3⅛	Double 2x10/12	10-10d	—	10200	—	1020	2200	
LCC3.5-3.5	3⅝	3.5 LVL/PSL/LSL	8-16d	3½	—	15820	—	1615	
LCC3.5-4	3⅝	3.5 LVL/PSL/LSL	8-16d	4	—	20670	—	1615	
CCOS3.62	3⅝	3.5 LVL/PSL/LSL	10-10d	—	—	16665	1020	2200	
LCC4.5-4	4⅝	Triple 2x10/12	8-16d	4	20670	—	—	1615	
CCOS4.62	4⅝	Triple 2x10/12	10-10d	—	15300	—	1020	2200	
LCC5.25-3.5	5⅜	5.25 LVL/PSL/LSL	8-16d	3½	—	15820	—	1615	
LCC5.25-4	5⅜	5.25 LVL/PSL/LSL	8-16d	4	—	20670	—	1615	
CCOS5.50	5½	5.25 LVL/PSL/LSL	10-10d	—	—	22100	1020	2200	
LCC6-3.5	6⅛	Quad 2x10/12	8-16d	3½	15820	—	—	1615	
LCC6-4	6⅛	Quad 2x10/12	8-16d	4	20670	—	—	1615	
LCC7-3.5	7⅛	7 LVL/PSL/LSL	8-16d	3½	—	15820	—	1615	
LCC7-4	7⅛	7 LVL/PSL/LSL	8-16d	4	—	20670	—	1615	
CCOS7.25	7¼	7 LVL/PSL/LSL	10-10d	—	—	27525	1020	2200	

1. Loads may not be increased for short-term loading.
2. Allowable loads are determined using the lowest of the bearing loads using F_C-perp equal to 425 psi for SPF, 625 psi for DF and 700 psi for LVL/PSL/LSL.
3. Loads are for a continuous beam.
4. Spliced conditions for the LCC must be detailed by the Designer to transfer tension loads between spliced members by means other than the lally column. The splice condition load is 6750 lbs per beam side for LCC must be evenly loaded.
5. To achieve lateral loads, the LCC pipe must be welded to the column with an ⅛" fillet weld around the entire pipe.
6. The CCOS must be attached to the column cap plate with (4) Quik Drive XQ112S1224 self-tapping screws through the end plate and into the bottom of the CCOS. Max column cap plate thickness = ½".
7. All pipe columns need to be designed by a qualified Designer. CCOS minimum column diameter is 3".
8. CCOS caps can resist out-of-plane (F_2) forces up to 2200 lbs. provided the beam is braced to resist torsional rotation.
9. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.



Typical LCC5.25-3.5 Installation connecting a 3-ply LVL and a 3½" diameter (O.D.) steel column



Typical CCOS5.50 Installation connecting a 3-ply LVL and a steel column

AC/ACE/LPCZ/LCE *Post Caps*

The LCE4's universal design provides high capacity while eliminating the need for rights and lefts. For use with 4x or 6x lumber. LPCZ—Adjustable design allows greater connection versatility.

MATERIAL: LCE4—20 gauge; AC, ACE, LPC4Z—18 gauge; LPC6Z—16 gauge

FINISH: Galvanized. Some products available in ZMAX® coating and stainless steel; see Corrosion Information, page 14-15.

INSTALLATION: • Use all specified fasteners. See General Notes.
• Install all models in pairs. LPCZ—2½" beams may be used if 10dx1½" nails are substituted for 10d commons.

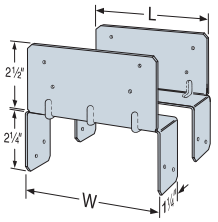
CODES: See page 13 for Code Reference Key Chart.

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.

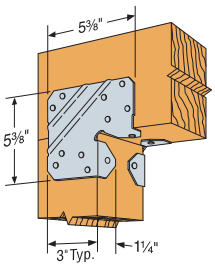
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Model No.	Dimensions W	Dimensions L	Total No. Fasteners Beam	Total No. Fasteners Post	Allowable Loads (DF/SP) (160)[1] Uplift	Allowable Loads (DF/SP) (160)[1] Lateral	Code Ref.
AC4 (Min)	3⁹⁄₁₆	6½	8-16d	8-16d	1430	715	I12, L4, F11
AC4 (Max)	3⁹⁄₁₆	6½	14-16d	14-16d	2500	1070	
AC4R (Min)	4	7	8-16d	8-16d	1430	715	I12, F11
AC4R (Max)	4	7	14-16d	14-16d	2500	1070	
ACE4 (Min)	—	4½	6-16d	6-16d	1070	715	I12, L4, F11
ACE4 (Max)	—	4½	10-16d	10-16d	1785	1070	
LCE4	—	5⅜	14-16d	10-16d	1905[7]	1425	IP1, L18, F25, 160
AC6 (Min)	5½	8½	8-16d	8-16d	1430	715	I12, L4, F11
AC6 (Max)	5½	8½	14-16d	14-16d	2500	1070	
AC6R (Min)	6	9	8-16d	8-16d	1430	715	I12, F11
AC6R (Max)	6	9	14-16d	14-16d	2500	1070	
ACE6 (Min)	—	6½	6-16d	6-16d	1070	715	I12, L4, F11
ACE6 (Max)	—	6½	10-16d	10-16d	1785	1070	
LPC4Z	3⁹⁄₁₆	3½	8-10d	8-10d	760	325	
LPC6Z	5⁹⁄₁₆	5½	8-10d	8-10d	915	490	

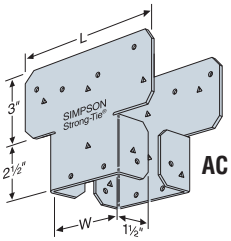
1. Allowable loads have been increased for wind or earthquake with no further increase allowed; reduce where other loads govern.
2. Loads apply only when used in pairs.
3. LPCZ lateral load is in the direction parallel to the beam.
4. MIN nailing quantity and load values—fill all round holes; MAX nailing quantities and load values—fill round and triangle holes.
5. Uplift loads do not apply to splice conditions.
6. Spliced conditions must be detailed by the Designer to transfer tension loads between spliced members by means other than the post cap.
7. LCE4 uplift load for mitered corner conditions is 985 lbs. (DF/SP) or 845 lbs. (SPF). Lateral loads do not apply.
8. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 232 for details)*.
9. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.



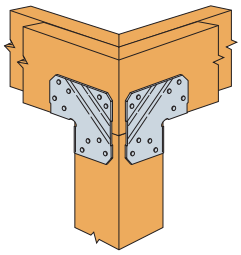
LPCZ

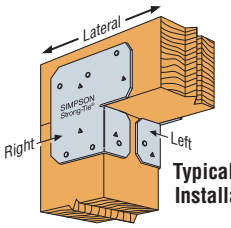


Typical LCE4 Installation
(For 4x or 6x lumber)



AC


Typical LCE4 Corner Installation *(See note 7)*



Typical ACE Installation

PC/EPC *Post Caps*

PC and EPC caps provide a custom connection for post-beam combinations at medium design loads.

MATERIAL: PC—12 gauge; PC-16—16 gauge

FINISH: Galvanized. Some products available in ZMAX coating; see Corrosion Information, page 14-15.

INSTALLATION: • Use all specified fasteners; see General Notes.
• Do not install bolts into pilot holes.

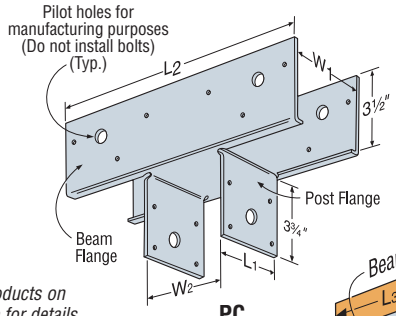
OPTIONS: • For end conditions, specify EPC post caps, providing dimensions are in accordance with table; see illustration.
• Some PC and EPC models are available in rough sizes.
• For heavy duty applications, see CC and CCQ series.

CODES: See page 13 for Code Reference Key Chart.

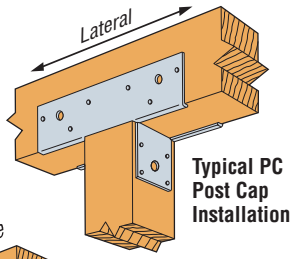
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

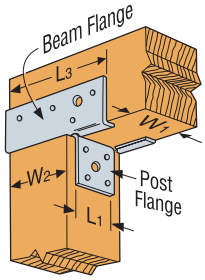
Model No.	Min. Post Size	Dimensions W1	Dimensions W2	Dimensions L1	Dimensions L2	Dimensions L3	Fasteners Each Side Surfaces Post Flange	Fasteners Each Side Surfaces Beam Flange PC	Fasteners Each Side Surfaces Beam Flange EPC	Allowable Loads (DF/SP) Uplift PC/EPC (160)	Allowable Loads (DF/SP) Lateral[2] PC (160)	Allowable Loads (DF/SP) Lateral[2] EPC (160)	Code Ref.
PC44-16	4x4	3⁹⁄₁₆	3⁹⁄₁₆	2⅝	11	7⁵⁄₁₆	4-16d	6-16d	4-16d	1000	925	1000	I12, L4, F11
PC44	4x4	3⁹⁄₁₆	3⁹⁄₁₆	2⅝	11	7⁵⁄₁₆	4-16d	6-16d	4-16d	1700	925	1070	
PC46-16	4x6	3⁹⁄₁₆	5½	2⅝	13	9¼	4-16d	6-16d	4-16d	1000	925	1000	
PC46	4x6	3⁹⁄₁₆	5½	2⅝	13	9¼	4-16d	6-16d	4-16d	1700	925	1070	
PC48-16	4x8	3⁹⁄₁₆	7½	2⅝	15	11¼	4-16d	8-16d	6-16d	1000	1475	1285	
PC48	4x8	3⁹⁄₁₆	7½	2⅝	15	11¼	4-16d	8-16d	6-16d	1700	2075	1610	
PC64-16	4x6	5½	3⁹⁄₁₆	4⅝	11	7⅜	4-16d	6-16d	4-16d	1000	925	1000	
PC64	4x6	5½	3⁹⁄₁₆	4⅝	11	7⅜	4-16d	6-16d	4-16d	1700	925	1070	
PC66-16	6x6	5½	5½	4⅝	13	9¼	4-16d	6-16d	6-16d	1000	925	1285	
PC66	6x6	5½	5½	4⅝	13	9¼	4-16d	6-16d	6-16d	1700	925	1610	
PC68	6x8	5½	7½	4⅝	15	11¼	4-16d	8-16d	6-16d	1700	2075	1610	
PC84	4x8	7½	3⁹⁄₁₆	6⅝	11	7⅜	4-16d	6-16d	6-16d	1700	925	1610	
PC86	6x8	7½	5½	6⅝	13	9¼	4-16d	6-16d	6-16d	1700	925	1610	
PC88	8x8	7½	7½	6⅝	15	11¼	4-16d	8-16d	6-16d	1700	2075	1610	



PC



Typical PC Post Cap Installation



Typical EPC End Post Cap Installation

1. Allowable loads have been increased for wind or earthquake with no further increase allowed; reduce where other loads govern.
2. Lateral loads are in the direction parallel to the beam.
3. Allowable loads are for nails only.
4. Uplift loads do not apply to splice conditions.
5. Spliced conditions must be detailed by the Designer to transfer tension loads between spliced members by means other than the post cap.
6. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 232 for details)*.
7. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 22-23 for other nail sizes and information.

CCQ/ECCQ *Column Caps*

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.

Column caps provide a high-capacity connection for column-beam combinations. This design uses Simpson Strong-Tie® Strong-Drive® SDS screws to provide faster installation and provides a greater net section area of the column compared to bolts. The SDS screws provide for a lower profile compared to standard through bolts.

MATERIAL: CCQ3, ECCQ3, CCQ4, CCQ4.62, ECCQ4, ECCQ4.62, CCQ6, ECCQ6—7 gauge; all others—3 gauge

FINISH: Simpson Strong-Tie® gray paint, available in HDG; CCOQ and ECCOQ—no coating

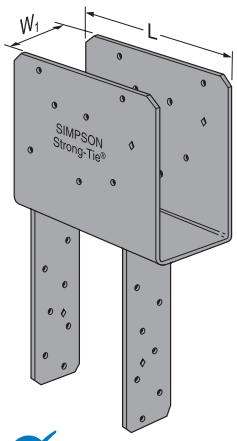
INSTALLATION:

- Install Simpson Strong-Tie SDS ¼"x2½" wood screws, which are provided with the column cap. *(Lag screws will not achieve the same load.)*
- CCOQ and ECCOQ column cap only *(no straps)* may be ordered for field-welding to pipe or other columns. Dimensions are same as CCQ and ECCQ.
- For rough cut lumber sizes, provide dimensions. An optional W_2 dimension may be specified with any column size given. *(Note that the W_2 dimension on straps rotated 90° is limited by the W_1 dimension.)*

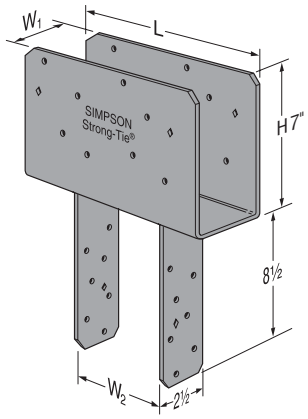
OPTIONS:

- For end conditions, specify ECCQ.
- Straps may be rotated 90° where $W_1 \geq W_2$ and for CCQ5-6.

CODES: See page 13 for Code Reference Key Chart.

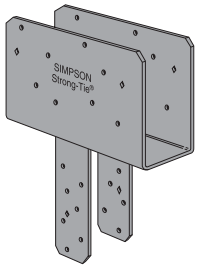


ECCQ46SDS2.5



CCQ46SDS2.5

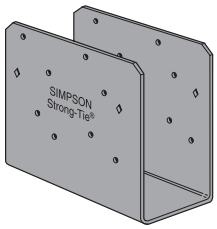
Optional CCQ with straps rotated 90°



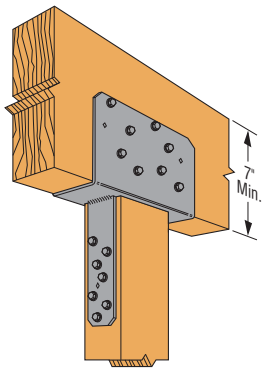
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Beam Width	Dimensions W1	Dimensions W2	Dimensions L CCQ	Dimensions L ECCQ	Dimensions H	No. of[8] SDS ¼"x2½" Screws Beam	No. of[8] SDS ¼"x2½" Screws Post	Allowable Loads (DF/SP) CCQ Uplift (160)	CCQ Down (100)	ECCQ Uplift (160)	ECCQ Down (100)	Code Ref.	CCOQ Model No. (No Legs)
CCQ3-4SDS2.5	3⅛	3¼	3⅝	11	8½	7	16	14	5680	16980	3695	6125	I12, L4, F11	CCOQ3-SDS2.5
CCQ3-6SDS2.5	3⅛	3¼	5½	11	8½	7	16	14	5680	19250	3695	9625		
CCQ44SDS2.5	4x	3⅝	3⅝	11	8½	7	16	14	5680	19020	4040	7655		CCOQ4-SDS2.5
CCQ46SDS2.5	4x	3⅝	5½	11	8½	7	16	14	7145	24065	4040	12030		
CCQ48SDS2.5	4x	3⅝	7½	11	8½	7	16	14	7145	24065	4040	16405		
CCQ4.62-3.62SDS	4½	4⅝	3⅝	11	8½	7	16	14	5680	19020	4040	7655	170	CCOQ4.62-SDS2.5
CCQ4.62-4.62SDS	4½	4⅝	4⅝	11	8½	7	16	14	5680	24450	4040	9845		
CCQ4.62-5.50SDS	4½	4⅝	5½	11	8½	7	16	14	7145	28585	4040	12030		
CCQ5-4SDS2.5	5⅛	5¼	3⅝	11	8½	7	16	14	5680	26635	4040	10045	I12, L4, F11	CCOQ5-SDS2.5
CCQ5-6SDS2.5	5⅛	5¼	5½	11	8½	7	16	14	7245	28190	5535	15785		
CCQ5-8SDS2.5	5⅛	5¼	7½	11	8½	7	16	14	7245	31570	5535	21525		
CCQ64SDS2.5	6x	5½	3⅝	11	8½	7	16	14	5680	28585	4040	12030		CCOQ6-SDS2.5
CCQ66SDS2.5	6x	5½	5½	11	8½	7	16	14	7145	30250	4040	18905		
CCQ68SDS2.5	6x	5½	7½	11	8½	7	16	14	7145	37815	4040	25780		
CCQ6-7.13SDS2.5	6x	5½	7⅛	11	8½	7	16	14	7145	37815	4040	24490	160	
CCQ74SDS2.5	6¾	6⅞	3⅝	11	8½	7	16	14	5680	33490	4040	13230	I12, L4, F11	CCOQ7-SDS2.5
CCQ76SDS2.5	6¾	6⅞	5½	11	8½	7	16	14	7245	37125	5535	20790		
CCQ77SDS2.5	6¾	6⅞	6⅞	11	8½	7	16	14	7245	41580	5535	25515		
CCQ78SDS2.5	6¾	6⅞	7½	11	8½	7	16	14	7245	41580	5535	28350		
CCQ7.1-4SDS2.5	7	7⅛	3⅝	11	8½	7	16	14	5680	34730	4040	18375	160	CCOQ7.1-SDS2.5
CCQ7.1-6SDS2.5	7	7⅛	5½	11	8½	7	16	14	7245	38500	5535	28875		
CCQ7.1-7.1SDS2.5	7	7⅛	7⅛	11	8½	7	16	14	7245	57750	5535	36750		
CCQ7.1-8SDS2.5	7	7⅛	7½	11	8½	7	16	14	7245	52500	5535	39375		
CCQ86SDS2.5	8x	7½	5½	11	8½	7	16	14	7245	41250	5535	25780		CCOQ8-SDS2.5
CCQ88SDS2.5	8x	7½	7½	11	8½	7	16	14	7245	51565	5535	35155		
CCQ96SDS2.5	8¾	8⅞	5½	11	8½	7	16	14	7245	48125	5535	26950		CCOQ9-SDS2.5
CCQ98SDS2.5	8¾	8⅞	7½	11	8½	7	16	14	7245	53900	5535	36750		
CCQ106SDS2.5	10x	9½	5½	11	8½	7	16	14	7245	52250	5535	32655		CCOQ10-SDS2.5

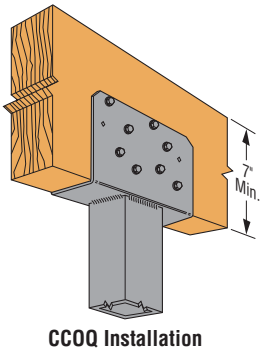
1. Uplift loads have been increased for wind or earthquake with no further increase allowed; reduce where other loads govern.
2. Down loads may not be increased for short-term loading and shall not exceed the post capacity. See pages 226-227 for common post allowable loads.
3. Uplift loads do not apply to splice conditions.
4. Spliced conditions must be detailed by the Designer to transfer tension loads between spliced members by means other than the column cap.
5. Column sides are assumed to lie in the same vertical plane as the beam sides. CCQ4.62 models assume a minimum 3½" wide post.
6. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 232 for details)*.
7. ECCQ uses 14-SDS screws into the beam and 14-SDS screws into the post.
8. Beam depth must be a minimum 7".
9. For 5¼" engineered lumber, use CCQ 6X or ECCQ 6X models.
10. CCOQ welded to steel column will achieve same load as CCQ. Steel column width shall not be less than beam width. Weld by Designer.



CCOQ4-SDS2.5



Typical CCQ46SDS2.5 Installation



CCOQ Installation on Steel Column

CC/ECC/ECCU *Column Caps*

Column caps provide a high-capacity connection for column-beam combinations.

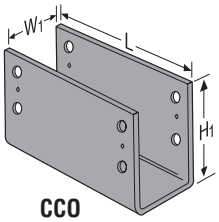
MATERIAL: CC3¼, CC44, CC46, CC48, CC4.62, CC64, CC66, CC68, CC6-7⅛, ECC3¼, ECC44, ECC46, ECC48, ECC4.62, ECC64, ECC66, ECC68, ECC6-7⅛—7 gauge; all others—3 gauge

FINISH: Simpson Strong-Tie® gray paint; may be ordered HDG; CCO, ECCO—no coating

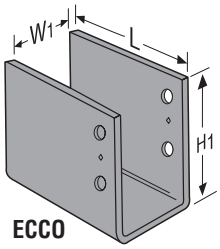
INSTALLATION: • Use all specified fasteners. See General Notes.
- Bolt holes shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt diameter (per 2005 NDS, section 11.1.2).
- Contact engineered wood manufacturers for connections that are not through the wide face.

OPTIONS: • Straps may be rotated 90° where $W_1 \geq W_2$ *(see illustration)* and for CC5¼-6.
- For special, custom, or rough cut lumber sizes, provide dimensions. An optional W_2 dimension may be specified with any column size given *(note that the W_2 dimension on straps rotated 90° is limited by the W_1 dimension).*
- **CCO/ECCO**—Column cap only *(no straps)* may be ordered for field-welding to pipe or other columns. CCO/ECCO dimensions are the same as CC/ECC.
  CCOB—Any two CCOs may be specified for back-to-back welding to create a cross beam connector. Use the table loads; the load is no greater than the lesser element employed.

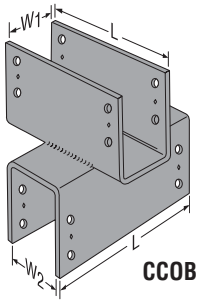
CODES: See page 13 for Code Reference Key Chart.



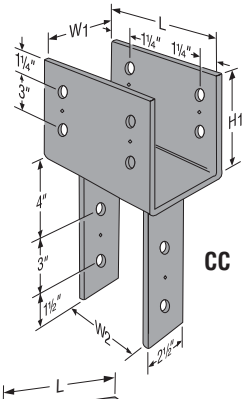
CCO



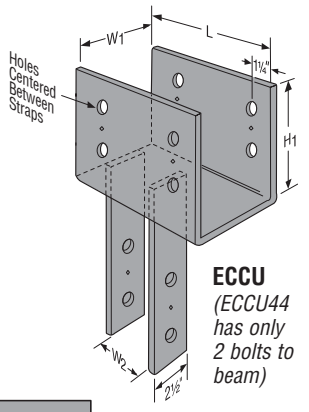
ECCO



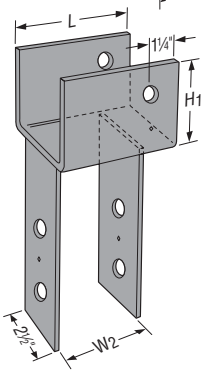
CCOB



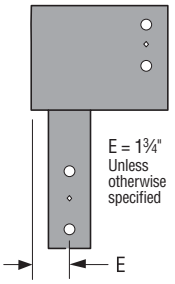
CC



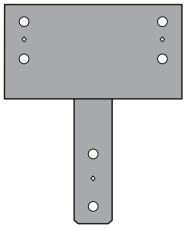
ECCU
(ECCU44 has only 2 bolts to beam)



ECC44



Optional ECC with straps rotated 90°


Optional CC with straps rotated 90°

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.

Model No. (CC shown ECC/ECCU similar)	Beam Width	Dimensions						Machine Bolts					Allowable Loads (DF/SP)				Code Ref.	CCO Model No. (No Legs)	ECCO Model No. (No Legs)
		W_1	W_2	L			H_1	Size	Beam			Post	Down		Uplift				
				CC	ECC	ECCU			CC	ECC	ECCU		CC	ECC/ ECCU	CC (160)	ECCU (160)			
CC3¼-4	3⅛	3¼	3⅜	11	7½	9½	6½	⅝	4	2	4	2	16980	6125	3640	1010	I12, L4, F11	CCO3¼	ECCO3¼
CC3¼-6	3⅛	3¼	5½	11	7½	9½	6½	⅝	4	2	4	2	19250	9625	3640	1010			
CC44	4x	3⅜	3⅜	7	5½	6½	4	⅝	2	1	2	2	15310	7655	1465	205		CCO4	ECCO4
CC46	4x	3⅜	5½	11	8½	9½	6½	⅝	4	2	4	2	24060	12030	2800	740		CCO4/6	ECCO4/6
CC48	4x	3⅜	7½	11	8½	9½	6½	⅝	4	2	4	2	24060	16405	2800	740	160		
CC4.62-3.62	4½	4⅜	3⅜	11	8½	9½	6½	⅝	4	2	4	2	19020	7655	2800	740	170	CCO4.62	ECCO4.62
CC4.62-4.62	4½	4⅜	4⅜	11	8½	9½	6½	⅝	4	2	4	2	24450	9845	2800	740			
CC4.62-5.50	4½	4⅜	5½	11	8½	9½	6½	⅝	4	2	4	2	28585	12030	2800	740			
CC5¼-4	5⅛	5¼	3⅜	13	9½	10½	8	¾	4	2	4	2	26635	10045	7530	2735	I12, L4, F11	CCO5¼	ECCO5¼
CC5¼-6	5⅛	5¼	5½	13	9½	10½	8	¾	4	2	4	2	28190	15785	7530	2735			
CC5¼-8	5⅛	5¼	7½	13	9½	10½	8	¾	4	2	4	2	37310	21525	7530	2735			
CC64	6x	5½	3⅜	11	7½	9½	6½	⅝	4	2	4	2	28586	12030	4040	1165		CCO6	ECCO6
CC66	6x	5½	5½	11	7½	9½	6½	⅝	4	2	4	2	30250	18905	4040	1165			
CC68	6x	5½	7½	11	9½	9½	6½	⅝	4	2	4	2	37810	25780	4040	1165			ECCO68
CC6-7⅛	6x	5½	7⅛	11	9½	9½	6½	⅝	4	2	4	2	37810	24060	4040	1165	160		
CC74	6¾	6⅞	3⅜	13	10½	10½	8	¾	4	2	4	2	33490	13230	7525	3605	170	CCO7	ECCO7
CC76	6¾	6⅞	5½	13	10½	10½	8	¾	4	2	4	2	37125	20790	7525	3605	I12, L4, F11		
CC77	6¾	6⅞	6⅞	13	10½	10½	8	¾	4	2	4	2	49140	25515	7525	3605			
CC78	6¾	6⅞	7½	13	10½	10½	8	¾	4	2	4	2	49140	28350	7525	3605			
CC7⅛-4	7	7⅛	3⅜	13	10½	10½	8	¾	4	2	4	2	34736	18375	7510	4855	160	CCO7⅛	ECCO7⅛
CC7⅛-6	7	7⅛	5½	13	10½	10½	8	¾	4	2	4	2	58500	28875	7585	4855			
CC7⅛-7⅛	7	7⅛	7⅛	13	10½	10½	8	¾	4	2	4	2	57750	36750	7585	4855			
CC7⅛-8	7	7⅛	7½	13	10½	10½	8	¾	4	2	4	2	52500	36750	7585	4855			
CC86	8x	7½	5½	13	10½	10½	8	¾	4	2	4	2	41250	23100	7440	2625	I12, L4, F11	CCO8	ECCO8
CC88	8x	7½	7½	13	10½	10½	8	¾	4	2	4	2	54600	31500	7440	2625			
CC96	8¾	8⅞	5½	13	10½	10½	8	¾	4	4	4	2	48125	26950	7515	4670		CCO9	ECCO9
CC98	8¾	8⅞	7½	13	10½	10½	8	¾	4	4	4	2	63700	36750	7515	4670			
CC106	10x	9½	5½	13	10½	10½	8	¾	4	4	4	2	52250	29260	7515	3325		CCO10	ECCO10

1. Uplift loads have been increased for wind or earthquake with no further increase allowed; reduce where other loads govern.
2. Down loads may not be increased for short-term loading and shall not exceed the post capacity. See pages 226-227 for common post allowable loads.
3. CC uplift loads do not apply to splice conditions.
4. Splice conditions with CC's must be detailed by the Designer to transfer tension loads between spliced members by means other than the column cap.
5. Column sides are assumed to lie in the same vertical plane as the beam sides. CC4.62 models assume a minimum 3½" wide post.
6. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 232 for details).*
7. Beam depth must be at least as tall as H_1.
8. For 5¼" engineered lumber, use 5½" models.
9. CCO welded to steel column will achieve same load as CC. Steel column width shall not be less than beam width. Weld by Designer.

ECCLQ/CCCQ/CCTQ *Column Caps*

The ECCLQ, CCCQ and CCTQ column caps provide high-capacity, multiple beam-to-column connector options. The design uses Simpson Strong-Tie® Strong-Drive® screws (SDS) to provide faster installation and a lower profile compared to standard through bolts. Screws are configured to provide high uplift design values.

MATERIAL: 7 gauge

FINISH: Simpson Strong-Tie® gray paint, also available in HDG

INSTALLATION:

- Install Simpson Strong-Tie SDS ¼"x2½" wood screws, which are provided, in all round holes. *(Lag screws will not achieve the same load.)*
- No additional welding is allowed.

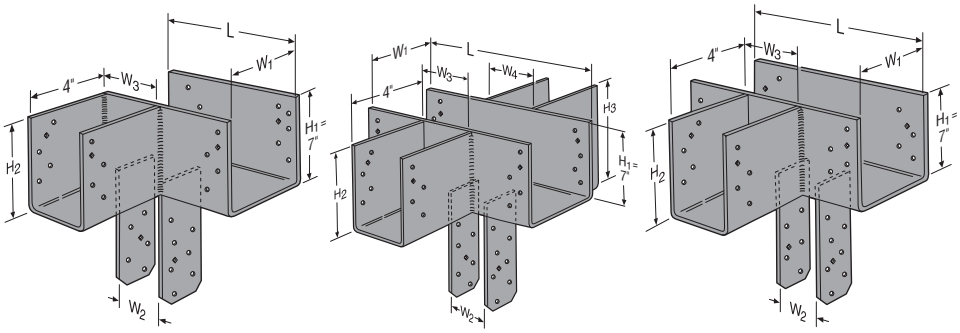
OPTIONS:

- Many combinations of beam and post sizes can be manufactured *(refer to worksheet T-CCQLTC-WS).*
- Available in widths up to 8" wide.
- ECCLQ is available in left or right side beam orientations. Specify ECCLLQ or ECCLRQ.
- Straps may be rotated where $W_1 > W_2$.
- Column caps may be ordered without the column straps for field welding to a column. No loads apply. Specify CCCOQ/CCTOQ/ECCLOQ.

ORDERING:

- The L dimension varies depending on the width of the side stirrup (W_3 or W_4). Contact Simpson Strong-Tie for exact dimensions.
- Main beam stirrup height (H_1) is 7". Side beam stirrups (H_2 or H_3) can vary in height with the minimum height of 7". Specify the side stirrup height from the top of the cap.
- Example Order: 4x Main Beam, 6x Post, 4x Side Beam *(oriented to the left)* is ordered as an ECCLLQ464SDS

CODES: See page 13 for Code Reference Key Chart.



ECCLLQ-SDS2.5
(Left direction shown)
Order ECCLRQ-SDS2.5 for right direction

CCCQ-SDS2.5

CCTQ-SDS2.5

Series	Allowable Loads (DF/SP)					Code Ref.
	Uplift (160)			Download (100)		
	Main Beam	Side Beam	Total[3]	Side Beam	Total	
ECCLQ-SDS2.5	2835	1840	3795	6780	Refer to note #5	F24
CCCQ-SDS2.5	4780	2390[2]	4780	7000		
CCTQ-SDS2.5	4910	2350	5315	7000		

1. Uplift loads have been increased for wind or seismic; reduce where other loads govern. Downloads may not be increased.
2. Allowable load is per seat. Side beams must be loaded symmetrically for the CCCQ.
3. The combined uplift loads applied to all beams in the connector must not exceed the total allowable uplift load listed in the table.
4. The ECCLQ side beam may use a side beam uplift load up to 2350 lbs. The deflection of this load may exceed the standard ⅛" deflection by an additional ⅛".
5. The combined download for all of the carried beams shall not exceed the allowable download for the unmodified product on page 63 *(CCQ load for CCCQ and CCTQ, or ECCQ load for ECCLQ).* The download for each side beam shall not exceed the lesser of 35% of the allowable download or 9265 lbs. for the unmodified product.
6. The download to each side beam shall not exceed the allowable load shown, nor 35% of the allowable load for the unmodified product, whichever is lower.
7. Column width in the direction of the beam width must be the same as the main beam width (W_1).

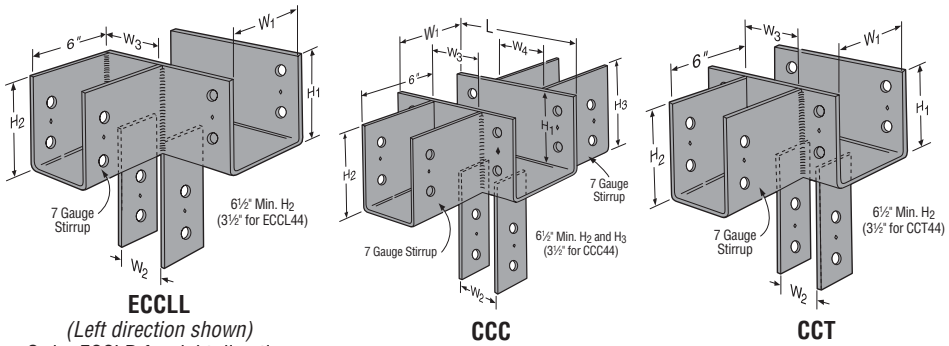
ECCL/CCC/CCT *Column Caps*

Column-to-beam connections often have multiple beams framing on top of a column. L, T, and Cross column caps provide design solutions for this application. Many combinations of beam and post sizes can be manufactured *(refer to worksheet T-CCLTC-WS for details)* with the following criteria applied:

- The download capacity shall be determined from the capacity for the unmodified product *(see page 64).* The side beam can take a maximum of 40% of the download and shall not exceed 10,665 lbs. The sum of the loads for the side beam(s) and main beam can not exceed the table load.
- Uplift loads do not apply for ECCL caps. For CCC and CCT, uplift loads from table apply for main beam only.
- The column width in the direction of the main beam width must be the same as the main beam width (W_1).
- Specify the stirrup height from the top of the cap. The minimum side stirrup heights (H_2 or H_3) is 6½" (3½" for 44's).
- The L dimension may vary depending on the width of the side stirrup (W_3 or W_4).
- Column caps may be ordered without the column straps for field welding to a column. No loads apply. Specify CCOC/CCOT/ECCOL.

Ordering Examples:

- A CCC66 with W_3 = 5½", H_2 and H_3 = 6½" is a CC66 column cap with 5½" beams on each side with all beam seats flush.
- An ECCLR66 with W_3 = 3⅝", H_2 = 7½" is an ECC66 end column cap with a 4x beam on the right side *(specify direction left (which is shown) or right for stirrup)* and stirrup seat 1" below the cap seat.

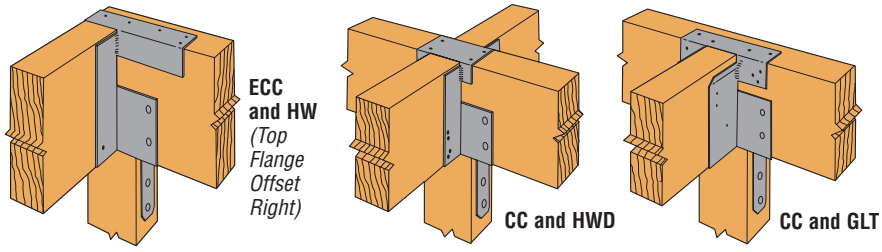


ECCLL
(Left direction shown)
Order ECCLR for right direction

CCC

CCT

There are cost-effective alternatives for replacing column caps by using a combination of connectors. Here is an example. Designer must specify the options required.



ECC and HW *(Top Flange Offset Right)*

CC and HWD

CC and GLT

STRONG FRAME® *Special and Ordinary Moment Frames*

SIMPSON Strong-Tie®

Where Moment Frame Innovation and Ease of Installation Meet

For years, Simpson Strong-Tie® Strong Frame® moment frames have set the standard for innovation, high quality and ease of installation. Our one- and two-story ordinary moment frames and now our special moment frames provide Designers with required high lateral-force resistance when wall space is small and openings are large.

New Special Moment Frames

Our recently introduced Strong Frame special moment frames feature a code listed (ICC-ES ESR-2802), patented yield-link technology and 100% bolted connections that provide greater performance and easier installation into older buildings that were built following less stringent codes. Strong Frame special moment frame is the only moment frame solution on the market with a link assembly designed to yield specifically at the connection in a seismic or wind event. The ability to go into a building after an event replacing only the fuse and not the entire beam offers significant cost savings.

By introducing the Strong Frame special moment frame, Simpson Strong-Tie has extended its technology leadership by delivering new, code-listed solutions. By picking out standard sizes out of this catalog or leveraging our Strong Frame Selector™ software, Designers can easily select a moment frame from more than 500 frame configurations that best resists wind or seismic lateral loads in applications, such as soft-story retrofit of mid-rise wood structures or buildings built over tuck-under parking.

Strong Frame® ordinary moment frame

Strong Frame® special moment frame

The New Strong Frame® Moment Frame Catalog

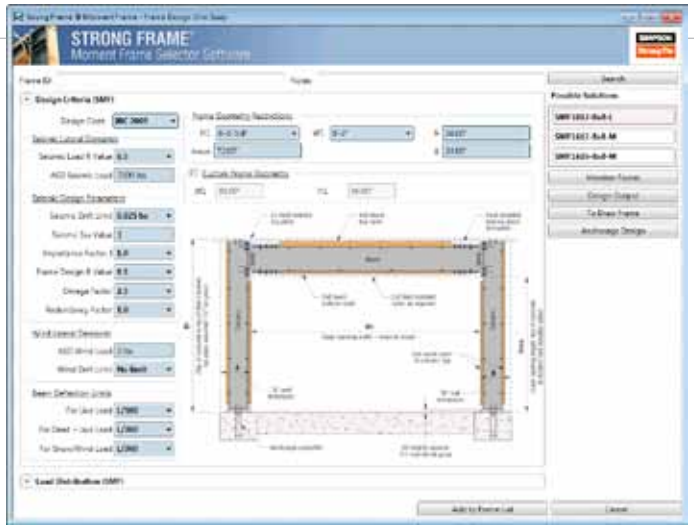
NEW

A new Strong Frame moment frame catalog (C-SF13) is now available that reflects the new ordinary and special moment frame offerings from Simpson Strong-Tie. Whether you have a new or retrofit project, this catalog has all the information you need to specify and install a moment frame that specifically fits your needs. In addition to adding the special moment frames, the catalog is designed to reflect the design process of most projects. Visit ***www.strongtie.com/strongframe*** to download or request a copy by mail by calling (800) 999-5099.

Special Moment Frame now code-listed under ICC-ES ESR-2802

Strong Frame® Selector Software

The Simpson Strong-Tie® Strong Frame® Selector software is designed to help the Designer select an appropriate frame for their given geometry and loading. Only minimum inputs are required for the software to select an appropriate frame for the available space. Based on input geometry, the Strong Frame Selector software will narrow down from the more than 500 available stock frames to a handful of possible solutions. It can also help with custom frame designs. Download your free copy at ***www.strongtie.com/strongframe***.

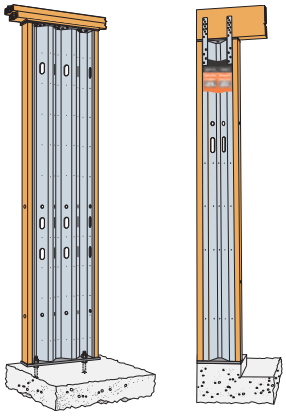


STRONG-WALL® SHEARWALLS

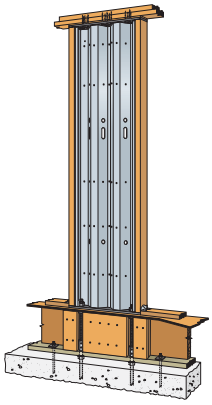
As the industry leader in lateral systems innovation and testing, Simpson Strong-Tie is in a unique position to gain insight from Designers and builders as to what they need in a pre-fabricated shearwall. This insight continues to drive innovation in our Steel and Wood Strong-Wall® product lines resulting in new products and expanded code-listed solutions.

Both the Steel Strong-Wall (ICC-ES ESR-1679) and Wood Strong-Wall (ICC-ES ESR-1267) are code listed under the 2006 and 2009 I-codes.

STEEL STRONG-WALL® PANEL

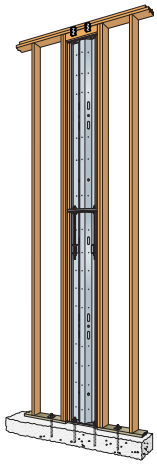


Standard and Garage Portal Applications on Concrete Foundations

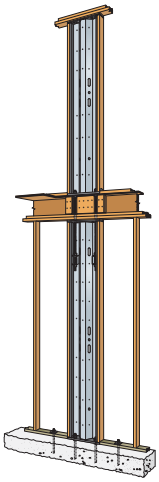


1st Story Wood Floor Application

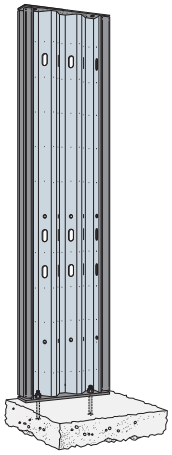
U.S. Patent 8,281,551



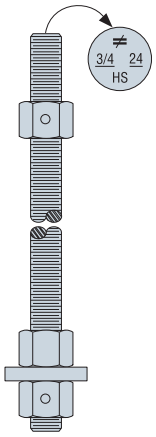
Balloon Framing Applications up to 20'



Two Story Stacked-Wall Applications

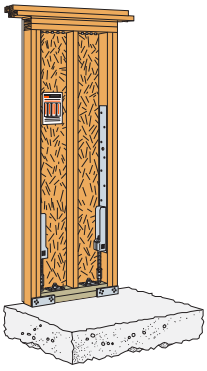


Cold-Formed Steel Applications
(Standard, Raised Floor and Two-Story)



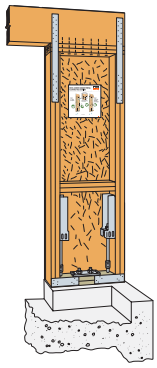
Complete Anchorage Solutions

WOOD STRONG-WALL® PANEL

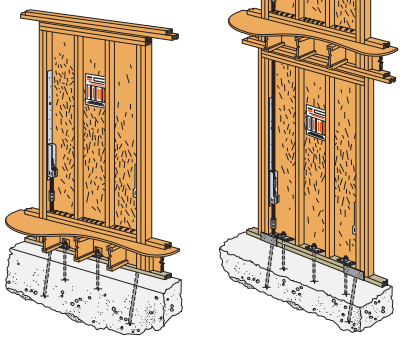


Standard Wood Strong-Wall

U.S. Patent 6,643,986 and 6,453,634



Garage Portal Systems



Raised Floor Walls for 1st and 2nd Story Applications

The Simpson Strong-Tie® Wall-Bracing-Length Calculator Web app helps calculate the required length of wall bracing in accordance with the IRC. The software provides printed output of the bracing requirements along with a summary of input information and factors used in the calculations.

Valuable Tools for Engineered and Prescriptive Design

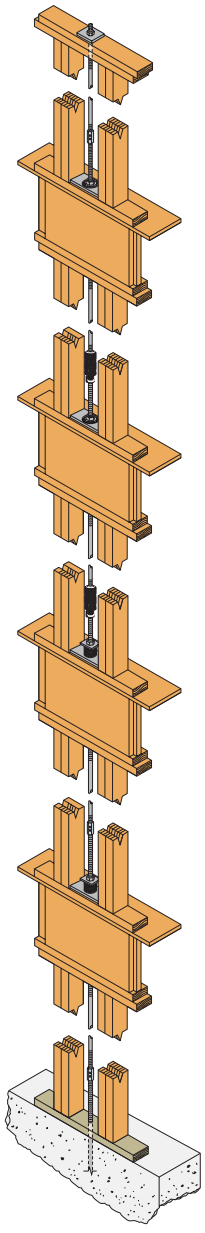
Simpson Strong-Tie offers two pieces of literature to help Designers based upon the requirements of their project. The *Strong-Wall® Shearwalls* catalog contains complete technical and installation information when designing for engineered applications. The *Strong-Wall® Prescriptive Design Guide* provides equivalent wall-bracing solutions based on the wall-bracing requirements of the International Residential Code® (IRC) and the Conventional Light-Frame Construction section 2308 of the International Building Code® (IBC). Visit ***www.strongtie.com*** for download or call (800) 999-5099 to request copies by mail.

The Simpson Strong-Tie® Strong-Wall® Selector software suggests a Strong-Wall solution based upon information the Designer provides regarding demand loads, application information and foundation requirements for their project. This time-saving tool incorporates all the latest information from our code listings and our latest anchorage solutions. Download a free copy at ***www/strongtie.com/strongwall***.

ATS *The Next Generation Anchor Tiedown System*

SIMPSON Strong-Tie®

The Simpson Strong-Tie® Anchor Tie-down System (ATS) is designed to anchor stacked shearwalls in multi-story wood-frame buildings while compensating for shrinkage effects commonly seen in these types of structures. The system is comprised of threaded rods, bearing plates, couplers and nuts, used in combination with our proprietary shrinkage take-up devices to resist shearwall overturning forces.
ATS serves the same purpose as conventional holdowns though can be configured to provide significantly higher loads *(up to 50,000 lbs)*.



THE ATS ADVANTAGE

Proven Product Performance
The ATS products have been thoroughly tested in full-scale wall systems and structures to develop proven products and design philosophies.

High-Quality Products
All ATS components are proudly manufactured and assembled in the USA to the highest quaity standards to ensure consistent performance.

No-Equal Support
Simpson Strong-Tie has dedicated sales and engineering staff to support ATS as well as our unmatched field service from our national sales force. Any field issues or questions, about any of our products, are resolved quickly and professionally by our highly-trained staff.

Specifications Made Easy
Specifying ATS is more complex than specifying other products unlike other products in our line as one can't just turn to a page in a catalog with a single load and select the product. To best serve our customers we have developed multiple methods of specification and a support service to assist engineers in specifying the product.

Take the Guess Work out of Rod Elongation
Rod elongation is a critical consideration in the design of threaded rod systems carrying uplift loads from roof to wall anchorage or shearwall overturning. The Rod Elongation Calculator from Simpson Strong-Tie assists the Designer to determine elongation given a demand load and rod properties. To access or for more information visit ***www.strongtie.com/software***.

For more information on specification options, please visit ***www.strongtie.com/ats***.

FACE MOUNT HANGERS LUC/LU/U/HU/HUC *Standard Joist Hangers*

LUCZ concealed flange hanger available for 2x6, 2x8, 2x10 and 2x12 lumber. Ideal for end of ledger/ header or post conditions, the LUCZ also provides cleaner lines for exposed conditions such as overhead decks.

See Hanger tables on pages 71-77. See Hanger Options on pages 215-224 for hanger modifications, which may result in reduced loads.

LU—Value engineered for strength and economy. Precision-formed—engineered for installation ease and design value.

U—The standard U hanger provides flexibility of joist to header installation. Versatile fastener selection with tested allowable loads.

HU/HUC—Most models have triangle and round holes. To achieve maximum loads, fill both round and triangle holes with common nails. These heavy-duty connectors are designed for schools and other structures requiring additional strength, longevity and safety factors.

MATERIAL: See tables on pages 71-77.

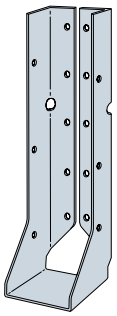
FINISH: Galvanized. Some products available in ZMAX® coating.

INSTALLATION:

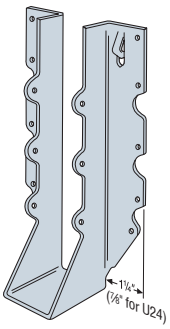
- Use all specified fasteners. See General Notes.
- HU/HUC—Can be installed filling round holes only, or filling round and triangle holes for maximum values.
- Joists sloped up to ¼:12 achieve table loads.
- For installations to masonry or concrete see page 161.
- HU/HUC hangers can be welded to a steel member. Allowable loads are the lesser of the values in the Hanger tables on pages 71-77 or the weld capacity – refer to technical bulletin T-HUHUC-W *(see page 231 for details)*.

OPTIONS:

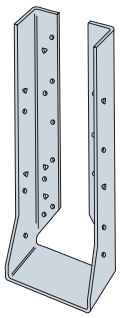
- HU hangers available with the header flanges turned in for 2⁵⁄₁₆" width and larger, with no load reduction–order HUC hanger.
- See Hanger Options on pages 216-217 for sloped and/or skewed U/HU models, and HUC *(concealed flange)* models.
- HU only—Rough beam sizes available by special order.
- See page 77 for stocked U hanger rough sizes tables.
- Also see LUS and HUS series.



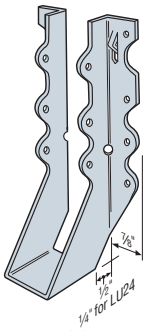
LUC210Z
(LUC26Z Similar)



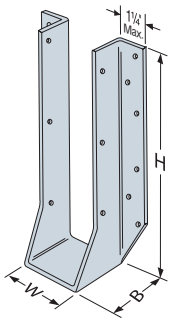
U210



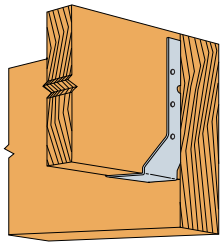
HUC412
Concealed Flanges



LU28
(except LU Roughs)

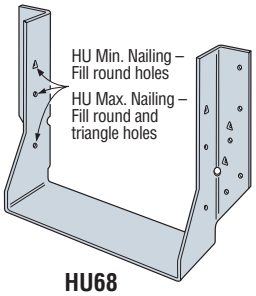


HU214
Projection seat on most models for maximum bearing and section economy.

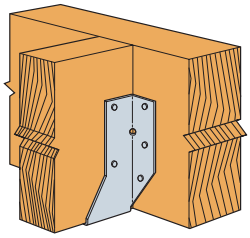


Typical LUCZ Installation

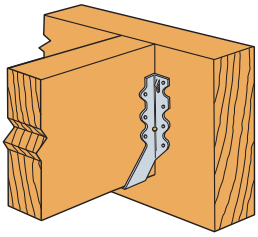
Model configurations may differ from those shown. Some HU models do not have triangle holes. Contact Simpson Strong-Tie.



HU68



Typical HU Installation



Typical LU28 Installation

HUCQ *Heavy-Duty Joist Hangers*

The HUCQ series are heavy-duty joist hangers that incorporate Simpson Strong-Tie® Strong-Drive® wood screws (SDS). Designed and tested for installation at the end of a beam or on a post, they provide a strong connection with fewer fasteners than nailed hangers. See page 107 for structural composite lumber hangers.

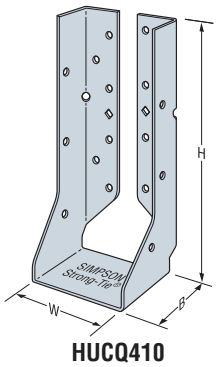
MATERIAL: 14 gauge **FINISH**: Galvanized. Most models available in stainless steel or ZMAX® coating.

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

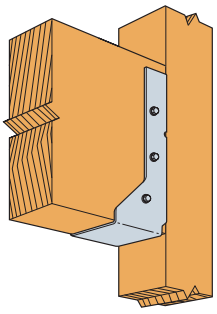
- Install Simpson Strong-Tie SDS ¼"x2½" wood screws, which are provided, in all round holes. *(Lag screws will not achieve the same load.)*
- For use on solid sawn wood members.

OPTIONS: These hangers cannot be modified.

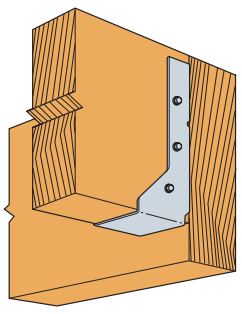
CODES: See page 13 for Code Reference Key Chart.



HUCQ410



Typical HUCQ Installation on a Post



Typical HUCQ Installation on a Beam

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.

Model No.	Dimensions			Fasteners		Allowable Loads								Code Ref.
						DF/SP				SPF/HF				
	W	H	B	Face	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	
HUCQ310-SDS	2⁹⁄₁₆	9	3	8-SDS ¼"x2½"	4-SDS ¼"x2½"	1370	3120	3590	3900	985	2245	2585	2810	F23
HUCQ210-2-SDS	3¼	9	3	12-SDS ¼"x2½"	6-SDS ¼"x2½"	2510	4680	4955	4955	1805	3370	3570	3570	
HUCQ410-SDS	3⁹⁄₁₆	9	3	12-SDS ¼"x2½"	6-SDS ¼"x2½"	2510	4680	4955	4955	1805	3370	3570	3570	
HUCQ412-SDS	3⁹⁄₁₆	11	3	14-SDS ¼"x2½"	6-SDS ¼"x2½"	2510	5460	5560	5560	1805	3930	4005	4005	
HUCQ210-3-SDS	4⅝	9	3	12-SDS ¼"x2½"	6-SDS ¼"x2½"	2510	4680	4955	4955	1805	3370	3570	3570	
HUCQ610-SDS	5½	9	3	12-SDS ¼"x2½"	6-SDS ¼"x2½"	2520	4680	5380	5715	1815	3370	3875	4115	
HUCQ612-SDS	5½	11	3	14-SDS ¼"x2½"	6-SDS ¼"x2½"	2520	5315	5315	5315	1815	3825	3825	3825	

1. Uplift loads have been increased for wind or earthquake loading. Reduce where other loads govern.
2. See page 107 for additional engineered wood products sizes.
3. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 232 for details)*.

LUS/HUS *Double Shear Joist Hangers*

SIMPSON Strong-Tie®

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.

See Hanger tables on pages 71-76. See Hanger Options on pages 215-224 for hanger modifications, which may result in reduced loads.

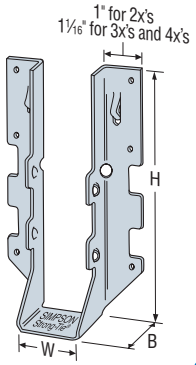
All hangers in this series have double shear nailing. This innovation distributes the load through two points on each joist nail for greater strength. It also allows the use of fewer nails, faster installation, and the use of standard nails for all connections. *(Do not bend or remove tabs.)*

MATERIAL: See tables, pages 71-76.

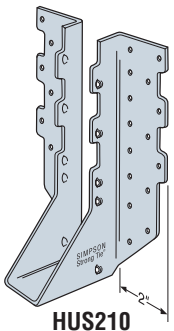
FINISH: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, page 14-15.

INSTALLATION • Use all specified fasteners. See General Notes.
- Nails must be driven at an angle through the joist or truss into the header to achieve the table loads.
- Not designed for welded or nailer applications.
- 16d sinkers (0.148" dia. x 3¼" long) may be used where 10d commons are specified with no reduction in load. Where 16d commons are specified, 10d commons or 16d sinkers (0.148" dia. x 3¼" long) may be used at 0.85 of the table load.
- With 3x carrying members, use 16dx2½" nails into the header and 16d commons into the joist with no load reduction.
- With 2x carrying members, use 10dx1½" nails into the header and 10d commons into the joist, reduce the load to 0.64 of the table value.
- Use stainless-steel (SS) nails with stainless-steel (SS) hangers.

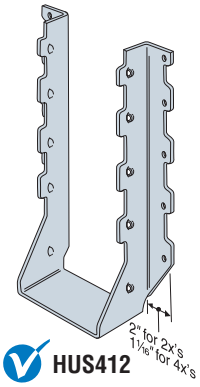
OPTIONS: • LUS hangers cannot be modified.
- HUS hangers available with the header flanges turned in for 2-2x (3⅛") and 4x only, with no load reduction. See the HUSC Concealed Flange illustration.



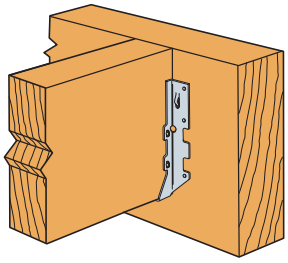
LUS28



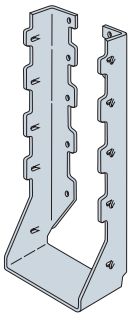
HUS210
(HUS26, HUS28, and HHUS similar)



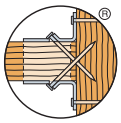
HUS412



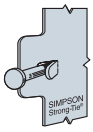
Typical LUS28 Installation
use 0.148x3" (10d common) or 0.148x3¼" (16d sinker) nail



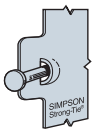
HUSC
Concealed Flanges
(not available for HHUS, HGUS and HUS2x)



Double-Shear Nailing Top View



Double-Shear Nailing Side View Do not bend tab



Dome Double-Shear Nailing Side View *(available on some models)*

U.S. Patent 5,603,580

LOAD TABLE EXPLANATION

This icon identifies products approved for installation with the Simpson Strong-Tie Strong-Drive® SD structural-connector screw. See page 27 for more information.

Min/Max: Refers to min. or max. nailing for products with round and triangle holes. Min. nailing uses round holes, and max. nailing uses round and triangle holes to achieve maximum load.

Load Duration: Assumed duration factor used to determine the allowable load.

Allowable Design Loads: The maximum load that a connection is designed to provide. There may be multiple design loads acting in different directions *(up, down, lateral, perpendicular, etc.)* imposed on a connection.

Code Ref.: See page 13 for the Code Reference Key Chart, to determine which code reports include this product.

Joist Size: This shows the size of joist member.

Model No.: This is the Simpson Strong-Tie product name.

Gauge: Product material

Nails: This shows the fastener quantity and type required to achieve the table loads.

Uplift

Floor, Snow, Roof

Installed Cost Index: This indicates the products relative installed cost *(combined cost and installation cost)*.

Joist Size	Model No.	Ga	Dimensions W	H	B	Min/ Max	Fasteners Header 10d	Header 16d	Joist	DF/SP Allowable Loads Uplift (160)	Floor (100) 10d	Floor (100) 16d	Snow (115) 10d	Snow (115) 16d	Roof (125) 10d	Roof (125) 16d	Installed Cost Index (ICI)	Code Ref.
DBL 2x6	LUS26-2	18	3⅛	4⅞	2	—	—	4-16d	4-16d	1165	—	1030	—	1180	—	1280	Lowest	I7, L17, F6
	U26-2	16	3⅛	5	2	—	8-10d	8-16d	4-10d	740	975	1150	1100	1305	1185	1410	+65%	
	HUS26-2	14	3⅛	5⅜16	2	—	—	4-16d	4-16d	1235	—	1065	—	1210	—	1305	+172%	
	HU26-2/HUC26-2	14	3⅛	5⅜	2½	Min	—	8-16d	4-10d	760	—	1190	—	1345	—	1445	+233%	
		14	3⅛	5⅜	2½	Max	—	12-16d	6-10d	1135	—	1785	—	2015	—	2145	+254%	

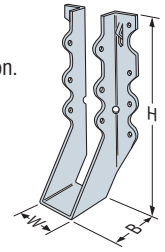
This icon identifies products that are available with additional corrosion protection. See pages 14-15 for additional information.

Dimensions W, H, B: This shows the product dimensions *(width, height and base in this case.)* referenced in the product drawing.

NAILS: 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

Throughout this catalog a footnote will typically be provided indicating the required nail diameter and length.

All installations should be designed only in accordance with the allowable load values set forth in this catalog.



Product Drawing: Provides a graphic presentation of the product with dimensional information *(often cross referenced to the table).*

CATALOG DEFINITION:
Deflection: The distance a point moves when a load is applied.

FACE MOUNT HANGERS – SOLID SAWN LUMBER (DF/SP)

SIMPSON Strong-Tie®

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 27 for more information.

Joist Size	Model No.	Ga	Dimensions W	H	B	Min/ Max	Fasteners Header 10d	Header 16d	Joist	DF/SP Allowable Loads Uplift (160)	Floor (100) 10d	Floor (100) 16d	Snow (115) 10d	Snow (115) 16d	Roof (125) 10d	Roof (125) 16d	Installed Cost Index (ICI)	Code Ref.
SAWN LUMBER SIZES																		
2x4	LU24	20	1⁹⁄₁₆	3⅛	1½	—	4-10d	4-16d	2-10dx1½	265	465	555	530	635	575	685	Lowest	I7, F6, L17
	LUS24	18	1⁹⁄₁₆	3⅛	1¾	—	4-10d	—	2-10d	490	670	—	765	—	825	—	+3%	
	U24	16	1⁹⁄₁₆	3⅛	1½	—	4-10d	4-16d	2-10dx1½	265	485	575	550	655	595	705	+67%	
	HU26	14	1⁹⁄₁₆	3¹⁄₁₆	2¼	—	—	4-16d	2-10dx1½	335	—	595	—	670	—	720	+295%	
DBL 2x4	LUS24-2	18	3⅛	3⅛	2	—	—	4-16d	2-16d	440	—	800	—	910	—	985	Lowest	
	U24-2	16	3⅛	3	2	—	4-10d	4-16d	2-10d	370	485	575	550	655	595	705	+33%	
	HU24-2/HUC24-2	14	3⅛	3¹⁄₁₆	2½	—	—	4-16d	2-10d	380	—	595	—	670	—	720	+240%	
2x6	LUS26	18	1⁹⁄₁₆	4¾	1¾	—	4-10d	—	4-10d	1165	865	—	990	—	1070	—	Lowest	
	LU26	20	1⁹⁄₁₆	4¾	1½	—	6-10d	6-16d	4-10dx1½	565	700	835	795	950	860	1030	+6%	
	U26	16	1⁹⁄₁₆	4¾	2	—	6-10d	6-16d	4-10dx1½	585	730	865	825	980	890	1055	+43%	
	LUC26Z	18	1⁹⁄₁₆	4¾	1¾	—	6-10d	6-16d	4-10dx1½	730	710	845	810	965	875	1040	+160%	
	HU26	14	1⁹⁄₁₆	3¹⁄₁₆	2¼	—	—	4-16d	2-10dx1½	335	—	595	—	670	—	720	+179%	
	HUS26	16	1⅝	5⅜	3	—	—	14-16d	6-16d	1550	—	2720	—	3095	—	3335	+276%	
DBL 2x6	LUS26-2	18	3⅛	4⅞	2	—	—	4-16d	4-16d	1165	—	1030	—	1180	—	1280	Lowest	
	U26-2	16	3⅛	5	2	—	8-10d	8-16d	4-10d	740	975	1150	1100	1305	1185	1410	+65%	
	HUS26-2	14	3⅛	5¹⁄₁₆	2	—	—	4-16d	4-16d	1235	—	1065	—	1210	—	1305	+172%	
	HU26-2/HUC26-2	14	3⅛	5⅜	2½	Min	—	8-16d	4-10d	760	—	1190	—	1345	—	1445	+233%	
		14	3⅛	5⅜	2½	Max	—	12-16d	6-10d	1135	—	1785	—	2015	—	2165	+254%	
TPL 2x6	LUS26-3	18	4⅝	4⅛	2	—	—	4-16d	4-16d	1165	—	1030	—	1180	—	1280	*	160
	U26-3	16	4⅝	4¼	2	—	8-10d	8-16d	4-10d	740	975	1150	1100	1305	1185	1410	*	
	HU26-3/HUC26-3	14	4¹¹⁄₁₆	5½	2½	Min	—	8-16d	4-10d	760	—	1190	—	1345	—	1445	*	
		14	4¹¹⁄₁₆	5½	2½	Max	—	12-16d	6-10d	1135	—	1785	—	2015	—	2165	*	
2x8	LUS26	18	1⁹⁄₁₆	4¾	1¾	—	4-10d	—	4-10d	1165	865	—	990	—	1070	—	Lowest	I7, F6, L17
	LU26	20	1⁹⁄₁₆	4¾	1½	—	6-10d	6-16d	4-10dx1½	565	700	835	795	950	860	1030	+6%	
	LUS28	18	1⁹⁄₁₆	6⅝	1¾	—	6-10d	—	4-10d	1165	1100	—	1255	—	1360	—	+23%	
	LU28	20	1⁹⁄₁₆	6⅝	1½	—	8-10d	8-16d	6-10dx1½	850	930	1110	1060	1270	1150	1335	+39%	
	U26	16	1⁹⁄₁₆	4¾	2	—	6-10d	6-16d	4-10dx1½	585	730	865	825	980	890	1055	+43%	
	LUC26Z	18	1⁹⁄₁₆	4¾	1¾	—	6-10d	6-16d	4-10dx1½	730	710	845	810	965	875	1040	+160%	
	HU28	14	1⁹⁄₁₆	5¼	2¼	—	—	6-16d	4-10dx1½	610	—	895	—	1005	—	1085	+251%	
	HUS26	16	1⅝	5⅜	3	—	—	14-16d	6-16d	1550	—	2720	—	3095	—	3335	+276%	
	HUS28	16	1⅝	7	3	—	—	22-16d	8-16d	2000	—	3965	—	4120	—	4220	+409%	
DBL 2x8	LUS26-2	18	3⅛	4⅞	2	—	—	4-16d	4-16d	1165	—	1030	—	1180	—	1280	Lowest	
	LUS28-2	18	3⅛	7	2	—	—	6-16d	4-16d	1165	—	1315	—	1500	—	1625	+8%	
	U26-2	16	3⅛	5	2	—	8-10d	8-16d	4-10d	740	975	1150	1100	1305	1185	1410	+65%	
	HUS28-2	14	3⅛	7³⁄₁₆	2	—	—	6-16d	6-16d	1550	—	1595	—	1815	—	1960	+188%	
	HU28-2/HUC28-2	14	3⅛	7	2½	Min	—	10-16d	4-10d	760	—	1490	—	1680	—	1805	+397%	
		14	3⅛	7	2½	Max	—	14-16d	6-10d	1135	—	2085	—	2350	—	2530	+418%	
TPL 2x8	LUS28-3	18	4⅝	6¼	2	—	—	6-16d	4-16d	1165	—	1315	—	1500	—	1625	*	160
	U26-3	16	4⅝	4¼	2	—	8-10d	8-16d	4-10d	740	975	1150	1100	1305	1185	1410	*	
	HU26-3/HUC26-3	14	4¹¹⁄₁₆	5½	2½	Min	—	8-16d	4-10d	760	—	1190	—	1345	—	1445	*	
		14	4¹¹⁄₁₆	5½	2½	Max	—	12-16d	6-10d	1135	—	1785	—	2015	—	2165	*	
QUAD 2x8	HU28-4/HUC28-4	14	6⅛	6⅝	2½	Min	—	10-16d	4-16d	900	—	1490	—	1680	—	1805	*	
		14	6⅛	6⅝	2½	Max	—	14-16d	6-16d	1345	—	2085	—	2350	—	2530	*	
2x10	LUS28	18	1⁹⁄₁₆	6⅝	1¾	—	6-10d	—	4-10d	1165	1100	—	1255	—	1360	—	Lowest	I7, F6, L17
	LU28	20	1⁹⁄₁₆	6⅝	1½	—	8-10d	8-16d	6-10dx1½	850	930	1110	1060	1270	1150	1335	+13%	
	LUS210	18	1⁹⁄₁₆	7¹³⁄₁₆	1¾	—	8-10d	—	4-10d	1165	1340	—	1525	—	1650	—	+15%	
	LU210	20	1⁹⁄₁₆	7¹³⁄₁₆	1½	—	10-10d	10-16d	6-10dx1½	850	1165	1390	1325	1585	1435	1715	+28%	
	U210	16	1⁹⁄₁₆	7¹³⁄₁₆	2	—	10-10d	10-16d	6-10dx1½	1110	1215	1440	1375	1635	1485	1685	+76%	
	LUC210Z	18	1⁹⁄₁₆	7¼	1¾	—	10-10d	10-16d	6-10dx1½	1100	1185	1410	1345	1605	1455	1735	+180%	
	HU210	14	1⁹⁄₁₆	7⅛	2¼	—	—	8-16d	4-10dx1½	610	—	1190	—	1345	—	1445	+225%	
	HUS210	16	1⅝	9	3	—	—	30-16d	10-16d	3000	—	4255	—	4445	—	4575	+450%	
DBL 2x10	LUS28-2	18	3⅛	7	2	—	—	6-16d	4-16d	1165	—	1315	—	1500	—	1625	Lowest	
	LUS210-2	18	3⅛	9	2	—	—	8-16d	6-16d	1745	—	1830	—	2090	—	2265	+34%	
	U210-2	16	3⅛	8½	2	—	14-10d	14-16d	6-10d	1110	1705	2015	1930	2285	2075	2465	+88%	
	HUS210-2	14	3⅛	9³⁄₁₆	2	—	—	8-16d	8-16d	3295	—	2125	—	2420	—	2615	+217%	I7, F23, L17
	HU210-2/ HUC210-2	14	3⅛	8¹³⁄₁₆	2½	Min	—	14-16d	6-10d	1135	—	2085	—	2350	—	2530	+441%	I7, F6, L17
		14	3⅛	8¹³⁄₁₆	2½	Max	—	18-16d	10-10d	1895	—	2680	—	3020	—	3250	+467%	
	HHUS210-2	14	3⁵⁄₁₆	9⁵⁄₃₂	3	—	—	30-16d	10-16d	4000	—	5635	—	6380	—	6880	*	F23
TPL 2x10	LUS28-3	18	4⅝	6¼	2	—	—	6-16d	4-16d	1165	—	1315	—	1500	—	1625	*	160
	LUS210-3	18	4⅝	8³⁄₁₆	2	—	—	8-16d	6-16d	1745	—	1830	—	2090	—	2265	*	
	U210-3	16	4⅝	7¾	2	—	14-10d	14-16d	6-10d	1110	1705	2015	1930	2285	2075	2465	*	I7, F6, L17
	HU210-3/ HUC210-3	14	4¹¹⁄₁₆	8⁹⁄₁₆	2½	Min	—	14-16d	6-10d	1135	—	2085	—	2350	—	2530	*	
		14	4¹¹⁄₁₆	8⁹⁄₁₆	2½	Max	—	18-16d	10-10d	1895	—	2680	—	3020	—	3250	*	
	HHUS210-3	14	4¹¹⁄₁₆	8⅞	3	—	—	30-16d	10-16d	4000	—	5635	—	6380	—	6880	*	
	HGUS210-3	12	4¹⁵⁄₁₆	9⅛	4	—	—	46-16d	16-16d	4095	—	9100	—	9100	—	9100	*	I7, F23

See footnotes on page 73.

CODES: See page 13 for Code Reference Key Chart.

FACE MOUNT HANGERS – SOLID SAWN LUMBER (DF/SP)

SIMPSON Strong-Tie®

NEW The new Joist Hanger Selector software enables you the most optimum product for your project.
The software takes into consideration all the characteristics seen in this catalog. Visit ***www.strongtie.com/software***.

Joist Size	Model No.	Ga	Dimensions W	H	B	Min/ Max	Fasteners Header 10d	Header 16d	Joist	DF/SP Allowable Loads Uplift (160)	Floor (100) 10d	Floor (100) 16d	Snow (115) 10d	Snow (115) 16d	Roof (125) 10d	Roof (125) 16d	Installed Cost Index (ICI)	Code Ref.
SAWN LUMBER SIZES																		
QUAD 2x10	HU210-4/ HUC210-4	14	6⅛	8⅜	2½	Min	—	14-16d	6-16d	1345	—	2085	—	2350	—	2530	*	160
		14	6⅛	8⅜	2½	Max	—	18-16d	8-16d	1795	—	2680	—	3020	—	3250	*	
	HHUS210-4	14	6⅛	8⅞	3	—	—	30-16d	10-16d	4000	—	5635	—	6380	—	6880	*	F23, 160
	HGUS210-4	12	6 9⁄16	9⅛	4	—	—	46-16d	16-16d	4095	—	9100	—	9100	—	9100	*	
2x12	LUS210	18	1 9⁄16	7 13⁄16	1¾	—	8-10d	—	4-10d	1165	1340	—	1525	—	1650	—	Lowest	I7, F6, L17
	LU210	20	1 9⁄16	7 13⁄16	1½	—	10-10d	10-16d	6-10dx1½	850	1165	1390	1325	1585	1435	1715	+11%	
	U210	16	1 9⁄16	7 13⁄16	2	—	10-10d	10-16d	6-10dx1½	1110	1215	1440	1375	1635	1485	1685	+53%	
	LUC210Z	18	1 9⁄16	7¾	1¾	—	10-10d	10-16d	6-10dx1½	1100	1185	1410	1345	1605	1455	1735	+180%	
	HU212	14	1 9⁄16	9	2¼	—	—	10-16d	6-10dx1½	1135	—	1490	—	1680	—	1805	+347%	
	HUS210	16	1⅝	9	3	—	—	30-16d	10-16d	3000	—	4255	—	4445	—	4575	+378%	
DBL 2x12	LUS210-2	18	3⅛	9	2	—	—	8-16d	6-16d	1745	—	1830	—	2090	—	2265	Lowest	
	U210-2	16	3⅛	8½	2	—	14-10d	14-16d	6-10d	1110	1705	2015	1930	2285	2075	2465	+40%	
	LUS214-2	18	3⅛	10 15⁄16	2	—	—	10-16d	6-16d	1745	—	2110	—	2410	—	2610	+56%	
	HUS210-2	14	3⅛	9 3⁄16	2	—	—	8-16d	8-16d	3290	—	2125	—	2420	—	2615		
	HUS212-2	14	3⅛	10¾	2	—	—	10-16d	10-16d	3635	—	2660	—	3025	—	3265		
	HU212-2/ HUC212-2	14	3⅛	10 9⁄16	2½	Min	—	16-16d	6-10d	1135	—	2380	—	2685	—	2890		
		14	3⅛	10 9⁄16	2½	Max	—	22-16d	10-10d	1895	—	3275	—	3695	—	3970	+411%	
TPL 2x12	LUS210-3	18	4⅝	8 3⁄16	2	—	—	8-16d	6-16d	1745	—	1830	—	2090	—	2265	*	160
	HU212-3/ HUC212-3	14	4 11⁄16	10 5⁄16	2½	Min	—	16-16d	6-10d	1135	—	2380	—	2685	—	2890	*	I7, F6, L17
		14	4 11⁄16	10 5⁄16	2½	Max	—	22-16d	10-10d	1895	—	3275	—	3695	—	3970	*	
	U210-3	16	4⅝	7¾	2	—	14-10d	14-16d	6-10d	1110	1705	2015	1930	2285	2075	2465	*	
2x14	LUS210	18	1 9⁄16	7 13⁄16	1¾	—	8-10d	—	4-10d	1165	1340	—	1525	—	1650	—	Lowest	
	LU210	20	1 9⁄16	7 13⁄16	1¾	—	10-10d	10-16d	6-10dx1½	850	1165	1390	1325	1585	1435	1715	+11%	
	U210	16	1 9⁄16	7 13⁄16	2	—	10-10d	10-16d	6-10dx1½	1110	1215	1440	1375	1635	1485	1685	+53%	
	HU214	14	1 9⁄16	10⅛	2¼	—	—	12-16d	6-10dx1½	1135	—	1785	—	2015	—	2165	+88%	
	U214	16	1 9⁄16	10	2	—	12-10d	12-16d	8-10dx1½	1115	1460	1730	1655	1960	1685	2115	+147%	
DBL 2x14	U210-2	16	3⅛	8½	2	—	14-10d	14-16d	6-10d	1110	1705	2015	1930	2285	2075	2465	Lowest	
	LUS214-2	18	3⅛	10 15⁄16	2	—	—	10-16d	6-16d	1745	—	2110	—	2410	—	2610	+12%	
	HUS212-2	14	3⅛	10¾	2	—	—	10-16d	10-16d	3635	—	2660	—	3025	—	3265	+83%	
	HU212-2/ HUC212-2	14	3⅛	10 9⁄16	2½	Min	—	16-16d	6-10d	1135	—	2380	—	2685	—	2890	+248%	
		14	3⅛	10 9⁄16	2½	Max	—	22-16d	10-10d	1895	—	3275	—	3695	—	3970	+265%	
	HU214-2/ HUC214-2	14	3⅛	12 13⁄16	2½	Min	—	18-16d	8-10d	1515	—	2680	—	3020	—	3250	+259%	
		14	3⅛	12 13⁄16	2½	Max	—	24-16d	12-10d	2015	—	3570	—	4030	—	4335	+276%	
TPL 2x14	U210-3	16	4⅝	7¾	2	—	14-10d	14-16d	6-10d	1110	1705	2015	1930	2285	2075	2465	*	
	HU214-3/ HUC214-3	14	4 11⁄16	12 1⁄16	2½	Min	—	18-16d	8-10d	1515	—	2680	—	3020	—	3250	*	
		14	4 11⁄16	12 1⁄16	2½	Max	—	24-16d	12-10d	2015	—	3570	—	4030	—	4335	*	
2x16	U214	16	1 9⁄16	10	2	—	12-10d	12-16d	8-10dx1½	1115	1460	1730	1655	1960	1685	2115	Lowest	
	HU214	14	1 9⁄16	10⅛	2¼	—	—	12-16d	6-10dx1½	1135	—	1785	—	2015	—	2165	+130%	
	HU216	14	1 9⁄16	12 15⁄16	2¼	—	—	18-16d	8-10dx1½	1515	—	2680	—	3020	—	3250	+130%	160
DBL 2x16	HUS212-2	14	3⅛	10¾	2	—	—	10-16d	10-16d	3635	—	2660	—	3025	—	3265	Lowest	I7, F6, L17
	HU216-2/ HUC216-2	14	3⅛	13⅞	2½	Min	—	20-16d	8-10d	1515	—	2975	—	3360	—	3610	+111%	
		14	3⅛	13⅞	2½	Max	—	26-16d	12-10d	2015	—	3870	—	4365	—	4695	+120%	
TPL 2x16	HU216-3/ HUC216-3	14	4 11⁄16	13⅞	2½	Min	—	20-16d	8-10d	1515	—	2975	—	3360	—	3610	*	
		14	4 11⁄16	13⅞	2½	Max	—	26-16d	12-10d	2015	—	3870	—	4365	—	4695	*	
3x4	U34	16	2 9⁄16	3⅜	2	—	4-10d	4-16d	2-10dx1½	265	485	575	550	655	595	705	*	I7, F8, L17
	HU34/HUC34	14	2 9⁄16	3⅜	2½	—	—	4-16d	2-10dx1½	380	—	595	—	670	—	720	*	I7, F6, L17
3x6	U36	16	2 9⁄16	5⅜	2	—	8-10d	8-16d	4-10dx1½	585	975	1150	1100	1305	1185	1410	*	
	LUS36	18	2 9⁄16	5¼	2	—	—	4-16d	4-16d	1165	—	1030	—	1180	—	1280	*	F23
	HU36/HUC36	14	2 9⁄16	5⅜	2½	—	—	8-16d	4-10dx1½	610	—	1190	—	1345	—	1445	*	I7, F6, L17
3x8	U36	16	2 9⁄16	5⅜	2	—	8-10d	8-16d	4-10dx1½	585	975	1150	1100	1305	1185	1410	*	
	LUS36	18	2 9⁄16	5¼	2	—	—	4-16d	4-16d	1165	—	1030	—	1180	—	1280	*	F23
	HU38/HUC38	14	2 9⁄16	7⅛	2½	—	—	10-16d	4-10dx1½	610	—	1490	—	1680	—	1805	*	I7, F6, L17
3x10	U310	16	2 9⁄16	8⅞	2	—	14-10d	14-16d	6-10dx1½	1110	1705	2015	1930	2285	2075	2465	*	
	LUS310	18	2 9⁄16	7¼	2	—	—	6-16d	4-16d	1165	—	1315	—	1500	—	1625	*	F23
	HU310/HUC310	14	2 9⁄16	8⅞	2½	—	—	14-16d	6-10dx1½	915	—	2085	—	2350	—	2530	*	I7, F6, L17
3x12	U310	16	2 9⁄16	8⅞	2	—	14-10d	14-16d	6-10dx1½	1110	1705	2015	1930	2285	2075	2465	*	
	LUS310	18	2 9⁄16	7¼	2	—	—	6-16d	4-16d	1165	—	1315	—	1500	—	1625	*	F23
	HU312/HUC312	14	2 9⁄16	10⅝	2½	—	—	16-16d	6-10dx1½	915	—	2380	—	2685	—	2890	*	I7, F6, L17
3x14	U314	16	2 9⁄16	10½	2	—	16-10d	16-16d	6-10dx1½	1110	1945	2305	2205	2615	2375	2820	*	F8
	HU314/HUC314	14	2 9⁄16	12⅜	2½	—	—	18-16d	8-10dx1½	1515	—	2680	—	3020	—	3250	*	I7, F6, L17
3x16	U314	16	2 9⁄16	10½	2	—	16-10d	16-16d	6-10dx1½	1110	1945	2305	2205	2615	2375	2820	*	
	HU316/HUC316	14	2 9⁄16	14⅛	2½	—	—	20-16d	8-10dx1½	1515	—	2975	—	3360	—	3610	*	
4x4	LUS44	18	3 9⁄16	3	2	—	—	4-16d	2-16d	440	—	800	—	910	—	985	Lowest	
	U44	16	3 9⁄16	2⅞	2	—	4-10d	4-16d	2-10d	370	485	575	550	655	595	705	+20%	
	HU44/HUC44	14	3 9⁄16	2⅞	2½	—	—	4-16d	2-10d	380	—	595	—	670	—	720	+161%	

See footnotes on page 73.

CODES: See page 13 for Code Reference Key Chart.

FACE MOUNT HANGERS – SOLID SAWN LUMBER (DF/SP)

SIMPSON Strong-Tie®

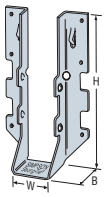
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

CODES: See page 13 for Code Reference Key Chart.

Joist Size	Model No.	Ga	Dimensions W	H	B	Min/ Max	Fasteners Header 10d	Header 16d	Joist	DF/SP Allowable Loads Uplift (160)	Floor (100) 10d	Floor (100) 16d	Snow (115) 10d	Snow (115) 16d	Roof (125) 10d	Roof (125) 16d	Installed Cost Index (ICI)	Code Ref.
SAWN LUMBER SIZES																		
4x6	LUS46	18	3⁹⁄₁₆	4¾	2	—	—	4-16d	4-16d	1165	—	1030	—	1180	—	1280	Lowest	I7, F6, L17
	U46	16	3⁹⁄₁₆	4⅞	2	—	8-10d	8-16d	4-10d	740	975	1150	1100	1305	1185	1410	+37%	
	HUS46	14	3⁹⁄₁₆	5	2	—	—	4-16d	4-16d	1235	—	1065	—	1210	—	1305	+152%	
	HU46/HUC46	14	3⁹⁄₁₆	5⅜	2½	Min	—	8-16d	4-10d	760	—	1190	—	1345	—	1445	+163%	
		14	3⁹⁄₁₆	5⅜	2½	Max	—	12-16d	6-10d	1135	—	1785	—	2015	—	2165	+185%	
4x8	LUS46	18	3⁹⁄₁₆	4¾	2	—	—	4-16d	4-16d	1165	—	1030	—	1180	—	1280	Lowest	
	U46	16	3⁹⁄₁₆	4⅞	2	—	8-10d	8-16d	4-10d	740	975	1150	1100	1305	1185	1410	+37%	
	LUS48	18	3⁹⁄₁₆	6¾	2	—	—	6-16d	4-16d	1165	—	1315	—	1500	—	1625	+40%	
	HUS48	14	3⁹⁄₁₆	6¹⁵⁄₁₆	2	—	—	6-16d	6-16d	1550	—	1595	—	1815	—	1960	+203%	
	HU48/HUC48	14	3⁹⁄₁₆	6¹³⁄₁₆	2½	Min	—	10-16d	4-10d	760	—	1490	—	1680	—	1805	+213%	
		14	3⁹⁄₁₆	6¹³⁄₁₆	2½	Max	—	14-16d	6-10d	1135	—	2085	—	2350	—	2530	+235%	
4x10	LUS48	18	3⁹⁄₁₆	6¾	2	—	—	6-16d	4-16d	1165	—	1315	—	1500	—	1625	Lowest	
	LUS410	18	3⁹⁄₁₆	8¾	2	—	—	8-16d	6-16d	1745	—	1830	—	2090	—	2265	+19%	
	U410	16	3⁹⁄₁₆	8⅜	2	—	14-10d	14-16d	6-10d	1110	1705	2015	1930	2285	2075	2465	+74%	
	HUS410	14	3⁹⁄₁₆	8¹⁵⁄₁₆	2	—	—	8-16d	8-16d	3295	—	2125	—	2420	—	2615	+154%	
	HU410/HUC410	14	3⁹⁄₁₆	8⅝	2½	Min	—	14-16d	6-10d	1135	—	2085	—	2350	—	2530	+232%	
		14	3⁹⁄₁₆	8⅝	2½	Max	—	18-16d	10-10d	1895	—	2680	—	3020	—	3250	+253%	
4x12	LUS410	18	3⁹⁄₁₆	8¾	2	—	—	8-16d	6-16d	1745	—	1830	—	2090	—	2265	Lowest	
	LUS414	18	3⁹⁄₁₆	10¾	2	—	—	10-16d	6-16d	1745	—	2110	—	2410	—	2610	+33%	
	U410	16	3⁹⁄₁₆	8⅜	2	—	14-10d	14-16d	6-10d	1110	1705	2015	1930	2285	2075	2465	+46%	
	HUS410	14	3⁹⁄₁₆	8¹⁵⁄₁₆	2	—	—	8-16d	8-16d	3295	—	2125	—	2420	—	2615	+114%	
	HUS412	14	3⁹⁄₁₆	10½	2	—	—	10-16d	10-16d	3635	—	2660	—	3025	—	3265	+129%	
	HU412/HUC412	14	3⁹⁄₁₆	10⁵⁄₁₆	2½	Min	—	16-16d	6-10d	1135	—	2380	—	2685	—	2890	+268%	
		14	3⁹⁄₁₆	10⁵⁄₁₆	2½	Max	—	22-16d	10-10d	1895	—	3275	—	3695	—	3970	+290%	
4x14	LUS410	18	3⁹⁄₁₆	8¾	2	—	—	8-16d	6-16d	1745	—	1830	—	2090	—	2265	Lowest	
	LUS414	18	3⁹⁄₁₆	10¾	2	—	—	10-16d	6-16d	1745	—	2110	—	2410	—	2610	+33%	
	U414	16	3⁹⁄₁₆	10	2	—	16-10d	16-16d	6-10d	1110	1945	2305	2205	2615	2375	2820	+93%	
	HUS412	14	3⁹⁄₁₆	10½	2	—	—	10-16d	10-16d	3635	—	2660	—	3025	—	3265	+129%	
	HU414/HUC414	14	3⁹⁄₁₆	12⅝	2½	Min	—	18-16d	8-10d	1515	—	2680	—	3020	—	3250	+333%	
		14	3⁹⁄₁₆	12⅝	2½	Max	—	24-16d	12-10d	2015	—	3570	—	4030	—	4335	+355%	
4x16	U414	16	3⁹⁄₁₆	10	2	—	16-10d	16-16d	6-10d	1110	1945	2305	2205	2615	2375	2820	Lowest	
	HUS412	14	3⁹⁄₁₆	10½	2	—	—	10-16d	10-16d	3635	—	2660	—	3025	—	3265	+19%	
	HU416/HUC416	14	3⁹⁄₁₆	13⅜	2½	Min	—	20-16d	8-10d	1515	—	2975	—	3360	—	3610	+167%	
		14	3⁹⁄₁₆	13⅜	2½	Max	—	26-16d	12-10d	2015	—	3870	—	4365	—	4695	+178%	
6x6	U66	16	5½	5	2	—	8-10d	8-16d	4-10d	740	975	1150	1100	1305	1185	1410	*	
	HU66/HUC66	14	5½	4⁹⁄₁₆	2½	Min	—	8-16d	4-16d	900	—	1190	—	1345	—	1445	*	
		14	5½	4⁹⁄₁₆	2½	Max	—	12-16d	6-16d	1345	—	1785	—	2015	—	2165	*	
6x8	U66	16	5½	5	2	—	8-10d	8-16d	4-10d	740	975	1150	1100	1305	1185	1410	*	
	HU68/HUC68	14	5½	5¹³⁄₁₆	2½	Min	—	10-16d	4-16d	900	—	1490	—	1680	—	1805	*	
		14	5½	5¹³⁄₁₆	2½	Max	—	14-16d	6-16d	1345	—	2085	—	2350	—	2530	*	
6x10	U610	16	5½	8½	2	—	14-10d	14-16d	6-10d	1110	1705	2015	1930	2285	2075	2465	*	
	HU610/HUC610	14	5½	7⅝	2½	Min	—	14-16d	6-16d	1345	—	2085	—	2350	—	2530	*	
		14	5½	7⅝	2½	Max	—	18-16d	8-16d	1795	—	2680	—	3020	—	3250	*	
6x12	HU612/HUC612	14	5½	9⅜	2½	Min	—	16-16d	6-16d	1345	—	2380	—	2685	—	2890	*	
		14	5½	9⅜	2½	Max	—	22-16d	8-16d	1795	—	3275	—	3695	—	3970	*	
6x14	HU614/HUC614	14	5½	11⅝	2½	Min	—	18-16d	8-16d	1795	—	2680	—	3020	—	3250	*	
		14	5½	11⅝	2½	Max	—	24-16d	12-16d	2695	—	3570	—	4030	—	4335	*	
6x16	HU616/HUC616	14	5½	12¹¹⁄₁₆	2½	Min	—	20-16d	8-16d	1795	—	2975	—	3360	—	3610	*	
		14	5½	12¹¹⁄₁₆	2½	Max	—	26-16d	12-16d	2695	—	3870	—	4365	—	4695	*	
8x8	HU88/HUC88	14	7½	6⅝	2½	Min	—	10-16d	4-16d	900	—	1490	—	1680	—	1805	*	160
		14	7½	6⅝	2½	Max	—	14-16d	6-16d	1345	—	2085	—	2350	—	2530	*	
8x10	HU810/HUC810	14	7½	8⅜	2½	Min	—	14-16d	6-16d	1345	—	2085	—	2350	—	2530	*	
		14	7½	8⅜	2½	Max	—	18-16d	8-16d	1795	—	2680	—	3020	—	3250	*	
8x12	HU812/HUC812	14	7½	10⅛	2½	Min	—	16-16d	6-16d	1345	—	2380	—	2685	—	2890	*	
		14	7½	10⅛	2½	Max	—	22-16d	8-16d	1795	—	3275	—	3695	—	3970	*	
8x14	HU814/HUC814	14	7½	11⅞	2½	Min	—	18-16d	8-16d	1795	—	2680	—	3020	—	3250	*	
		14	7½	11⅞	2½	Max	—	24-16d	12-16d	2695	—	3570	—	4030	—	4335	*	
8x16	HU816/HUC816	14	7½	13⅝	2½	Min	—	20-16d	8-16d	1795	—	2975	—	3360	—	3610	*	
		14	7½	13⅝	2½	Max	—	26-16d	12-16d	2695	—	3870	—	4365	—	4695	*	

1. Uplift loads apply to 10d and 16d header fasteners. Uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. 10d commons or 16d sinkers may be used instead of the specified 16d at 0.84 of the table load value.
3. 16d sinkers may be used instead of the specified 10d commons with no load reduction. *(16d sinkers are not acceptable for HDG applications.)*
4. MIN nailing quantity and load values—fill all round holes; MAX nailing quantity and load values—fill all round and triangle holes.
5. DF/SP loads can be used for SCL that has fastener holding capacity of Doug Fir.
6. Truss chord cross-grain tension may limit allowable loads in accordance with ANSI/TPI 1-2007. Simpson Strong-Tie® Connector Selector™ Software includes the evaluation of cross-grain tension in its hanger allowable loads. For additional information, contact Simpson Strong-Tie.
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

**Hangers do not have an Installed Cost Index.*



FACE MOUNT HANGERS – SOLID SAWN LUMBER (SPF/HF)

SIMPSON Strong-Tie®

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 27 for more information.

Joist Size	Model No.	Ga	Dimensions W	Dimensions H	Dimensions B	Min/ Max	Fasteners Header 10d	Fasteners Header 16d	Fasteners Joist	SPF/HF Allowable Loads Uplift (160)	Floor (100) 10d	Floor (100) 16d	Snow (115) 10d	Snow (115) 16d	Roof (125) 10d	Roof (125) 16d
SAWN LUMBER SIZES																
2x4	LU24	20	1 9/16	3 1/8	1 1/2	—	4-10d	4-16d	2-10dx1 1/2	230	400	475	455	545	495	590
	LUS24	18	1 9/16	3 1/8	1 3/4	—	4-10d	—	2-10d	420	575	—	655	—	705	—
	U24	16	1 9/16	3 1/8	1 1/2	—	4-10d	4-16d	2-10dx1 1/2	230	420	495	475	560	510	605
	HU26	14	1 9/16	3 1/16	2 1/4	—	—	4-16d	2-10dx1 1/2	290	—	515	—	580	—	620
DBL 2x4	LUS24-2	18	3 1/8	3 1/8	2	—	—	4-16d	2-16d	380	—	680	—	780	—	845
	U24-2	16	3 1/8	3	2	—	4-10d	4-16d	2-10d	320	420	495	475	560	510	605
	HU24-2	14	3 1/8	3 1/16	2 1/2	—	—	4-16d	2-10d	325	—	515	—	580	—	620
2x6	LUS26	18	1 9/16	4 3/4	1 3/4	—	4-10d	—	4-10d	1005	740	—	845	—	915	—
	LU26	20	1 9/16	4 3/4	1 1/2	—	6-10d	6-16d	4-10dx1 1/2	490	600	715	685	815	740	885
	U26	16	1 9/16	4 3/4	2	—	6-10d	6-16d	4-10dx1 1/2	500	630	745	710	845	765	910
	LUC26Z	18	1 9/16	4 3/4	1 3/4	—	6-10d	6-16d	4-10dx1 1/2	630	610	725	695	825	750	895
	HU26	14	1 9/16	3 1/16	2 1/4	—	—	4-16d	2-10dx1 1/2	290	—	515	—	580	—	620
	HUS26	16	1 5/8	5 1/8	3	—	—	14-16d	6-16d	1335	—	2330	—	2650	—	2820
DBL 2x6	LUS26-2	18	3 1/8	4 7/8	2	—	—	4-16d	4-16d	1000	—	880	—	1010	—	1090
	U26-2	16	3 1/8	5	2	—	8-10d	8-16d	4-10d	640	835	990	950	1125	1020	1210
	HUS26-2	14	3 1/8	5 3/16	2	—	—	4-16d	4-16d	1060	—	910	—	1035	—	1120
	HU26-2/HUC26-2	14	3 1/8	5 3/8	2 1/2	Min	—	8-16d	4-10d	655	—	1025	—	1155	—	1245
		14	3 1/8	5 3/8	2 1/2	Max	—	12-16d	6-10d	980	—	1540	—	1735	—	1865
TPL 2x6	LUS26-3	18	4 5/8	4 1/8	2	—	—	4-16d	4-16d	1000	—	880	—	1010	—	1090
	U26-3	16	4 5/8	4 1/4	2	—	8-10d	8-16d	4-10d	640	835	990	950	1125	1020	1210
	HU26-3/HUC26-3	14	4 11/16	5 1/2	2 1/2	Min	—	8-16d	4-10d	655	—	1025	—	1155	—	1245
		14	4 11/16	5 1/2	2 1/2	Max	—	12-16d	6-10d	980	—	1540	—	1735	—	1865
2x8	LUS26	18	1 9/16	4 3/4	1 3/4	—	4-10d	—	4-10d	1005	740	—	845	—	915	—
	LU26	20	1 9/16	4 3/4	1 1/2	—	6-10d	6-16d	4-10dx1 1/2	490	600	715	685	815	740	885
	LUS28	18	1 9/16	6 5/8	1 3/4	—	6-10d	—	4-10d	1005	940	—	1075	—	1165	—
	LU28	20	1 9/16	6 3/8	1 1/2	—	8-10d	8-16d	6-10dx1 1/2	730	795	950	910	1085	985	1145
	U26	16	1 9/16	4 3/4	2	—	6-10d	6-16d	4-10dx1 1/2	500	630	745	710	845	765	910
	LUC26Z	18	1 9/16	4 3/4	1 3/4	—	6-10d	6-16d	4-10dx1 1/2	630	610	725	695	825	750	895
	HU28	14	1 9/16	5 1/4	2 1/4	—	—	6-16d	4-10dx1 1/2	525	—	770	—	870	—	935
	HUS26	16	1 5/8	5 1/8	3	—	—	14-16d	6-16d	1335	—	2330	—	2650	—	2820
	HUS28	16	1 5/8	7	3	—	—	22-16d	8-16d	1720	—	2905	—	3035	—	3125
DBL 2x8	LUS26-2	18	3 1/8	4 7/8	2	—	—	4-16d	4-16d	1000	—	880	—	1010	—	1090
	LUS28-2	18	3 1/8	7	2	—	—	6-16d	4-16d	1000	—	1125	—	1285	—	1390
	U26-2	16	3 1/8	5	2	—	8-10d	8-16d	4-10d	640	835	990	950	1125	1020	1210
	HUS28-2	14	3 1/8	7 3/16	2	—	—	6-16d	6-16d	1335	—	1365	—	1555	—	1680
	HU28-2/HUC28-2	14	3 1/8	7	2 1/2	Min	—	10-16d	4-10d	655	—	1280	—	1445	—	1555
		14	3 1/8	7	2 1/2	Max	—	14-16d	6-10d	980	—	1795	—	2025	—	2180
TPL 2x8	LUS28-3	18	4 5/8	6 1/4	2	—	—	6-16d	4-16d	1000	—	1125	—	1285	—	1390
	U26-3	16	4 5/8	4 1/4	2	—	8-10d	8-16d	4-10d	640	835	990	950	1125	1020	1210
	HU26-3/HUC26-3	14	4 11/16	5 1/2	2 1/2	Min	—	8-16d	4-10d	655	—	1025	—	1155	—	1245
		14	4 11/16	5 1/2	2 1/2	Max	—	12-16d	6-10d	980	—	1540	—	1735	—	1865
QUAD 2x8	HU28-4/HUC28-4	14	6 1/8	6 5/8	2 1/2	Min	—	10-16d	4-16d	775	—	1280	—	1445	—	1555
		14	6 1/8	6 5/8	2 1/2	Max	—	14-16d	6-16d	1160	—	1795	—	2025	—	2180
2x10	LUS28	18	1 9/16	6 5/8	1 3/4	—	6-10d	—	4-10d	1005	940	—	1075	—	1165	—
	LU28	20	1 9/16	6 3/8	1 1/2	—	8-10d	8-16d	6-10dx1 1/2	730	795	950	910	1085	985	1145
	LUS210	18	1 9/16	7 13/16	1 3/4	—	8-10d	—	4-10d	1005	1145	—	1305	—	1415	—
	LU210	20	1 9/16	7 13/16	1 1/2	—	10-10d	10-16d	6-10dx1 1/2	730	995	1190	1140	1360	1230	1470
	U210	16	1 9/16	7 13/16	2	—	10-10d	10-16d	6-10dx1 1/2	960	1045	1240	1185	1405	1275	1445
	LUC210Z	18	1 9/16	7 3/4	1 3/4	—	10-10d	10-16d	6-10dx1 1/2	945	1020	1210	1160	1380	1250	1490
	HU210	14	1 9/16	7 1/8	2 1/4	—	—	8-16d	4-10dx1 1/2	525	—	1025	—	1155	—	1245
	HUS210	16	1 5/8	9	3	—	—	30-16d	10-16d	2580	—	3150	—	3315	—	3425
DBL 2x10	LUS28-2	18	3 1/8	7	2	—	—	6-16d	4-16d	1000	—	1125	—	1285	—	1390
	LUS210-2	18	3 1/8	9	2	—	—	8-16d	6-16d	1500	—	1565	—	1785	—	1935
	U210-2	16	3 1/8	8 1/2	2	—	14-10d	14-16d	6-10d	960	1465	1735	1660	1965	1790	2120
	HUS210-2	14	3 1/8	9 3/16	2	—	—	8-16d	8-16d	2820	—	1820	—	2070	—	2240
	HU210-2/HUC210-2	14	3 1/8	8 13/16	2 1/2	Min	—	14-16d	6-10d	980	—	1795	—	2025	—	2180
		14	3 1/8	8 13/16	2 1/2	Max	—	18-16d	10-10d	1635	—	2305	—	2605	—	2800
	HHUS210-2	14	3 5/16	8 7/8	3	—	—	30-16d	10-16d	3525	—	4835	—	5270	—	5380
TPL 2x10	LUS28-3	18	4 5/8	6 1/4	2	—	—	6-16d	4-16d	1000	—	1125	—	1285	—	1390
	LUS210-3	18	4 5/8	8 3/16	2	—	—	8-16d	6-16d	1500	—	1565	—	1785	—	1935
	U210-3	16	4 5/8	7 3/4	2	—	14-10d	14-16d	6-10d	960	1465	1735	1660	1965	1790	2120
	HU210-3/HUC210-3	14	4 11/16	8 9/16	2 1/2	Min	—	14-16d	6-10d	980	—	1795	—	2025	—	2180
		14	4 11/16	8 9/16	2 1/2	Max	—	18-16d	10-10d	1635	—	2305	—	2605	—	2800
	HHUS210-3	14	4 11/16	8 7/8	3	—	—	30-16d	10-16d	3525	—	4835	—	5480	—	5910
QUAD 2x10	HU210-4/HUC210-4	14	6 1/8	8 3/8	2 1/2	Min	—	14-16d	6-16d	1160	—	1795	—	2025	—	2180
		14	6 1/8	8 3/8	2 1/2	Max	—	18-16d	8-16d	1550	—	2305	—	2605	—	2800
	HHUS210-4	14	6 1/8	8 7/8	3	—	—	30-16d	10-16d	3525	—	4835	—	5480	—	5910

See footnotes on page 76.

FACE MOUNT HANGERS – SOLID SAWN LUMBER (SPF/HF)

SIMPSON Strong-Tie®

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 27 for more information.

Joist Size	Model No.	Ga	Dimensions W	Dimensions H	Dimensions B	Min/ Max	Fasteners Header 10d	Fasteners Header 16d	Fasteners Joist	SPF/HF Allowable Loads Uplift (160)	Floor (100) 10d	Floor (100) 16d	Snow (115) 10d	Snow (115) 16d	Roof (125) 10d	Roof (125) 16d
SAWN LUMBER SIZES																
2x12	LUS210	18	1⁹⁄₁₆	7¹³⁄₁₆	1¾	—	8-10d	—	4-10d	1005	1145	—	1305	—	1415	—
	LU210	20	1⁹⁄₁₆	7¹³⁄₁₆	1½	—	10-10d	10-16d	6-10dx1½	730	995	1190	1140	1360	1230	1470
	U210	16	1⁹⁄₁₆	7¹³⁄₁₆	2	—	10-10d	10-16d	6-10dx1½	960	1045	1240	1185	1405	1275	1445
	LUC210Z	18	1⁹⁄₁₆	7¾	1¾	—	10-10d	10-16d	6-10dx1½	945	1020	1210	1160	1380	1250	1490
	HU212	14	1⁹⁄₁₆	9	2¼	—	—	10-16d	6-10dx1½	980	—	1280	—	1445	—	1555
	HUS210	16	1⅝	9	3	—	—	30-16d	10-16d	2580	—	3150	—	3315	—	3425
DBL 2x12	LUS210-2	18	3⅛	9	2	—	—	8-16d	6-16d	1500	—	1565	—	1785	—	1935
	U210-2	16	3⅛	8½	2	—	14-10d	14-16d	6-10d	960	1465	1735	1660	1965	1790	2120
	LUS214-2	18	3⅛	10¹⁵⁄₁₆	2	—	—	10-16d	6-16d	1500	—	1805	—	2065	—	2235
	HUS210-2	14	3⅛	9³⁄₁₆	2	—	—	8-16d	8-16d	2820	—	1820	—	2070	—	2240
	HUS212-2	14	3⅛	10¾	2	—	—	10-16d	10-16d	3125	—	2275	—	2590	—	2795
	HU212-2/HUC212-2	14	3⅛	10⁹⁄₁₆	2½	Min	—	16-16d	6-10d	980	—	2050	—	2315	—	2490
		14	3⅛	10⁹⁄₁₆	2½	Max	—	22-16d	10-10d	1635	—	2820	—	3180	—	3425
TPL 2x12	LUS210-3	18	4⅝	8³⁄₁₆	2	—	—	8-16d	6-16d	1500	—	1565	—	1785	—	1935
	HU212-3/HUC212-3	14	4¹¹⁄₁₆	10⁵⁄₁₆	2½	Min	—	16-16d	6-10d	980	—	2050	—	2315	—	2490
		14	4¹¹⁄₁₆	10⁵⁄₁₆	2½	Max	—	22-16d	10-10d	1635	—	2820	—	3180	—	3425
	U210-3	16	4⅝	7¾	2	—	14-10d	14-16d	6-10d	960	1465	1735	1660	1965	1790	2120
2x14	LUS210	18	1⁹⁄₁₆	7¹³⁄₁₆	1¾	—	8-10d	—	4-10d	1005	1145	—	1305	—	1415	—
	LU210	20	1⁹⁄₁₆	7¹³⁄₁₆	1¾	—	10-10d	10-16d	6-10dx1½	730	995	1190	1140	1360	1230	1470
	U210	16	1⁹⁄₁₆	7¹³⁄₁₆	2	—	10-10d	10-16d	6-10dx1½	960	1045	1240	1185	1405	1275	1445
	HU214	14	1⁹⁄₁₆	10⅛	2¼	—	—	12-16d	6-10dx1½	980	—	1540	—	1735	—	1865
	U214	16	1⁹⁄₁₆	10	2	—	12-10d	12-16d	8-10dx1½	960	1255	1485	1420	1685	1445	1820
DBL 2x14	U210-2	16	3⅛	8½	2	—	14-10d	14-16d	6-10d	960	1465	1735	1660	1965	1790	2120
	LUS214-2	18	3⅛	10¹⁵⁄₁₆	2	—	—	10-16d	6-16d	1500	—	1805	—	2065	—	2235
	HUS212-2	14	3⅛	10¾	2	—	—	10-16d	10-16d	3125	—	2275	—	2590	—	2795
	HU212-2/HUC212-2	14	3⅛	10⁹⁄₁₆	2½	Min	—	16-16d	6-10d	980	—	2050	—	2315	—	2490
		14	3⅛	10⁹⁄₁₆	2½	Max	—	22-16d	10-10d	1635	—	2820	—	3180	—	3425
	HU214-2/HUC214-2	14	3⅛	12¹³⁄₁₆	2½	Min	—	18-16d	8-10d	1310	—	2305	—	2605	—	2800
		14	3⅛	12¹³⁄₁₆	2½	Max	—	24-16d	12-10d	1965	—	3075	—	3470	—	3735
TPL 2x14	U210-3	16	4⅝	7¾	2	—	14-10d	14-16d	6-10d	960	1465	1735	1660	1965	1790	2120
	HU214-3/HUC214-3	14	4¹¹⁄₁₆	12¹⁄₁₆	2½	Min	—	18-16d	8-10d	1310	—	2305	—	2605	—	2800
		14	4¹¹⁄₁₆	12¹⁄₁₆	2½	Max	—	24-16d	12-10d	1735	—	3075	—	3470	—	3735
2x16	U214	16	1⁹⁄₁₆	10	2	—	12-10d	12-16d	8-10dx1½	960	1255	1485	1420	1685	1445	1820
	HU214	14	1⁹⁄₁₆	10⅛	2¼	—	—	12-16d	6-10dx1½	980	—	1540	—	1735	—	1865
	HU216	14	1⁹⁄₁₆	12¹⁵⁄₁₆	2¼	—	—	18-16d	8-10dx1½	1310	—	2305	—	2415	—	2490
DBL 2x16	HUS212-2	14	3⅛	10¾	2	—	—	10-16d	10-16d	3125	—	2275	—	2590	—	2795
	HU216-2/HUC216-2	14	3⅛	13⅞	2½	Min	—	20-16d	8-10d	1310	—	2565	—	2895	—	3110
		14	3⅛	13⅞	2½	Max	—	26-16d	12-10d	1735	—	3330	—	3760	—	4045
TPL 2x16	HU216-3/HUC216-3	14	4¹¹⁄₁₆	13⅞	2½	Min	—	20-16d	8-10d	1310	—	2565	—	2895	—	3110
		14	4¹¹⁄₁₆	13⅞	2½	Max	—	26-16d	12-10d	1735	—	3330	—	3760	—	4045
3x4	U34	16	2⁹⁄₁₆	3⅜	2	—	4-10d	4-16d	2-10dx1½	230	420	495	475	560	510	605
	HU34	14	2⁹⁄₁₆	3⅜	2½	—	—	4-16d	2-10dx1½	325	—	515	—	580	—	620
3x6	U36	16	2⁹⁄₁₆	5⅜	2	—	8-10d	8-16d	4-10dx1½	500	835	990	950	1125	1020	1210
	LUS36	18	2⁹⁄₁₆	5¼	2	—	—	4-16d	4-16d	1000	—	880	—	1010	—	1090
	HU36	14	2⁹⁄₁₆	5⅜	2½	—	—	8-16d	4-10dx1½	525	—	1025	—	1155	—	1245
3x8	U36	16	2⁹⁄₁₆	5⅜	2	—	8-10d	8-16d	4-10dx1½	500	835	990	950	1125	1020	1210
	HU38	14	2⁹⁄₁₆	7⅛	2½	—	—	10-16d	4-10dx1½	525	—	1280	—	1445	—	1555
3x10	U310	16	2⁹⁄₁₆	8⅞	2	—	14-10d	14-16d	6-10dx1½	960	1465	1735	1660	1965	1790	2120
	LUS310	18	2⁹⁄₁₆	7¼	2	—	—	6-16d	4-16d	1000	—	1125	—	1285	—	1390
	HU310	14	2⁹⁄₁₆	8⅞	2½	—	—	14-16d	6-10dx1½	790	—	1795	—	2025	—	2180
3x12	U310	16	2⁹⁄₁₆	8⅞	2	—	14-10d	14-16d	6-10dx1½	960	1465	1735	1660	1965	1790	2120
	HU312	14	2⁹⁄₁₆	10⅝	2½	—	—	16-16d	6-10dx1½	790	—	2050	—	2315	—	2490
3x14	U314	16	2⁹⁄₁₆	10½	2	—	16-10d	16-16d	6-10dx1½	960	1675	1980	1895	2245	2045	2425
	HU314	14	2⁹⁄₁₆	12⅜	2½	—	—	18-16d	8-10dx1½	1310	—	2305	—	2605	—	2800
3x16	U314	16	2⁹⁄₁₆	10½	2	—	16-10d	16-16d	6-10dx1½	960	1675	1980	1895	2245	2045	2425
	HU316	14	2⁹⁄₁₆	14⅛	2½	—	—	20-16d	8-10dx1½	1310	—	2565	—	2895	—	3110
4x4	LUS44	18	3⁹⁄₁₆	3	2	—	—	4-16d	2-16d	380	—	680	—	780	—	845
	U44	16	3⁹⁄₁₆	2⅞	2	—	4-10d	4-16d	2-10d	320	420	495	475	560	510	605
	HU44	14	3⁹⁄₁₆	2⅞	2½	—	—	4-16d	2-10d	325	—	515	—	580	—	620

See footnotes on page 76.

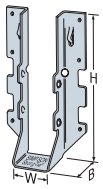
FACE MOUNT HANGERS – SOLID SAWN LUMBER (SPF/HF)

SIMPSON Strong-Tie®

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.

Joist Size	Model No.	Ga	Dimensions W	Dimensions H	Dimensions B	Min/ Max	Fasteners Header 10d	Fasteners Header 16d	Fasteners Joist	SPF/HF Allowable Loads Uplift (160)	Floor (100) 10d	Floor (100) 16d	Snow (115) 10d	Snow (115) 16d	Roof (125) 10d	Roof (125) 16d
SAWN LUMBER SIZES																
4x6	LUS46	18	3⁹⁄₁₆	4¾	2	—	—	4-16d	4-16d	1000	—	880	—	1010	—	1090
	U46	16	3⁹⁄₁₆	4⅞	2	—	8-10d	8-16d	4-10d	640	835	990	950	1125	1020	1210
	HUS46	14	3⁹⁄₁₆	5	2	—	—	4-16d	4-16d	1060	—	910	—	1035	—	1120
	HU46/HUC46	14	3⁹⁄₁₆	5⅞₁₆	2½	Min	—	8-16d	4-10d	655	—	1025	—	1155	—	1245
		14	3⁹⁄₁₆	5⅞₁₆	2½	Max	—	12-16d	6-10d	980	—	1540	—	1735	—	1865
4x8	LUS46	18	3⁹⁄₁₆	4¾	2	—	—	4-16d	4-16d	1000	—	880	—	1010	—	1090
	U46	16	3⁹⁄₁₆	4⅞	2	—	8-10d	8-16d	4-10d	640	835	990	950	1125	1020	1210
	LUS48	18	3⁹⁄₁₆	6¾	2	—	—	6-16d	4-16d	1000	—	1125	—	1285	—	1390
	HUS48	14	3⁹⁄₁₆	6¹⁵⁄₁₆	2	—	—	6-16d	6-16d	1335	—	1365	—	1555	—	1680
	HU48/HUC48	14	3⁹⁄₁₆	6¹³⁄₁₆	2½	Min	—	10-16d	4-10d	655	—	1280	—	1445	—	1555
		14	3⁹⁄₁₆	6¹³⁄₁₆	2½	Max	—	14-16d	6-10d	980	—	1795	—	2025	—	2180
4x10	LUS48	18	3⁹⁄₁₆	6¾	2	—	—	6-16d	4-16d	1000	—	1125	—	1285	—	1390
	LUS410	18	3⁹⁄₁₆	8¾	2	—	—	8-16d	6-16d	1500	—	1565	—	1785	—	1935
	U410	16	3⁹⁄₁₆	8⅜	2	—	14-10d	14-16d	6-10d	960	1465	1735	1660	1965	1790	2120
	HUS410	14	3⁹⁄₁₆	8¹⁵⁄₁₆	2	—	—	8-16d	8-16d	2820	—	1820	—	2070	—	2240
	HU410/HUC410	14	3⁹⁄₁₆	8⅝	2½	Min	—	14-16d	6-10d	980	—	1795	—	2025	—	2180
		14	3⁹⁄₁₆	8⅝	2½	Max	—	18-16d	10-10d	1635	—	2305	—	2605	—	2800
4x12	LUS410	18	3⁹⁄₁₆	8¾	2	—	—	8-16d	6-16d	1500	—	1565	—	1785	—	1935
	LUS414	18	3⁹⁄₁₆	10¾	2	—	—	10-16d	6-16d	1500	—	1805	—	2065	—	2235
	U410	16	3⁹⁄₁₆	8⅜	2	—	14-10d	14-16d	6-10d	960	1465	1735	1660	1965	1790	2120
	HUS410	14	3⁹⁄₁₆	8¹⁵⁄₁₆	2	—	—	8-16d	8-16d	2820	—	1820	—	2070	—	2240
	HUS412	14	3⁹⁄₁₆	10½	2	—	—	10-16d	10-16d	3125	—	2275	—	2590	—	2795
	HU412/HUC412	14	3⁹⁄₁₆	10⁵⁄₁₆	2½	Min	—	16-16d	6-10d	980	—	2050	—	2315	—	2490
		14	3⁹⁄₁₆	10⁵⁄₁₆	2½	Max	—	22-16d	10-10d	1635	—	2820	—	3180	—	3425
4x14	LUS410	18	3⁹⁄₁₆	8¾	2	—	—	8-16d	6-16d	1500	—	1565	—	1785	—	1935
	LUS414	18	3⁹⁄₁₆	10¾	2	—	—	10-16d	6-16d	1500	—	1805	—	2065	—	2235
	U414	16	3⁹⁄₁₆	10	2	—	16-10d	16-16d	6-10d	960	1675	1980	1895	2245	2045	2425
	HUS412	14	3⁹⁄₁₆	10½	2	—	—	10-16d	10-16d	3125	—	2275	—	2590	—	2795
	HU414/HUC414	14	3⁹⁄₁₆	12⅝	2½	Min	—	18-16d	8-10d	1310	—	2305	—	2605	—	2800
		14	3⁹⁄₁₆	12⅝	2½	Max	—	24-16d	12-10d	1965	—	3075	—	3470	—	3735
4x16	U414	16	3⁹⁄₁₆	10	2	—	16-10d	16-16d	6-10d	960	1675	1980	1895	2245	2045	2425
	HUS412	14	3⁹⁄₁₆	10½	2	—	—	10-16d	10-16d	3125	—	2275	—	2590	—	2795
	HU416/HUC416	14	3⁹⁄₁₆	13⅝	2½	Min	—	20-16d	8-10d	1310	—	2565	—	2895	—	3110
		14	3⁹⁄₁₆	13⅝	2½	Max	—	26-16d	12-10d	1965	—	3330	—	3760	—	4045
6x6	U66	16	5½	5	2	—	8-10d	8-16d	4-10d	640	835	990	950	1125	1020	1210
	HU66/HUC66	14	5½	4⁹⁄₁₆	2½	Min	—	8-16d	4-16d	775	—	1025	—	1155	—	1245
		14	5½	4⁹⁄₁₆	2½	Max	—	12-16d	6-16d	1160	—	1540	—	1735	—	1865
6x8	U66	16	5½	5	2	—	8-10d	8-16d	4-10d	640	835	990	950	1125	1020	1210
	HU68/HUC68	14	5½	5¹³⁄₁₆	2½	Min	—	10-16d	4-16d	775	—	1280	—	1445	—	1555
		14	5½	5¹³⁄₁₆	2½	Max	—	14-16d	6-16d	1160	—	1795	—	2025	—	2180
6x10	U610	16	5½	8½	2	—	14-10d	14-16d	6-10d	960	1465	1735	1660	1965	1790	2120
	HU610/HUC610	14	5½	7⅝	2½	Min	—	14-16d	6-16d	1160	—	1795	—	2025	—	2180
		14	5½	7⅝	2½	Max	—	18-16d	8-16d	1550	—	2305	—	2605	—	2800
6x12	HU612/HUC612	14	5½	9⅜	2½	Min	—	16-16d	6-16d	1160	—	2050	—	2315	—	2490
		14	5½	9⅜	2½	Max	—	22-16d	8-16d	1550	—	2820	—	3180	—	3425
6x14	HU614/HUC614	14	5½	11⅝	2½	Min	—	18-16d	8-16d	1550	—	2305	—	2605	—	2800
		14	5½	11⅝	2½	Max	—	24-16d	12-16d	2325	—	3075	—	3470	—	3735
6x16	HU616/HUC616	14	5½	12¹¹⁄₁₆	2½	Min	—	20-16d	8-16d	1550	—	2565	—	2895	—	310
		14	5½	12¹¹⁄₁₆	2½	Max	—	26-16d	12-16d	2325	—	3330	—	3760	—	4045
8x8	HU88/HUC88	14	7½	6⅝	2½	Min	—	10-16d	4-16d	775	—	1280	—	1445	—	1555
		14	7½	6⅝	2½	Max	—	14-16d	6-16d	1160	—	1795	—	2025	—	2180
8x10	HU810/HUC810	14	7½	8⅜	2½	Min	—	14-16d	6-16d	1160	—	1795	—	2025	—	2180
		14	7½	8⅜	2½	Max	—	18-16d	8-16d	1550	—	2305	—	2605	—	2800
8x12	HU812/HUC812	14	7½	10⅛	2½	Min	—	16-16d	6-16d	1160	—	2050	—	2315	—	2490
		14	7½	10⅛	2½	Max	—	22-16d	8-16d	1550	—	2820	—	3180	—	3425
8x14	HU814/HUC814	14	7½	11⅞	2½	Min	—	18-16d	8-16d	1550	—	2305	—	2605	—	2800
		14	7½	11⅞	2½	Max	—	24-16d	12-16d	2325	—	3075	—	3470	—	3735
8x16	HU816/HUC816	14	7½	13⅝	2½	Min	—	20-16d	8-16d	1550	—	2565	—	2895	—	310
		14	7½	13⅝	2½	Max	—	26-16d	12-16d	2325	—	3330	—	3760	—	4045

1. Uplift loads apply to 10d and 16d header fasteners. Uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. 10d commons or 16d sinkers may be used instead of the specified 16d at 0.84 of the table load value.
3. 16d sinkers may be used instead of the specified 10d commons with no load reduction. *(16d sinkers are not acceptable for HDG applications.)*
4. MIN nailing quantity and load values—fill all round holes;
   MAX nailing quantity and load values—fill all round and triangle holes.
5. Truss chord cross-grain tension may limit allowable loads in accordance with ANSI/TPI 1-2007. Simpson Strong-Tie® Connector Selector™ Software includes the evaluation of cross-grain tension in its hanger allowable loads. For additional information, contact Simpson Strong-Tie.
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



FACE MOUNT HANGERS – ROUGH LUMBER (DF & SP)

SIMPSON Strong-Tie®

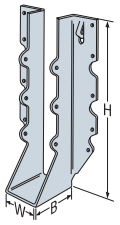
Joist Size	Model No.	Ga	Dimensions			Fasteners			DF/SP Allowable Loads							Code Ref.
			W	H	B	Header		Joist	Uplift	Floor (100)		Snow (115)		Roof (125)		
						10d	16d		(160)	10d	16d	10d	16d	10d	16d	
SAWN LUMBER SIZES																
2x4(R)	LU24R-18	18	2	3 11/16	1½	—	4-16d	2-10dx1½	265	—	565	—	640	—	695	IL8
	U24R	16	2	3⅝	2	4-10d	4-16d	2-10dx1½	265	485	575	550	655	595	705	I7, F6, L17
2x6(R)	LU26R-18	18	2	4 9/16	1½	—	6-16d	4-10dx1½	565	—	845	—	965	—	1040	IL8
	U26R	16	2	5⅝	2	8-10d	8-16d	4-10dx1½	585	975	1150	1100	1305	1185	1410	I7, F6, L17
2x8(R)	LU28R-18	18	2	6⅝	1½	—	8-16d	6-10dx1½	865	—	1125	—	1285	—	1335	IL8
	U26R	16	2	5⅝	2	8-10d	8-16d	4-10dx1½	585	975	1150	1100	1305	1185	1410	I7, F6, L17
2x10(R)	LU210R-18	18	2	7 9/16	2	—	10-16d	6-10dx1½	850	—	1410	—	1605	—	1735	IL8
	U210R	16	2	9⅛	2	14-10d	14-16d	6-10dx1½	1110	1705	2015	1930	2285	2075	2465	I7, F6, L17
2x12(R)	U210R	16	2	9⅛	2	14-10d	14-16d	6-10dx1½	1110	1705	2015	1930	2285	2075	2465	
2x14(R)	U210R	16	2	9⅛	2	14-10d	14-16d	6-10dx1½	1110	1705	2015	1930	2285	2075	2465	
4x4(R)	U44R	16	4	2⅝	2	4-10d	4-16d	2-16d	440	485	575	550	655	595	705	
4x6(R)	U46R	16	4	4⅝	2	8-10d	8-16d	4-16d	885	975	1150	1100	1305	1185	1410	
4x8(R)	U46R	16	4	4⅝	2	8-10d	8-16d	4-16d	885	975	1150	1100	1305	1185	1410	
4x10(R)	U410R	16	4	8⅛	2	14-10d	14-16d	6-16d	1115	1705	2015	1930	2285	2075	2465	
4x12(R)	U410R	16	4	8⅛	2	14-10d	14-16d	6-16d	1115	1705	2015	1930	2285	2075	2465	
4x14(R)	U410R	16	4	8⅛	2	14-10d	14-16d	6-16d	1115	1705	2015	1930	2285	2075	2465	
6x6(R)	U66R	16	6	5	2	8-10d	8-16d	4-16d	885	975	1150	1100	1305	1185	1410	
6x8(R)	U66R	16	6	5	2	8-10d	8-16d	4-16d	885	975	1150	1100	1305	1185	1410	
6x10(R)	U610R	16	6	8½	2	14-10d	14-16d	6-16d	1115	1705	2015	1930	2285	2075	2465	
6x12(R)	U610R	16	6	8½	2	14-10d	14-16d	6-16d	1115	1705	2015	1930	2285	2075	2465	
6x14(R)	U610R	16	6	8½	2	14-10d	14-16d	6-16d	1115	1705	2015	1930	2285	2075	2465	

FACE MOUNT HANGERS – ROUGH LUMBER (SPF/HF)

Joist Size	Model No.	Ga	Dimensions			Fasteners			SPF/HF Allowable Loads						
			W	H	B	Header		Joist	Uplift	Floor (100)		Snow (115)		Roof (125)	
						10d	16d		(160)	10d	16d	10d	16d	10d	16d
SAWN LUMBER SIZES															
2x4(R)	LU24R-18	18	2	3 11/16	1½	—	4-16d	2-10dx1½	230	—	485	—	550	—	595
	U24R	16	2	3⅝	2	4-10d	4-16d	2-10dx1½	230	420	495	475	560	510	605
2x6(R)	LU26R-18	18	2	4 9/16	1½	—	6-16d	4-10dx1½	490	—	725	—	825	—	895
	U26R	16	2	5⅝	2	8-10d	8-16d	4-10dx1½	500	835	990	950	1125	1020	1210
2x8(R)	LU28R-18	18	2	6⅝	1½	—	8-16d	6-10dx1½	745	—	970	—	1100	—	1145
	U26R	16	2	5⅝	2	8-10d	8-16d	4-10dx1½	500	835	990	950	1125	1020	1210
2x10(R)	LU210R-18	18	2	7 9/16	2	—	10-16d	6-10dx1½	730	—	1210	—	1380	—	1490
	U210R	16	2	9⅛	2	14-10d	14-16d	6-10dx1½	960	1465	1735	1660	1965	1790	2120
2x12(R)	U210R	16	2	9⅛	2	14-10d	14-16d	6-10dx1½	960	1465	1735	1660	1965	1790	2120
2x14(R)	U210R	16	2	9⅛	2	14-10d	14-16d	6-10dx1½	960	1465	1735	1660	1965	1790	2120
4x4(R)	U44R	16	4	2⅝	2	4-10d	4-16d	2-16d	380	420	495	475	560	510	605
4x6(R)	U46R	16	4	4⅝	2	8-10d	8-16d	4-16d	760	835	990	950	1125	1020	1210
4x8(R)	U46R	16	4	4⅝	2	8-10d	8-16d	4-16d	760	835	990	950	1125	1020	1210
4x10(R)	U410R	16	4	8⅛	2	14-10d	14-16d	6-16d	960	1465	1735	1660	1965	1790	2120
4x12(R)	U410R	16	4	8⅛	2	14-10d	14-16d	6-16d	960	1465	1735	1660	1965	1790	2120
4x14(R)	U410R	16	4	8⅛	2	14-10d	14-16d	6-16d	960	1465	1735	1660	1965	1790	2120
6x6(R)	U66R	16	6	5	2	8-10d	8-16d	4-16d	760	835	990	950	1125	1020	1210
6x8(R)	U66R	16	6	5	2	8-10d	8-16d	4-16d	760	835	990	950	1125	1020	1210
6x10(R)	U610R	16	6	8½	2	14-10d	14-16d	6-16d	960	1465	1735	1660	1965	1790	2120
6x12(R)	U610R	16	6	8½	2	14-10d	14-16d	6-16d	960	1465	1735	1660	1965	1790	2120
6x14(R)	U610R	16	6	8½	2	14-10d	14-16d	6-16d	960	1465	1735	1660	1965	1790	2120

1. Uplift loads apply to 10d and 16d header fasteners. Uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. 10d commons or 16d sinkers may be used instead of the specified 16d at 0.84 of the table load value.
3. 16d sinkers may be used instead of the specified 10d commons with no load reduction.
4. DF/SP loads can be used for SCL that has fastener holding capacity of Doug Fir.
5. HU's can be ordered in rough sizes at full table loads. Add "X" to the model designation ex: HU28X and specify rough width or height. Maximum width 8".
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

CODES: See page 13 for Code Reference Key Chart.



TOP FLANGE HANGERS JB/LB/BA/B/HHB *Joist, Beam and Purlin Hangers*

SIMPSON Strong-Tie®

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 BA hanger is a cost effective hanger featuring min/max joist nailing option. Min Nailing featuring Positive Angle Nailing targets moderate load conditions whereas the Max Nailing generates capacities for higher loads. The unique two level embossment provides added stiffness to the top flange.

The newly improved B hanger offers wide versatility with enhanced load capacities.

See tables on pages 80-82. See Hanger Options on pages 215-224 for hanger modifications, which may result in reduced loads.

MATERIAL: See tables, pages 80-82.

FINISH: BA, JB, LB and B—Galvanized; HHB–all saddle hangers and all welded sloped and special hangers—Simpson Strong-Tie® gray paint. BA, LB, B and HHB may be ordered hot-dip galvanized, specify HDG.

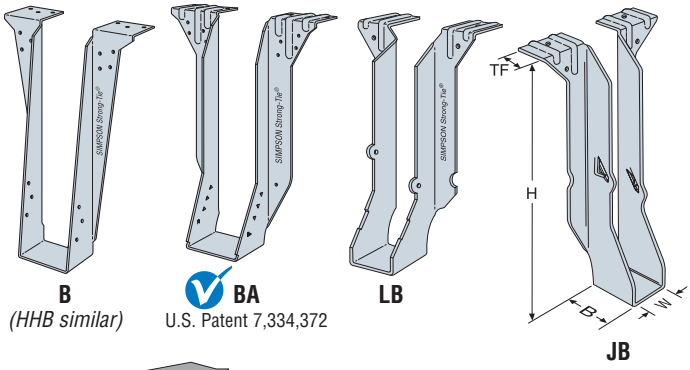
INSTALLATION: • Use specified fasteners. See General Notes and nailer table.

- LB, BA, B and HHB may be welded to steel headers with weld size to match material thickness (approximate thickness shown). The minimum required weld to the top flanges is ⅛" x 2" *(⅛" x 1½" for LB)* fillet weld to each side of each top flange tab for 14 and 12 gauge and 3⁄16" x 2" fillet weld to each side of each top flange tab for 7 gauge. Distribute the weld equally on both top flanges. Welding cancels the top and face nailing requirements. Consult the code for special considerations when welding galvanized steel. The area should be well-ventilated *(see page 17 for welding information)*. Weld on applications produce the maximum allowable down load listed. For uplift loads refer to technical bulletin T-WELDUPLFT *(see page 232 for details)*.
- Ledgers must be evaluated for each application separately. Check TF dimension, nail length and nail location on ledger.
- Refer to technical bulletin T-SLOPEJST for information regarding load reductions on selected hangers which can be used without modification to support joists which have shallow slopes (≤¾:12) *(see page 232 for details)*.

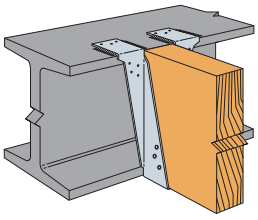
OPTIONS: **B and HHB**

- Other widths are available; specify W dimension *(the minimum W dimension is 1⅞" for B and 3¼" for HHB)*.
- See Hanger Options, pages 215-224. BA, JB and LB hangers cannot be modified. Use LBV as an alternative for the JB/LB.

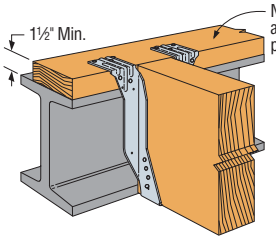
CODES: See page 13 for Code Reference Key Chart.



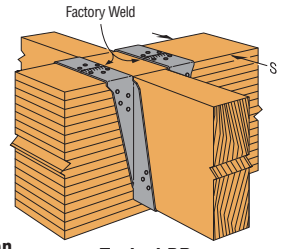
B *(HHB similar)* | **BA** U.S. Patent 7,334,372 | **LB** | **JB**



LB, BA, B and HHB are acceptable for weld-on applications. See Installation Information.



Typical BA Installation on Wood Nailer *(LB, B similar)*



Typical BD Saddle Installation

NAILER TABLE

Model No.	Nailer	Top Flange Nailing	Allowable Loads		
			Uplift[2] (160)	DF/SP	SPF/HF
LB26	2x	4-10dx1½	—	850	—
LB28	2x	4-10dx1½	—	915	—
LB210	2x	4-10dx1½	—	915	—
LB212	2x	4-10dx1½	—	915	—
LB214	2x	4-10dx1½	—	915	—
LB216	2x	4-10dx1½	—	1150	—
BA48 BA410 BA412	2x	10-10dx1½	265[3]	2220	1755
	2-2x	14-10d	265[3]	2695	2235
	3x	14-16dx2½	265[3]	3230	—
	4x	14-16d	265[3]	3230	—
B	2-2x	14-10d	710[4]	3615	2770
	3x	14-16dx2½	830[4]	3725	—
	4x	14-16d	830[4]	3800	—

1. Uplift values are for DF/SP nailers only. Refer to technical bulletin T-NAILERUPLFT for SPF values *(see page 231 for details)*.
2. Refer to technical bulletin T-NAILERUPLFT for higher uplift value options *(see page 231 for details)*.
3. BA hangers require 2-10dx1½ joist nails.
4. B hangers require 6-10dx1½ joist nails to achieve published loads. For joist members 2½" or wider, 16dx2½" joist nails should be installed for additional uplift loads on the 3x and 4x nailer applications of 970 lbs. and 1010 lbs. respectively.
5. Attachment of nailer to supporting member is by the Designer.

B SERIES WITH VARIOUS HEADER APPLICATIONS

Model Series	Fasteners			Allowable Loads Header Type					Code Ref.
	Top	Face	Joist	Uplift (160)	LVL	PSL	DF/SP	SPF/HF	
BA Min.	6-10d	10-10d	2-10dx1½	265	3230	3630	3080	2425	I19, F21, L13
	6-16d	10-16d	2-10dx1½	265	4015	3705	3435	2665	
BA Max.	6-10d	10-10d	8-10dx1½	1170	3555	3630	3625	2465	
	6-16d	10-16d	8-10dx1½	1170	4715	4320	3800	2665	
B	6-10d	8-10d	6-10dx1½	990	3575	3195	3625	2190	
	6-16d	8-16d	6-10d[4]	1010	4135	3355	3800	2650	

1. Uplift loads are based on DF/SP lumber and have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. For SPF use 0.86 x DF/SP uplift load.
3. Where noted for single-ply joist hangers use 6-10dx1½" nails.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

HUTF/HUSTF *Heavy Duty and Double Shear Joist Hangers*

See dimensions, material, loads on table pages.

HUSTF has the double shear nailing advantage—distributing the joist load through two points on each nail for greater strength.

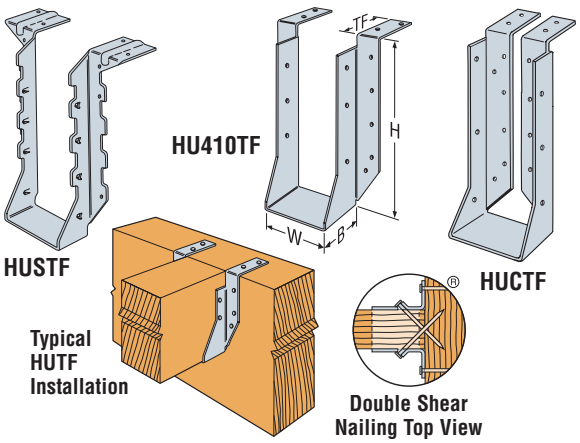
FINISH: Galvanized. See Corrosion Information, page 14-15.

INSTALLATION:

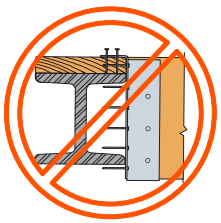
- Use all specified fasteners. See General Notes.
- Not acceptable for nailer or welded applications; see W and B hangers.
- HUTF—The minimum header or ledger size that can be used with this hanger is 3½".
- HUSTF—With 3x carrying members, use 16dx2½" nails into the header and 16d commons into the joist.

OPTIONS:

- HUTF rough beam sizes are available by special order.
- See Hanger Options on pages 215-224 for slope and/or skewed hangers.
- Available with flanges turned in *(2-2x and 4x only for HUSCTF. 2⁹⁄16" or greater for HUCTF)*.



Some model configurations may differ from those shown. Production models have projected seats. Square cut seats may be ordered. Contact Simpson Strong-Tie for details.



Nailer application is NOT acceptable. Fasteners cannot be installed

TOP FLANGE HANGERS W/WPU/WNP/WM/WMU/HW/HWU/GLT/HGLT

The W, WPU, HWU and HW series purlin hangers offer the greatest design flexibility and versatility. WMs are designed for use on standard 8" grouted masonry block wall construction.

MATERIAL: See tables on pages 80-82.

FINISH: Simpson Strong-Tie® gray paint; hot-dip galvanized available: specify HDG, contact Simpson Strong-Tie.

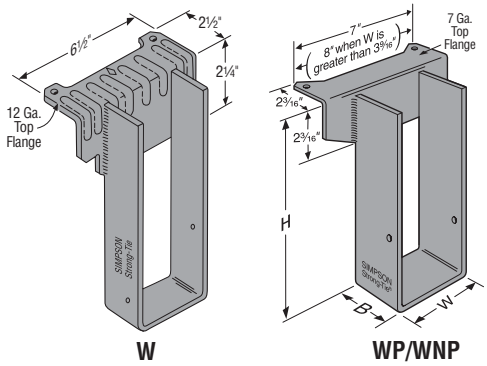
INSTALLATION: • Use all specified fasteners. WM—two 16d duplex nails must be installed into the top flange and embedded into the grouted wall. Verify that the grouted wall can take the required fasteners specified in the table.

- H dimensions are sized to account for normal joist shrinkage. W dimensions are for dressed timber widths.
- Hangers may be welded to steel headers with weld size to match material thickness *(approximate thickness shown)* ⅛" for W, 3⁄16" for WNP/WPU and ¼" for HW/HWU, by 1½" fillet welds located at each end of the top flange *(see page 17 for welding information)*. Weld-on applications produce maximum allowable load listed. For uplift loads refer to technical bulletin T-WELDUPLFT *(HWU and WPU hangers only) (see page 232 for details)*.
- GLT/HGLT may be welded to steel headers, see page 94 for requirements.
- Hangers can support multi-ply carried members; the individual members must be secured together to work as a single unit before installation into the hanger.
- Embed WM into block with a minimum of one course above and one course below the top flange with one #5 vertical rebar minimum 24" long in each cell. Minimum grout strength is 2000 psi.

OPTIONS:

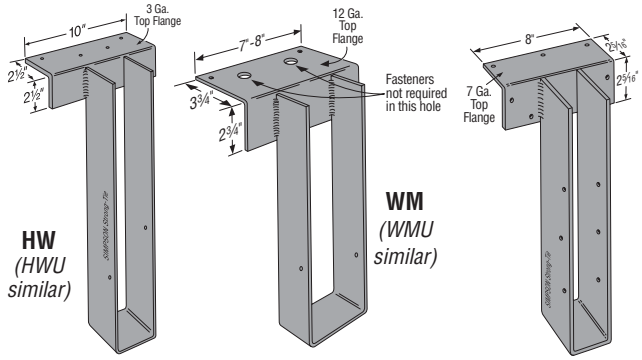
- Refer to technical bulletin T-SLOPEJST for information regarding load reductions on selected hangers which can be used without modification to support joists which have shallow slopes (≤¾:12) *(see page 232 for details)*.
- See Hanger Options, page 215-224 for hanger modifications and associated load reductions.

CODES: See page 13 for Code Reference Key Chart.



W **WP/WNP**

Some model configurations may differ from those shown. Contact Simpson Strong-Tie for details.



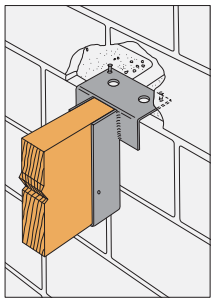
HW *(HWU similar)* **WM** *(WMU similar)* **WPU**

Model	Nailer	Top Flange Nailing	Uplift[1] (160)	Allowable Down Loads DF/SP	SPF/HF	LSL
W	2x	2-10dx1½	—	1600	1600	—
	2-2x	2-10d	—	1665	1665	—
	3x	2-16dx2½	—	1765	—	—
	4x	2-10d	—	2200	—	—
WP and WNP	2x	2-10dx1½	—	2525	2500	3375
	2-2x	2-10d	—	3255	3255	—
	3x	2-16dx2½	—	3000	2510	3375
	4x	2-10d	—	3255	3255	—
WPU	2-2x	7-10d	700	3255	—	—
	3x	7-16dx2½	970	3000	—	—
	4x	7-16d	1095	3255	—	—
HW	2-2x	4-10d	—	4860	—	—
	3x	4-16dx2½	—	4845	—	—
	4x	4-16d	—	5285	—	—
HWU	2-2x	8-16dx2½	710	5430	—	—
	3x	8-16dx2½	970	5430	—	—
	4x	8-16d	1160	5430	—	—

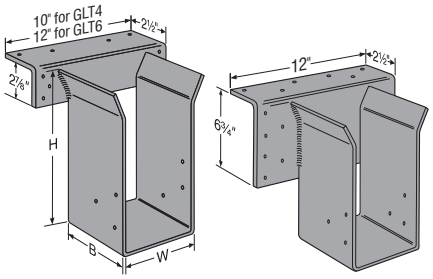
NAILER TABLE

The table indicates the maximum allowable loads for W, WNP and HW hangers used on wood nailers. Nailers are wood members attached to the top of a steel I-beam, concrete or masonry wall.

1. Uplift value for the HWU hanger is for depths ≤18" and are for DF/SP values only. Refer to uplift values in table below for taller depths.
2. Attachment of nailer to supporting member is the responsibility of the Designer.



Typical WM Mid-Wall Installation
See pages 159-160 for models and information.

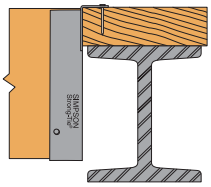


GLT *(fasteners included)* **HGLT** *(fasteners included)*

See pages 94-95 for GLT and HGLT information.

W SERIES WITH VARIOUS HEADER APPLICATIONS

Model	Joist Width	Joist Depth	Fasteners Top	Fasteners Face	Fasteners Joist	Allowable Loads Header Type Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	I-Joist	Masonry	Code Ref.
W	1½ to 4	3½ to 30	2-10dx1½	—	2-10dx1½	—	1635	1740	—	1600	1415	—	—	170
	1½ to 4	3½ to 30	2-10d	—	2-10dx1½	—	2150	2020	—	2200	1435	—	—	I10, F9, L14
	1½ to 4	3½ to 30	2-16d	—	2-10dx1½	—	2335	1950	2335	1765	1435	—	—	
WM	1½ to 7½	3½ to 30	2-16d DPLX	—	2-10dx1½	—	MID-WALL INSTALLATION[4]						4175	IL12, L1, L11
	1½ to 7½	3½ to 30	2-¼x1¾ Titens	—	2-10dx1½	—	TOP OF WALL INSTALLATION						3380	
WMU	1½ to 7½	9 to 28	2-16d DPLX	4-¼x1¾ Titens	6-10dx1½	625	MID-WALL INSTALLATION[4]						4175	170
	1½ to 7½	9 to 28	2-¼x1¾ Titens	4-¼x1¾ Titens	6-10dx1½	545	TOP OF WALL INSTALLATION						3380	
WP/ WNP	1½ to 7½	3½ to 30	2-10dx1½	—	2-10dx1½	—	2865	3250	—	2500	2000	2030	—	I10, I19, F9, F18, L11, L14
	1½ to 7½	3½ to 30	2-10d	—	2-10dx1½	—	2525	3250	3650	3255	2525	—	—	
	1½ to 7½	3½ to 30	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	—	—	
WPU/ WNPU	1½ to 5½	7¼ to 18	3-16d	4-16d	6-10dx1½	1095	4700	4880	3650	4165	4165	—	—	
	1½ to 5½	18½ to 28	3-16d	4-16d	6-10dx1½	390	4700	4880	3650	4165	4165	—	—	
HW	1½ to 7½	3½ to 32	4-10d	—	2-10dx1½	—	3100	4000	—	5285	3100	—	—	I10, I19, F9, F18, L11, L14
	1½ to 7½	3½ to 32	4-16d	—	2-10dx1½	—	5100	4000	4500	5285	3665	—	—	
HWU	1½ to 3½	9 to 18	4-16d	4-16d	6-10dx1½	1160	6335	5500	5535	6335	5415	—	—	
	1½ to 3½	18½ to 28	4-16d	4-16d	6-10dx1½	965	6335	5500	5535	6335	5415	—	—	
	1½ to 3½	28½ to 32	4-16d	4-16d	8-10dx1½	985	6335	5500	5535	6335	5415	—	—	
	4½ to 7	9 to 18	4-16d	4-16d	6-10dx1½	1160	6000	5500	5535	6000	5415	—	—	
	4½ to 7	18½ to 28	4-16d	4-16d	6-10dx1½	965	6000	5500	5535	6000	5415	—	—	
	4½ to 7	28½ to 32	4-16d	4-16d	8-10dx1½	985	6000	5500	5535	6000	5415	—	—	



Installation on Wood Nailer

1. Code values are based on DF/SP header species.
2. WMU, WPU and HWU uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
3. For hanger heights exceeding the joist height, the allowable load is 0.50 of the table load.
4. Mid-wall Installation requires minimum of one grouted course above and below the hanger.
5. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

TOP FLANGE HANGERS – SOLID SAWN LUMBER (DF/SP)

SIMPSON Strong-Tie®

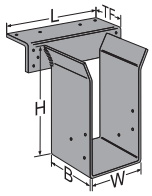
Don't feel like sifting through this table?
Visit ***www.strongtie.com/software*** to learn more about our new Joist Hanger Selector software.

Joist or Purlin Size	Model No.	Ga	Dimensions				Fasteners		DF/SP Allowable Loads				Installed Cost Index (ICI)	Code Ref.
			W	H	B	TF	Header	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)		
SAWN LUMBER SIZES														
2x4	HU24TF	12	1 9/16	3 7/16	2 1/4	2 1/2	6-16d	2-10dx1 1/2	295	2090	2100	2100	Lowest	I10, F9, L11
DBL 2x4	HU24-2TF	12	3 1/8	3 7/16	2 1/2	2 1/2	8-16d	2-10d	375	2600	2600	2600	Lowest	
2x6	JB26	18	1 9/16	5 3/8	1 1/2	1 5/16	4-10d	2 PRONG	—	1040	1040	1040	Lowest	
	LB26	14	1 9/16	5 3/8	1 1/2	1 1/2	4-16d	2-10dx1 1/2	290	1380	1380	1380	+117%	
	HU26TF	12	1 9/16	5 3/8	2 1/4	2 1/2	10-16d	4-10dx1 1/2	590	2275	2330	2335	+568%	
	W26	12	1 9/16	5 3/8	2 1/2	2 1/2	2-10d	2-10dx1 1/2	—	2200	2200	2200	+890%	
DBL 2x6	HUS26-2TF	14	3 1/8	5 3/8	2	1 3/4	6-16d	4-16d	1235	2820	3000	3000	Lowest	
	WNP26-2	12	3 1/8	5 3/8	2 1/2	2 3/16	2-10d	2-10d	—	3255	3255	3255	+33%	
	HU26-2TF	12	3 1/8	5 3/8	2 1/2	2 1/2	10-16d	4-10d	750	3725	3900	3900	+87%	
2x8	JB28	18	1 9/16	7 1/4	1 1/2	1 5/16	4-10d	2 PRONG	—	1050	1050	1050	Lowest	
	LB28	14	1 9/16	7 1/4	1 1/2	1 1/2	4-16d	2-10dx1 1/2	290	1270	1270	1270	+98%	
	HU28TF	12	1 9/16	7 1/8	2 1/4	2 1/2	10-16d	4-10dx1 1/2	590	2335	2335	2335	+563%	
	W28	12	1 9/16	7 1/8	2 1/2	2 1/2	2-10d	2-10dx1 1/2	—	2200	2200	2200	+570%	
DBL 2x8	HUS28-2TF	14	3 1/8	7 1/4	2	1 7/8	8-16d	6-16d	1550	3455	3720	3895	Lowest	
	WNP28-2	12	3 1/8	7 1/8	2 1/2	2 3/16	2-10d	2-10d	—	3255	3255	3255	+16%	
	HU28-2TF	12	3 1/8	7 1/8	2 1/2	2 1/2	12-16d	4-10d	750	3900	3900	3900	+75%	
2x10	JB210	18	1 9/16	9 1/4	2	1 5/16	4-16d	2 PRONG	—	1255	1255	1255	Lowest	
	LB210	14	1 9/16	9 1/4	2	1 1/2	4-16d	2-10dx1 1/2	290	1550	1550	1550	+35%	
	HU210TF	12	1 9/16	9 1/8	2 1/4	2 1/2	12-16d	4-10dx1 1/2	590	2335	2335	2335	+359%	
	W210	12	1 9/16	9 1/8	2 1/2	2 1/2	2-10d	2-10dx1 1/2	—	2200	2200	2200	+360%	
DBL 2x10	HUS210-2TF	14	3 1/8	9 1/4	2	1 1/2	10-16d	8-16d	2590	3585	3925	4155	Lowest	
	WNP210-2	12	3 1/8	9 1/8	2 1/2	2 3/16	2-10d	2-10d	—	3255	3255	3255	+9%	
	HU210-2TF	12	3 1/8	9 1/8	2 1/2	2 1/2	14-16d	6-10d	1125	4170	4170	4170	+67%	
TPL 2x10	HU210-3TF	12	4 11/16	9 1/8	2 1/2	2 1/2	14-16d	6-16d	1325	4150	4150	4150	Lowest	
2x12	JB212	18	1 9/16	11 1/8	2	1 5/16	6-16d	2 PRONG	—	1540	1540	1540	Lowest	
	LB212	14	1 9/16	11 1/8	2	1 1/2	4-16d	2-10dx1 1/2	290	1580	1580	1580	+27%	
	W212	12	1 9/16	11	2 1/2	2 1/2	2-10d	2-10dx1 1/2	—	2200	2200	2200	+317%	
	HU212TF	12	1 9/16	11	2 1/4	2 1/2	14-16d	6-10dx1 1/2	885	2335	2335	2335	+339%	
DBL 2x12	HUS212-2TF	14	3 1/8	11 1/8	2	2 1/4	10-16d	8-16d	2000	4435	4535	4605	Lowest	I10, F9
	WNP212-2	12	3 1/8	11	2 1/2	2 3/16	2-10d	2-10d	—	3255	3255	3255	+12%	I10, F9, L11
	HU212-2TF	12	3 1/8	11	2 1/2	2 1/2	16-16d	6-10d	1125	4325	4660	4880	+48%	
TPL 2x12	HU212-3TF	12	4 11/16	11	2 1/2	2 1/2	16-16d	6-16d	1325	4550	4885	5105	Lowest	
2x14	LB214	14	1 9/16	13 1/8	2	1 1/2	4-16d	2-10dx1 1/2	290	1425	1425	1425	Lowest	
	JB214	18	1 9/16	13 1/8	2	1 1/4	6-16d	2-10dx1 1/2	235	1505	1505	1505	+117%	
	W214	12	1 9/16	13	2 1/2	2 1/2	2-10d	2-10dx1 1/2	—	2200	2200	2200	+188%	
	HU214TF	12	1 9/16	13	2 1/4	2 1/2	16-16d	6-10dx1 1/2	885	2660	2745	2800	+189%	
DBL 2x14	HUS214-2TF	14	3 1/8	13 1/8	2	2 1/4	12-16d	8-16d	2590	4435	4535	4605	Lowest	
	WNP214-2	12	3 1/8	13	2 1/2	2 3/16	2-10d	2-10d	—	3255	3255	3255	+2%	
	HU214-2TF	12	3 1/8	13	2 1/2	2 1/2	18-16d	8-10d	1500	4335	4335	4335	+33%	
TPL 2x14	HU214-3TF	12	4 11/16	13	2 1/2	2 1/2	18-16d	8-16d	1765	4835	5050	5050	Lowest	
2x16	LB216	14	1 9/16	15 1/8	2	1 1/2	4-16d	2-10dx1 1/2	290	1425	1425	1425	Lowest	
	W216	12	1 9/16	15	2 1/2	2 1/2	2-10d	2-10dx1 1/2	—	2200	2200	2200	+122%	
	HU216TF	12	1 9/16	15	2 1/4	2 1/2	18-16d	8-10dx1 1/2	1180	2845	2955	3030	+199%	
DBL 2x16	WNP216-2	12	3 1/8	15	2 1/2	2 3/16	2-10d	2-10d	—	3255	3255	3255	Lowest	
	HU216-2TF	12	3 1/8	15	2 1/2	2 1/2	20-16d	8-10d	1500	4335	4335	4335	+34%	

1. N54A fasteners are supplied with hangers.
2. 16d sinkers may be used where 10d commons are called out with no load reduction.
3. Uplift loads are based on DF/SP lumber and have been increased for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6. For SPF use 0.86 x DF/SP uplift load.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

CODES: See page 13 for Code Reference Key Chart.

**Installed Cost Index not available on these models.*



TOP FLANGE HANGERS – SOLID SAWN LUMBER (DF/SP)

SIMPSON Strong-Tie®

Joist or Purlin Size	Model No.	Ga	Dimensions				Fasteners		DF/SP Allowable Loads				Installed Cost Index (ICI)	Code Ref.
			W	H	B	TF	Header	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)		
SAWN LUMBER SIZES														
TPL 2x16	HU216-3TF	12	4 11/16	15	2½	2½	20-16d	8-16d	1765	5050	5050	5050	Lowest	I10, F9, L11
3x4	HU34TF	12	2 9/16	3 7/16	2½	2½	8-16d	2-10dx1½	295	2600	2600	2600	*	
3x6	W36	12	2 9/16	5 3/8	2	2½	2-10d	2-10dx1½	—	2200	2200	2200	*	
	HU36TF	12	2 9/16	5 3/8	2½	2½	10-16d	4-10dx1½	590	3725	3900	3900	*	
3x8	W38	12	2 9/16	7 1/8	2	2½	2-10d	2-10dx1½	—	2200	2200	2200	*	
	HU38TF	12	2 9/16	7 1/8	2½	2½	12-16d	4-10dx1½	590	3900	3900	3900	*	
	B38	12	2 9/16	7 1/8	2½	2½	14-16d	6-16dx2½	1010	3800	3800	3800	*	I19, L13
3x10	W310	12	2 9/16	9 1/8	2	2½	2-10d	2-10dx1½	—	2200	2200	2200	*	I10, F9, L11
	HU310TF	12	2 9/16	9 1/8	2½	2½	14-16d	6-10dx1½	885	4170	4170	4170	*	
	B310	12	2 9/16	9 1/8	2½	2½	14-16d	6-16dx2½	1010	3800	3800	3800	*	I19, F21, L13
3x12	WNP312	12	2 9/16	11	2½	2 3/16	2-10d	2-10dx1½	—	3255	3255	3255	*	I10, F9, L11
	HU312TF	12	2 9/16	11	2½	2½	16-16d	6-10dx1½	885	4335	4335	4335	*	
	B312	12	2 9/16	11	2½	2½	14-16d	6-16dx2½	1010	3800	3800	3800	*	I19, F21, L13
3x14	WNP314	12	2 9/16	13	2½	2 3/16	2-10d	2-10dx1½	—	3255	3255	3255	*	I10, F9, L11
	HU314TF	12	2 9/16	13	2½	2½	18-16d	8-10dx1½	1180	4335	4335	4335	*	
	B314	12	2 9/16	13	2½	2½	14-16d	6-16dx2½	1010	3800	3800	3800	*	I19, F21, L13
3x16	WNP316	12	2 9/16	15	2½	2 3/16	2-10d	2-10dx1½	—	3255	3255	3255	*	I10, F9, L11
	HU316TF	12	2 9/16	15	2½	2½	20-16d	8-10dx1½	1180	4335	4335	4335	*	
	B316	12	2 9/16	15	2½	2½	14-16d	6-16dx2½	1010	3800	3800	3800	*	I19, F21, L13
4x3	HU43TF	12	3 9/16	3	2½	2½	8-16d	2-10d	330	2600	2600	2600	*	I10, F9, L11
4x4	HU44TF	12	3 9/16	3 7/16	2½	2½	8-16d	2-10d	375	2600	2600	2600	Lowest	
4x6	HUS46TF	14	3 9/16	5 3/8	2	1½	6-16d	4-16d	1235	2700	2890	3000	Lowest	
	W46	12	3 9/16	5 3/8	2½	2½	2-10d	2-10d	—	2200	2200	2200	+12%	
	HU46TF	12	3 9/16	5 3/8	2½	2½	10-16d	4-10d	750	3165	3165	3165	+28%	
	HW46	11	3 9/16	5 3/8	2½	2½	4-10d	2-10d	—	5285	5285	5285	+83%	
4x8	BA48 (Min)	14	3 9/16	7 1/8	3	2½	16-16d	2-10dx1½	265	3435	3435	3435	Lowest	I19, F21, L13
	BA48 (Max)	14	3 9/16	7 1/8	3	2½	16-16d	8-10dx1½	1170	3800	3800	3800	+7%	
	HUS48TF	14	3 9/16	7¼	2	1 11/16	8-16d	6-16d	1550	3225	3495	3670	+33%	I10, IL12, F9, L11
	B48	12	3 9/16	7 1/8	2½	2½	14-16d	6-16d	1010	3800	3800	3800	+35%	I19, F21, L13
	W48	12	3 9/16	7 1/8	2½	2½	2-10d	2-10d	—	2200	2200	2200	+54%	I10, F9, L11
	HU48TF	12	3 9/16	7 1/8	2½	2½	12-16d	4-10d	750	3500	3500	3500	+95%	
	HW48	11	3 9/16	7 1/8	2½	2½	4-10d	2-10d	—	5285	5285	5285	+130%	
4x10	BA410 (Min)	14	3 9/16	9 1/8	3	2½	16-16d	2-10dx1½	265	3435	3435	3435	Lowest	I19, F21
	BA410 (Max)	14	3 9/16	9 1/8	3	2½	16-16d	8-10dx1½	1170	3800	3800	3800	+7%	
	HUS410TF	14	3 9/16	9¼	2	1½	10-16d	8-16d	2590	3365	3710	3935	+21%	I10, F9, L11
	B410	12	3 9/16	9 1/8	2½	2½	14-16d	6-16d	1010	3800	3800	3800	+35%	I19, F21, L13
	W410	12	3 9/16	9 1/8	2½	2½	2-10d	2-10d	—	2200	2200	2200	+49%	I10, F9, L11
	HU410TF	12	3 9/16	9 1/8	2½	2½	14-16d	6-10d	1125	4150	4150	4150	+86%	
	HW410	11	3 9/16	9 1/8	2½	2½	4-10d	2-10d	—	5285	5285	5285	+130%	
	GLT4	7	3 9/16	7½ Min.	5	2½	10-N54A	6-N54A	1865	7000	7000	7000	*	I19, F18, L14
	HGLT4	7	3 9/16	7½ Min.	6	2½	18-N54A	6-N54A	1865	12750	12750	12750	*	I19, L14
4x12	BA412 (Min)	14	3 9/16	11	3	2½	16-16d	2-10dx1½	265	3435	3435	3435	Lowest	I19, F21, L13
	BA412 (Max)	14	3 9/16	11	3	2½	16-16d	8-10dx1½	1170	3800	3800	3800	+6%	
	HUS412TF	14	3 9/16	11⅛	2	2	10-16d	8-16d	2000	4420	4760	4990	+14%	I10, F9
	B412	12	3 9/16	11	2½	2½	14-16d	6-16d	1010	3800	3800	3800	+27%	I19, F21, L13
	WNP412	12	3 9/16	11	2½	2 3/16	2-10d	2-10d	—	3255	3255	3255	+32%	I10, F9, L11
	HU412TF	12	3 9/16	11	2½	2½	16-16d	6-10d	1125	4550	4885	5105	+84%	
	HW412	11	3 9/16	11	2½	2½	4-10d	2-10d	—	5285	5285	5285	+115%	
	HHB412	7	3 9/16	11	3	2½	4-N54A	2-N54A	650	4185	4185	4185	+174%	I19, F18, L14
	GLT4	7	3 9/16	7½ Min.	5	2½	10-N54A	6-N54A	1865	7000	7000	7000	*	
	HGLT4	7	3 9/16	7½ Min.	6	2½	18-N54A	6-N54A	1865	12750	12750	12750	*	I19, L14

See footnotes on page 80.

CODES: See page 13 for Code Reference Key Chart.

TOP FLANGE HANGERS – SOLID SAWN LUMBER (DF/SP)

SIMPSON Strong-Tie®

Joist or Purlin Size	Model No.	Ga	Dimensions				Fasteners		DF/SP Allowable Loads				Installed Cost Index (ICI)	Code Ref.
			W	H	B	TF	Header	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)		
SAWN LUMBER SIZES														
4x14	HUS414TF	14	3⁹⁄₁₆	13⅛	2	2	12-16d	8-16d	2160	4765	5100	5100	Lowest	I10, F9, L11
	B414	12	3⁹⁄₁₆	13	2½	2½	14-16d	6-16d	1010	3800	3800	3800	+8%	I19, F21, L13
	WNP414	12	3⁹⁄₁₆	13	2½	2³⁄₁₆	2-10d	2-10d	—	3255	3255	3255	+13%	I10, F9, L11
	HU414TF	12	3⁹⁄₁₆	13	2½	2½	18-16d	8-10d	1500	4830	5050	5050	+89%	
	HW414	11	3⁹⁄₁₆	13	2½	2½	4-10d	2-10d	—	5285	5285	5285	+108%	
	HHB414	7	3⁹⁄₁₆	13	3	2½	6-N54A	4-N54A	1300	5135	5135	5135	+150%	I19, F18, L14
	GLT4	7	3⁹⁄₁₆	7½ Min.	5	2½	10-N54A	6-N54A	1865	7000	7000	7000	*	
	HGLT4	7	3⁹⁄₁₆	7½ Min.	6	2½	18-N54A	6-N54A	1865	12750	12750	12750	*	
4x16	WNP416	12	3⁹⁄₁₆	15	2½	2³⁄₁₆	2-10d	2-10d	—	3255	3255	3255	Lowest	I10, F9, L11
	B416	12	3⁹⁄₁₆	15	2½	2½	14-16d	6-16d	1010	3800	3800	3800	+23%	I19, F21, L13
	HU416TF	12	3⁹⁄₁₆	15	2½	2½	20-16d	8-10d	1500	5050	5050	5050	+81%	I10, F9, L11
	HW416	11	3⁹⁄₁₆	15	2½	2½	4-10d	2-10d	—	5285	5285	5285	+108%	
	HHB416	7	3⁹⁄₁₆	15	3	2½	6-N54A	4-N54A	1300	5135	5135	5135	+109%	I19, F18, L14
	GLT4	7	3⁹⁄₁₆	7½ Min.	5	2½	10-N54A	6-N54A	1865	7000	7000	7000	*	
	HGLT4	7	3⁹⁄₁₆	7½ Min.	6	2½	18-N54A	6-N54A	1865	12750	12750	12750	*	I19, L14
6x6	WNP66	12	5½	5⅜	2½	2⁵⁄₁₆	3-10d	2-10d	—	3255	3255	3255	*	I10, F9, L11
	HU66TF	12	5½	5⅜	2½	2½	10-16d	4-16d	885	3165	3165	3165	*	
	HW66	11	5½	5⅜	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	
6x8	WNP68	12	5½	7⅛	2½	2⁵⁄₁₆	3-10d	2-10d	—	3255	3255	3255	*	
	HU68TF	12	5½	7⅛	2½	2½	12-16d	4-16d	885	3500	3500	3500	*	
	HHB68	7	5½	7⅛	3	2½	4-N54A	2-N54A	650	4185	4185	4185	*	I19
	HW68	11	5½	7⅛	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	I10, F9, L11
6x10	WNP610	12	5½	9⅛	2½	2⁵⁄₁₆	3-10d	2-10d	—	3255	3255	3255	*	
	B610	12	5½	9⅛	2½	2½	14-16d	6-16d	1010	3800	3800	3800	*	I19, F21, L13
	HHB610	7	5½	9⅛	3	2½	4-N54A	2-N54A	650	4185	4185	4185	*	I19
	HU610TF	12	5½	9⅛	2½	2½	14-16d	6-16d	1325	4150	4150	4150	*	I10, F9, L11
	HW610	11	5½	9⅛	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	
	GLT6	7	5⁹⁄₁₆	7½ Min.	5	2½	10-N54A	6-N54A	1865	7000	7000	7000	*	I19, F18, L14
	HGLT6	7	5⁹⁄₁₆	7½ Min.	6	2½	18-N54A	6-N54A	1865	12750	12750	12750	*	
6x12	HW612	11	5½	11	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	I10, F9, L11
	B612	12	5½	11	2½	2½	14-16d	6-16d	1010	3800	3800	3800	*	I19, F21, L13
	HHB612	7	5½	11	3	2½	10-N54A	6-N54A	1950	6235	6235	6235	*	I19, F18, L14
	HU612TF	12	5½	11	2½	2½	16-16d	6-16d	1325	4550	4885	5105	*	I10, F9, L11
	GLT6	7	5⁹⁄₁₆	7½ Min.	5	2½	10-N54A	6-N54A	1865	7000	7000	7000	*	I19, F18, L14
	HGLT6	7	5⁹⁄₁₆	7½ Min.	6	2½	18-N54A	6-N54A	1865	12750	12750	12750	*	
6x14	HW614	11	5½	13	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	I10, F9, L11
	B614	12	5½	13	2½	2½	14-16d	6-16d	1010	3800	3800	3800	*	I19, F21, L13
	HHB614	7	5½	13	3	2½	10-N54A	6-N54A	1950	6235	6235	6235	*	I19, F18, L14
	HU614TF	12	5½	13	2½	2½	18-16d	8-16d	1765	4830	5200	5450	*	I10, F9, L11
	GLT6	7	5⁹⁄₁₆	7½ Min.	5	2½	10-N54A	6-N54A	1865	7000	7000	7000	*	I19, F18, L14
	HGLT6	7	5⁹⁄₁₆	7½ Min.	6	2½	18-N54A	6-N54A	1865	12750	12750	12750	*	
6x16	HW616	11	5½	15	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	I10, F9, L11
	B616	12	5½	15	2½	2½	14-16d	6-16d	1010	3800	3800	3800	*	I19, F21, L13
	HHB616	7	5½	15	3	2½	10-N54A	6-N54A	1950	6235	6235	6235	*	I19, F18, L14
	HU616TF	12	5½	15	2½	2½	20-16d	8-16d	1765	5105	5520	5795	*	I10, F9, L11
	GLT6	7	5⁹⁄₁₆	7½ Min.	5	2½	10-N54A	6-N54A	1865	7000	7000	7000	*	I19, F18, L14
	HGLT6	7	5⁹⁄₁₆	7½ Min.	6	2½	18-N54A	6-N54A	1865	12750	12750	12750	*	
8x6	HW86	7	7½	5⅜	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	I10, F9, L11
8x8	HW88	7	7½	7⅛	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	
8x10	HW810	7	7½	9⅛	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	
8x12	HW812	7	7½	11	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	
	HHB812	7	7½	11	3	2½	10-N54A	6-N54A	1950	6235	6235	6235	*	I19, F18, L14
8x14	HW814	7	7½	13	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	I10, F9, L11
	HHB814	7	7½	13	3	2½	10-N54A	6-N54A	1950	6235	6235	6235	*	I19, F18, L14
8x16	HW816	7	7½	15	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	I10, F9, L11
	HHB816	7	7½	15	3	2½	10-N54A	6-N54A	1950	6235	6235	6235	*	I19, F18, L14

See footnotes on page 80.

CODES: See page 13 for Code Reference Key Chart.

LRU *Rafter Hanger*

The LRU offers an economic alternative for those applications requiring a sloped hanger for rafter-to-ridge connections. Used with solid-sawn rafters, the LRU's unique design enables the hanger to be installed either before or after the rafter is in place. The field-adjustable seat helps improve job efficiency by eliminating mismatched angles in the field and lead times associated with special orders. The LRU offers comparable or better load capacity to other rafter hangers at a reduced cost while using fewer fasteners.

FEATURES:

- The open design and ability to field-adjust the slope makes the LRU ideal for both retrofit or new applications
- Accommodates roof pitches from 0:12 to 14:12
- For added versatility, the fasteners on the face of the hanger are placed high enabling the bottom of the rafter to hang below the ridge beam *(see "Max. C_1" dimension)*
- Can be installed using nails or Simpson Strong-Tie® Strong-Drive® SD structural-connector screws

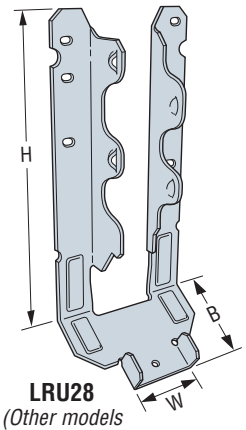
MATERIAL: 18 gauge

FINISH: Galvanized (G90)

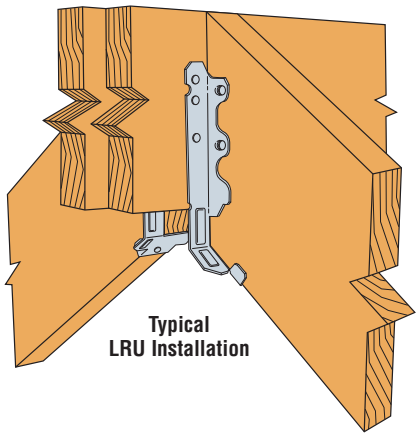
INSTALLATION:

- Use all specified fasteners. See General Notes.
- Joist fasteners must be installed at an angle through the rafter or joist into the header to achieve the table loads.
- See alternate installation on page 84 for retrofit applications.

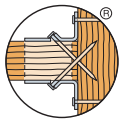
CODES: See page 13 for Code Reference Key Chart.



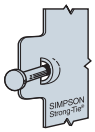
LRU28
(Other models similar)



Typical LRU Installation



Double Shear Nailing Top View



Dome Double Shear Nailing Side View

U.S. Patent 5,603,580

These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Standard Installation[1,2,3]

Model No.	Dimensions (in.)				Fasteners[4,5]		DF/SP Allowable Loads[1,3]				SPF/HF Allowable Loads[1,3]				Code Ref.
	W	H	B	Max. C_1	Face	Joist	Uplift[2] (160)	Floor (100)	Snow (115)	Roof (125)	Uplift[2] (160)	Floor (100)	Snow (115)	Roof (125)	
LRU26	1⁹⁄₁₆	5¼	1¹⁵⁄₁₆	1¾	4-16d	5-16d	880	1020	1170	1270	760	875	1000	1085	I8
					4-10d	5-10d	645	855	980	990	555	730	835	850	
					4-SD #10x2½	5-SD #10x2½	770	1215	1395	1425	660	935	1075	1170	
					4-SD #10x1½	5-SD #10x2½	770	1045	1200	1305	660	830	950	1035	
LRU28	1⁹⁄₁₆	6¹⁵⁄₁₆	1¹⁵⁄₁₆	2⅝	6-16d	5-16d	880	1300	1355	1355	760	1110	1165	1165	
					6-10d	5-10d	805	1050	1050	1050	695	900	900	900	
					6-SD #10x2½	5-SD #10x2½	1025	1480	1480	1480	880	1265	1270	1270	
					6-SD #10x1½	5-SD #10x2½	1025	1390	1480	1480	880	1105	1270	1270	
LRU210	1⁹⁄₁₆	8³⁄₁₆	1¹⁵⁄₁₆	1¾	6-16d	7-16d	1100	1535	1620	1620	945	1310	1395	1395	
					6-10d	7-10d	1100	1285	1430	1430	945	1095	1230	1230	
					6-SD #10x2½	7-SD #10x2½	1510	1805	1805	1805	1300	1405	1550	1550	
					6-SD #10x1½	7-SD #10x2½	1510	1570	1805	1805	1300	1240	1430	1550	
LRU212	1⁹⁄₁₆	10¹¹⁄₁₆	1¹⁵⁄₁₆	3½	6-16d	7-16d	1305	1535	1755	1905	1120	1310	1500	1625	
					6-10d	7-10d	1305	1285	1430	1430	1120	1095	1230	1230	
					6-SD #10x2½	7-SD #10x2½	1850	1820	1915	1915	1590	1405	1615	1645	
					6-SD #10x1½	7-SD #10x2½	1850	1570	1805	1915	1590	1240	1430	1555	

1. Allowable loads are based on a minimum 3" carrying member. For single 2x carrying members, use 10dx1½" nails into the face and 10d commons into the joist, and reduce the allowable load to 0.81 of the tabulated value for 10d nails. Alternatively, use SD #10x1½" into the face and SD #10x2½" into the joist as shown in the table.
2. Uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
3. Allowable loads in the table are based on a maximum joist slope of 45° (12:12). For slopes greater than 45°, up to 49° (14:12), the allowable loads are 0.85 of the table loads.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.
5. **SCREWS:** SD #10x2½ *(model SD10212)* = 0.161" dia. x 2½" long, SD #10x1½ *(model SD10112)* = 0.161" dia. x 1½" long.

LRU *Rafter Hanger*

SIMPSON Strong-Tie®

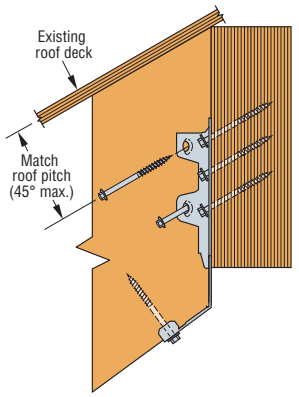
Alternate Installation for Retrofit Applications

When an existing roof deck prevents the horizontal installation of fasteners, Strong-Drive® SD #10x2½" screws may be installed sloped upward to match the roof pitch (45° max.). Use table values for an installation with 10d nails when SD screws are sloped. Nails may not be installed sloped upward.

Alternate Installation for Retrofit

Model No.	Angled Fasteners[3,4]		DF/SP Allowable Loads[1]				SPF/HF Allowable Loads[1]				Code Ref.
	Face	Joist	Uplift[2] (160)	Floor (100)	Snow (115)	Roof (125)	Uplift[2] (160)	Floor (100)	Snow (115)	Roof (125)	
LRU26	4-SD #10x2½	5-SD #10x2½	645	855	980	990	555	730	835	850	I8
LRU28	6-SD #10x2½	5-SD #10x2½	805	1050	1050	1050	695	900	900	900	
LRU210	6-SD #10x2½	7-SD #10x2½	1100	1285	1430	1430	945	1095	1230	1230	
LRU212	6-SD #10x2½	7-SD #10x2½	1305	1285	1430	1430	1120	1095	1230	1230	

1. Allowable loads are based on a minimum 3" thick carrying member.
2. Uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
3. Fasteners may be angled upward a maximum of 45°.
4. **SCREWS:** Simpson Strong-Tie SD #10x2½ *(model SD10212)* = 0.161" dia. x 2½" long.

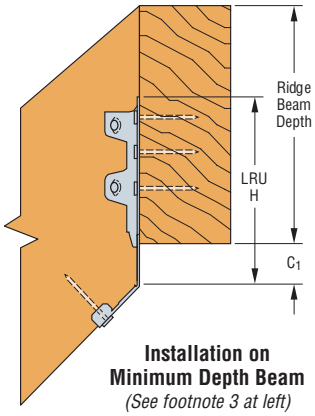


Alternate Installation for Retrofit Applications

Minimum Ridge Beam Depth (in inches)

Roof Pitch	LRU26		LRU28			LRU210			LRU212	
	Rafter Size		Rafter Size			Rafter Size			Rafter Size	
	2x6	2x8	2x6	2x8	2x10	2x8	2x10	2x12	2x10	2x12
2:12	3⅞	5⅝	—	5½	7¼	—	7⅝	9⅝	—	9¼
3:12	3⅞	5¾	—	5½	7¼	—	7¾	9⅞	—	9¼
4:12	4	5⅞	—	5½	7¼	—	8	10⅛	—	9¼
5:12	4¼	6⅛	—	5½	7⅜	—	8¼	10½	—	9¼
6:12	4⅜	6⅜	—	5½	7¾	—	8⅝	10⅞	—	9¼
7:12	4⅝	6⅝	—	5¾	8⅛	6⅝	9	11¼	—	9½
8:12	4⅞	7	—	6⅛	8½	7	9⅜	11¾	7⅝	10
9:12	5⅛	7⅜	—	6½	9	7⅜	9⅞	12⅜	8⅛	10⅝
10:12	5⅜	7¾	4½	6⅞	9⅜	7¾	10¼	12⅞	8½	11⅛
11:12	5¾	8⅛	4⅞	7¼	9⅞	8⅛	10¾	13½	9	11¾
12:12	6	8½	5⅛	7⅝	10½	8½	11⅜	14⅛	9⅝	12⅜
13:12	6⅜	9	5½	8⅛	11⅛	9	12	14⅞	10¼	13⅛
14:12	6¾	9½	5⅞	8⅝	11⅝	9½	12½	15⅝	10¾	13⅞

1. Minimum ridge beam depths shown assume rafter and ridge beam are flush at the top.
2. Minimum ridge beam depths have been determined to ensure the Max C_1 dimension for the LRU is not exceeded. Deeper ridge beams may be required to support the rafter loads as determined by the Designer.
3. The International Residential Code requires the ridge to be not less in depth than the cut end of the rafter unless the ridge is designed as a beam.



Installation on Minimum Depth Beam
(See footnote 3 at left)

PF *Post Frame Hangers*

PFD and PFA post frame hangers have double shear nailing to speed installation. Diamond holes allow easy hanger alignment and attachment.

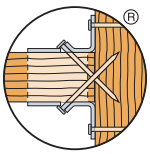
MATERIAL: PF24, PF26—18 gauge; all others—20 gauge

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 14-15.

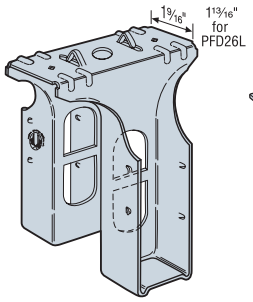
INSTALLATION:
- Use all specified fasteners. See General Notes.
- Diamond holes on PFD allow optional top flange nailing.
- Carried member nails must be driven at an angle through the joist into the header to achieve the table loads.

OPTIONS: These hangers cannot be modified.

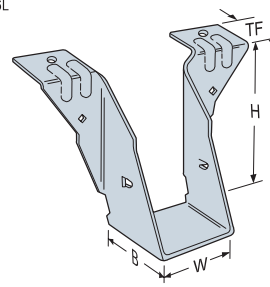
CODES: See page 13 for Code Reference Key Chart.



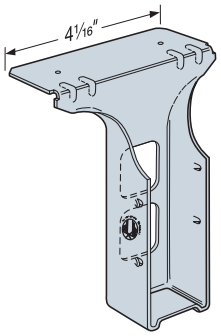
Double Shear Nailing *(Top View)*



PFD26
(PFD24, PFDS24, PFDS26, PFD26L similar)



PF24
(PF26 similar)



PF26A
(PF24A similar)

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 27 for more information.

Model No.	Dimensions				Fasteners		DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
	W	H	B	TF	Carrying Member	Carried Member	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (133)	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (133)	
PF24	1⁹⁄₁₆	3⅜	1½	1¹⁄₁₆	2-10d	2-10d	310	955	955	955	955	230	650	660	660	660	I10, F9, L11
PF24A	1⁹⁄₁₆	3⅜	1¼	1½	2-10d	2-10d	280	840	865	885	895	230	650	660	660	660	
PFD24	1⁹⁄₁₆	3⅜	1¼	1⁹⁄₁₆	2 PRONGS	2-10d	280	840	865	885	895	230	650	675	690	700	
PFDS24	1⁹⁄₁₆	3⅜	1¼	3¼	4-10d	2-10d	280	840	865	885	895	230	650	660	660	660	170
PF26	1⁹⁄₁₆	5⅜	1½	1¹⁄₁₆	2-10d	2-10d	310	955	955	955	955	455	805	850	880	905	I10, F9, L11
PF26A	1⁹⁄₁₆	5⅜	1¼	1½	2-10d	4-10d	620	970	1020	1050	1075	505	765	770	770	770	
PFD26	1⁹⁄₁₆	5⅜	1¼	1⁹⁄₁₆	2 PRONGS	4-10d	560	1015	1070	1105	1130	455	805	850	880	905	
PFD26L	1⁹⁄₁₆	5⅜	1¼	1¹³⁄₁₆	2 PRONGS	4-10d	310	955	955	955	955	455	805	850	880	905	170
PFDS26	1⁹⁄₁₆	5⅜	1¼	3¼	4-10d	4-10d	620	970	1020	1050	1075	505	765	805	835	855	I10, F9, L11

1. Uplift loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. **NAILS:** 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.

UPDATED 12/19/2012

LSU/LSSU *Adjustable Light Slopeable/Skewable U Hangers*

SIMPSON Strong-Tie®

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 LSU and LSSU series of hangers may be sloped and skewed in the field, offering a versatile solution for attaching joists and rafters. These hangers may be sloped up or down and skewed left or right, up to 45°.

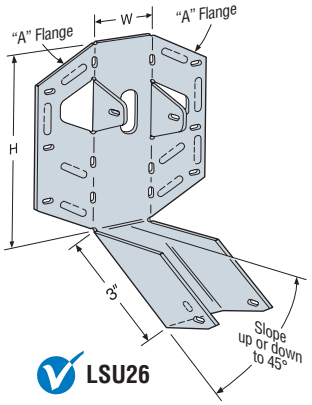
MATERIAL: See table

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 14-15.

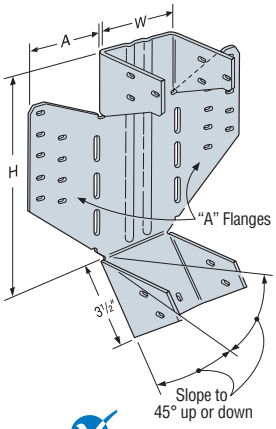
INSTALLATION:

- Use all specified fasteners. See General Notes.
- Attach the sloped joist at both ends so that the horizontal force developed by the slope is fully supported by the supporting members.
- To see an installation video on this product, visit ***www.strongtie.com***.

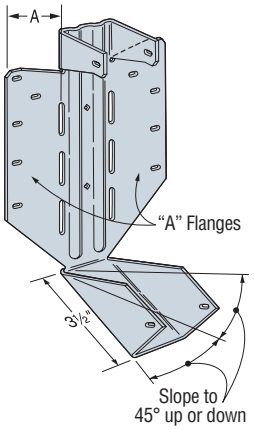
CODES: See page 13 for Code Reference Key Chart.



LSU26



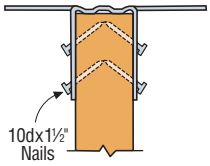
LSSU410
(LSSU210-2 similar)



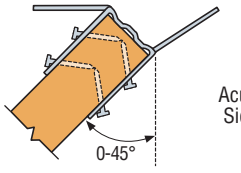
LSSU28

LSU and LSSU INSTALLATION SEQUENCE

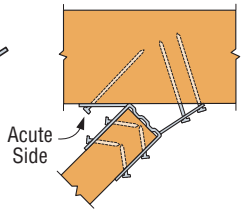
(For Skewed or Sloped/Skewed Applications)



STEP 1
Nail hanger to slope-cut carried member, installing seat nail first. No bevel necessary for skewed installation. Install joist nails at 45° angle.



STEP 2
Skew flange from 0-45°. Bend other flange back along centerline of slots until it meets the header. Bend one time only.



STEP 3
Attach hanger to the carrying member, acute angle side first *(see footnote 4)*. Install nails at an angle.

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.

Joist Width	Model No.	Ga	Dimensions W	H	A	Fasteners Face	Joist	DF/SP Allowable Loads Uplift² (160)	Floor (100)	Snow (115)	Roof (125)	SPF/HF Allowable Loads Uplift² (160)	Floor (100)	Snow (115)	Roof (125)	Code Ref.
Sloped Only Hangers																
1½	LSU26	18	1 9/16	4 7/8	1½	6-10d	5-10dx1½	535	695	810	865	415	600	695	745	I8, F7, L15
1½	LSSU28	18	1 9/16	7 1/8	1½	10-10d	5-10dx1½	535	1110	1275	1390	415	960	1105	1200	
1½	LSSU210	18	1 9/16	8½	1 5/8	10-10d	7-10dx1½	875	1110	1275	1390	625	960	1105	1200	
2½	LSSUH310	16	2 9/16	8½	3 1/8	18-16d	12-10dx1½	1150	2295	2295	2295	990	1930	1930	1930	170
3	LSSU210-2	16	3 1/8	8½	2 7/8	18-16d	12-10dx1½	1150	2430	2795	3035	990	2160	2485	2700	I8, F7, L15
3½	LSSU410	16	3 9/16	8½	2 5/8	18-16d	12-10dx1½	1150	2430	2795	3035	990	2160	2485	2700	
Skewed Hangers or Sloped and Skewed																
1½	LSU26	18	1 9/16	4 7/8	1½	6-10d	5-10dx1½	535	695	810	865	415	600	695	745	I8, F7, L15
1½	LSSU28	18	1 9/16	7 1/8	1½	9-10d	5-10dx1½	450	885	885	885	415	765	765	765	
1½	LSSU210	18	1 9/16	8½	1 5/8	9-10d	7-10dx1½	785	995	1145	1205	625	860	995	1050	
2½	LSSUH310	16	2 9/16	8½	3 1/8	14-16d	12-10dx1½	1150	1600	1600	1600	990	1385	1385	1385	170
3	LSSU210-2	16	3 1/8	8½	2 7/8	14-16d	12-10dx1½	1150	1625	1625	1625	990	1365	1365	1365	I8, F7, L15
3½	LSSU410	16	3 9/16	8½	2 5/8	14-16d	12-10dx1½	1150	1625	1625	1625	990	1365	1365	1365	

1. Roof loads are 125% of floor loads unless limited by other criteria.
2. Uplift loads include an increase for wind or earthquake loading with no further increase allowed; reduce when other loads govern.
3. Truss chord cross-grain tension may limit allowable loads in accordance with ANSI/TPI 1-2007. Simpson Strong-Tie® Connector Selector™ Software includes the evaluation of cross-grain tension in its hanger allowable loads. For additional information, contact Simpson Strong-Tie.
4. For skewed LSSU hangers, the inner most face fasteners on the acute angle side are not installed.
5. Do not substitute 10dx1½" nails for face nails on slope and skew combinations or skewed only LSU and LSSU.
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

SUR/SUL/HSUR/HSUL *Skewed 45° Hangers*

SIMPSON Strong-Tie®

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 SU and HSU series of hangers are skewed 45° left or right. Angled nail slots direct nails for proper installation.

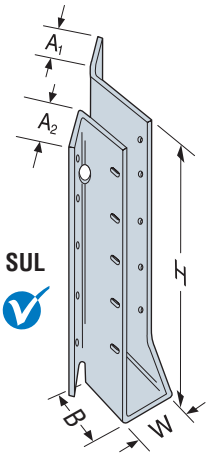
MATERIAL: SUR and SUL–16 gauge; HSUR and HSUL–14 gauge

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 14-15.

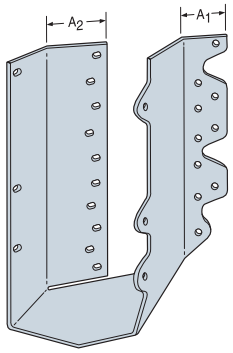
INSTALLATION: • Use all specified fasteners. See General Notes.
- These hangers will normally accommodate a 40° to 50° skew.
- Illustration shows left and right skews SUR/L *(SUR=skewed right; SUL=skewed left).*
- The joist end may be square cut or bevel cut.
- For installations to concrete/masonry walls, see page 161.

OPTIONS:
- Available with the A_2 flange turned in on the 2-2x and 4x models only *(see illustration).*
- To order, add "C" *(for concealed)* to the product name.
- For example, specify HSURC46, HSULC46, SURC46, or SULC46.

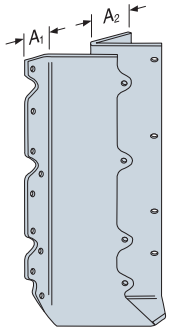
CODES: See page 13 for Code Reference Key Chart.



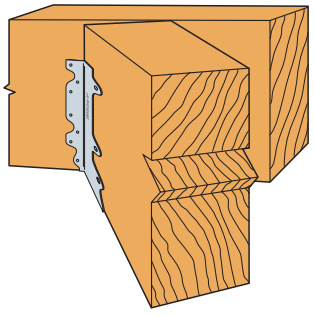
SUL



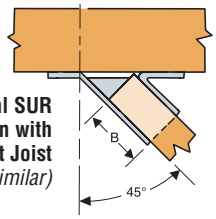
HSULC
Available for 2-2x and 4x models only



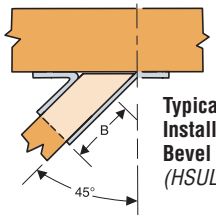
HSUR



Typical SUR410 Installation



Typical SUR Installation with Square Cut Joist *(HSUR similar)*



Typical SUL Installation with Bevel Cut Joist *(HSUL similar)*

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.

Joist Size	Model No.	Dimensions (in)					Fasteners		DF/SP Species Header Allowable Loads				SPF/HF Species Header Allowable Loads				Code Ref.
		W	H	B	A_1	A_2	Face	Joist	Uplift (160)	Floor (100)	Roof Snow (115)	Roof Const (125)	Uplift (160)	Floor (100)	Roof Snow (115)	Roof Const (125)	
2x4	SUR/L24	1⁹⁄₁₆	3½	2	1⅛	1¼	4-16d	4-10dx1½	450	575	655	705	385	495	560	605	I7, F6, L17
2x6, 8	SUR/L26	1⁹⁄₁₆	5	2	1⅛	1⁵⁄₁₆	6-16d	6-10dx1½	765	865	980	1055	660	745	845	910	
2x10, 12	SUR/L210	1⁹⁄₁₆	8⅛	2	1⅛	1⁵⁄₁₆	10-16d	10-10dx1½	1250	1440	1635	1760	1075	1240	1405	1515	
2x14	SUR/L214	1⁹⁄₁₆	10	2	1⅛	1⁵⁄₁₆	12-16d	12-10dx1½	2165	1730	1960	2115	1860	1485	1685	1820	
3x10, 12	SUR/L2.56/9	2⁹⁄₁₆	8¹³⁄₁₆	3⅜₁₆	1⅛	2⅛	14-16d	2-10dx1½	225	2015	2285	2465	195	1735	1965	2120	I9
3x14	SUR/L2.56/11	2⁹⁄₁₆	11³⁄₁₆	3⅜₁₆	1⅛	2⅛	16-16d	2-10dx1½	225	2305	2615	2665	195	1980	2245	2290	
(2) 2x6, 8	SUR/L26-2	3⅛	4¹⁵⁄₁₆	2⅝	1⁷⁄₁₆	2⅜	8-16d	4-16dx2½	815	1150	1305	1400	700	990	1005	1005	I7, F6, L17
(2) 2x6, 8	HSUR/L26-2	3⅛	4¹⁵⁄₁₆	2⁷⁄₁₆	1¼	2³⁄₁₆	12-16d	4-16dx2½	815	1785	2000	2000	700	1540	1720	1720	
(2) 2x10, 12	SUR/L210-2	3⅛	8¹¹⁄₁₆	2⅝	1⁷⁄₁₆	2⅜	14-16d	6-16dx2½	1300	2015	2285	2465	1120	1735	1780	1780	
(2) 2x10, 12	HSUR/L210-2	3⅛	8¹¹⁄₁₆	2⁷⁄₁₆	1¼	2³⁄₁₆	20-16d	6-16dx2½	1300	2975	3360	3610	1120	2565	2895	3110	
(2) 2x14	HSUR/L214-2	3⅛	12¹¹⁄₁₆	2⁷⁄₁₆	1¼	2³⁄₁₆	26-16d	8-16dx2½	1795	3870	4365	4695	1550	3330	3760	4045	
4x6, 8	SUR/L46	3⁹⁄₁₆	4¾	2⅝	1	2⅜	8-16d	4-16d	815	1150	1305	1400	700	990	1005	1005	170
4x6, 8	HSUR/L46	3⁹⁄₁₆	4¾	2⁷⁄₁₆	1	2³⁄₁₆	12-16d	4-16d	815	1785	2000	2000	700	1540	1720	1720	I7, F6, L17
4x10, 12	SUR/L410	3⁹⁄₁₆	8½	2⅝	1	2⅜	14-16d	6-16d	1300	2015	2285	2465	1120	1735	1780	1780	I9, F8, L12
4x10, 12	HSUR/L410	3⁹⁄₁₆	8½	2⁷⁄₁₆	1	2³⁄₁₆	20-16d	6-16d	1300	2975	3360	3610	1120	2565	2895	3110	
4x14	SUR/L414	3⁹⁄₁₆	12½	2⅝	1	2⅜	18-16d	8-16d	1765	2500	2500	2500	1520	1795	1795	1795	I7, F6, L17
4x14	HSUR/L414	3⁹⁄₁₆	12½	2⁷⁄₁₆	1	2³⁄₁₆	26-16d	8-16d	1795	3870	4365	4695	1550	3330	3760	4045	

1. Uplift loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Roof loads are 125% of floor loads unless limited by other criteria.
3. Truss chord cross-grain tension may limit allowable loads in accordance with ANSI/TPI 1-2007. Simpson Strong-Tie® Connector Selector™ Software includes the evaluation of cross-grain tension in its hanger allowable loads. For additional information, contact Simpson Strong-Tie.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 16dx2½ = 0.162" dia. x 2½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

VPA *Variable Pitch Connectors*

The VPA may be sloped in the field, offering a versatile solution for attaching rafters to the top plate. It will adjust to accommodate slopes between 3:12 and 12:12, making it a complement to the versatile LSSU. This connector eliminates the need for notched rafters, beveled top plates and toe nailing.

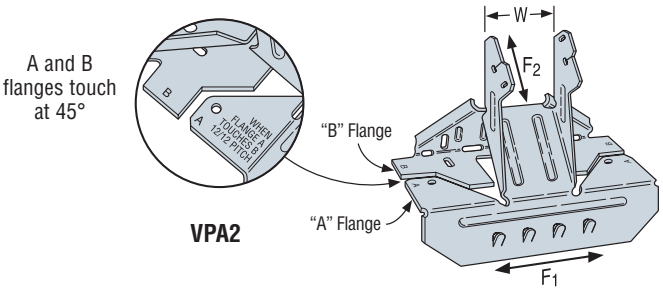
MATERIAL: 18 gauge

FINISH: Galvanized

INSTALLATION:

- Use all specified fasteners. See General Notes.

CODES: See page 13 for Code Reference Key Chart.

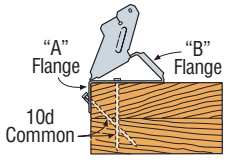


VPA2

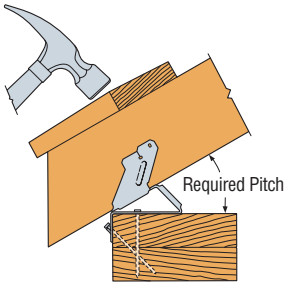
Joist Width	Model No.	W	Fasteners		DF/SP Allowable Loads				SPF/HF Allowable Loads				Code Ref.
			Carrying Member	Carried Member	Uplift	Download	Lateral (160)		Uplift	Download	Lateral (160)		
					(160)		F_1	F_2	(160)		F_1	F_2	
1½	VPA2	1⁹⁄₁₆	8-10d	2-10dx1½	295	1050	375	250	250	870	325	250	I8, F7, L15
2½	VPA3	2⁹⁄₁₆	9-10d	2-10dx1½	295	1230	375	250	250	1020	325	250	
3½	VPA4	3⁹⁄₁₆	11-10d	2-10dx1½	295	1230	375	250	250	1020	325	250	

1. Uplift loads include an increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Loads may not be increased for short-term loading.
3. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

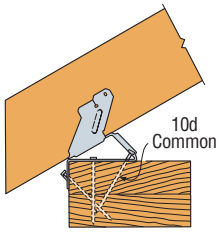
VPA INSTALLATION SEQUENCE



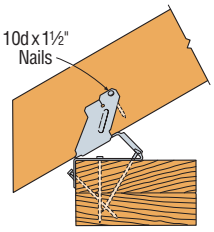
STEP 1
Install top nails and face PAN nails in "A" flange to outside wall top plate.



STEP 2
Seat rafter with a hammer, adjusting "B" flange to the required pitch.



STEP 3
Install "B" flange nails in the obround nail holes, locking the pitch.



STEP 4
Install 10dx1½" nail into tab nail hole. Hammer nail in at a slight angle to prevent splitting.

HCP *Hip Corner Plates*

The HCP connects a rafter or joist to double top plates at a 45° angle.

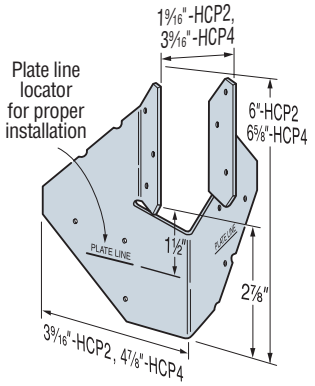
MATERIAL: 18 gauge

FINISH: HCP2—galvanized or ZMAX® coating; HCP4Z—ZMAX coating

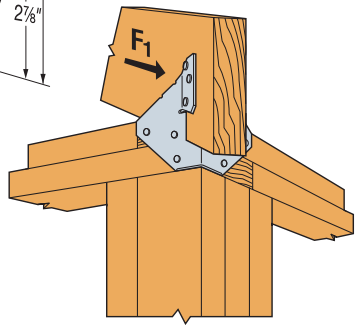
INSTALLATION: • Use all specified fasteners. See General Notes.

- Attach HCP to double top plates; birdsmouth not required for table loads.
- Install rafter and complete nailing. Rafter may be sloped to 45°.

CODES: See page 13 for Code Reference Key Chart.



HCP2
(HCP4Z similar)
U.S. Patent 5,380,115



Typical HCP Installation

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.

Member Size	Model No.	Fasteners		DF/SP Allowable Loads		SPF/HF Allowable Loads		Code Ref.
		To Rafters	To Plates	(160)		(160)		
				Uplift	F_1	Uplift	F_1	
2x	HCP2	6-10dx1½	6-10dx1½	645	300	555	260	I8, F7, L15
4x	HCP4Z	8-10d	8-10d	1000	265	860	230	

1. Loads include an increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. The HCP can be installed on the inside and the outside of the wall with a flat bottom chord truss and achieve twice the load capacity.
3. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

HRC/HHRC *Hip Ridge Connectors*

The HRC series are field slopeable connectors that attach hip roof beams to the end of a ridge beam. The HRC may be sloped downward a maximum of 45°.

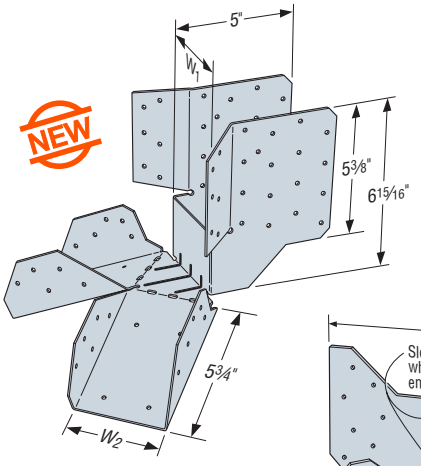
MATERIAL: HRC22, HRC42—16 gauge; HRC44—14 gaugel; HHRC—12 gauge

FINISH: Galvanized

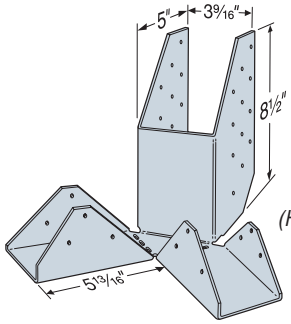
INSTALLATION:

- Use all specified fasteners. See General Notes.
- On end of ridge—use optional diamond holes on HRC22 and HRC42 to secure the HRC. Bend face flanges on HRC22 back flush with ridge, and complete nailing.
- HRC22 on face of ridge—adjust to correct height and install nails.
- Double bevel-cut hip members to achieve full bearing capacity.

CODES: See page 13 for Code Reference Key Chart.

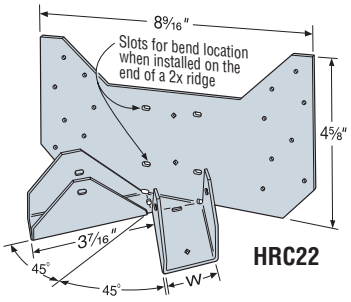


HHRC44
(others similar)



HRC44
(HRC42 similar)

U.S. Patent 5,380,116



HRC22

HRC Allowable Loads

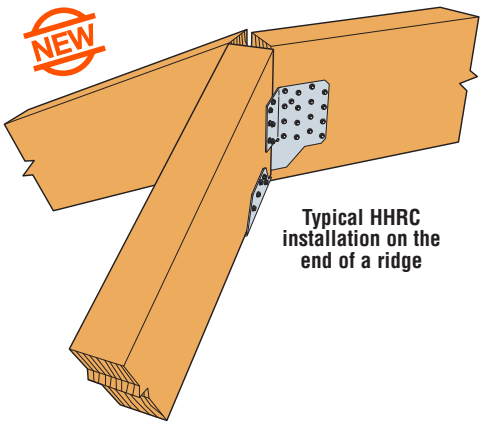
Model No.	Member Size		Fasteners		DF/SP Allowable Loads				SPF/HF Allowable Loads				Code Ref.
	W	Ridge	Carrying Member	Each Hip	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	
HRC22	1 9/16	2x or 1 3/4" wide	16-10dx1½	2-10dx1½	290	720	830	900	250	625	720	780	I8, F7, L15
HRC42	1 9/16	4x	16-16d	2-10dx1½	290	1050	1050	1050	250	905	905	905	
HRC44	3 9/16	4x	24-16d	6-16d	480	1610	1775	1775	410	1385	1525	1525	

1. Allowable loads shown are for each hip. Total load carried by the connector is double this number.
2. Uplift loads include an increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. Roof loads are 125% of floor loads unless limited by other criteria.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

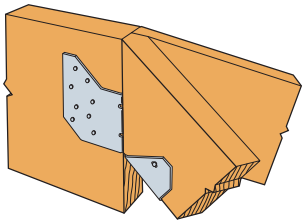
HHRC Allowable Loads

Model No.	Member Type	Connection Members		Connector Width (in.)		Fasteners[3]		Allowable Loads Per Hip (lbs.)				Code Ref.
								DF/SP		SPF		
		Ridge	Hip	Ridge	Hip	Ridge	Each Hip	Download 100/115/125	Uplift (160)	Download 100/115/125	Uplift (160)	
NEW HHRC44	Sawn Lumber	4x	4x	3⅝	3⅝	(40) SD10212	(22) SD10212	2800	1970	2410	1695	160
	SCL	3½	3½	3⅝	3⅝	(40) SD10212	(22) SD10212	2800	1970	2410	1695	
NEW HHRC5.37/3.56	SCL/Sawn Lumber	5¼	3½	5⅜	3⅝	(40) SD10212	(22) SD10212	2800	1970	2410	1695	
NEW HHRC64	Sawn Lumber	5½	3½	5⅝	3⅝	(40) SD10212	(22) SD10212	2800	1970	2410	1695	

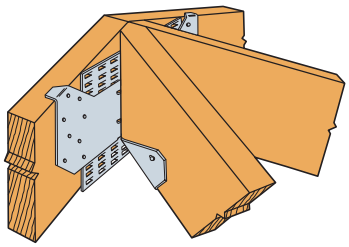
1. Allowable loads shown are for each hip. Total load carried at the ridge is 2x the load listed.
2. Uplift loads include an increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. **FASTENERS:** SD10212 = 0.162" dia. X 2½" long Strong-Drive® SD screws *(provided)*.



Typical HHRC installation on the end of a ridge



Typical HRC22 installation on the end of a ridge



Optional installation for HRC22 only

THA/THAC/THAR/L *Adjustable Truss Hangers*

SIMPSON Strong-Tie®

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 THA series' extra long straps allow full code nailing and can be field-formed to give top flange hanger convenience.

Designed for 4x2 floor trusses and 4x beams, the THAR/L422 has a standard skew of 45°. Straps must be bent for top flange hanger installation. PAN nailing helps eliminate splitting of 4x2 truss bottom chords.

MATERIAL: See table **FINISH**: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 14-15.

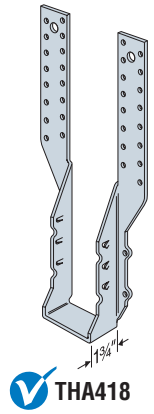
INSTALLATION: • Use all specified fasteners. See General Notes.

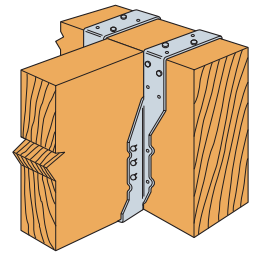
The following installation methods may be used:

- **Top Flange Installation**—The straps must be field formed over the header – see table for minimum top flange requirements. Install top and face nails according to the table. Top nails shall not be within ¼" from the edge of the top flange members.
  For the THA29, nails used for joist attachment must be driven at an angle so that they penetrate through the corner of the joist and into the header. For all other top flange installations, straighten the double shear nailing tabs and install the nails straight into the joist.
- **Face Mount Installation**—Install all face nails according to the table. Not all nail holes will be filled on all models. On models where there are more nail holes than required, the lowest 4 face holes must be filled. Nails used for the joist attachment must be driven at an angle so that they penetrate through the corner of the joist into the header.
- **Alternate Installation**—The THA 4x hangers may be installed in a top flange configuration using the tabulated fasteners for face mount installation and achieve the face mount installation loads. Install the tabulated face nails into the face and top of the carrying member. Nails used for the joist attachment must be driven at an angle so that they penetrate through the corner of the joist into the header.
- **Uplift**—Lowest face nails must be filled to achieve uplift loads.

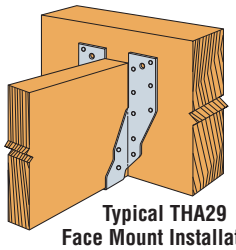
OPTIONS: • THA hangers available with the header flanges turned in for 3⅝" *(except THA413)* and larger, with no load reduction – order THAC hanger.

CODES: See page 13 for Code Reference Key Chart.

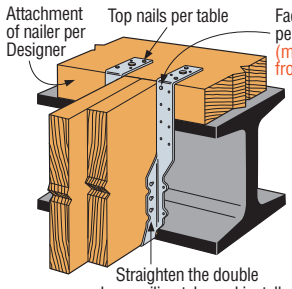




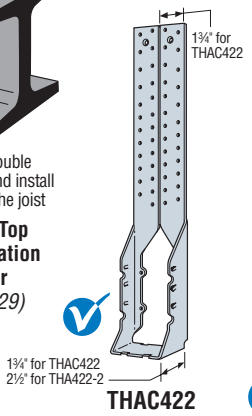
Typical THA Top Flange Installation

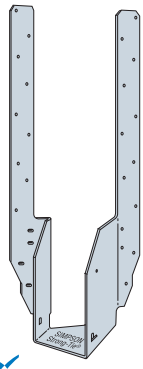


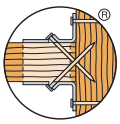
Typical THA29 Face Mount Installation



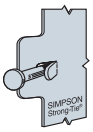
Typical THA Top Flange Installation on a Nailer *(except THA29)*



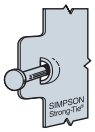




Double Shear Nailing Top View



Double Shear Nailing Side View Do not bend tab unless otherwise noted



Dome Double Shear Nailing Side View *(available on some models)*

U.S. Patent 5,603,580

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.

Minimum Carried Member	Model No.	Ga	Dimensions W	H	C	Min.[7] Top Flange	Min. Header Depth	Fasteners[1] Carrying Member Top	Carrying Member Face	Carried Member Straight	Carried Member Slant	DF/SP Allowable Loads Uplift[2] (160)	Floor (100)	Snow (115)	Roof (125)	SPF/HF Allowable Loads Uplift[2] (160)	Floor (100)	Snow (115)	Roof (125)	Code Ref.
TOP FLANGE INSTALLATION																				
2x4	THA29	18	1⅝	9 11/16	5⅛	2 7/16	—	4-10d	4-10d	—	4-10d	560	2260	2310	2350	480	1740	1785	1815	I8, F7, L15
2x6	THA213	18	1⅝	13 5/16	5½	1½	—	4-10d	2-10d	4-10dx1½	—	—	1615	1615	1615	—	1280	1280	1280	
2x6	THA218	18	1⅝	17 3/16	5½	2	—	4-10d	2-10d	4-10dx1½	—	—	1615	1615	1615	—	1280	1280	1280	
(2) 2x10	THA218-2	16	3⅛	17 11/16	8	2	—	4-16d	2-16d	6-10d	—	—	2245	2245	2245	—	1935	1935	1935	
(2) 2x10	THA222-2	16	3⅛	22 3/16	8	2	—	4-16d	2-16d	6-10d	—	—	2245	2245	2245	—	1935	1935	1935	
4x6	THA413	18	3⅝	13 5/16	4½	1½	—	4-10d	2-10d	4-10d	—	—	1615	1615	1615	—	1280	1280	1280	
4x10	THA418	16	3⅝	17½	7⅛	2	—	4-16d	2-16d	6-10d	—	—	2245	2245	2245	—	1935	1935	1935	
4x10	THA422	16	3⅝	22	7⅛	2	—	4-16d	2-16d	6-10d	—	—	2245	2245	2245	—	1935	1935	1935	
4x10	THA426	14	3⅝	26	7⅛	2	—	4-16d	4-16d	6-16d	—	—	2435	2435	2435	—	2095	2095	2095	F23
4x10	THAR/L422	16	3⅝	22⅝	8	2½	—	4-10d	2-10d	1-10d	2-10dx1½	—	1090[4]	1090[4]	1090[4]	—	915[4]	915[4]	915[4]	I8, F7, L15
4x10	THAR/L422	16	3⅝	22⅝	8	2½	—	4-10d	8-10d	1-10d	2-10dx1½	310	1675	1675	1675	260	1405	1405	1405	
(2) 4x10	THA422-2	14	7¼	22 11/16	9¾	2	—	4-16d	4-16d	6-16d	—	—	3330	3330	3330	—	2865	2865	2865	170
(2) 4x10	THA426-2	14	7¼	26 1/16	9¾	2	—	4-16d	4-16d	6-16d	—	—	3330	3330	3330	—	2865	2865	2865	
FACE MOUNT INSTALLATION																				
2x4	THA29	18	1⅝	9 11/16	5⅛	—	9 11/16	—	16-10d	—	4-10d	560	2125	2310	2350	480	1740	1785	1815	I8, F7, L15
2x6	THA213	18	1⅝	13 5/16	5½	—	13 5/16	—	14-10d	—	4-10d	1170	1940	2000	2030	780	1385	1425	1450	
2x6	THA218	18	1⅝	17 3/16	5½	—	17 3/16	—	18-10d	—	4-10d	1170	1940	2000	2030	780	1385	1425	1450	
(2) 2x10	THA218-2	16	3⅛	17 11/16	8	—	14 1/16	—	22-16d	—	6-16d	1855	3695	3695	3695	1595	3185	3185	3185	
(2) 2x10	THA222-2	16	3⅛	22 3/16	8	—	14 1/16	—	22-16d	—	6-16d	1855	3695	3695	3695	1595	3185	3185	3185	
4x6	THA413	18	3⅝	13 5/16	4½	—	13⅜	—	14-10d	—	4-10d	1170	1940	2235	2400	780	1660	1910	2075	
4x10	THA418	16	3⅝	17½	7⅛	—	14 1/16	—	22-16d	—	6-16d	1855	3695	3695	3695	1595	3185	3185	3185	
4x10	THA422	16	3⅝	22	7⅛	—	14 1/16	—	22-16d	—	6-16d	1855	3695	3695	3695	1595	3185	3185	3185	
4x10	THA426	14	3⅝	26	7⅛	—	16 1/16	—	30-16d	—	6-16d	1855	4550	4550	4550	1595	3915	3915	3915	F23
(2) 4x10	THA422-2	14	7¼	22 11/16	9¾	—	16 3/16	—	30-16d	—	6-16d	1855	5160	5520	5520	1595	4440	4745	4745	170
(2) 4x10	THA426-2	14	7¼	26 1/16	9¾	—	18	—	38-16d	—	6-16d	1855	5520	5520	5520	1595	4440	4745	4745	

1. 16d sinkers may be used to replace 16d commons at 0.85 of table load.
2. Uplift has been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. Roof loads are 125% of floor loads unless limited by other criteria.
4. THAR/L422 with 4-10d top nails and 2-10d face nails: When the hanger height is between 9" to 12", the allowable download is 1440 lbs. for DFL and 1210 lbs. for SPF. No further increase allowed.
5. For top flange installation on a nailer *(see detail above)*, install joist nails straight by bending the double shear tabs.
6. For single 2x and 3x nailers, the following THA hangers can be installed using 10dx1½" top nails and 2-16d face nails with reduced allowable loads as noted: THA418/THA422: 1415 lbs. for DFL, 1215 lbs. for SPF; THA426: 2245 lbs. for DFL, 1930 lbs. for SPF.
7. Min. Top Flange refers to the minimum length of strap that must be field-formed over the header.
8. **NAILS:** 16d = 0.162" dia. x 3½" long, 16dx2½ = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

UPDATED 5/8/2013

HFN/F *Panelized Construction Hangers*

The HF24N, HF26N, HF34N and HF36N hangers are designed for panels or components using jigs or similar devices for precision fabrication. Grip-groove feature provides positive lock into the 2x or 3x member without nailing. F series panel hangers are engineered components for panelized construction only.

MATERIAL: 18 gauge

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 14-15.

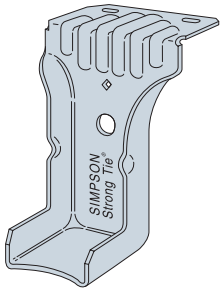
STANDARD INSTALLATION:

- Use all specified fasteners in pre-manufactured holes. See General Notes.
- On the F-series hanger, the diamond hole nail is non-structural and does not contribute to the load.
- For additional information on retrofit options see flier F-RUZNRUZ *(see page 229 for details)*.

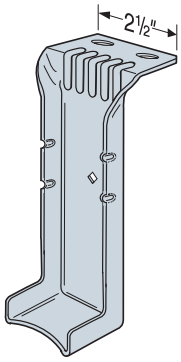
PANELIZED INSTALLATION:

- See technical bulletin T-HFHANGER for allowable load adjustments and additional information *(see page 230 for details)*.

CODES: See page 13 for Code Reference Key Chart.



HF24N
(HF34N similar)
U.S. Patent 6,260,402

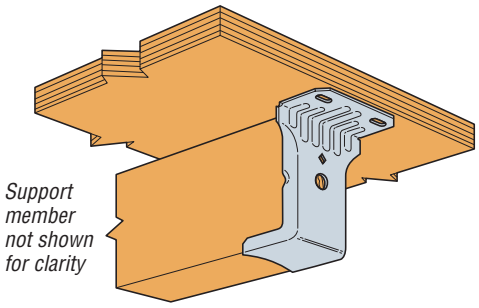


HF26N
(HF36N similar)
Dimples hold joist securely in place
U.S. Patent 6,260,402

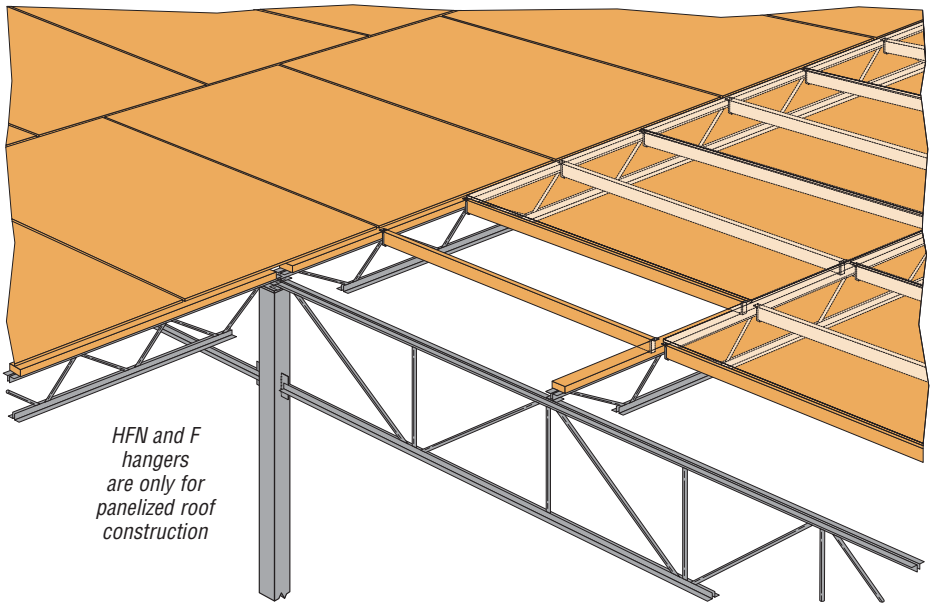
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Joist Size	Dimensions W	Dimensions H	Dimensions TF	Standard Installation Header Fasteners	Standard Installation Allowable Roof Loads (125)	Code Ref.
HF24N	2x4	1⁹⁄₁₆	3⅜	1¼	2-10dx2⅛	580	I15, L7
F26P	DISCONTINUED - See HF26N						
HF26N	2x6	1⁹⁄₁₆	5⅜	1¼	2-10dx2⅛	635	
HF34N	3x4	2⁹⁄₁₆	3⅜	1¼	2-10dx2⅛	690	
HF36N	3x6	2⁹⁄₁₆	5⅜	1¼	2-10dx2⅛	725	
F24-2	(2) 2x4	3¼	3¹⁵⁄₃₂	1⅜	2-10d	735	
F26-2	(2) 2x6	3¼	5⅜	1³⁄₁₆	2-10d	800	
F44	4x4	3⁹⁄₁₆	3⁷⁄₁₆	1½	2-10d	880	
F46	4x6	3⁹⁄₁₆	5⅜	1⁷⁄₁₆	2-10d	785	

1. 10d common nails can be used for specified 10dx2⅛ nails.
2. See technical bulletin T-HFHANGER for additional applications and loads.
3. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx2⅛ = 0.148" dia. x 2⅛" long. See page 22-23 for other nail sizes and information.



Typical HF24N Installation
(HF34N similar)



Typical Hybrid Panelized Roof System

FACE MOUNT HANGERS HU/HUC/HUCQ/HGUS *Glulam Beam & Double Shear Joist Hangers*

SIMPSON Strong-Tie®

See Hanger Options on pages 216-217 for hanger modifications, which may result in reduced loads.

HU/HUC—Most models have triangle and round holes. To achieve maximum loads, fill both round and triangle holes with common nails.

HGUS—Face mount hanger used for high load applications. All hangers in this series have double shear nailing. This patented innovation distributes the load through two points on each joist nail for greater strength. It also allows the use of fewer nails, faster installation, and the use of common nails for all connections.

HUCQ—Heavy duty joist hangers that incorporate Simpson Strong-Tie® Strong Drive® SDS wood screws.

MATERIAL: See tables **FINISH**: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 14-15.

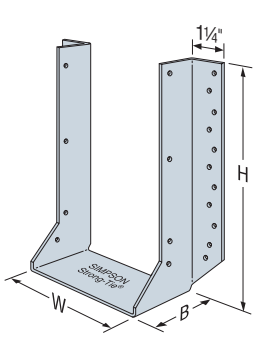
INSTALLATION: • Use all specified fasteners. See General Notes.

- HU/HUC—can be installed filling round holes only, or filling round and triangle holes for maximum values.
- HGUS—Nails must be driven at an angle through the joist or truss into the header to achieve the table loads.
- HUCQ—Install Simpson Strong-Tie SDS ¼"x2½" wood screws *(provided)* in all round holes. Lag screws will not achieve the same load.
- With 3x carrying members, use 16dx2½" (0.162" dia. x 2½" long) nails into the header and 16d commons into the joist with no load reduction. With 2x carrying members, use 10dx1½" (0.148" dia. x 1½" long) nails into the header and 10d commons into the joist, and reduce the load to 0.64 of the table value.
- For installations to masonry or concrete, see page 161.

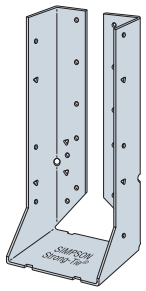
OPTIONS: • HU hangers available with the header flanges turned in for 2⁵⁄₁₆" and larger widths, with no load reduction—order HUC hanger.

- See Hanger Options on pages 216-217, for sloped and/or skewed HU models, and HUC *(concealed flange)* models.
- Concealed flanges are not available for HGUS.
- Other sizes available; contact Simpson Strong-Tie.
- See also HUS series.
- HUCQ hangers cannot be modified.

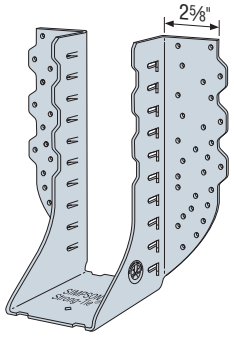
CODES: See page 13 for Code Reference Key Chart.



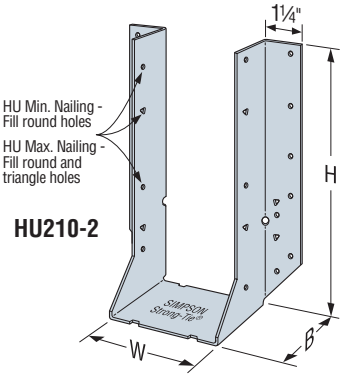
HU5.125/12



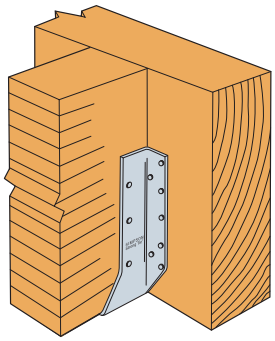
HUC210-2
Concealed Flanges
(HUCQ similar)



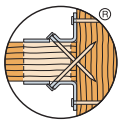
HGUS3.25/12



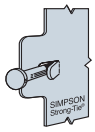
HU210-2



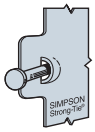
Typical HU Installation



Double-Shear Nailing Top View



Double-Shear Nailing Side View Do not bend tab



Dome Double-Shear Nailing Side View *(available on some models)*

U.S. Patent 5,603,580

Projection seat on most models for maximum bearing and section economy.

Model configurations may differ from those shown. Some HU models do not have triangle holes. Contact Simpson Strong-Tie for details.

Carried Member Width	Model No.	Ga	Dimensions (in.) W	H	B	Min/ Max	Fasteners Face	Joist	Allowable Loads DF/SP Species Header Uplift (160)	Floor (100)	Snow (115)	Roof (125)	SPF/HF Species Header Floor (100)	Snow (115)	Roof (125)	Code Ref.
3⅛ GLULAM	HU210-2/HUC210-2	14	3⅛	8¹³⁄₁₆	2½	Min	14-16d	6-10d	1135	2085	2350	2530	1795	2025	2180	I9, F6, L17
			3⅛	8¹³⁄₁₆	2½	Max	18-16d	10-10d	1895	2680	3020	3250	2305	2605	2800	
	HU212-2/HUC212-2		3⅛	10⁹⁄₁₆	2½	Min	16-16d	6-10d	1135	2380	2685	2890	2050	2315	2490	
			3⅛	10⁹⁄₁₆	2½	Max	22-16d	10-10d	1895	3275	3695	3970	2820	3180	3425	
	HU3.25/10.5/HUC3.25/10.5		3¼	10¼	2½	—	22-16d	10-10d	1895	3275	3695	3970	2820	3180	3425	I9
	HU3.25/12/HUC3.25/12		3¼	11¾	2½	—	24-16d	12-10d	2015	3570	4030	4335	3075	3470	3735	
	HU216-2/HUC216-2		3⅛	13⅞	2½	Min	20-16d	8-10d	1515	2975	3360	3610	2565	2895	3110	I9, F6, L17
			3⅛	13⅞	2½	Max	26-16d	12-10d	2015	3870	4365	4695	3330	3760	4045	
	HGUS3.25/10	12	3¼	8⅝	4	—	46-16d	16-16d	4095	9100	9100	9100	7825	7825	7825	I9, F23
	HGUS3.25/12		3¼	10⅝	4	—	56-16d	20-16d	5045	9600	9600	9600	8255	8255	8255	
3½ GLULAM	HU410	14	3⁹⁄₁₆	8⅝	2½	Max	18-16d	10-10d	1895	2680	3020	3250	2305	2605	2800	I7, I9, L12, F8
	HU414		3⁹⁄₁₆	12⅝	2½	Max	24-16d	12-10d	2015	3570	4030	4335	3075	3470	3735	
	HHUS410	12	3⅝	9	3	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	
	HGUS410		3⅝	9¹⁄₁₆	4	—	46-16d	16-16d	4095	9100	9100	9100	7825	7825	7825	
	HGUS414		3⅝	12⁷⁄₁₆	4	—	66-16d	22-16d	5515	10100	10100	10100	8685	8685	8685	
5⅛ GLULAM	HU310-2/HUC310-2	14	5⅛	8⅞	2½	—	14-16d	6-10d	1135	2085	2350	2530	1795	2025	2180	I9, F6, L17
	HU5.125/12/HUC5.125/12		5¼	10¼	2½	—	22-16d	8-16d	1795	3275	3695	3970	2820	3180	3425	I9
	HU5.125/13.5/HUC5.125/13.5		5¼	13¼	2½	—	26-16d	12-16d	2695	3870	4365	4695	3330	3760	4045	
	HU5.125/16/HUC5.125/16		5¼	13⅞	2½	—	26-16d	12-16d	2695	3870	4365	4695	3330	3760	4045	
	HUCQ5.25/9-SDS		5¼	9	3	—	12-SDS¼x2½	6-SDS¼x2½	2510	4680	4955	4955	3370	3570	3570	I9, L12, F23
	HUCQ5.25/11-SDS		5¼	11	3	—	14-SDS¼x2½	6-SDS¼x2½	2510	5460	5560	5560	3930	4000	4000	
	HGUS5.25/10	12	5¼	9¹⁄₁₆	4	—	46-16d	16-16d	4095	9100	9100	9100	7825	7825	7825	I9, F23
	HGUS5.25/12		5¼	10⁹⁄₁₆	4	—	56-16d	20-16d	5045	9600	9600	9600	8255	8255	8255	
5½ GLULAM	HUCQ610-SDS	14	5½	9	3	—	12-SDS¼x2½	6-SDS¼x2½	2520	4680	5380	5715	3370	3875	4115	I9, L12, F23
	HHUS5.50/10		5½	9	3	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	
	HGUS5.50/10	12	5½	8¹⁵⁄₁₆	4	—	46-16d	16-16d	4095	9100	9100	9100	7825	7825	7825	
	HGUS5.50/14		5½	12½	4	—	66-16d	22-16d	5515	10100	10100	10100	8685	8685	8685	
6¾ GLULAM	HGUS6.88/10	12	6⅞	8¹³⁄₁₆	4	—	46-16d	16-16d	4095	9100	9100	9100	7825	7825	7825	I9, F23
	HGUS6.88/12		6⅞	10¹³⁄₁₆	4	—	54-16d	20-16d	5045	9600	9600	9600	8255	8255	8255	
	HGUS6.88/14		6⅞	12¹³⁄₁₆	4	—	66-16d	22-16d	5515	10100	10100	10100	8685	8685	8685	
7 GLULAM	**See HHUS and HGUS in 7" Structural Composite Lumber section, page 106 or GU series on page 107.**															
8¾ GLULAM	**See HGU and HHGU on page 92.**															

1. Uplift loads based on Douglas Fir and have been increased 60% for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. MIN nailing quantity and load values—fill all round holes; MAX nailing quantity and load values—fill all round and triangle holes.
3. For SPF/HF uplift, use 0.86 x DF/SP uplift load for products requiring nails and 0.72 for products requiring screws.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.

LGU/MGU/HGU/HHGU *High-Capacity Girder Hangers*

The GU hangers are high-capacity girder hangers designed for situations where the header and joist are flush at the top. These products can be used for retrofit on the framing members after they are temporarily placed in position. Simpson Strong-Tie® Strong-Drive® screws (SDS) make installation fast and easy, with no pre-drilling required.

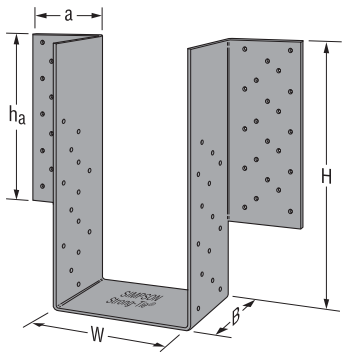
MATERIAL: See table

FINISH: Galvanized, HHGU—Simpson Strong-Tie® gray paint. Available in hot-dip galvanized, order as "X" version and specify HDG.

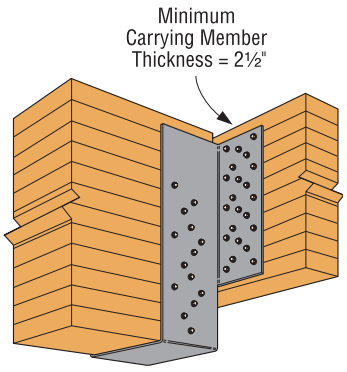
INSTALLATION: • Use all specified fasteners. See General Notes.
- Install with Simpson Strong-Tie SDS ¼"x2½" screws, which are provided with the GUs. *(Note: lag screws will not achieve the same loads.)*
- All multiple members must be fastened together to act as a single unit.
- Multiple member headers may require additional fasteners at the hanger locations. The quantity and location of the additional fasteners must be determined by the Designer.
- For installation to concrete or masonry walls, see LGUM and HGUM hangers page 162.

OPTIONS:
- Other seat widths available. Order as "X" version, specify width.
- See Hanger Options, pages 216-217, for one flange concealed option. MGU with W 4" or less and HGU with W 4$^{11}/_{16}$" or less cannot be concealed.
- LGU, MGU and HGU hangers may be skewed up to 45°. See page 224.

CODES: See page 13 for Code Reference Key Chart.



HHGU
(LGU, MGU, HGU similar)



Typical HHGU Installation

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.

Don't feel like sifting through this table?
Visit ***www.strongtie.com/software*** to learn more about our new Joist Hanger Selector software.

Actual Carried Beam Width	Model No.	Ga	Dimensions W	Dimensions H² (min)	Dimensions B	Dimensions h_a³	Dimensions a	Fasteners Face	Fasteners Joist	Allowable Loads DF/SP Uplift¹ (160)	Allowable Loads DF/SP Download (100/115/125)	Allowable Loads SPF/HF Uplift¹ (160)	Allowable Loads SPF/HF Download (100/115/125)	Code Ref.
3⅛	LGU3.25-SDS	10	3¼	8	4½	7⅜	3¼	16-SDS ¼"x2½"	12-SDS ¼"x2½"	5555	6720	4000	4840	I9, L12, F23
3½	LGU3.63-SDS	10	3⅝	8	4½	7⅜	3¼	16-SDS ¼"x2½"	12-SDS ¼"x2½"	5555	6720	4000	4840	
	MGU3.63-SDS	10	3⅝	9¼	4½	8⅝	4	24-SDS ¼"x2½"	16-SDS ¼"x2½"	7260	9450	5225	6805	
	HGU3.63-SDS	7	3⅝	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	I9, L12
5⅛	LGU5.25-SDS	10	5¼	8	4½	7⅜	3¼	16-SDS ¼"x2½"	12-SDS ¼"x2½"	5555	6720	4000	4840	I9, L12, F23
	MGU5.25-SDS	10	5¼	9¼	4½	8⅝	4	24-SDS ¼"x2½"	16-SDS ¼"x2½"	7260	9450	5225	6805	
	HGU5.25-SDS	7	5¼	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	
5¼	MGU5.50-SDS	10	5½	9¼	4½	8⅝	4	24-SDS ¼"x2½"	16-SDS ¼"x2½"	7260	9450	5225	6805	
	HGU5.50-SDS	7	5½	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	
	HHGU5.50-SDS	3	5½	13	5¼	12⅜	4¾	44-SDS ¼"x2½"	28-SDS ¼"x2½"	14550	17845	10475	12850	
5½	MGU5.62-SDS	10	5⅝	9¼	4½	8⅝	4	24-SDS ¼"x2½"	16-SDS ¼"x2½"	7260	9450	5225	6805	I9, L12
	HGU5.62-SDS	7	5⅝	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	
	HHGU5.62-SDS	3	5⅝	13	5¼	12⅜	4¾	44-SDS ¼"x2½"	28-SDS ¼"x2½"	14550	17845	10475	12850	
6¾	MGU7.00-SDS	10	7	9¼	4½	8⅝	4	24-SDS ¼"x2½"	16-SDS ¼"x2½"	7260	9450	5225	6805	I9, L12, F23
	HGU7.00-SDS	7	7	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	
	HHGU7.00-SDS	3	7	13	5¼	12⅜	4¾	44-SDS ¼"x2½"	28-SDS ¼"x2½"	14550	17845	10475	12850	
8¾	HGU9.00-SDS	7	9	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	
	HHGU9.00-SDS	3	9	13	5¼	12⅜	4¾	44-SDS ¼"x2½"	28-SDS ¼"x2½"	14550	17845	10475	12850	
10¾	HHGU11.00-SDS	3	11	13	5¼	12⅜	4¾	44-SDS ¼"x2½"	28-SDS ¼"x2½"	14550	18480⁴	10475	13305⁴	170

1. Uplift loads have been increased for wind or earthquake loading with no further increase allowed.
2. Specify H dimension. Maximum H = 30".
3. Header height must be at least as tall as the flange height (h_a).
4. Where noted, allowable loads may be increased for duration of load up to 20455 lbs. for DF/SP and 14725 lbs. for SPF/HF.

TOP FLANGE HANGERS HHB/GB/HGB *Beam & Purlin Hangers*

See table on page 95. See Hanger Options on pages 216-217 for hanger modifications, which may result in reduced loads.

This series of beam and purlin hangers may be used for wood to wood or wood to steel applications. Precision forming provides dimensional accuracy and helps ensure proper bearing area and connection.

MATERIAL: See table on page 95

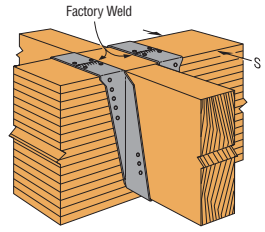
FINISH: HHB, GB, HGB, all saddle hangers and all welded sloped and special hangers—Simpson Strong-Tie® gray paint. May be ordered hot-dip galvanized; specify HDG.

INSTALLATION: • Use specified fasteners. See General Notes.

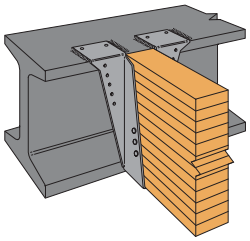
- HHB, GB and HGB may be used for weld-on applications. The minimum required weld to the top flanges is 3⁄16" x 2" fillet weld to each side of each top flange tab. Distribute the weld equally on both top flanges. Welding cancels the top and face nailing requirements. Consult the code for special considerations when welding galvanized steel. The area should be well-ventilated. See page 17 for weld information. Weld on applications produce the maximum allowable load listed. Uplift loads do not apply to welded applications.
- Ledgers must be evaluated for each application separately. Check TF dimension, nail length and nail location on ledger.

OPTIONS: • HHB–other widths are available; specify W dimension *(the minimum W dimension is 2½")*.

- Saddle hangers are made to order; add "D" to model *(e.g. HHBD3)*; specify S *(for saddle)* dimension. They may be used for most conditions except at end wall locations, and are preferred for nailer applications.
- The coating on special B hangers will depend on the manufacturing process used. Check with your Simpson Strong-Tie representative for details. Hot-dip galvanized available: specify HDG.
- B dimensions may be increased on some models.
- See Hanger Options, pages 215-224.



Typical HHB, GB and HGB Saddle Installation



HHB, GB and HGB are acceptable for weld-on applications. See Installation Information.

TOP FLANGE HANGERS WM/WMU/WP/WPU/HW/HWU

The WPU, HWU and HW series purlin hangers offer the greatest design flexibility and versatility.

MATERIAL: WP/WPU—7 ga. top flange, 12 ga. stirrup; HW—3 ga. top flange, 11 ga. stirrup; HWU—3 ga. top flange, 10 ga. stirrup

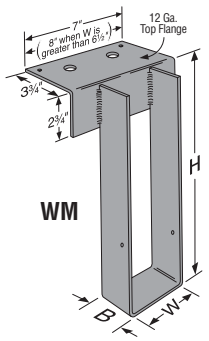
FINISH: Simpson Strong-Tie gray paint; hot-dip galvanized available: specify HDG.

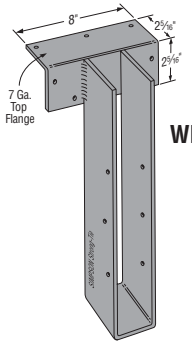
INSTALLATION: • Hangers may be welded to steel headers with 3⁄16" for WPU/WP, and ¼" for HW/HWU, by 1½" fillet welds located at each end of the top flange. Weld-on applications produce maximum allowable load listed. See page 17 for weld information. For uplift loads refer to technical bulletin T-WELDUPLFT *(see page 232 for details)*.

- Hangers can support multi-ply carried members; the individual members must be secured together to work as a single unit before installation into the hanger.
- **MID-WALL INSTALLATION:** Installed between blocks with duplex nails cast into grout with a minimum of one grouted course above and below the top flange and one #5 vertical rebar minimum 24" long in each adjacent cell.
- **TOP OF WALL INSTALLATION:** Install on top of wall to a grouted beam with masonry screws.

OPTIONS: See Hanger Options, pages 216-217, for hanger modifications and associated load reductions.

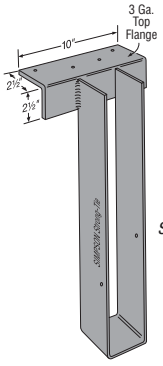
CODES: See page 13 for Code Reference Key Chart.

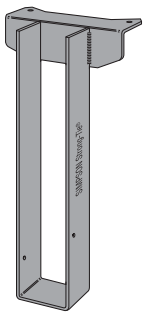




Model	Nailer	Top Flange Nailing	Allowable Loads			
			Uplift (160)	DF/SP	SPF/HF	LSL
WP	2x	2-10dx1½	—	2525	2500	3375
	2-2x	2-10d	—	3255	3255	—
	3x	2-16dx2½	—	3000	2510	3375
	4x	2-10d	—	3255	3255	—
WPU	2-2x	7-10d	700	3255	—	—
	3x	7-16dx2½	970	3000	—	—
	4x	4-16d	1095	3255	—	—
HW	2-2x	4-10d	—	4845	—	—
	3x	4-16dx2½	—	4860	—	—
	4x	4-16d	—	5285	—	—
HWU	2-2x	8-16dx2½	710	5430	—	—
	3x	8-16dx2½	970	5430	—	—
	4x	8-16d	1160	5430	—	—

Some model configurations may differ from those shown. Contact Simpson Strong-Tie for details.





NAILER TABLE

The table indicates the maximum allowable loads for WP, WPU, HW or HWU hanger used on wood nailers. Nailers are wood members attached to the top of a steel I-beam, concrete or masonry wall.

1. Uplift value for the HWU hanger is for depth ≤ 18". Refer to uplift values in table below for taller depths.
2. Attachment of nailer to supporting member is the responsibility of the Designer. See page 25 for TB screws attachment option.

Model	Joist		Fasteners			Allowable Loads Header Type								Code Ref.
	Width	Depth	Top	Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	I-Joist	Masonry[3]	
WM	1½ to 7½	3½ to 30	2-16d DPLX	—	2-10dx1½	—	MID-WALL INSTALLATIONS						4175	IL12, L16
	1½ to 7½	3½ to 30	2-¼x1¾ Titens	—	2-10dx1½	—	TOP OF WALL INSTALLATIONS						3380	
WMU	1½ to 7½	9 to 28	2-16d DPLX	4-¼x1¾ Titens	6-10dx1½	625	MID-WALL INSTALLATIONS						4175	170
	1½ to 7½	9 to 28	2-¼x1¾ Titens	4-¼x1¾ Titens	6-10dx1½	545	TOP OF WALL INSTALLATIONS						3380	
WP	1½ to 7½	3½ to 30	3-10dx1½	—	2-10dx1½	—	2865	3250	—	2500	2000	2030	—	F18
	1½ to 7½	3½ to 30	3-10d	—	2-10dx1½	—	2525	3250	3650	3255	2525	—	—	
	1½ to 7½	3½ to 30	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	—	—	
WPU	1¾ to 5½	7¼ to 18	3-16d	4-16d	6-10dx1½	1095	4700	4880	3650	4165	4165	—	—	I19, F18, L14
	1¾ to 5½	18½ to 28	3-16d	4-16d	6-10dx1½	390	4700	4880	3650	4165	4165	—	—	
HW	1½ to 7½	3½ to 32	4-10d	—	2-10dx1½	—	3100	4000	—	5285	3100	—	—	I10, I19, F9, F18, L11, L14
	1½ to 7½	3½ to 32	4-16d	—	2-10dx1½	—	5100	4000	4500	5285	3665	—	—	
HWU	1¾ to 3½	9 to 18	4-16d	4-16d	6-10dx1½	1160	6335	5500	5535	6335	5415	—	—	I19, F18, L14
	1¾ to 3½	18½ to 28	4-16d	4-16d	6-10dx1½	965	6335	5500	5535	6335	5415	—	—	
	1¾ to 3½	28½ to 32	4-16d	4-16d	8-10dx1½	985	6335	5500	5535	6335	5415	—	—	
	4½ to 7	9 to 18	4-16d	4-16d	6-10dx1½	1160	6000	5500	5535	6000	5415	—	—	
	4½ to 7	18½ to 28	4-16d	4-16d	6-10dx1½	965	6000	5500	5535	6000	5415	—	—	
	4½ to 7	28½ to 32	4-16d	4-16d	8-10dx1½	985	6000	5500	5535	6000	5415	—	—	

1. 16d sinkers (0.148" dia.x 3¼" long) may be used where 10d commons are called out with no load reduction.
2. Uplift loads are based on DF/SP lumber and have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
3. Minimum f'_m = 1500 psi. See Installation Notes on page 159.
4. For hanger heights exceeding the joist height, the allowable load is 0.50 of the table load.
5. **NAILS:** 16d = 0.162" dia.x 3½" long, 10d = 0.148" dia.x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

TOP FLANGE HANGERS GLS/HGLS/GLT/HGLT *Beam & Glulam Saddle Hangers*

See table on page 95. See Hanger Options on pages 216-217 for hanger modifications, which may result in reduced loads.

GLT and HGLT accommodate typical structural requirements for timber and glulam beams. GLT top flange depth allows installation on minimum 4x ledger *(3½" net)*. Not acceptable for nailer applications. Funnel Flanges® allow easy installation of beams.

GLS and HGLS are heavy glulam saddle hangers.

MATERIAL: All welded GL series glulam hangers have a 3 gauge top flange. See page 95 for stirrup gauge.

FINISH: Simpson Strong-Tie® gray paint. Hot-dip galvanized available; specify HDG.

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

GLT/HGLT:

- All GLTs used with sawn timbers have a 12" L dimension.
- Fasteners are included.
- GLT may be attached to steel headers by 3/16" x 2½" fillet welds at each end of the header angle to obtain the tabulated loads. HGLT may be attached to steel headers by ¼" x 2½" fillet welds at each end of the header angle to obtain the lesser of the tabulated loads or 12,000 lbs. For uplift loads refer to technical bulletin T-WELDUPLFT *(see page 232 for details)*. See page 17 for weld information.
- Not for use with SCL or LVL headers. See GLTV, HGLTV.

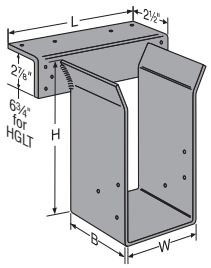
GLS/HGLS:

- N54A nails are included with the hangers.
- Loads listed are per stirrup.

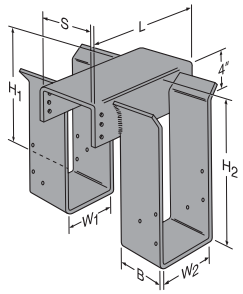
TO ORDER: • GLS/HGLS—Specify H_1, H_2, and S dimensions *(see illustration)*.

- Some engineered wood sizes are also available.

OPTIONS: See Hanger Options pages 215-224.

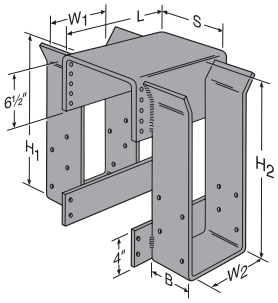


GLT
(HGLT similar)
(fasteners included)



GLS
(fasteners included)

Model	Top Flange Ga	Stirrup Width (W)	Top Flange Length (L)
GLT	3	2⅝ - 5½	10
		5⁹⁄₁₆ - 6⅞	12
HGLT	3	2⅝ - 8¼	12
		8⅞	14
GLS	3	3¼	9
		5¼	9
		6⅞	12
HGLS	3	5¼ - 8⅞	12



HGLS
(fasteners included)

TOP FLANGE HANGERS LEG/MEG/EG *Beam & Glulam Hangers*

See Hanger Options on page 216-217 for hanger modifications, which may result in reduced loads.

Designed to support large members typically found in glulam beam construction.

MATERIAL: See table

FINISH: Simpson Strong-Tie gray paint. Hot-dip galvanized available; specify HDG.

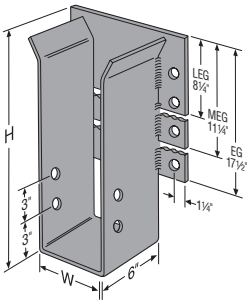
INSTALLATION: • Use all specified fasteners. See General Notes.

- Maintain minimum 4D end distance and edge distance from bolt to end of header and nearest loaded edge per NDS requirements.

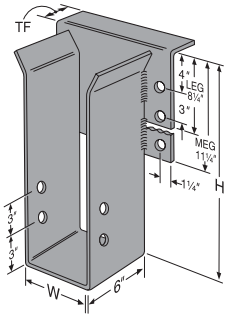
OPTIONS: • See Hanger Options, pages 215-224.

- Models available without top flanges; see table loads.

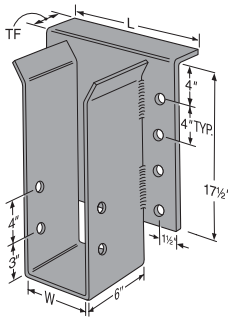
CODES: See page 13 for Code Reference Key Chart.



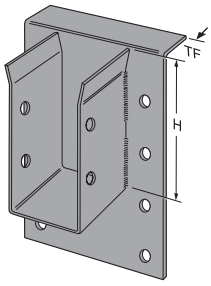
LEG/MEG/EG without Top Flange
(see options)



LEG and MEG



EG



EG with "H" dimension less than the face plate height. The EG's back plate is always 17½", regardless of the stirrup height.

Joist or Purlin Size	Model No.	Stirrup Ga	Dimensions W	Dimensions Min³ H	Dimensions TF	Min. Header Depth	Bolts Header Qty	Bolts Header Dia	Bolts Joist Qty	Bolts Joist Dia	Allowable Loads Without Top Flange Floor (100)	Allowable Loads Without Top Flange Roof (125)	Allowable Loads Top Flange No Triangle Theory Floor (100)	Allowable Loads Top Flange No Triangle Theory Roof (125)	Allowable Loads Top Flange Triangle Theory Floor (100)	Allowable Loads Top Flange Triangle Theory Roof (125)	Code Ref.
3⅛ LAM	LEG3	7	3¼	9	2½	10	4	¾	2	¾	3465	4330	12675	13215	13040	13865	I19, F18, L14
5⅛ LAM	LEG5	7	5¼	9	2½	10	4	¾	2	¾	3465	4330	16290	16290	13040	13865	
	MEG5	7	5¼	9	2½	13	6	¾	2	¾	5170	6460	19710	19710	14835	16860	
	EG5	7	5¼	11	2½	20	8	1	2	1	8870	11085	20895	21815	17885	19865	
6¾ LAM	LEG7	7	6⅞	9	2½	10	4	¾	2	¾	3465	4330	16290	16290	13040	13865	
	MEG7	7	6⅞	9	2½	13	6	¾	2	¾	5170	6460	19710	19710	14885	16060	
	EG7	7	6⅞	11	2½	20	8	1	2	1	8870	11085	25320	25835	19290	21275	
8¾ LAM	EG9	7	8⅞	11	2½	20	8	1	2	1	8870	11085	25320	25835	20080	22875	

Model	Top Flange Ga	Top Flange Length (L)
LEG/MEG	7	12
EG5	3	11¾
EG7		13½
EG9		15½

1. Roof loads are 125% of floor loads unless limited by other criteria.
2. Allowable loads assume a carrying member width of 5½".
3. Specify H dimension.
4. Triangle Theory: Some code jurisdictions allow only half of the top flange bearing area to be considered when performing a top flange hanger calculation as there is non-uniform stress under the top flange *(presumed to be a triangular shaped distribution)*. Therefore, loads are published above using the calculated "Triangle Theory". Loads are also published in the "No Triangle Theory" columns which are based on calculations assuming full bearing on the top flange which do not exceed the tested value with a reduction factor of 3.

TOP FLANGE HANGERS – GLULAM BEAM

SIMPSON Strong-Tie®

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.

Joist or Purlin Size	Model No.	Ga	Dimensions				Fasteners		Allowable Loads				Code Ref.
			W	H	B	TF	Header	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	
3⅛ LAM	GLT3	7	3¼	7½ MIN	5	2½	10-N54A	6-N54A	1865	8165	8165	8165	I19, F18, L14
	HGLT3	7	3¼	7½ MIN	6	2½	18-N54A	6-N54A	1865	12265	12685	12750	
	GLS3-5[8]	7	3¼	8½ MIN	5	5¼	6-N54A	6-N54A	1865	11555	11695	11785	
	GLS3-7[8]	7	3¼	8½ MIN	5	6⅞	6-N54A	6-N54A	1865	11555	11695	11785	
	GLS3-9[8]	7	3¼	8½ MIN	5	8⅜	6-N54A	6-N54A	1865	11555	11695	11785	
	HW3.25	11	3¼	5 MIN	4	2½	4-10d	2-10d	—	5285	5285	5285	I10, F9, L11
	HHB3	7	3¼	7½ MIN	3	2½	10-N54A	6-N54A	1950	6085	6225	6235	I19, F18, L14
	GB3	7	3¼	7½ MIN	3½	2½	14-N54A	6-N54A	1950	7795	8030	8185	
	HU3.25/12TF	12	3¼	12	2½	2½	16-16d	6-10d	1125	4310	4335	4335	170
	HU3.25/16.5TF	12	3¼	16½	2½	2½	20-16d	8-10d	1500	4860	5275	5545	
3½ LAM	GLT4	7	3⁹⁄₁₆	7½ MIN	5	2⅞	10-N54A	6-N54A	1865	8165	8165	8165	I19, F18, L14
	HGLT4	7	3⁹⁄₁₆	7½ MIN	6	2⅞	18-N54A	6-N54A	1865	12265	12685	12750	
5⅛ LAM	GLT5	7	5¼	7½ MIN	5	2½	10-N54A	6-N54A	1865	8165	8165	8165	
	HGLT5	7	5¼	7½ MIN	6	2½	18-N54A	6-N54A	1865	12265	12685	12750	
	GLS5-5[8]	7	5¼	8½ MIN	5	5¼	6-N54A	6-N54A	1865	14685	14685	14685	
	GLS5-7[8]	7	5¼	8½ MIN	5	6⅞	6-N54A	6-N54A	1865	14685	14685	14685	
	HGLS5[8]	7	5¼	10½ MIN	6	SPEC	14-N54A	8-N54A	2500	16835	16835	16835	
	HW5.25	11	5¼	5 MIN	2½	2½	4-10d	2-10d	—	5285	5285	5285	I10, F9, L11
	HHB5	7	5¼	7½ MIN	3	2½	10-N54A	6-N54A	1950	6085	6225	6235	I19, F18, L14
	GB5	7	5¼	7½ MIN	3½	2½	14-N54A	6-N54A	1950	7795	8030	8185	
	HGB5	7	5¼	7½ MIN	4	2½	14-N54A	6-N54A	1950	8580	8815	8970	
	HU5.25/12TF	12	5¼	12	2½	2½	16-16d	6-16d	1325	4310	4335	4335	170
	HU5.25/16.5TF	12	5¼	16½	2½	2½	20-16d	8-16d	1765	4860	5275	5550	
5½ LAM	GLT6	7	5⁹⁄₁₆	7½ MIN	5	2⅞	10-N54A	6-N54A	1865	8165	8165	8165	I19, F18, L14
	HGLT6	7	5⁹⁄₁₆	7½ MIN	6	2⅞	18-N54A	6-N54A	1865	12265	12685	12750	
6¾ LAM	HHB7	7	6⅞	7½ MIN	3	2½	10-N54A	6-N54A	1950	6085	6225	6235	
	GB7	7	6⅞	7½ MIN	3½	2½	14-N54A	6-N54A	1950	7795	8030	8185	
	HGB7	7	6⅞	7½ MIN	4	2½	14-N54A	6-N54A	1950	8580	8815	8970	
	GLT7	7	6⅞	7½ MIN	5	2½	10-N54A	6-N54A	1865	8165	8165	8165	
	HGLT7	7	6⅞	7½ MIN	6	2½	18-N54A	6-N54A	1865	12265	12685	12750	
	GLS7-7[8]	7	6⅞	8½ MIN	5	6⅞	6-N54A	6-N54A	1865	14685	14685	14685	
	GLS7-9[8]	7	6⅞	8½ MIN	5	8⅜	6-N54A	6-N54A	1865	14685	14685	14685	
	HGLS7[8]	7	6⅞	10½ MIN	6	SPEC	14-N54A	8-N54A	2500	16835	16835	16835	
7 LAM	HGLT7.12	7	7⅛	7½ MIN	6	2⅞	18-N54A	6-N54A	1865	12265	12685	12750	I19
8¾ LAM	HGLT9	7	8⅞	7½ MIN	6	2½	18-N54A	6-N54A	1865	12750	12750	12750	I19, F18, L14
	HGLS9[8]	7	8⅞	10½ MIN	6	SPEC	14-N54A	8-N54A	2500	16835	16835	16835	

1. N54A fasteners are supplied with hangers.
2. Uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
3. GLT, HGLT, GLS, HGLS uplift loads only apply when "H" is 28" or less.
4. Allowable loads for glulam sizes are based on 650 psi wood bearing.
5. "Min H" is the minimum H dimension that may be specified. For GLT, HGLT, GLS, HGLS hanger heights that exceed the joist height, allowable load is 0.50 of the table load.
6. Allowable loads assume GLS and HGLS loads are distributed evenly on each side of the header with loads shown for each stirrup. When the load is not evenly distributed or stirrups are different sizes, use the equivalent single-sided top flange hanger allowable load for each side. *(e.g., for uneven load distribution on a GLS3-5, use the GLT3 allowable loads for each side.)*
7. GLS, HGLS fasteners listed are for one side only. Fasteners supplied are for both sides of the saddle.
8. SPEC: Specify the header dimensions for the saddle hangers. *("S" dimension is illustrated on pages 94-95.)*
9. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, N54A = 0.250" dia. x 2½" long - annular ring. See page 22-23 for other nail sizes and information.

CODES: See page 13 for Code Reference Key Chart.

GLB/HGLB/GLBT *Beam Seats*

The GLB Series provides a connection between beam and concrete or CMU pilaster.

FINISH: Simpson Strong-Tie® gray paint. Hot-dip galvanized available. Specify HDG.

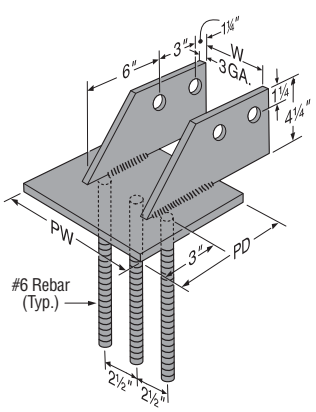
INSTALLATION:

- Use all specified fasteners. See General Notes.
- Bolt holes in wood shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt diameter *(per the 2005 NDS, section 11.1.2)*.
- Check the rebar spacing requirements on all installations.

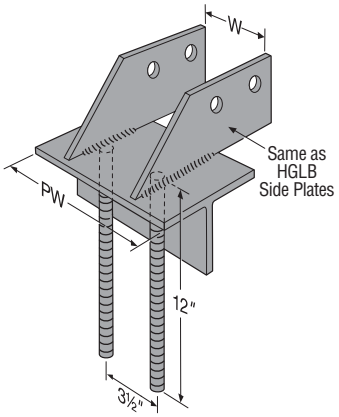
OPTIONS:

- Beam seats for sawn timber and other sizes may be ordered by specifying special dimensions; use the letter designations shown on the illustrations.
- Specify if two-bolt GLB model is desired; see illustration.

CODES: See page 13 for Code Reference Key Chart.



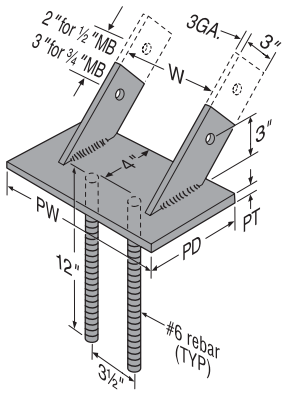
HGLB



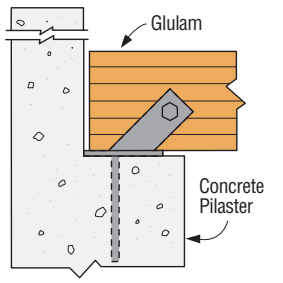
GLBT

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.

Model No.	Dimensions				Bolts	Allowable Bearing Loads (lbs.)[1,2]		Code Ref.
	W	PD	PW	PT		Masonry @ 375 psi	Wood f'c-perp	
GLB5A	5¼	5	7	3 ga	1 - ½	13125	16655	I20, L10, L16, F19
GLB5B	5¼	6	7	⅜	1 - ½	15750	19990	
GLB5C	5¼	7	7	⅜	1 - ½	18375	23320	
GLB5D	5¼	8	7	⅜	1 - ½	21000	26650	
GLB7A	6⅞	5	9	3 ga	1 - ¾	16875	21940	
GLB7B	6⅞	6	9	⅜	1 - ¾	20250	26325	
GLB7C	6⅞	7	9	⅜	1 - ¾	23625	30715	
GLB7D	6⅞	8	9	⅜	1 - ¾	27000	35100	



GLB



Typical GLB Installation

1. Allowable bearing stress for masonry is based on an f'm of 1500 psi using the IBC (ACI 530 2.1.9.3) Allowable Stress Design. Wood bearing is based on f'c-perp of 650 psi.
2. When installed on masonry, use the lesser of the masonry or the wood allowable load values. When installed on concrete, a minimum f'c = 2500 psi shall be used and use the wood values as the limiting allowable bearing load values.
3. Allowable horizontal loads are bolt values and include increase for wind or earthquake loading. Loads must be reduced if stresses in masonry or concrete are limiting.
4. Beams must fully bear on base plate.
5. The GLBT5 has a WT4x9 structural tee; the GLBT6 has a WT4x12 structural tee.
6. Specify "W" dimension when ordering.
7. Uplift loads do not apply for this connector.

Model No.	Dimensions (in.)				Bolts (Qty.-Dia.)	Allowable Bearing Loads (lbs.)[1,2]						Allowable Horizontal Bolt Loads[3,4] (lbs.)	Code Ref.
	Width for Beam (W)	Bearing Plate				Masonry Bearing @ 375 psi	Wood Bearing @ 650 psi on Glulam Width						
		Depth PD	Width PW	Thickness PT			Glulam Beam Width (in.)						
							3⅛	5⅛	6¾	8¾	10¾		
HGLBA	3¼ to 9	5	10	⅜	2 - ¾	18750	10155	16655	21940	28440	—	8260	I20, L10, L16, F19
HGLBB		6	10	⅜	2 - ¾	22500	12190	19990	26325	34125	—	8260	
HGLBC		7	10	⅜	2 - ¾	26250	14220	23320	30715	39815	—	8260	
HGLBD		8	10	⅜	2 - ¾	30000	16250	26650	35100	45500	—	8260	
GLBT512	3¼ to 11	5¼	12	5/16	2 - ¾	23625	10665	17490	23035	29860	36685	8260	
GLBT612		6½	12	⅜	2 - ¾	29250	13205	21655	28520	36970	45420	8260	
GLBT516	3¼ to 15	5¼	16	5/16	2 - ¾	31500	10665	17490	23035	29860	36685	8260	
GLBT616		6½	16	⅜	2 - ¾	39000	13205	21655	28520	36970	45420	8260	
GLBT520	3¼ to 19	5¼	20	5/16	2 - ¾	39375	10665	17490	23035	29860	36685	8260	
GLBT620		6½	20	⅜	2 - ¾	48750	13205	21655	28520	36970	45420	8260	

1. Allowable bearing stress for masonry is based on an f'm of 1500 psi using the IBC (ACI 530 2.1.9.3) Allowable Stress Design. Wood bearing is based on f'c-perp of 650 psi.
2. When installed on masonry, use the lesser of the masonry or the wood allowable load values. When installed on concrete, a minimum f'c = 2500 psi shall be used and use the wood values as the limiting allowable bearing load values.
3. Allowable horizontal loads are bolt values and include increase for wind or earthquake loading. Loads must be reduced if stresses in masonry or concrete are limiting.
4. Beams must fully bear on base plate.
5. The GLBT5 has a WT4x9 structural tee; the GLBT6 has a WT4x12 structural tee.
6. Specify "W" dimension when ordering.
7. Uplift loads do not apply for this connector.

HCA *Hinge Connectors*

SIMPSON Strong-Tie®

Hinge connectors are designed to transfer loads between two beams aligned end-to-end through a combination of bearing plates, side plates and bolts. In addition to supporting vertical loads, hinge connectors can also be specified with additional slotted bolt holes to resist horizontal loads as part of a continuous load path.

MATERIAL: Side plates—7 gauge; Top and bottom plates—see PT dimensions in table.

FINISH: Simpson Strong-Tie® gray paint

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

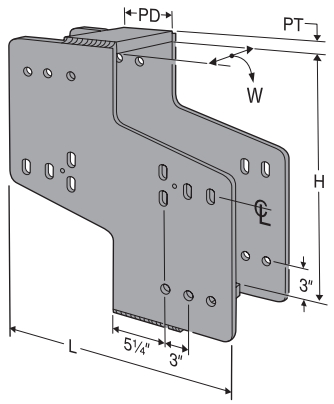
- Bolt holes shall be a minimum of 1/32" and a maximum of 1/16" larger than the bolt diameter *(per 2012 NDS 11.1.2.2)*.
- The model size *(suffix)* column in the Allowable Download Table gives the basic HCA model with two rotation bolts.
- Contact Simpson Strong-Tie for heights greater than 60".
- Position 3/4" dia. machine bolts in slots away from bearing seat to allow for wood shrinkage.

OPTIONS: The Horizontal Load Table gives other bolt options.

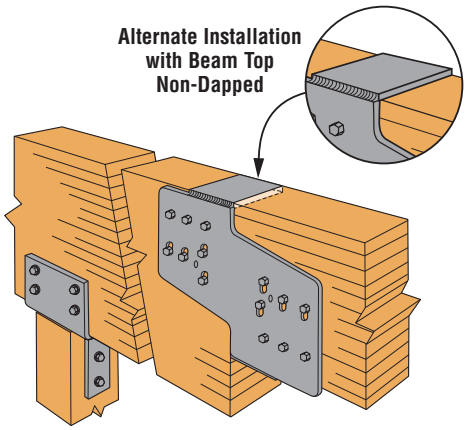
ORDERING: • To order, add the width and bearing plate size designation after the model name. Specify the H dimension. For dapped beams, reduce the H dimension by the PT dimension for each dap.

- Specify Model No., Model Size, and height H. Ordering Example: HC4C3TA5-6 H = 18".

CODES: See page 13 for Code Reference Key Chart.
Refer to technical bulletin T-HCAGUIDE for specification examples and additional information.



HC4C3TA



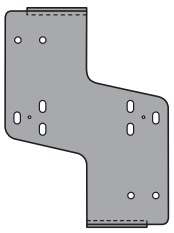
Model No. (Prefix)	L	H[3] Min	H Max	Rotation Bolts Per Beam	Slotted Tension Bolts	Allowable Horizontal Loads[2,3] (160)
HCA	19½	8	60	2	—	—
HC2CTA	19½	14	60	2	2	9920
HCCTA	19½	14	60	2	3	14850
HC4CTA	25½	14	60	2	4	19720
HC3A	25½	8	60	3	—	—
HCC3TA	25½	14	60	3	3	14850
HC4C3TA	25½	14	60	3	4	19720

1. Loads have been increased for wind or earthquake loading with no further increase allowed.
2. Horizontal loads are for Doug Fir-larch glulams minimum W = 3⅛". For other wood types, adjust the load according to the code.
3. H MIN is the absolute minimum height. Reduce downloads according to footnote 1 in the Allowable Download Table.

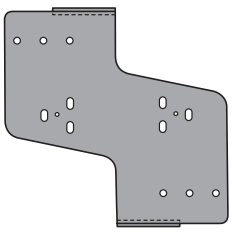
Allowable Download Table

Model Size (Suffix)	Dimensions (in.) Beam Width	W	PT	PD	Bolt Dia. (in.)	Two Rotation Bolts Per Beam H_1	H_1 Allowable Roof Loads	Min H	Min H Allowable Roof Loads	Three Rotation Bolts Per Beam H_1	H_1 Allowable Roof Loads	Min H	Min H Allowable Roof Loads	Code Ref.
3-5	3⅛	3¼	¾	5	¾	12	8750	8	3070	10	8750	8	4465	170
3-6	3⅛	3¼	¾	6	¾	15	10500	12	7100	12	10500	10	7120	
3-7	3⅛	3¼	¾	7	¾	18	12250	15	9240	14	12250	12	9235	
5-5	5⅛	5¼	¾	5	¾	16	14350	8	3100	13	14350	8	4560	I15, L7
5-6	5⅛	5¼	¾	6	¾	20	17220	16	12345	16	17220	13	12195	
5-7	5⅛	5¼	¾	7	¾	25	20090	20	14835	19	20090	16	15505	
5-9	5⅛	5¼	¾	9	¾	36	25830	25	16365	27	25830	19	16030	
5.62-5	5½	5⅝	¾	5	¾	18	17190	8	3100	14	17190	8	4640	
5.62-7	5½	5⅝	¾	7	¾	28	24065	19	14495	21	24065	15	15020	
7-5	6¾	6⅞	1	5	¾	19	18900	8	3100	15	18900	8	4605	
7-6	6¾	6⅞	1	6	¾	24	22680	19	16405	18	22680	15	17035	
7-7	6¾	6⅞	1	7	¾	30	26460	24	19850	22	26460	18	19845	
7-9	6¾	6⅞	1	9	¾	40	29615	30	20905	33	34020	22	20190	
9-5	8¾	8⅞	1¼	5	¾	22	24500	8	3100	17	24500	8	4605	
9-6	8¾	8⅞	1¼	6	¾	29	29400	22	20465	22	29400	17	20275	
9-7	8¾	8⅞	1¼	7	¾	37	34300	29	25455	27	34300	22	26145	
9-9	8¾	8⅞	1¼	9	¾	40	29615	37	27000	40	43975	27	27160	
11-5	10¾	10⅞	1½	5	¾	26	30100	8	3100	20	30100	8	4605	
11-6	10¾	10⅞	1½	6	¾	34	36120	26	25805	25	36120	20	26630	
11-7	10¾	10⅞	1½	7	¾	40	37925	34	31230	32	42140	25	30815	
11-9	10¾	10⅞	1½	9	¾	40	29615	40	29615	40	43975	32	33630	
3.62-5	3½	3⅝	¾	5	¾	15	13125	8	3100	12	13125	8	4625	170
3.62-9	3½	3⅝	¾	9	¾	34	23625	16	8710	25	23625	13	9125	
5.37-5	5¼	5⅜	1	5	¾	19	19690	8	3100	15	19690	8	4640	
5.37-9	5¼	5⅜	1	9	¾	40	29605	20	12190	34	35440	16	13040	
7.12-5	7	7⅛	1¼	5	¾	23	26250	8	3100	18	26250	8	4635	
7.12-9	7	7⅛	1¼	9	¾	40	29600	24	15670	40	44330	19	16950	

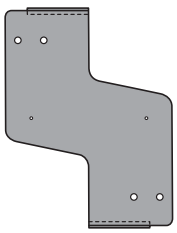
1. Allowable loads have been increased for roof live loads with no further increase allowed. Reduce where other loads govern.
2. Loads are based on 560 psi perpendicular to grain bearing stress.
3. H_1 is the minimum dimension required to achieve full load for the hinge connector. For H dimensions between H_1 and Minimum H, loads may be linearly interpolated.
4. See Horizontal Load Table for models available with three rotation bolts.
5. Other widths are available for structural composite lumber. Contact Simpson Strong-Tie for more information.
6. Beams must be the same width for both members in the connection.



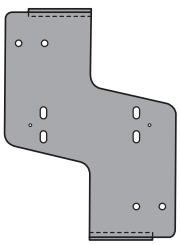
HCCTA



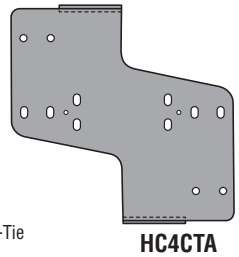
HCC3TA



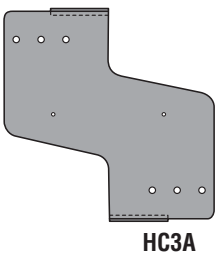
HCA



HC2CTA



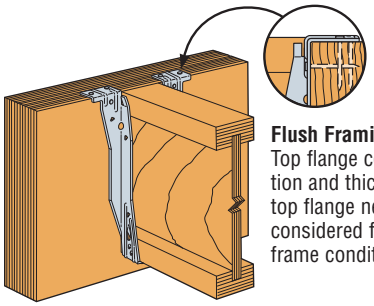
HC4CTA



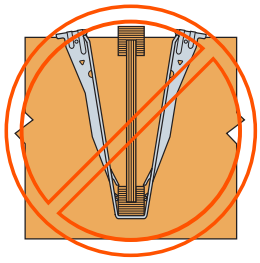
HC3A

GENERAL CONNECTOR INSTALLATION

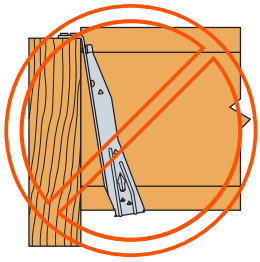
TOP FLANGE HANGERS



Flush Framing
Top flange configuration and thickness of top flange need to be considered for flush frame conditions.



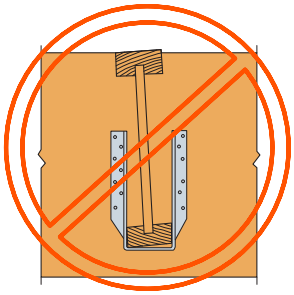
Hanger Over-Spread
If the hanger is over-spread, it can raise the I-joist above the header and may cause uneven surfaces and squeaky floors.



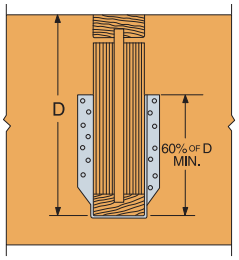
Hanger Not Plumb
A hanger "kicked-out" from the header can cause uneven surfaces and squeaky floors.

PREVENT ROTATION

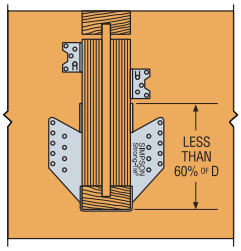
Hangers provide some joist rotation resistance; however, additional lateral restraint may be required for deep joists.



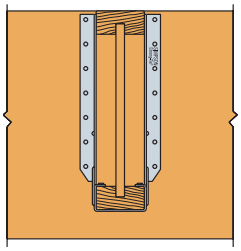
No Rotation Resistance
Lack of web stiffeners combined with short hanger allows unwanted rotation.



Rotation Prevented by Web Stiffeners
Hanger height should be at least 60% of joist height.

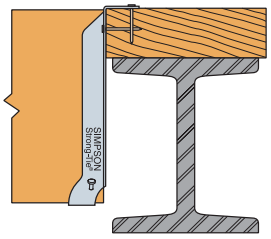


Rotation Prevented by Web Stiffeners
If hanger height is less than 60% of the joist height, add clips or blocking near the top.

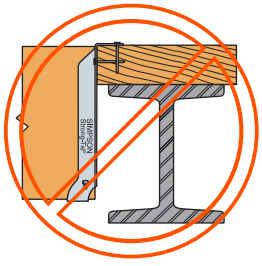


Rotation Prevented by Lateral Flange Support
Side of hanger laterally support the top flange of the I-joist.
No web stiffeners required!

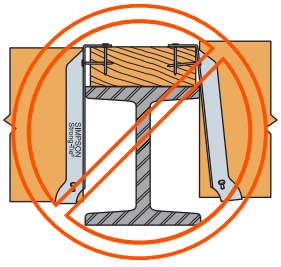
WOOD NAILERS



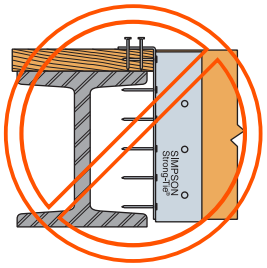
Correct Attachment



Nailer Too Wide
The loading may cause cross-grain bending. As a general rule, the maximum allowable overhang is ¼", depending on nailer thickness.

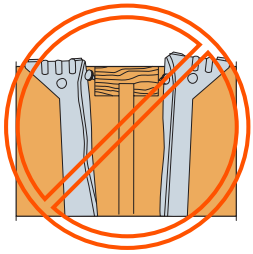


Nailer Too Narrow
Nailer should be full width.



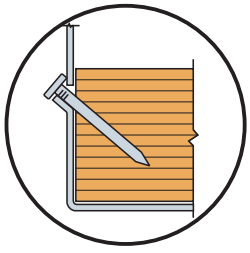
Nailer Too Thin
or the wrong hanger for the application.

TOE-NAILING

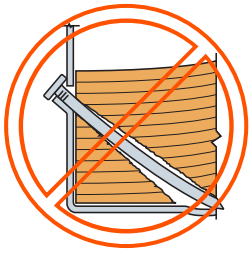


Toe nailing causes squeaks and improper hanger installations. Do not toe nail I-joists before installing top flange or face mount hangers.

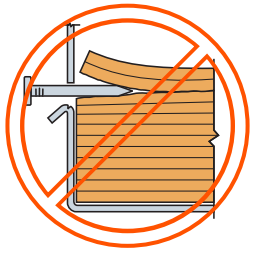
POSITIVE ANGLE NAILING



Correct Nailing
Approx. 45° angle



Nail too long



Nail at wrong angle

GENERAL CONNECTOR INSTALLATION

WOOD I-JOISTS

SLOPED JOISTS

For sloped joists up to ¼:12 there is no reduction. For slopes greater than ¼:12 see individual product pages or refer to technical bulletin T-SLOPEJST *(see page 232 for details)*.

MULTIPLE JOISTS

Multiple joists should be adequately connected together to act as one unit.

FASTENERS

Use the correct nails. Wood may split if the nails are too large. Hanger nails into flanges should not exceed 10d common *(0.148 dia.)*, no longer than 1½". Nails into web stiffeners should not exceed 16d commons *(0.162 dia.)*.

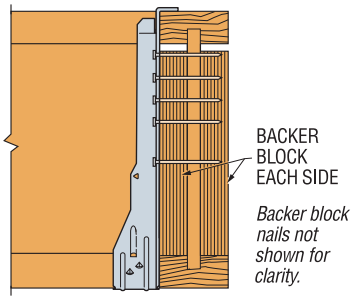
ECCENTRICALLY-LOADED I-JOISTS

Supporting a top flange hanger may require bottom flange restraining straps, blocking or directly-applied ceiling systems to prevent rotation at the hanger location.

SKEWED JOISTS

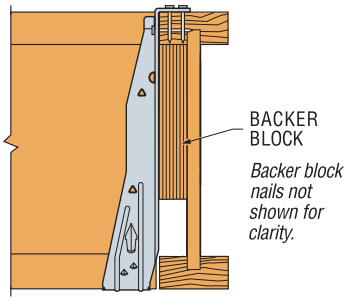
Joists may be skewed up to 2½ degrees in a non-skewed hanger without any load reduction. Refer to individual hanger descriptions for information allowing any further skew applications.

I-JOIST AS A HEADER INSTALLATIONS



Face Mount Hanger

When face mount hangers are attached to I-joist headers, backer blocks must be installed to provide a nailing surface for the hanger nails. The backer blocks should be installed on both sides of the web and attached together with a minimum of 10-10d nails. The hanger nails should extend through the web. Contact the I-Joist manufacturer for additional design considerations.



Top Flange Hanger

When top flange hangers are attached to I-joist headers, a backer block must be installed to prevent the top flange from rotating under load. The backer blocks should be installed with a minimum of 10-10d nails clinched. Check with the joist manufacturer for additional design considerations.

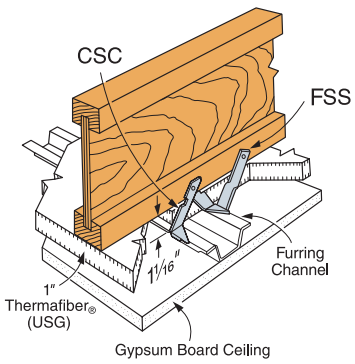
CSC *Ceiling Support Clip* /FSS *Furring Stabilizer Strap*

Provides 1" separation between the furring channel and joist to allow for the use of Thermafiber® insulation and the attachment of the furring channel to all joists. Provides an efficient sound barrier, and a one hour U.L. listed fire rating.

- UL Listed. See Underwriters Laboratory, Inc. Design No. L530 for USG gypsum board and Weyerhaeuser/TJI® joists.
- Check ICC-ES reports for individual I-joist manufacturer approvals.

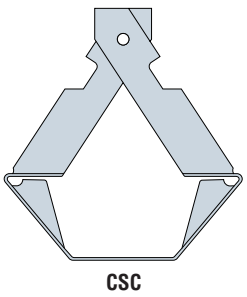
MATERIAL: 24 gauge *(minimum)*
FINISH: Galvanized
INSTALLATION:

- For CSC use 1-8dx1½ nail.
- For FSS use #8 self-tapping steel screw *(not provided)* into channel, twist 90°, bend upward and fasten to the side of joist bottom flange with screw or nail.

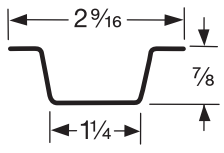


Typical CSC and FSS Installation

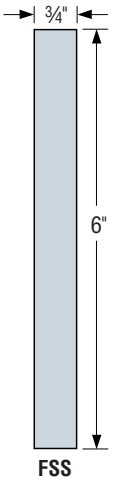
Thermafiber® and TJI® are registered trademarks of US Gypsum Company and Weyerhaeuser, respectively.



CSC



Furring Channel Detail



FSS
(See Installation Notes)

IUS/MIU *I-Joist Hangers*

SIMPSON Strong-Tie®

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 IUS is fully compatible with shallow flange I-joists.

I-joists with flange thicknesses between 1⅛" and 1½" achieve the full allowable table loads including uplift values and joist nails are not required. The IUS is a hybrid hanger that incorporates the advantages of the face mount and top mount hanger. Installation is fast with the Strong-Grip™ seat, easy-to-reach face nails and self-jigging locator tabs.

The MIU series hangers are designed for commercial and high load I-joist applications without requiring web stiffeners. The MIU features Positive Angle Nailing (PAN), which minimizes splitting of the flanges while permitting time-saving nailing from a better angle.

Refer to Joist Manufacturer's literature or appropriate Simpson Strong-Tie® Connector Selection Guide for actual joist sizes.

MATERIAL: See table page 102-104.

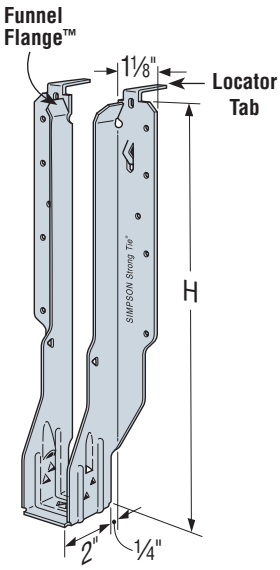
FINISH: Galvanized

UPLIFT LOADS: • Models have optional triangle joist nail holes for additional uplift. Properly attached web stiffeners are required.
- MIU—add four additional 10dx1½" joist nails for a total uplift load of 975 lbs.
- IUS—add web fillers and two 10dx1½" joist nails in the triangle holes for a total uplift of 365 lbs.

INSTALLATION: • Use all specified fasteners. Verify that the header can take the required fasteners specified in the table. See page 98 for more installation information.
- IUS—fasten hanger to header. Position I-joist into hanger and snap into place. No joist nailing required. Some IUS models have triangle and round header nail holes. To achieve Max. download, fill both round and triangle holes.
- IUS—Locator tabs are not structural. They may be bent back to adjust for hanger placement.
- IUS—for rimboard applications see technical bulletin T-RIMBDHGR *(see page 232 for details).*
- IUS— I-joists with web stiffeners or rectangular sections can be used with the installation of 2-10dx1½" nails into the optional triangle joist nails.
- Web stiffeners are not required with I-joists when the joist top flange is laterally supported by the sides of the hanger. I-joist manufacturers may require web stiffeners.

OPTIONS:

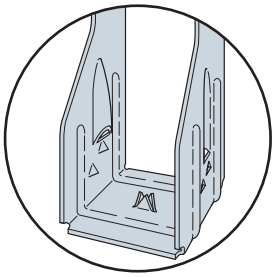
These hangers cannot be modified. However, these models will normally accommodate a skew of up to 5°. For sloped joists up to ¼:12 there is no reduction, between ¼:12 and up to ½:12, tests show a 10% reduction in ultimate hanger strength. Local crushing of the bottom flange or excessive deflection may be limiting; check with joist manufacturer for specific limitations on bearing of this type.



IUS

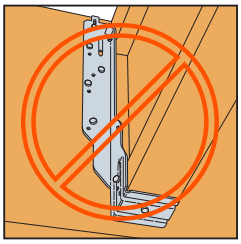
(Some IUS models have triangle holes in header flanges for Min/Max nailing)

U.S. Patent 6,523,321



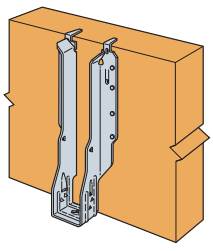
The Strong-Grip™ seat secures I-joists in position without joist nails

AVOID A MISINSTALLATION

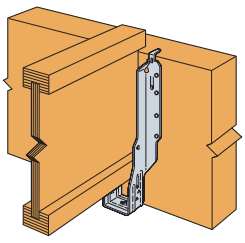


Do not make your own holes. Do not nail the bottom flange.

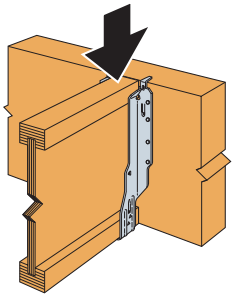
IUS INSTALLATION SEQUENCE



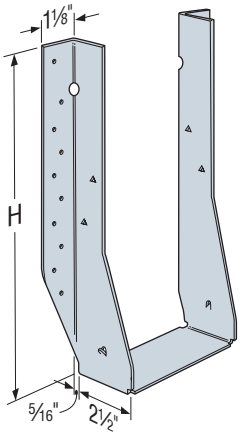
STEP 1
Attach the IUS to the header



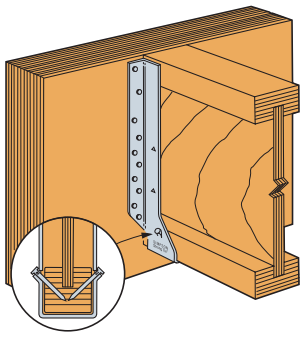
STEP 2
Slide the I-joist downward into the IUS until it rests above the large teardrop.



STEP 3
Firmly push or snap I-joist fully into the seat of the IUS.



MIU



MIU with correct PAN installation

FACE MOUNT HANGERS U/HU/HUC/HUCQ *I-Joist & Structural Composite Lumber Hangers*

SIMPSON Strong-Tie®

See Hanger tables on pages 102-106. See Hanger Options on pages 215-224 for hanger modifications, which may result in reduced loads.

U—The standard U hanger provides flexibility of joist to header installation. Versatile fastener selection with tested allowable loads.

HU/HUC—Most models have triangle and round holes. To achieve maximum loads, fill both round and triangle holes with common nails. These heavy-duty connectors are designed for schools and other structures requiring additional strength, longevity and safety factors.

HUCQ—Features concealed flanges so it can be installed close to the end of the supporting beam or on a post. They install with Simpson Strong-Tie® Strong-Drive® screws (SDS) *(supplied with the hanger)* for high capacity and ease of installation.

MATERIAL: See tables on pages 102-106.

FINISH: Galvanized

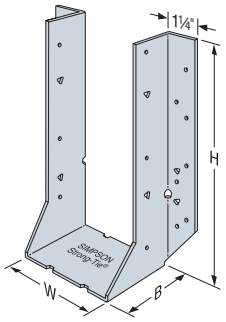
INSTALLATION: • Use all specified fasteners. See General Notes.

- HU/HUC—can be installed filling round holes only, or filling round and triangle holes for maximum values.
- HUCQ—When using structural composite lumber columns, the capacities shown in the tables are for fasteners applied to the wide face of the column.
- Web Stiffeners are required for all I-joists used with these hangers.
- For installation to masonry or concrete, see page 161.
- HU/HUC hangers can be welded to a steel member. Allowable loads are the lesser of the values in the Hanger tables on pages 102-106 or the weld capacity – refer to technical bulletin T-HUHUC-W *(see page 231 for details)*.

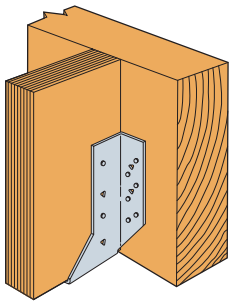
OPTIONS: • HU hangers available with the header flanges turned in for 2⁵⁄₁₆" and larger widths, with no load reduction—order HUC hanger.

- See Hanger Options on pages 216-217 for sloped and/or skewed U/HU models, and HUC *(concealed flange)* models.
- See also HUS series.
- HUCQ cannot be modified.

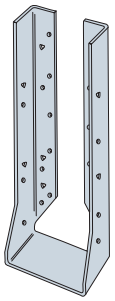
Model configurations may differ from those shown. Some HU models do not have triangle holes. Contact Simpson Strong-Tie for details.



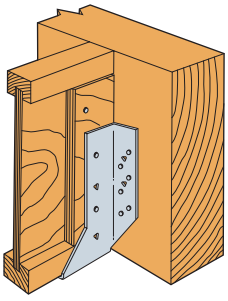
HU410



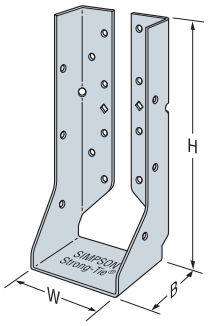
Typical HU7 Installation



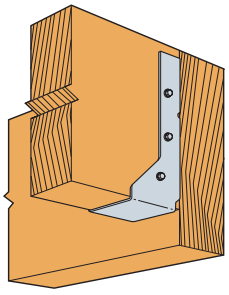
HUC412 Concealed Flanges



Typical HU7 Installation



HUCQ



Typical HUCQ Installed on End of a Beam

FACE MOUNT HANGERS HUS/HHUS/HGUS *Double Shear SCL Hangers*

See Hanger tables on pages 105-106. See Hanger Options on pages 215-224 for hanger modifications, which may result in reduced loads.

These hangers are designed for applications where higher loads are needed *(also see HUC and HUCQ)*.

All hangers in this series have double shear nailing. This patented innovation distributes the load through two points on each joist nail for greater strength. It also allows the use of fewer nails, faster installation, and the use of common nails for all connections. *(Do not bend or remove tabs)*

MATERIAL: See tables, pages 105-106.

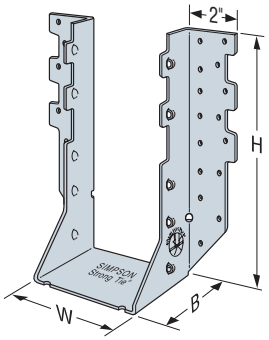
FINISH: Galvanized. Some products available in stainless steel or ZMAX®; see Corrosion Information, page 14-15.

INSTALLATION • Use all specified fasteners. See General Notes.

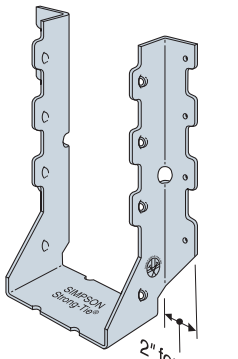
- Do not use double shear hangers with I-joists.
- Nails must be driven at an angle through the joist or truss into the header to achieve the table loads.
- Not designed for welded or nailer applications.
- 16d sinkers (0.148" dia. x 3¼" long) may be used where 10d commons are specified with no reduction in load. Where 16d commons are specified, 10d commons or 16d sinkers (0.148" dia. x 3¼" long) may be used at 0.85 of the table load.
- With 3x carrying members, use 16dx2½" *(Simpson Strong-Tie® N16)* nails into the header and 16d commons into the joist with no load reduction. With 2x carrying members, use 10dx1½" nails into the header and 10d commons into the joist, and reduce the load to 0.64 of the table value.

OPTIONS: • HUS hangers available with the header flanges turned in for 3½" wide joist only, with no load reduction. See HUSC Concealed Flange illustration.

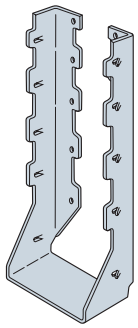
- Concealed flanges are not available for HGUS, HUS1.81/10 and HHUS.
- See Hanger Options, pages 215-224, for sloped and/or skewed HHUS and HGUS models.
- Other sizes available; contact Simpson Strong-Tie for details.



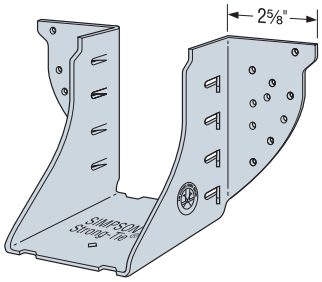
HHUS410



HUS410



HUSC Concealed Flanges *(not available for HHUS, HGUS and HUS1.81/10)*



HGUS46

FACE MOUNT HANGERS – I-JOISTS

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions W	H	B	Min/ Max	Fasteners Face	Joist	Allowable Loads DF/SP Species Header Uplift (160)	Floor (100)	Snow (115)	Roof (125)	SPF/HF Species Header Floor (100)	Snow (115)	Roof (125)	Code Ref.
1½ x 9½	U210	✓	16	1⁹⁄₁₆	7¹³⁄₁₆	2	—	6-10d	6-10dx1½	1110	1215	1375	1485	1045	1185	1275	
	MIU1.56/9	—	16	1⁹⁄₁₆	8¹⁵⁄₁₆	2½	—	16-16d	2-10dx1½	230	2305	2615	2820	1980	2245	2425	
1½ x 11¼ - 11⅞	U210	✓	16	1⁹⁄₁₆	7¹³⁄₁₆	2	—	6-10d	6-10dx1½	1110	1215	1375	1485	1045	1185	1275	
	MIU1.56/11	—	16	1⁹⁄₁₆	11¹⁄₁₆	2½	—	20-16d	2-10dx1½	230	2880	3060	3080	2475	2695	2695	
1¾ x 9½	IUS1.81/9.5	—	18	1⅞	9½	2	—	8-10d	—	75	950	1080	1165	815	925	1000	
1¾ x 9¼ - 9½	MIU1.81/9	—	16	1¹³⁄₁₆	8¹³⁄₁₆	2½	—	16-16d	2-10dx1½	230	2305	2615	2820	1980	2245	2425	I9, F8, L12
1¾ x 11⅞	IUS1.81/11.88	—	18	1⅞	11⅞	2	—	10-10d	—	75	1185	1345	1455	1020	1160	1250	
	MIU1.81/11	—	16	1¹³⁄₁₆	11¹⁄₁₆	2½	—	20-16d	2-10dx1½	230	2880	3135	3135	2475	2695	2695	
1¾ x 14	IUS1.81/14	—	18	1⅞	14	2	Min	12-10d	—	75	1420	1615	1745	1220	1390	1500	
				1⅞	14	2	Max	14-10d	—	75	1660	1885	1980	1425	1620	1705	
	MIU1.81/14	—	16	1¹³⁄₁₆	13⁵⁄₁₆	2½	—	22-16d	2-10dx1½	230	3170	3530	3550	2725	3090	3335	
1¾ x 16	IUS1.81/16	—	18	1⅞	16	2	Min	14-10d	—	75	1660	1885	1980	1425	1620	1705	I9, L12
				1⅞	16	2	Max	16-10d	—	75	1895	1980	1980	1630	1705	1705	
	MIU1.81/16	—	16	1¹³⁄₁₆	15⁵⁄₁₆	2½	—	24-16d	2-10dx1½	230	3455	3530	3550	2970	3370	3480	
1¾ x 18 - 20	MIU1.81/18	—	16	1¹³⁄₁₆	17⁵⁄₁₆	2½	—	26-16d	2-10dx1½	230	3500	3530	3550	3220	3465	3480	
2 x 9½	IUS2.06/9.5	—	18	2⅛	9½	2	—	8-10d	—	75	950	1080	1165	815	925	1000	
2 x 11⅞	IUS2.06/11.88	—	18	2⅛	11⅞	2	—	10-10d	—	75	1185	1345	1455	1020	1160	1250	
2 x 14	IUS2.06/14	—	18	2⅛	14	2	Min	12-10d	—	75	1420	1615	1745	1220	1390	1500	
		—	18	2⅛	14	2	Max	14-10d	—	75	1660	1885	1980	1425	1620	1705	
2 x 16	IUS2.06/16	—	18	2⅛	16	2	Min	14-10d	—	75	1660	1885	1980	1425	1620	1705	
		—	18	2⅛	16	2	Max	16-10d	—	75	1895	1980	1980	1630	1705	1705	I9, F8, L12
2⅛ x 9½	IUS2.06/9.5	—	18	2⅛	9½	2	—	8-10d	—	75	950	1080	1165	815	925	1000	
	HU2.1/9	✓	14	2⅛	9	2½	—	14-16d	6-10dx1½	915	2085	2350	2530	1795	2025	2180	
2⅛ x 11⅞	IUS2.06/11.88	—	18	2⅛	11⅞	2	—	10-10d	—	75	1185	1345	1455	1020	1160	1250	
	MIU2.1/11	—	16	2⅛	11¹⁄₁₆	2½	—	20-16d	2-10dx1½	230	2880	3135	3135	2475	2695	2695	
	HU2.1/11	✓	14	2⅛	11	2½	—	16-16d	6-10dx1½	915	2380	2685	2890	2050	2315	2490	
2⅛ x 14	IUS2.06/14	—	18	2⅛	14	2	—	12-10d	—	75	1420	1615	1745	1220	1390	1500	
2⅛ x 16	IUS2.06/16	—	18	2 ⅛	16	2	—	14-10d	—	75	1660	1885	1980	1425	1620	1705	
2¼ x 9½ to 20	2¼" wide joists use the same hangers as 2⁵⁄₁₆" wide joists with the following load adjustments to the table loads: IUS download is the lesser of the table load or 1400 lbs. IUS uplift is 55 lbs. MIU and U downloads are the lesser of the table load or 2140 lbs.																
2⁵⁄₁₆ x 9½	IUS2.37/9.5	—	18	2⁷⁄₁₆	9½	2	—	8-10d	—	75	950	1080	1165	815	925	1000	I9, L12
	MIU2.37/9	—	16	2⅜	9	2½	—	16-16d	2-10dx1½	230	2305	2615	2820	1980	2245	2425	
	U3510/14	✓	16	2⁵⁄₁₆	9	2	—	14-16d	6-10dx1½	1110	2015	2285	2465	1735	1965	2120	
	HU359/HUC359	✓	14	2⅜	8¹⁵⁄₁₆	2½	Min	14-16d	6-10dx1½	915	2085	2350	2530	1795	2025	2180	
		✓	14	2⅜	8¹⁵⁄₁₆	2½	Max	18-16d	10-10dx1½	1895	2680	3020	3250	2305	2605	2800	
2⁵⁄₁₆ x 11⅞	IUS2.37/11.88	—	18	2⁷⁄₁₆	11⅞	2	—	10-10d	—	75	1185	1345	1455	1020	1160	1250	
	MIU2.37/11	—	16	2⅜	11¹⁄₁₆	2½	—	20-16d	2-10dx1½	230	2880	3135	3135	2475	2695	2695	
	U3516/20	✓	16	2⁵⁄₁₆	10⁹⁄₁₆	2	—	16-16d	6-10dx1½	1110	2305	2615	2820	1980	2245	2425	
	HU3511/HUC3511	✓	14	2⅜	11¹⁄₁₆	2½	Min	16-16d	6-10dx1½	915	2380	2685	2890	2050	2315	2490	
		✓	14	2⅜	11¹⁄₁₆	2½	Max	22-16d	10-10dx1½	1895	3275	3695	3970	2820	3180	3425	
2⁵⁄₁₆ x 14	IUS2.37/14	—	18	2⁷⁄₁₆	14	2	Min	12-10d	—	75	1420	1615	1745	1220	1390	1500	
		—	18	2⁷⁄₁₆	14	2	Max	14-10d	—	75	1660	1885	1980	1425	1620	1705	
	MIU2.37/14	—	16	2⅜	13½	2½	—	22-16d	2-10dx1½	230	3170	3595	3875	2725	3090	3335	
	HU3514/HUC3514	✓	14	2⅜	13½	2½	Min	18-16d	8-10dx1½	1515	2680	3020	3250	2305	2605	2800	
		✓	14	2⅜	13½	2½	Max	24-16d	12-10dx1½	2015	3570	4030	4335	3075	3470	3735	
2⁵⁄₁₆ x 16	IUS2.37/16	—	18	2⁷⁄₁₆	16	2	Min	14-10d	—	75	1660	1885	1980	1425	1620	1705	
		—	18	2⁷⁄₁₆	16	2	Max	16-10d	—	75	1895	1980	1980	1630	1705	1705	
	MIU2.37/16	—	16	2⅜	15½	2½	—	24-16d	2-10dx1½	230	3455	3920	4045	2970	3370	3480	
	HU3516/22/HUC3516/22	✓	14	2⅜	14¼	2½	—	20-16d	8-10dx1½	1515	2975	3360	3610	2565	2895	3110	I9, F8, L12

1. Uplift loads based on DF/SP lumber and have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern. For SPF/HF use 0.86 x DF/SP uplift load.
2. 10d commons or 16d sinkers may be used instead of the specified 16d at 0.84 of the table load value.
3. 16d sinkers may be used instead of the specified 10d commons with no load reduction.
4. MIN nailing quantity and load values—fill all round holes; MAX nailing quantity and load values—fill all round and triangle holes.
5. Hangers sorted in order of recommended selection for best overall performance and installation value.
6. Web stiffeners are required where noted in the table or when either the joist top flange isn't supported laterally by the hanger or when supporting double I-joists with flanges less than 1⁵⁄₁₆" thick.
7. Allowable downloads are based on a joist bearing capacity of 750 psi.
8. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

CODES: See page 13 for Code Reference Key Chart.

FACE MOUNT HANGERS – I-JOISTS

SIMPSON Strong-Tie®

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.

Actual Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions W	Dimensions H	Dimensions B	Min/ Max	Fasteners Face	Fasteners Joist	Allowable Loads DF/SP Species Header Uplift (160)	DF/SP Floor (100)	DF/SP Snow (115)	DF/SP Roof (125)	SPF/HF Species Header Floor (100)	SPF/HF Snow (115)	SPF/HF Roof (125)	Code Ref.
2⅝ x 18	MIU2.37/18	—	16	2⅜	17½	2½	—	26-16d	2-10dx1½	230	3745	4045	4045	3220	3480	3480	I9, F8, L12
	HU3524/30	✓	14	2⅜	18	2½	Min	18-16d	8-10dx1½	1515	2680	3020	3250	2305	2605	2800	
		✓	14	2⅜	18	2½	Max	24-16d	14-10dx1½	2015	3570	4030	4335	3075	3470	3735	
2⅝ x 20	MIU2.37/20	—	16	2⅜	19½	2½	—	28-16d	2-10dx1½	230	4030	4060	4060	3465	3495	3495	
2⅝ x 22 - 30	MIU2.37/20	✓	16	2⅜	19½	2½	—	28-16d	2-10dx1½	230	4030	4060	4060	3465	3495	3495	
	HU3524/30		14	2⅜	18	2½	Min	18-16d	8-10dx1½	1515	2680	3020	3250	2305	2605	2800	
				2⅜	18	2½	Max	24-16d	14-10dx1½	2015	3570	4030	4335	3075	3470	3735	
2⅞ x 9½ to 16	2⅞" wide joists use the same hangers as 2½" wide joists with the following load adjustments to the table loads: IUS download is same as table but not to exceed 1400 lbs. IUS uplift is 55 lbs. MIU download is same as table but not to exceed 2140 lbs.																
2½ x 9¼	IUS2.56/9.25	—	18	2⅝	9¼	2	—	8-10d	—	75	950	1080	1165	815	925	1000	I9, L12
2½ x 9½	IUS2.56/9.5	—	18	2⅝	9½	2	—	8-10d	—	75	950	1080	1165	815	925	1000	I9, F8, L12
2½-2⅞ x 9¼ - 9½	MIU2.56/9	—	16	2⅜	8¹⁵⁄₁₆	2½	—	16-16d	2-10dx1½	230	2305	2615	2820	1980	2245	2425	
	HU310/HUC310	✓	14	2⅜	8⅞	2½	—	14-16d	6-10dx1½	915	2085	2350	2530	1795	2025	2180	
2½-2⅞ x 11⅞	IUS2.56/11.88	—	18	2⅝	11⅞	2	—	10-10d	—	75	1185	1345	1455	1020	1160	1250	
2½ x 11¼ - 11⅞	MIU2.56/11	—	16	2⅜	11¹⁄₁₆	2½	—	20-16d	2-10dx1½	230	2880	3135	3135	2475	2695	2695	
	HU312/HUC312	✓	14	2⅜	10⅝	2½	—	16-16d	6-10dx1½	915	2380	2685	2890	2050	2315	2490	
2½ x 14	IUS2.56/14	—	18	2⅝	14	2	Min	12-10d	—	75	1420	1615	1745	1220	1390	1500	
				2⅝	14	2	Max	14-10d	—	75	1660	1885	1980	1425	1620	1705	
	MIU2.56/14	—	16	2⅜	13⁷⁄₁₆	2½	—	22-16d	2-10dx1½	230	3170	3595	3875	2725	3090	3335	
	HU314/HUC314	✓	14	2⅜	12⅜	2½	—	18-16d	8-10dx1½	1515	2680	3020	3250	2305	2605	2800	
2½ x 16	IUS2.56/16	—	18	2⅝	16	2	Min	14-10d	—	75	1660	1885	1980	1425	1620	1705	
				2⅝	16	2	Max	16-10d	—	75	1895	1980	1980	1630	1705	1705	
	MIU2.56/16	—	16	2⅜	15⁷⁄₁₆	2½	—	24-16d	2-10dx1½	230	3455	3920	4045	2970	3370	3480	
	HU316/HUC316	✓	14	2⅜	14⅛	2½	—	20-16d	8-10dx1½	1515	2975	3360	3610	2565	2895	3110	
2½ x 18	MIU2.56/18	—	16	2⅜	17⁷⁄₁₆	2½	—	26-16d	2-10dx1½	230	3745	4045	4045	3220	3480	3480	
2½-2⅞ x 20	MIU2.56/20	—	16	2⅜	19⁷⁄₁₆	2½	—	28-16d	2-10dx1½	230	4030	4060	4060	3465	3495	3495	
2½ x 22 - 26	MIU2.56/20	✓	16	2⅜	19⁷⁄₁₆	2½	—	28-16d	2-10dx1½	230	4030	4060	4060	3465	3495	3495	
2¾x 9¼ to 26	2¾" wide joists use the same hangers as 2½" wide joists.																
3 x 9¼ - 9½	MIU3.12/9	—	16	3⅛	9¹⁄₁₆	2½	—	16-16d	2-10dx1½	230	2305	2615	2820	1980	2245	2425	I9, F8, L12
	HU210-2/HUC210-2	✓	14	3⅛	8¹³⁄₁₆	2½	Min	14-16d	6-10d	1135	2085	2350	2530	1795	2025	2180	I9, F6, L17
				3⅛	8¹³⁄₁₆	2½	Max	18-16d	10-10d	1895	2680	3020	3250	2305	2605	2800	
3 x 11¼ - 11⅞	MIU3.12/11	—	16	3⅛	11⅞	2½	—	20-16d	2-10dx1½	230	2880	3135	3135	2475	2695	2695	I9, F8, L12
	HU212-2/HUC212-2	✓	14	3⅛	10¹⁵⁄₁₆	2½	Min	16-16d	6-10d	1135	2380	2685	2890	2050	2315	2490	I9, F6, L17
				3⅛	10¹⁵⁄₁₆	2½	Max	22-16d	10-10d	1895	3275	3695	3970	2820	3180	3425	
3 x 14 - 20	MIU3.12/11	✓	16	3⅛	11⅞	2½	—	20-16d	2-10dx1½	230	2880	3135	3135	2475	2695	2695	I9, F8, L12
	HU212-2/HUC212-2		14	3⅛	10¹⁵⁄₁₆	2½	Min	16-16d	6-10d	1135	2380	2685	2890	2050	2315	2490	I9, F6, L17
				3⅛	10¹⁵⁄₁₆	2½	Max	22-16d	10-10d	1895	3275	3695	3970	2820	3180	3425	
3½ x 9½	IUS3.56/9.5	—	18	3⅝	9½	2	—	10-10d	—	75	1185	1345	1455	1020	1160	1250	I9, F8, L12
3½ x 9¼ - 9½	MIU3.56/9	—	16	3⁹⁄₁₆	8¹³⁄₁₆	2½	—	16-16d	2-10dx1½	210	2305	2615	2820	1980	2245	2425	
3½ x 11⅞	IUS3.56/11.88	—	18	3⅝	11⅞	2	—	12-10d	—	75	1420	1615	1725	1220	1390	1485	
3½ x11¼ -11⅞	MIU3.56/11	—	16	3⁹⁄₁₆	11⅞	2½	—	20-16d	2-10dx1½	210	2880	3135	3135	2475	2695	2695	
3½ x 14	IUS3.56/14	—	18	3⅝	14	2	Min	12-10d	—	75	1420	1615	1725	1220	1390	1485	
				3⅝	14	2	Max	14-10d	—	75	1660	1725	1725	1425	1485	1485	
	MIU3.56/14		16	3⁹⁄₁₆	13⁵⁄₁₆	2½	—	22-16d	2-10dx1½	210	3170	3595	3875	2725	3090	3335	
3½ x 16	IUS3.56/16	—	18	3⅝	16	2	Min	14-10d	—	75	1660	1725	1725	1425	1485	1485	
				3⅝	16	2	Max	16-10d	—	75	1725	1725	1725	1485	1485	1485	
	MIU3.56/16		16	3⁹⁄₁₆	15⁵⁄₁₆	2½	—	24-16d	2-10dx1½	210	3455	3920	4045	2970	3370	3480	
3½ x 18	MIU3.56/18	—	16	3⁹⁄₁₆	17⁵⁄₁₆	2½	—	26-16d	2-10dx1½	210	3745	4045	4045	3220	3480	3480	
3½ x 20	MIU3.56/20	—	16	3⁹⁄₁₆	19⁵⁄₁₆	2½	—	28-16d	2-10dx1½	210	4030	4060	4060	3465	3495	3495	
3½ x 22 - 30	MIU3.56/20	✓	16	3⁹⁄₁₆	19⁵⁄₁₆	2½	—	28-16d	2-10dx1½	210	4030	4060	4060	3465	3495	3495	

1. Uplift loads based on DF/SP lumber and have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern. For SPF/HF use 0.86 x DF/SP uplift load.
2. 10d commons or 16d sinkers may be used instead of the specified 16d at 0.84 of the table load value.
3. 16d sinkers may be used instead of the specified 10d commons with no load reduction.
4. MIN nailing quantity and load values—fill all round holes; MAX nailing quantity and load values—fill all round and triangle holes.
5. Hangers sorted in order of recommended selection for best overall performance and installation value.
6. Web stiffeners are required where noted in the table or when either the joist top flange isn't supported laterally by the hanger or when supporting double I-joists with flanges less than 1⁵⁄₁₆" thick.
7. Allowable downloads are based on a joist bearing capacity of 750 psi.
8. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

CODES: See page 13 for Code Reference Key Chart.

FACE MOUNT HANGERS – I-JOISTS

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions W	Dimensions H	Dimensions B	Min/ Max	Fasteners Face	Fasteners Joist	Allowable Loads DF/SP Species Header Uplift (160)	Floor (100)	Snow (115)	Roof (125)	SPF/HF Species Header Floor (100)	Snow (115)	Roof (125)	Code Ref.
4 x 9½	MIU4.12/9	—	16	1⅛	9 1⁄16	2½	—	16-16d	2-10dx1½	210	2305	2615	2820	1980	2245	2425	
	HU4.12/9/HUC4.12/9	✓	14	1⅛	8⅝	2½	Min	14-16d	6-10d	1135	2085	2350	2530	1795	2025	2180	
		✓		1⅛	8⅝	2½	Max	18-16d	10-10d	1895	2680	3020	3250	2305	2605	2800	
4 x 11⅞ - 16	MIU4.12/11	—	16	1⅛	11⅛	2½	—	20-16d	2-10dx1½	210	2880	3135	3135	2475	2695	2695	
	HU4.12/11/HUC4.12/11	✓	14	1⅛	10 5⁄16	2½	Min	16-16d	6-10d	1135	2380	2685	2890	2050	2315	2490	
		✓		1⅛	10 5⁄16	2½	Max	22-16d	10-10d	1895	3275	3695	3970	2820	3180	3425	I9, F8, L12
4 x 14	MIU4.12/14	—	16	1⅛	13 3⁄16	2½	—	22-16d	2-10dx1½	210	3170	3595	3875	2725	3090	3335	
4 x 16	MIU4.12/16	—	16	1⅛	15 5⁄16	2½	—	24-16d	2-10dx1½	210	3455	3920	4045	2970	3370	3480	
4⅛ x 9½	MIU4.28/9	—	16	4 9⁄32	9	2½	—	16-16d	2-10dx1½	210	2305	2615	2820	1980	2245	2425	
	HU4.28/9/HUC4.28/9	✓	14	4 9⁄32	9	2½	—	18-16d	8-10d	1515	2680	3020	3250	2305	2605	2800	
4⅛ x 11⅞	MIU4.28/11	—	16	4 9⁄32	11⅛	2½	—	20-16d	2-10dx1½	210	2880	3135	3135	2475	2695	2695	
	HU4.28/11/HUC4.28/11	✓	14	4 9⁄32	11	2½	—	22-16d	8-10d	1515	3275	3695	3970	2820	3180	3425	I9, L12
4⅛ x 14	MIU4.28/14	—	16	4 9⁄32	13½	2½	—	22-16d	2-10dx1½	210	3170	3595	3875	2725	3090	3335	I9, F8, L12
4⅛ x 16	MIU4.28/16	—	16	4 9⁄32	15½	2½	—	24-16d	2-10dx1½	210	3455	3920	4045	2970	3370	3480	
4½ x 9½ to 20	4½" wide joists use the same hangers as 4⅝" wide joists with the following loads adjustments: MIU and U downloads are the lesser of the table load or 2140 lbs.																
4⅝ x 9¼ - 9½	MIU4.75/9	—	16	4¾	9 1⁄16	2½	—	16-16d	2-10dx1½	210	2305	2615	2820	1980	2245	2425	
	U3510-2	✓	16	4¾	8¾	2	—	14-16d	6-10d	1110	2015	2285	2465	1735	1965	2120	
	HU4.75/9/HUC4.75/9	✓	14	4¾	9	2½	—	18-16d	8-10d	1515	2680	3020	3250	2305	2605	2800	I9, F8, L12
4⅝ x11¼ - 11⅞	MIU4.75/11	—	16	4¾	11 1⁄16	2½	—	20-16d	2-10dx1½	210	2880	3135	3135	2475	2695	2695	
	U3512-2	✓	16	4¾	11¼	2	—	16-16d	6-10d	1110	2305	2615	2820	1980	2245	2425	
	HU4.75/11/HUC4.75/11	✓	14	4¾	11	2½	—	22-16d	8-10d	1515	3275	3695	3970	2820	3180	3425	I9, L12
4⅝ x 14	MIU4.75/14	—	16	4¾	13½	2½	—	22-16d	2-10dx1½	210	3170	3595	3875	2725	3090	3335	
	HU3514-2/HUC3514-2	✓	14	4¾	13¼	2½	—	18-16d	8-10d	1515	2680	3020	3250	2305	2605	2800	
4⅝ x 16	MIU4.75/16	—	16	4¾	15½	2½	—	24-16d	2-10dx1½	210	3455	3920	4045	2970	3370	3480	
	HU3516-2/HUC3516-2	✓	14	4¾	15¼	2½	Min	20-16d	8-10d	1515	2975	3360	3610	2565	2895	3110	
				4¾	15¼	2½	Max	26-16d	12-10d	2015	3870	4365	4695	3330	3760	4045	
4⅝ x 18	MIU4.75/18	—	16	4¾	17½	2½	—	26-16d	2-10dx1½	210	3745	4045	4045	3220	3480	3480	
4⅝ x 20	MIU4.75/20	—	16	4¾	19½	2½	—	28-16d	2-10dx1½	210	4030	4060	4060	3465	3495	3495	
	HU3520-2	✓	14	4¾	19¼	2½	Min	20-16d	8-10d	1515	2975	3360	3610	2565	2895	3110	
				4¾	19¼	2½	Max	26-16d	12-10d	2015	3870	4365	4695	3330	3760	4045	
4⅝ x 22 - 30	MIU4.75/20	✓	16	4¾	19½	2½	—	28-16d	2-10dx1½	210	4030	4060	4060	3465	3495	3495	
	HU3520-2		14	4¾	19¼	2½	Min	20-16d	8-10d	1515	2975	3360	3610	2565	2895	3110	
				4¾	19¼	2½	Max	26-16d	12-10d	2015	3870	4365	4695	3330	3760	4045	
5 x 9¼ - 9½	MIU5.12/9	—	16	5⅛	8 13⁄16	2½	—	16-16d	2-10dx1½	210	2305	2615	2820	1980	2245	2425	
	HU310-2/HUC310-2	✓	14	5⅛	8⅞	2½	—	14-16d	6-10d	1135	2085	2350	2530	1795	2025	2180	
5 x 11¼ - 11⅞	MIU5.12/11	—	16	5⅛	11⅛	2½	—	20-16d	2-10dx1½	210	2880	3135	3135	2475	2695	2695	
	HU312-2/HUC312-2	✓	14	5⅛	10⅝	2½	—	16-16d	6-10d	1135	2380	2685	2890	2050	2315	2490	
5 x 14	MIU5.12/14	—	16	5⅛	13 3⁄16	2½	—	22-16d	2-10dx1½	210	3170	3595	3875	2725	3090	3335	
	HU314-2/HUC314-2	✓	14	5⅛	12⅝	2½	—	18-16d	8-10d	1515	2680	3020	3250	2305	2605	2800	
5 x 16	MIU5.12/16	—	16	5⅛	15 5⁄16	2½	—	24-16d	2-10dx1½	210	3455	3920	4045	2970	3370	3480	
5 x 18	MIU5.12/18	—	16	5⅛	17 5⁄16	2½	—	26-16d	2-10dx1½	210	3745	4045	4045	3220	3480	3480	
5 x 20	MIU5.12/20	—	16	5⅛	19 5⁄16	2½	—	28-16d	2-10dx1½	210	4030	4060	4060	3465	3495	3495	
5 x 22 - 30	MIU5.12/20	✓	16	5⅛	19 5⁄16	2½	—	28-16d	2-10dx1½	210	4030	4060	4060	3465	3495	3495	
7 x 9¼ - 9½	HU410-2/HUC410-2	✓	14	7⅛	9⅛	2½	Min	14-16d	6-16d	1345	2085	2350	2530	1795	2025	2180	
				7⅛	9⅛	2½	Max	18-16d	8-16d	1795	2680	3020	3250	2305	2605	2800	
7 x 11¼ - 11⅞	HU412-2/HUC412-2	✓	14	7⅛	11⅛	2½	Min	16-16d	6-16d	1345	2380	2685	2890	2050	2315	2490	
				7⅛	11⅛	2½	Max	22-16d	8-16d	1795	3275	3695	3970	2820	3180	3425	
7 x 14	HU414-2/HUC414-2	✓	14	7⅛	13⅞	2½	Min	20-16d	8-16d	1795	2975	3360	3610	2565	2895	3110	
				7⅛	13⅞	2½	Max	26-16d	12-16d	2695	3870	4365	4695	3330	3760	4045	

1. Uplift loads based on DF/SP lumber and have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern. For SPF/HF use 0.86 x DF/SP uplift load.
2. 10d commons or 16d sinkers may be used instead of the specified 16d at 0.84 of the table load value.
3. 16d sinkers may be used instead of the specified 10d commons with no load reduction.
4. MIN nailing quantity and load values—fill all round holes; MAX nailing quantity and load values—fill all round and triangle holes.
5. Hangers sorted in order of recommended selection for best overall performance and installation value.
6. Web stiffeners are required where noted in the table or when either the joist top flange isn't supported laterally by the hanger or when supporting double I-joists with flanges less than 1 5⁄16" thick.
7. Allowable downloads are based on a joist bearing capacity of 750 psi.
8. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

CODES: See page 13 for Code Reference Key Chart.

FACE MOUNT HANGERS – STRUCTURAL COMPOSITE LUMBER

SIMPSON Strong-Tie®

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.

CODES: See page 13 for Code Reference Key Chart.

Actual Joist Size	Model No.	Ga	Dimensions W	Dimensions H	Dimensions B	Min/ Max	Fasteners Face	Fasteners Joist	Allowable Loads DF/SP Species Header Uplift (160)	DF/SP Floor (100)	DF/SP Snow (115)	DF/SP Roof (125)	SPF/HF Species Header Floor (100)	SPF/HF Snow (115)	SPF/HF Roof (125)	Code Ref.
1¾ x 5½	HU1.81/5	14	1 3/16	5 3/8	2½	Min	12-16d	4-10dx1½	610	1785	2015	2165	1540	1735	1865	I9, L12, F8
			1 3/16	5 3/8	2½	Max	16-16d	6-10dx1½	915	2380	2685	2890	2050	2315	2490	
1¾ x 7¼	HU7	14	1 3/16	6 11/16	2½	Min	12-16d	4-10dx1½	610	1785	2015	2165	1540	1735	1865	I9, F8, L12
			1 3/16	6 11/16	2½	Max	16-16d	8-10dx1½	1515	2380	2685	2890	2050	2315	2490	
1¾ x 9½	HUS1.81/10	16	1 3/16	8 3/8	3	—	30-16d	10-16d	3000	5135	5295	5400	4705	5105	5195	I9, F23
	HU9	14	1 3/16	9 5/16	2½	Min	18-16d	6-10dx1½	915	2680	3020	3250	2305	2605	2800	I9, F8, L12
			1 3/16	9 5/16	2½	Max	24-16d	10-10dx1½	1895	3570	4030	4335	3075	3470	3735	
	HUCQ1.81/9-SDS		1 3/16	9	3	—	8-SDS ¼"x1¾"	4-SDS ¼"x1¾"	1505	2000	2300	2500	1440	1655	1800	I9, F23
1¾ x 11¼ - 11⅞	HUS1.81/10	16	1 3/16	8 3/8	3	—	30-16d	10-16d	3000	5135	5295	5400	4705	5105	5195	
	HU11	14	1 3/16	11 1/16	2½	Min	22-16d	6-10dx1½	915	3275	3695	3970	2820	3180	3425	I9, L12, F8
			1 3/16	11 1/16	2½	Max	30-16d	10-10dx1½	1895	4465	4705	4810	3845	4340	4600	
	HUCQ1.81/11-SDS		1 3/16	11	3	—	10-SDS ¼"x1¾"	4-SDS ¼"x1¾"	1505	2500	2875	3125	1800	2070	2250	I9, F23
1¾ x 14	HUS1.81/10	16	1 3/16	8 3/8	3	—	30-16d	10-16d	3000	5135	5295	5400	4705	5105	5195	
	U14		1 3/16	10¼	2	—	14-16d	6-10dx1½	1110	2015	2285	2465	1735	1965	2120	
	HU14	14	1 3/16	13 11/16	2½	Min	28-16d	8-10dx1½	1515	4165	4420	4505	3590	4050	4335	I9, F8, L12
			1 3/16	13 11/16	2½	Max	36-16d	14-10dx1½	2015	5055	5275	5420	4615	5000	5130	
	HUCQ1.81/11-SDS		1 3/16	11	3	—	10-SDS ¼"x1¾"	4-SDS ¼"x1¾"	1505	2500	2875	3125	1800	2070	2250	I9, F23
3½ x 7¼	HU48/HUC48	14	3 9/16	6 13/16	2½	Min	10-16d	4-10d	760	1490	1680	1805	1280	1445	1555	I9, L17, F6
			3 9/16	6 13/16	2½	Max	14-16d	6-10d	1135	2085	2350	2530	1795	2025	2180	
	HUS48		3 9/16	6 15/16	2	—	6-16d	6-16d	1550	1595	1815	1960	1365	1555	1680	I9, F8, L12
	HGUS46	12	3 5/8	4 7/16	4	—	20-16d	8-16d	2155	4360	4885	5230	3750	4200	4500	I9, F23
	HHUS48	14	3 5/8	7 1/8	3	—	22-16d	8-16d	2000	4210	4770	5140	3615	4095	4415	I9, F8, L12
	HGUS48	12	3 5/8	7 1/16	4	—	36-16d	12-16d	3235	7460	7460	7460	6415	6415	6415	I9, F23
3½ x 9¼ - 9½	U410	16	3 9/16	8 3/8	2	—	14-16d	6-10d	1110	2015	2285	2465	1735	1965	2120	
	HUS410	14	3 9/16	8 15/16	2	—	8-16d	8-16d	2990	2125	2420	2615	1820	2070	2240	
	HU410/HUC410		3 9/16	8 5/8	2½	Min	14-16d	6-10d	1135	2085	2350	2530	1795	2025	2180	I9, F8, L12
			3 9/16	8 5/8	2½	Max	18-16d	10-10d	1895	2680	3020	3250	2305	2605	2800	
	HHUS410		3 5/8	9	3	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	
	HUCQ410-SDS		3 9/16	9	3	—	12-SDS ¼"x2½"	6-SDS ¼"x2½"	2510	4680	4955	4955	3370	3570	3570	
	HGUS48	12	3 5/8	7 1/16	4	—	36-16d	12-16d	3235	7460	7460	7460	6415	6415	6415	I9, F23
	HGUS410		3 5/8	9 1/16	4	—	46-16d	16-16d	4095	9100	9100	9100	7825	7825	7825	
3½ x 11¼ - 11⅞	U410	16	3 9/16	8 3/8	2	—	14-16d	6-10d	1110	2015	2285	2465	1735	1965	2120	
	HUS412	14	3 9/16	10½	2	—	10-16d	10-16d	3635	2660	3025	3265	2275	2590	2795	
	HU412/HUC412		3 9/16	10 5/16	2½	Min	16-16d	6-10d	1135	2380	2685	2890	2050	2315	2490	I9, F8, L12
			3 9/16	10 5/16	2½	Max	22-16d	10-10d	1895	3275	3695	3970	2820	3180	3425	
	HHUS410		3 5/8	9	3	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	
	HUCQ412-SDS		3 9/16	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	2510	5460	5560	5560	3930	4000	4000	
	HGUS48	12	3 5/8	7 1/16	4	—	36-16d	12-16d	3235	7460	7460	7460	6415	6415	6415	I9, F23
	HGUS410		3 5/8	9 1/16	4	—	46-16d	16-16d	4095	9100	9100	9100	7825	7825	7825	
	HGUS412		3 5/8	10 7/16	4	—	56-16d	20-16d	5045	9600	9600	9600	8255	8255	8255	
3½ x 14	U414	16	3 9/16	10	2	—	16-16d	6-10d	1110	2305	2615	2820	1980	2245	2425	
	HU416/HUC416	14	3 9/16	13 5/8	2½	Min	20-16d	8-10d	1515	2975	3360	3610	2565	2895	3110	I9, F8, L12
			3 9/16	13 5/8	2½	Max	26-16d	12-10d	2015	3870	4365	4695	3330	3760	4045	
	HHUS410		3 5/8	9 1/16	3	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	
	HGUS410	12	3 5/8	9	4	—	46-16d	16-16d	4095	9100	9100	9100	7825	7825	7825	I9, F23
	HGUS414		3 5/8	12 7/16	4	—	66-16d	22-16d	5515	10100	10100	10100	8685	8685	8685	
	HUCQ412-SDS	14	3 9/16	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	2510	5460	5560	5560	3930	4000	4000	
3½ x 16	HU416/HUC416	14	3 9/16	13 5/8	2½	Min	20-16d	8-10d	1515	2975	3360	3610	2565	2895	3110	I9, F8, L12
			3 9/16	13 5/8	2½	Max	26-16d	12-10d	2015	3870	4365	4695	3330	3760	4045	
	HGUS410	12	3 5/8	9 1/16	4	—	46-16d	16-16d	4095	9100	9100	9100	7825	7825	7825	I9, F23
	HGUS412		3 5/8	10 7/16	4	—	56-16d	20-16d	5045	9600	9600	9600	8255	8255	8255	
	HGUS414		3 5/8	12 7/16	4	—	66-16d	22-16d	5515	10100	10100	10100	8685	8685	8685	
	HUCQ412-SDS	14	3 9/16	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	2510	5460	5560	5560	3930	4000	4000	

1. Uplift loads based on DF/SP lumber and have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern. For SPF/HF, use 0.86 x DF/SP Uplift Load for products requiring nails and 0.72 x DF/SP Uplift Load for products requiring screws.
2. 10d commons or 16d sinkers may be used instead of the specified 16d at 0.84 of the table load value.
3. 16d sinkers may be used instead of the specified 10d commons with no load reduction.
4. MIN nailing quantity and load values—fill all round holes; MAX nailing quantity and load values—fill all round and triangle holes.
5. Hangers sorted in order of recommended selection for best overall performance and installation value.
6. Allowable downloads are based on a joist bearing capacity of 750 psi.
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

FACE MOUNT HANGERS – STRUCTURAL COMPOSITE LUMBER

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Ga	Dimensions W	Dimensions H	Dimensions B	Min/ Max	Fasteners Face	Fasteners Joist	Allowable Loads DF/SP Species Header Uplift (160)	DF/SP Floor (100)	DF/SP Snow (115)	DF/SP Roof (125)	SPF/HF Species Header Floor (100)	SPF/HF Snow (115)	SPF/HF Roof (125)	Code Ref.
3½ x 18	HU416/HUC416	14	3⁹⁄₁₆	13⅝	2½	Min	20-16d	8-10d	1515	2975	3360	3610	2565	2895	3110	I9, L12, F8
			3⁹⁄₁₆	13⅝	2½	Max	26-16d	12-10d	2015	3870	4365	4695	3330	3760	4045	
	HGUS412	12	3⅝	10⁷⁄₁₆	4	—	56-16d	20-16d	5045	9600	9600	9600	8255	8255	8255	I9, F23
	HGUS414		3⅝	12⁷⁄₁₆	4	—	66-16d	22-16d	5515	10100	10100	10100	8685	8685	8685	
	HUCQ412-SDS	14	3⁹⁄₁₆	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	2510	5460	5560	5560	3930	4000	4000	
5¼ x 7¼	HU68/HUC68	14	5½	5¹³⁄₁₆	2½	Min	10-16d	4-16d	900	1490	1680	1805	1280	1445	1555	I9, L12, F6
			5½	5¹³⁄₁₆	2½	Max	14-16d	6-16d	1345	2085	2350	2530	1795	2025	2180	
	HGUS5.50/8	12	5½	6¹⁵⁄₁₆	4	—	36-16d	12-16d	3235	7460	7460	7460	6415	6415	6415	I9
5¼ x 9¼ - 9½	HU610/HUC610	14	5½	7⅝	2½	Min	14-16d	6-16d	1345	2085	2350	2530	1795	2025	2180	I9, L12, F8
			5½	7⅝	2½	Max	18-16d	8-16d	1795	2680	3020	3250	2305	2605	2800	
	HHUS5.50/10		5½	9	3	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	I9, F23
	HUCQ610-SDS		5½	9	3	—	12-SDS ¼"x2½"	6-SDS ¼"x2½"	2520	4680	5380	5715	3370	3875	4115	
	HGUS5.50/10	12	5½	8¹⁵⁄₁₆	4	—	46-16d	16-16d	4095	9100	9100	9100	7825	7825	7825	
5¼ x 11¼ - 11⅞	HU612/HUC612	14	5½	9⅜	2½	Min	16-16d	6-16d	1345	2380	2685	2890	2050	2315	2490	I9, L12, F8
			5½	9⅜	2½	Max	22-16d	8-16d	1795	3275	3695	3970	2820	3180	3425	
	HHUS5.50/10		5½	9	3	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	I9, F23
	HUCQ612-SDS		5½	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	2520	5315	5315	5315	3825	3825	3825	
	HGUS5.50/12	12	5½	10½	4	—	56-16d	20-16d	5045	9600	9600	9600	8255	8255	8255	
5¼ x 14	HU616/HUC616	14	5½	12¹¹⁄₁₆	2½	Min	20-16d	8-16d	1795	2975	3360	3610	2565	2895	3110	I9, L12, F8
			5½	12¹¹⁄₁₆	2½	Max	26-16d	12-16d	2695	3870	4365	4695	3330	3760	4045	
	HHUS5.50/10		5½	9	3	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	I9, F23
	HUCQ612-SDS		5½	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	2520	5315	5315	5315	3825	3825	3825	
	HGUS5.50/14	12	5½	12½	4	—	66-16d	22-16d	5515	10100	10100	10100	8685	8685	8685	
5¼ x 16	HU616/HUC616	14	5½	12¹¹⁄₁₆	2½	Min	20-16d	8-16d	1795	2975	3360	3610	2565	2895	3110	I9, L12, F8
			5½	12¹¹⁄₁₆	2½	Max	26-16d	12-16d	2695	3870	4365	4695	3330	3760	4045	
	HHUS5.50/10		5½	9	3	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	I9, F23
	HUCQ612-SDS		5½	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	2520	5315	5315	5315	3825	3825	3825	
	HGUS5.50/14	12	5½	12½	4	—	66-16d	22-16d	5515	10100	10100	10100	8685	8685	8685	
5¼ x 18	HU616/HUC616	14	5½	12¹¹⁄₁₆	2½	Min	20-16d	8-16d	1795	2975	3360	3610	2565	2895	3110	I9, L12, F8
			5½	12¹¹⁄₁₆	2½	Max	26-16d	12-16d	2695	3870	4365	4695	3330	3760	4045	
	HHUS5.50/10		5½	9	3	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	I9, F23
	HUCQ612-SDS		5½	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	2520	5315	5315	5315	3825	3825	3825	
	HGUS5.50/14	12	5½	12½	4	—	66-16d	22-16d	5515	10100	10100	10100	8685	8685	8685	
7 x 9¼ - 9½	HU410-2/ HUC410-2	14	7⅛	9⅛	2½	Min	14-16d	6-16d	1345	2085	2350	2530	1795	2025	2180	I9, L12, F8
			7⅛	9⅛	2½	Max	18-16d	8-16d	1795	2680	3020	3250	2305	2605	2800	
	HHUS7.25/10		7¼	9	3⁵⁄₁₆	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	I9, F23
	HGUS7.25/10	12	7¼	8⅝	4	—	46-16d	16-16d	4095	9100	9100	9100	7825	7825	7825	
7 x 11¼ - 11⅞	HU412-2/ HUC412-2	14	7⅛	11⅛	2½	Min	16-16d	6-16d	1345	2380	2685	2890	2050	2315	2490	I9, L12, F8
			7⅛	11⅛	2½	Max	22-16d	8-16d	1795	3275	3695	3970	2820	3180	3425	
	HHUS7.25/10		7¼	9	3⁵⁄₁₆	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	I9, F23
	HGUS7.25/12	12	7¼	10⅝	4	—	56-16d	20-16d	5045	9600	9600	9600	8255	8255	8255	
7 x 14	HU414-2/ HUC414-2	14	7⅛	13⅞	2½	Min	20-16d	8-16d	1795	2975	3360	3610	2565	2895	3110	I9, L12, F8
			7⅛	13⅞	2½	Max	26-16d	12-16d	2695	3870	4365	4695	3330	3760	4045	
	HHUS7.25/10		7¼	9	3⁵⁄₁₆	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	I9, F23
	HGUS7.25/14	12	7¼	12⅝	4	—	66-16d	22-16d	5515	10100	10100	10100	8685	8685	8685	
7 x 16	HU414-2/ HUC414-2	14	7⅛	13⅞	2½	Min	20-16d	8-16d	1795	2975	3360	3610	2565	2895	3110	I9, L12, F8
			7⅛	13⅞	2½	Max	26-16d	12-16d	2695	3870	4365	4695	3330	3760	4045	
	HHUS7.25/10		7¼	9	3⁵⁄₁₆	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	I9, F23
	HGUS7.25/14	12	7¼	12⁷⁄₁₆	4	—	66-16d	22-16d	5515	10100	10100	10100	8685	8685	8685	
7 x 18	HU414-2/ HUC414-2	14	7⅛	13⅞	2½	Min	20-16d	8-16d	1795	2975	3360	3610	2565	2895	3110	I9, L12, F8
			7⅛	13⅞	2½	Max	26-16d	12-16d	2695	3870	4365	4695	3330	3760	4045	
	HHUS7.25/10		7¼	9	3⁵⁄₁₆	—	30-16d	10-16d	3735	5635	6380	6880	4835	5480	5910	I9, F23
	HGUS7.25/14	12	7¼	12⁷⁄₁₆	4	—	66-16d	22-16d	5515	10100	10100	10100	8685	8685	8685	
7x14 to 30	For additional hangers see HGU/HHGU on page 107.															

See footnotes on page 105.

SIMPSON Strong-Tie®

THAI *I-Joist & Structural Composite Lumber Hangers*

Designed for I-joists, the THAI has extra long straps and can be field-formed to give height adjustability and top flange hanger convenience. Positive angle nailing helps eliminate splitting of the I-joist's bottom flange.

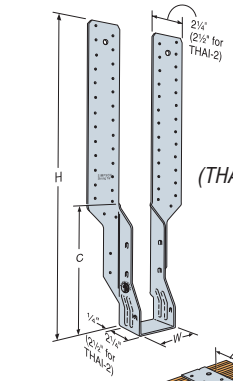
MATERIAL: THAI-2–14 gauge; all others–18 gauge **FINISH:** Galvanized

INSTALLATION:
- Factory-order the THAI-2 for hanger width needed. See table for allowable widths.
- Use all specified fasteners. Verify that the header can take the fasteners specified in the table.
- Web stiffeners are required for all I-joists used with these hangers.
- When a total of 20 face nails are used in THAI straps, or 30 face nails are used in THAI-2 straps, the maximum load-carrying capacity is achieved.
- Reduce load given by allowable nail shear capacity for each nail less than maximum.
- A minimum nailing configuration is shown for top nailing installations. The strap must be field-formed over the top of the header by a minimum of 2½".
- Uplift—Lowest face nails must be filled to achieve uplift loads.

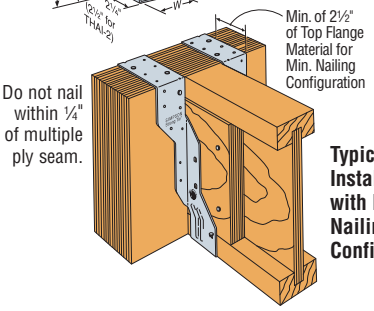
CODES: See page 13 for Code Reference Key Chart.

Joist Dimensions		Model No.	Hanger Dimensions			Code Ref.
Width	Depth		W[1]	H	C	
1½	9¼ - 14"	THAI222	1⁹⁄₁₆	22⅞	9⅜	I8, L15, F7
1¾	9¼ - 14"	THAI1.81/22	1¹³⁄₁₆	22¾	9¼	
2	9¼ - 14"	THAI2.06/22	2¹⁄₁₆	22⅝	9⅛	
2¹⁄₁₆	9¼ - 14"	THAI2.1/22	2⅛	22⁹⁄₁₆	9⅛	
2¼ to 2⁵⁄₁₆	9¼ - 14"	THAI3522	2⁵⁄₁₆	22½	9	
2½	9¼ - 14"	THAI322	2⁹⁄₁₆	22⅜	8⅞	
3½	9¼ - 14"	THAI422	3⁹⁄₁₆	21⅞	8⅜	
3 to 5¼	9¼ - 14"	THAI-2	3⅛ to 5⁵⁄₁₆	21¹¹⁄₁₆	8¹³⁄₁₆	

1. The W dimension should be ordered at ¹⁄₁₆" to ⅛" greater than the joist width.



THAI
(THAI-2 similar)



Typical THAI Installation with Minimum Nailing Configuration

Nailing Options	Fasteners			Uplift (160)	Allowable Loads								
					LVL Header			DF/SP Header			SPF/HF Header		
	Top	Face	Joist		Floor (100)	Snow (115)	Roof (125)	Floor (100)	Snow (115)	Roof (125)	Floor (100)	Snow (115)	Roof (125)
THAI Minimum	4-10dx1½	2-10dx1½	2-10dx1½	—	1400	1400	1400	1400	1400	1400	1060	1060	1060
	4-10d	2-10d	2-10dx1½	—	1715	1715	1715	1835	1835	1835	1590	1590	1590
THAI Maximum	—	20-10d	2-10dx1½	215	2200	2200	2200	2200	2200	2200	1920	2200	2200
THAI-2 Minimum	4-10d	2-10d	2-10dx1½	—	2020	2020	2020	2020	2020	2020	2020	2020	2020
THAI-2 Maximum	—	30-10d	2-10dx1½	215	3390	3900	4135	3390	3900	4135	2940	3310	3310

1. Uplift loads are based on DF/SP lumber and have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern. For SPF/HF use 0.86 x DF/SP uplift load.
2. The minimum header depth to achieve the maximum nail configuration is 16".
3. For the THAI3522 supporting a 2¼" joist, the download shall be the lesser of the table load or 1400 lbs.
4. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information

LGU/MGU/HGU/HHGU *High-Capacity Girder Hangers*

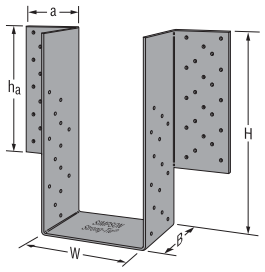
The GU hangers are a high-capacity girder hangers designed for situations where the header and joist are flush at top. This part can be used for retrofit on the framing members after they are temporarily placed in position. It uses Simpson Strong-Tie® Strong-Drive® screws (SDS) to make installation fast and easy, with no pre-drilling required.

MATERIAL: See table **FINISH**: Galvanized, HHGU—Simpson Strong-Tie® gray paint

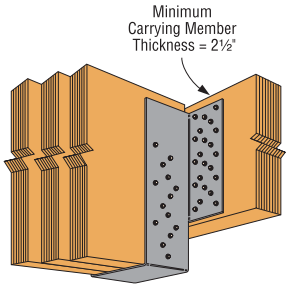
INSTALLATION:
- Use all specified fasteners. See General Notes.
- Install with Simpson Strong-Tie SDS ¼"x2½" screws, which are provided with the GU's. *(Note: lag screws will not achieve the same loads.)*
- All multiple members must be fastened together to act as a single unit.
- Multiple member headers may require additional fasteners at the hanger locations. The quantity and location of the additional fasteners must be determined by the Designer.

OPTIONS:
- Hot-dip galvanized available. Order as "X" version, specify HDG.
- Other seat widths available. Order as "X" version, specify width.
- See Hanger Options, pages 216-217, for one flange concealed option *(all models except MGU3.63)*.
- LGU, MGU and HGU hangers may be skewed up to 45°. See page 224.

CODES: See page 13 for Code Reference Key Chart.



HHGU
(LGU, MGU, HGU similar)



Typical HHGU Installation

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.

Actual Carried Beam Width	Model No.	Ga	Dimensions					Fasteners		Allowable Loads				Code Ref.
			W	H² (min)	B	h_a³	a	Face	Joist	DF/SP		SPF/HF		
										Uplift 160	Download 100/115/125	Uplift 160	Download 100/115/125	
3½	LGU3.63-SDS	10	3⅝	8	4½	7⅜	3¼	16-SDS ¼"x2½"	12-SDS ¼"x2½"	5555	6720	4000	4840	I9, F23, L12
3½	MGU3.63-SDS	10	3⅝	9¼	4½	8⅝	4	24-SDS ¼"x2½"	16-SDS ¼"x2½"	7260	9450	5225	6805	
3½	HGU3.63-SDS	7	3⅝	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	
5¼	MGU5.50-SDS	10	5½	9¼	4½	8⅝	4	24-SDS ¼"x2½"	16-SDS ¼"x2½"	7260	9450	5225	6805	
5¼	HGU5.50-SDS	7	5½	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	
5¼	HHGU5.50-SDS	3	5½	13	5¼	12⅜	4¾	44-SDS ¼"x2½"	28-SDS ¼"x2½"	14550	17845	10475	12850	
7	HGU7.25-SDS	7	7¼	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	
7	HHGU7.25-SDS	3	7¼	13	5¼	12⅜	4¾	44-SDS ¼"x2½"	28-SDS ¼"x2½"	14550	17845	10475	12850	

1. Uplift loads have been increased for earthquake and wind loading, with no further increase allowed.
2. Specify H dimension. Maximum H = 30".
3. Header height must be at least as tall as flange height (h_a).

TOP FLANGE HANGERS ITS/MIT/HIT *Engineered Wood Products Hangers*

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.

A dedicated range of Top Flange I-joist hangers meeting the unique needs of I-joists while offering superior performance and ease of installation.

ITS

The innovative ITS sets a new standard for engineered wood top flange hangers. The ITS installs faster and uses fewer nails than any other EWP top flange hanger. The new Strong-Grip™ seat and Funnel Flange™ features allow standard joist installation without requiring joist nails resulting in the lowest installed cost. The Strong-Grip seat firmly secures I-joists with flange thicknesses from 1⅛" to 1½".

MIT/HIT - Patented Positive Angle Nailing (PAN)

PAN is specifically designed for I-joists when used with the MIT or HIT. With PAN, the nail hole material is not removed, but is formed to channel and confine the path of the nail at approximately 45°. PAN minimizes splitting of the flanges while permitting time-saving nailing from a better angle. See Top Flange tables on pages 114-122.

Refer to Joist Manufacturer's literature or appropriate Simpson Strong-Tie® Connector Selection Guide for actual joist sizes.

MATERIAL: ITS—18 gauge; MIT, HIT—16 gauge

FINISH: Galvanized

INSTALLATION:

- Use all specified fasteners. Verify that the header can take the required fasteners specified in the table.
- See product specific installation drawings pages 108-109.
- ITS—no joist nailing required for standard I-joist installation without web stiffeners. When supporting I-joists with web stiffeners or rectangular SCL member 2-10dx1½" must be installed into optional triangle joist nail holes for standard installation values.
- ITS—optional triangle nail holes may be used for additional load. See allowable load tables. Refer to technical bulletin T-OPTUPLIFT for additional options *(see page 231 for details)*.
- MIT—optional triangle nail holes may be used for increased uplift capacity. See Optional Nailing For Increased Uplift table.
- HIT—closed PAN nail holes may be used for increased uplift capacity. See Optional Nailing For Increased Uplift table.
- For sloped joists up to ¼:12 there is no reduction, between ¼:12 and up to ½:12, tests show a 10% reduction in ultimate hanger strength. Local crushing of the bottom flange or excessive deflection may be limiting; check with joist manufacturer for specific limitations on bearing of this type.

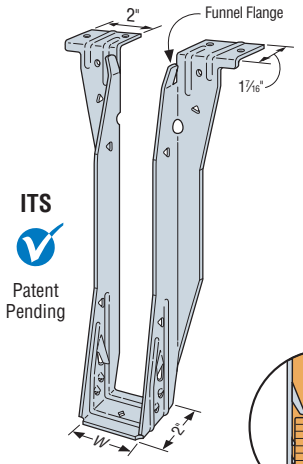
ALLOWABLE LOADS:

- The ITS, MIT and HIT hangers have locations for optional nails if additional uplift is needed. Optional uplift nailing requires the addition of properly-secured web stiffeners. See the load tables for minimum required fasteners and allowable uplift loads.

OPTIONS:

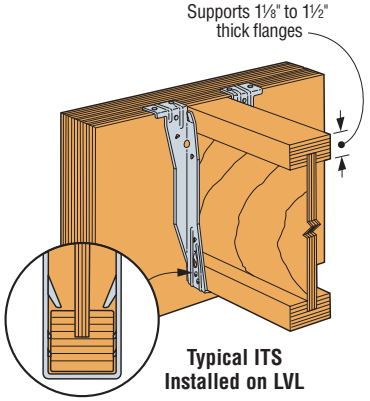
- Because these hangers are fully die-formed, they cannot be modified. However these models will normally accommodate a skew of up to 5°.

CODES: See page 13 for Code Reference Key Chart.

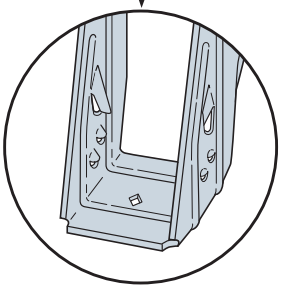


ITS

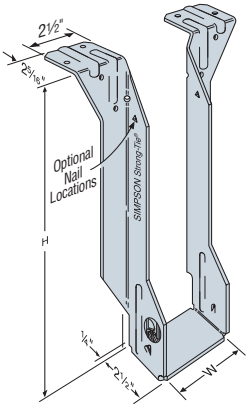
Patent Pending



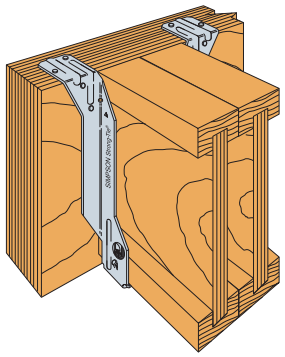
Typical ITS Installed on LVL



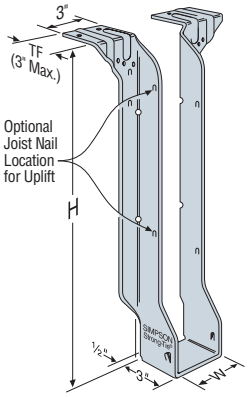
The Strong-Grip™ seat secures I-joists in position without joist nails



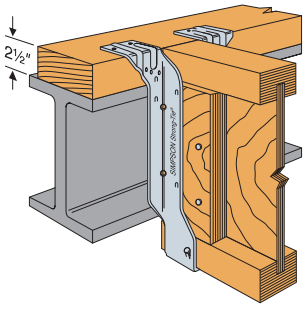
MIT



Typical MIT Installed on a Double LVL



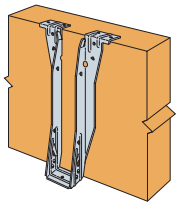
HIT



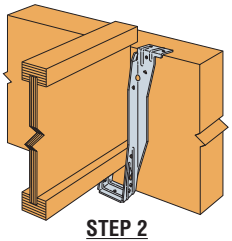
HIT Installation on a 3x Nailer mounted on a Steel Beam
(ITS, MIT similar)

TOP FLANGE HANGERS ITS/MIT/HIT *Engineered Wood Products Hangers*

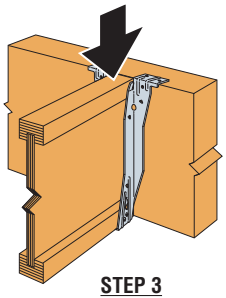
ITS INSTALLATION SEQUENCE



STEP 1
Attach the ITS to the header

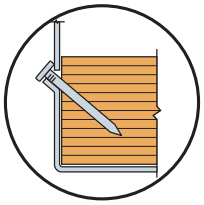


STEP 2
Slide the I-joist downward into the ITS until it rests above the Strong-Grip™ seat.



STEP 3
Firmly push or snap I-joist fully into the seat of the ITS.

POSITIVE ANGLE NAILING



Correct Nailing
Approx. 45° angle

IT SERIES WITH VARIOUS HEADER APPLICATIONS

Model	Fasteners			Allowable Loads Header Type								Code Ref.
	Top	Face	Joist	Uplift[2,3] (160)	LVL[4]	PSL	LSL	DF/SP	SPF/HF	DF/SCL[5] I-Joist	SPF/HF I-Joist	
ITS Series[10] (Standard Installation)	4-10dx1½	2-10dx1½	—	105	1395	1245	1625	1440	1140	1085	940	I19, L14, F18
	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	—	—	
	4-16d	2-16d	—	105	1785	1735	1905	1635	1225	—	—	
ITS Series[7,10] (Alternate Installation)	4-10d	4-10d	—	105	1735	1595	1885	1955	1230	—	—	170
	4-16d	4-16d	—	105	1785	1735	1905	1955	1490	—	—	
	4-10d	4-10d	4-10dx1½	630	1735	1595	1885	1955	1230	—	—	
	4-16d	4-16d	4-10dx1½	630	1785	1735	1905	1955	1490	—	—	
MIT Series[10]	4-10dx1½	4-10dx1½	2-10dx1½	215	2035	1500	1605	2035	1115	1230	885	I19, L14, F18
	4-10d	4-10d	2-10dx1½	215	2335	2000	1605	2245	1665	—	—	
	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	—	—	
HIT Series	4-16d	6-16d	2-10dx1½	315	2550	2220	2500	2875	2000	—	—	

1. Loads may not be increased for duration of load.
2. Uplift loads are based on DF/SP lumber and have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern. For SPF/HF use 0.86 x DF/SP uplift load.
3. ITS uplift loads are valid for all lumber species and need not be reduced for duration of load.
4. Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from Spruce Pine Fir or similar less dense veneers, use the values found in the SPF/HF column.
5. DF I-joists include flanges made from solid sawn Douglas Fir, LVL made primarily of Douglas Fir/Southern Pine, or LSL. For flanges with thicknesses from 1⁵⁄₁₆ to 1⅜, use 0.85 of the I-joist header load. For flanges with thicknesses from 1⅛ to 1¼, use 0.75 of the I-joist header load.
6. SCL *(structural composite lumber)* is LVL, LSL, and Parallam® PSL.
7. Web stiffeners required for the ITS Alternate Installation when installing optional joist nails for additional uplift load.
8. Code Values are based on DF/SP header species.
9. I-joists with flanges less than 1⁵⁄₁₆" thick used in combination with hangers thinner than 14 gauge may deflect an additional 1⁄₃₂ inch beyond the standard ⅛" limit.
10. For 2¼" and 2⁷⁄₁₆" wide joists, see tables on page 115 for allowable loads.

Parallam® is a registered trademark of Weyerhaeuser.

NAILS: 16d = 0.162" dia. x 3½" long, 16dx2½ = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

NAILER TABLE

This table indicates various allowable loads for ITS/MIT/HIT hangers used on wood nailers. The header nail type must be substituted for those listed in other tables. See technical bulletin T-NAILERUPLFT for other uplift values and options *(see page 231 for details)*.

Model	Nailer	Top Flange Nailing	Joist Nailing	Uplift[2] (160)	Allowable Loads	
					DF/SP	SPF/HF
ITS Series	2x	6-10dx1½	—	105	1260	1260
	2x	6-10dx1½	2-10dx1½	355	1260	1260
	2-2x	6-10d	—	105	1220	1220
	2-2x	8-10d	4-10dx1½	630	1745	1530
	3x	6-16dx2½	—	105	1500	—
	3x	8-16dx2½	4-10dx1½	630	1540	—
	4x	6-16d	—	105	1525	—
	4x	8-16d	4-10dx1½	630	1905	—
MIT Series	2x	6-10dx1½	2-10dx1½	215	1570	1440
	2-2x	8-10d	2-10dx1½	215	1570	1255
	3x	8-16dx2½	2-10dx1½	215	1975	—
	4x	8-16d	2-10dx1½	215	2250	—
HIT Series	2-2x	10-10d	2-10dx1½	315	2595	—
	3x	10-16dx2½	2-10dx1½	315	2835	—
	4x	10-16d	2-10dx1½	315	2875	—

1. Uplift loads are based on DF/SP members only. See technical bulletin T-NAILERUPLFT for SPF/HF values *(see page 231 for details)*.

OPTIONAL NAILING FOR INCREASED UPLIFT

Model	Fasteners			Allowable Uplift Loads
	Top	Face	Joist	(160)
ITS	4-10d	4-10d	4-10dx1½	630
	4-16d	4-16d	4-10dx1½	630
MIT	4-10dx1½	4-10dx1½	4-10dx1½	575
	4-16d	4-16d	4-10dx1½	575
HIT	4-16d	6-16d	4-10dx1½	575
	4-16dx2½	6-16dx2½	4-10dx1½	575
	4-16d	6-16d	6-10dx1½	850

1. Loads are based on Doug Fir, and have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. Web stiffeners are required on I-joist for additional nailing.

TOP FLANGE HANGERS LBV/BA/B/HB *I-Joist & Structural Composite Lumber Hangers*

SIMPSON Strong-Tie®

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 BA hanger is a cost effective hanger targeted at high capacity I-joists and common Structural Composite Lumber applications. A min/max joist nail option gives dual use of this hanger. Minimum values featuring positive angle nailing are targeted at I-joist without web stiffeners requirement and the maximum nailing generates higher loads to support structural composite lumber. The unique two level embossment provides added stiffness to the top flange.

The newly improved LBV, B and HB hangers offer wide versatility for I-joists and structural composite lumber. The enhanced load capacity widens the range of applications for these hangers. The LBV still features positive angle nailing and does not require the use of web stiffeners for standard non modified I-joist installations.

See Top Flange tables on pages 114-122. See Hanger Options on pages 216-217 for hanger modifications, which may result in reduced loads.

MATERIAL: See tables, pages 114-122.

FINISH: LBV, B, BA and HB—Galvanized; all saddle hangers and all welded sloped and special hangers—Simpson Strong-Tie® gray paint. LBV, B, BA and HB may be ordered hot-dip galvanized; specify HDG.

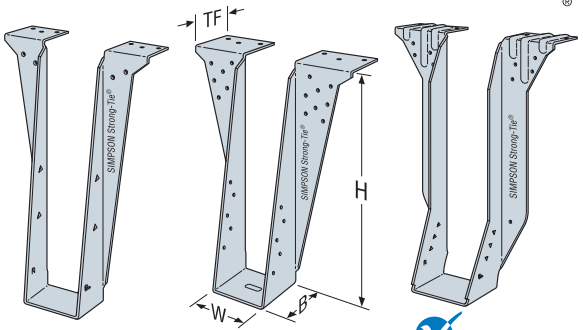
INSTALLATION: • Use all specified fasteners. See General Notes and nailer table.

- LBV, B, BA and HB may be used for weld-on applications. Weld size to match material thickness *(approximate thickness shown)*. The minimum required weld to the top flanges is ⅛" x 2" fillet weld to each side of each top flange tab for 14 and 12 gauge and 3⁄16" x 2" fillet weld to each side of each top flange tab for 7 gauge and 10 gauge. Distribute the weld equally on both top flanges. Welding cancels the top and face nailing requirements. Consult the code for special considerations when welding galvanized steel. The area should be well-ventilated, see page 17 for weld information. Weld on applications produce the maximum allowable down load listed. For uplift loads refer to technical bulletin T-WELDUPLFT.
- LBV hangers do not require the use of web stiffeners for non-sloped or non-skewed applications.
- B and HB hangers require the use of web stiffeners. BA MIN nailing does not require web stiffeners. BA MAX nailing requires the use of web stiffeners.
- Ledgers must be evaluated for each application separately. Check TF dimension, nail length and nail location on ledger.
- Refer to technical bulletin T-SLOPEJST *(see page 232 for details)* for information regarding load reductions on selected hangers which can be used without modification to support joists which have shallow slopes (≤¾:12).

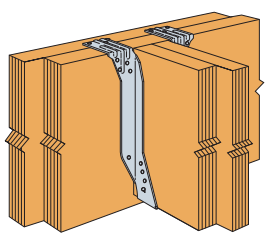
OPTIONS: • LBV, B and HB

- Other widths are available; specify W dimension *(the minimum W dimension is 1⁹⁄16")*.
- The coating on special B hangers will depend on the manufacturing process used. Check with your Simpson Strong-Tie representative for details. Hot-dip galvanized available: specify HDG.
- Refer to technical bulletin T-BSERIES *(see page 230 for details)* for the complete line of LBV, BA, B and HB hangers, including models not shown here, their available modification combinations and their associated reduction factors.
- Modified hangers have reduced loads, see Hanger Options, pages 215-224.

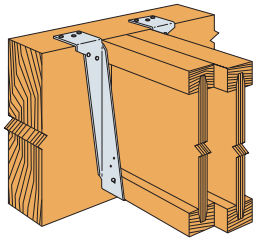
CODES: See page 13 for Code Reference Key Chart.



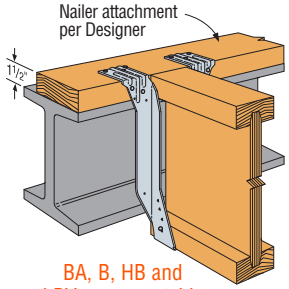
LBV **HB** *(B Similar)* **BA** U.S. Patent 7,334,372



BA Installed LVL to LVL Max Nailing

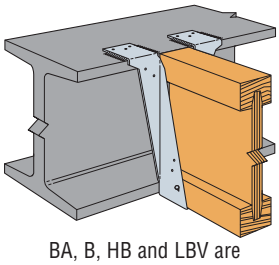


Typical Double LBV Hanger Installation



BA, B, HB and LBV are acceptable for nailer applications *(BA shown on 2x nailer)*

LBV features positive angle nailing, no web stiffeners are required



BA, B, HB and LBV are acceptable for weld-on applications *(LBV shown)*. See Installation Information.

Model No.	Nailer	Top Flange Nailing	Uplift[1] (160)	Allowable Loads DF/SP	Allowable Loads SPF/HF
LBV	2x	10-10dx1½	265	2280	2085
	2-2x	10-10d	265	1955	1530
	3x	10-16dx2½	265	2490	—
	4x	10-16d	265	2590	—
BA	2x	10-10dx1½	265	2220	1755
	2-2x	14-10d	265	2695	2235
	3x	14-16dx2½	265	3230	—
	4x	14-16d	265	3230	—
B	2-2x	14-10d	710	3615	2770
	3x	14-16dx2½	825	3725	—
	4x	14-16d	825	3800	—
HB	4x	22-16d	1550	5500	—

NAILER TABLE

The table indicates the maximum allowable loads for LBV, BA, B and HB hangers used on wood nailers. Nailers are wood members attached to the top of a steel I-beam, concrete or masonry wall.

1. Uplift values are for DF/SP members only. LBV and BA hangers resist more uplift when web stiffeners are used. Refer to technical bulletin T-NAILERUPLFT for additional information *(see page 231 for details)*.
2. See page 221 for reductions on modified hangers on nailers.
3. B hangers require 6-10dx1½ joist nails to achieve published loads. For joist members 2½" or wider, 16dx2½" joist nails should be installed for additional uplift loads on the 3x and 4x nailer applications of 970 lbs. and 1010 lbs. respectively.

NAILS: 16d = 0.162" dia. x 3½" long, 16dx2½ = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

B SERIES WITH VARIOUS HEADER APPLICATIONS

Model Series	Fasteners Top	Fasteners Face	Fasteners Joist	Allowable Loads Header Type Uplift[3] (160)	LVL[8]	PSL	LSL	DF/SP	SPF/HF	I-Joist[9] DF/SCL	I-Joist[9] SPF/HF	Code Ref.
LBV (Min)	6-10dx1½	4-10dx1½	2-10dx1½	265	2295	2610	2270	1790	1835	1495	1340	I19, L14, F21
	6-10d	4-10d	2-10dx1½	265	2295	2610	2645	2310	2060	—	—	
	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	—	—	
LBV (Max)	6-10dx1½	4-10dx1½	6-10dx1½	635	2295	2610	2270	1790	1835	1495	1350	
	6-10d	4-10d	6-10dx1½	785	2295	2610	2645	2310	2060	—	—	
	6-16d	4-16d	6-10dx1½	895	2910	2885	3190	2590	2060	—	—	
BA (Min)	6-10dx1½	10-10dx1½	2-10dx1½	—	—	—	—	—	—	1495	1495	
	6-10d	10-10d	2-10dx1½	265	3230	3630	4005	3080	2425	—	—	
	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	—	—	
BA (Max)	6-10d	10-10d	8-10dx1½	1170	3555	3630	4120	3625	2465	—	—	
	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	—	—	
B[2]	6-10d	8-10d	6-10dx1½	990	3575	3195	3640	3625	2190	—	—	
	6-16d	8-16d	6-16dx2½	1010	4135	3355	4500	3800	2650	—	—	
HB[2]	6-16d	16-16d	10-16dx2½	2610	5815	5640	6395	5650	3820	—	—	

1. This table assumes joists with Fc⊥ = 750 psi. For other joists, check that bearing and joist nails are adequate.
2. Loads for B's and HB's assume a joist width of 2½" or greater.
3. Uplift loads are based on DF/SP lumber and have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.For SPF/HF use 0.86 x DF/SP uplift load.
4. Loads may not be increased for short term loading.
5. Web stiffeners required when more than two joist nails are used.
6. SCL *(structural composite lumber)* is LVL *(laminated veneer lumber)*, LSL *(laminated strand lumber)*, and Parallam® PSL.
7. Code values are based on DF/SP header species.
8. Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from Spruce-Pine-Fir or similar less dense veneers, use the values found in the SPF/HF column.
9. DF I-joists include flanges made from solid sawn Douglas Fir, LVL made primarily of Douglas Fir/ Southern Pine, or LSL. For flanges with thicknesses from 1⁵⁄16 to 1⅜, use 0.85 of the I-joist header load. For flanges with thicknesses from 1⅛ to 1¼, use 0.75 of the I-joist header load.

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TOP FLANGE HANGERS W/WP/WPU/WM/WMU/HW/HWU

I-Joist & Structural Composite Lumber Hangers

SIMPSON Strong-Tie®

The W, WP, WPU, HWU and HW series are designed to hang joists, purlins or beams. WM and WMU hangers are designed for use on standard 8" grouted masonry block wall construction. Some models have an "I" in the model number which indicates a size specific for an I-Joist and have the same properties and modifications as the standard series.

MATERIAL: See tables on pages 114-122.

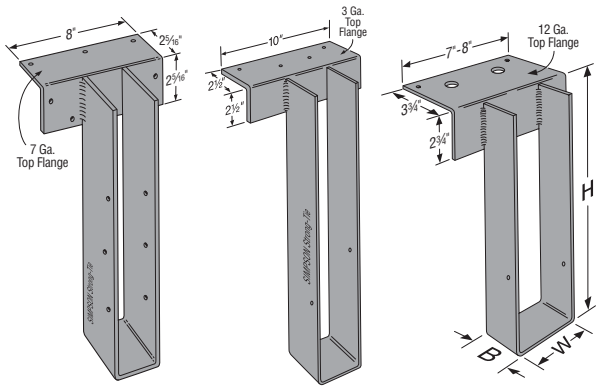
FINISH: Simpson Strong-Tie® gray paint; HDG available. Contact Simpson Strong-Tie.

INSTALLATION: • Use all specified fasteners. WM—two 16d duplex nails must be installed into the top flange and embedded into the grouted wall. Verify that the header can take the required fasteners specified in the table.

- Hangers may be welded to steel headers with ⅛" for W, 3/16" for WP, WPU, and ¼" for HW, HWU by 1½" fillet welds located at each end of the top flange, see page 17 for weld information. Weld-on applications produce maximum allowable load listed. For uplift loads refer to technical bulletin T-WELDUPLFT *(WPU and HWU hangers only)*.
- Hangers can support multi-ply carried members; the individual members must be secured together to work as a single unit before installation into the hanger.
- Hangers can support joists sloped up to ¼:12 using table loads. For joists sloping between ¼:12 and ¾:12 use 85% of the table loads.
- Web stiffeners are required for standard joist nailing configuration with these hangers.
- **WM/WMU MID-WALL INSTALLATION:** Installed between blocks with duplex nails cast into grout with a minimum of one grouted course above and below the top flange grouted and one #5 vertical rebar minimum 24" long in each adjacent cell.
- **WM/WMU TOP-OF-WALL INSTALLATION:** Install on top of wall to a grouted beam with masonry screws.

OPTIONS: • See Hanger Options, pages 216-217 for hanger modifications and associated load reductions.

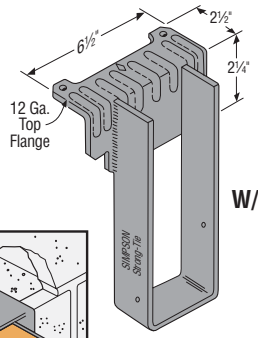
CODES: See page 13 for Code Reference Key Chart.



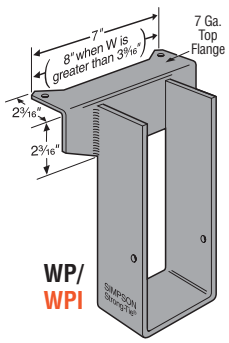
WPU

HW/HWI *(HWU similar)*

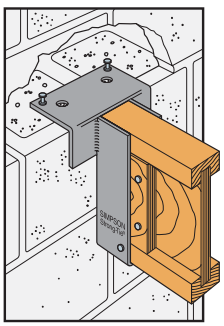
WM *(WMU similar)*



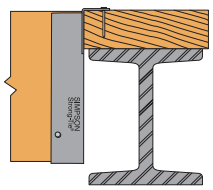
W/WI



WP/WPI



Typical WM Installation



Correct Nailer Attachment

Some model configurations may differ from those shown. Contact Simpson Strong-Tie for details.

Model	Nailer	Top Flange Nailing	Uplift[1] (160)	Allowable Loads DF/SP	Allowable Loads SPF/HF
W	2x	2-10dx1½	—	1600	1600
	2-2x	2-10d	—	1665	—
	3x	2-16dx2½	—	1765	—
	4x	2-10d	—	2200	—
WP	2x	2-10dx1½	—	2525	2500
	2-2x	2-10d	—	3255	3255
	3x	2-16dx2½	—	3000	2510
	4x	2-10d	—	3255	3255
WPU	2-2x	7-10d	710	3255	—
	3x	7-16dx2½	970	3000	—
	4x	7-16d	1095	3255	—
HW	2-2x	4-10d	—	4860	—
	3x	4-16dx2½	—	4845	—
	4x	4-16d	—	5285	—
HWU	2-2x	8-16dx2½	710	5430	—
	3x	8-16dx2½	970	5430	—
	4x	8-16d	1160	5430	—

NAILER TABLE

The table indicates the maximum allowable loads for W, WP and HW hangers used on wood nailers. Nailers are wood members attached to the top of a steel I-beam, concrete or masonry wall.

1. Uplift values for the WPU and HWU hangers are for depths ≤ 18" and are for DF/SP values only. Refer to uplift values in table below for taller depths.
2. Attachment of nailer to supporting member is the responsibility of the Designer.

W SERIES WITH VARIOUS HEADER APPLICATIONS

Model	Joist Width	Joist Depth	Fasteners Top	Fasteners Face	Fasteners Joist	Allowable Loads Header Type Uplift (160)	LVL[4]	PSL	LSL	DF/SP	SPF/HF	I-Joist	Masonry[5]	Code Ref.
W	1½ to 4	3½ to 30	2-10dx1½	—	2-10dx1½	—	1635	1740	—	1600	1415	—	—	170
	1½ to 4	3½ to 30	2-10d	—	2-10dx1½	—	2150	2020	—	2200	1435	—	—	I19, L14, F18
	1½ to 4	3½ to 30	2-16d	—	2-10dx1½	—	2335	1950	2335	1765	1435	—	—	
WM	1½ to 4	3½ to 30	2-16d DPLX	—	2-10dx1½	—	MID-WALL INSTALLATION						4175	IL12
	1½ to 4	3½ to 30	2-¼x1¾" Titens	—	2-10dx1½	—	TOP-OF-WALL INSTALLATION						3380	
WMU	1½ to 7½	9 to 28	2-16d DPLX	4-¼x1¾" Titens	6-10dx1½	625	MID-WALL INSTALLATION						4175	170
	1½ to 7½	9 to 28	2-¼x1¾" Titens	4-¼x1¾" Titens	6-10dx1½	545	TOP-OF-WALL INSTALLATION						3380	
WP	1½ to 7⅛	3½ to 30	2-10dx1½	—	2-10dx1½	—	2865	3250	—	2500	2000	2030	—	
	1½ to 7⅛	3½ to 30	2-10d	—	2-10dx1½	—	2525	3250	3650	3255	2525	—	—	
	1½ to 7⅛	3½ to 30	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	—	—	
WPU	1½ to 5½	7¼ to 18	3-16d	4-16d	6-10dx1½	1095	4700	4880	3650	4165	4165	—	—	
	1½ to 5½	18½ to 28	3-16d	4-16d	6-10dx1½	390	4700	4880	3650	4165	4165	—	—	
HW	1½ to 7½	3½ to 32	4-10d	—	2-10dx1½	—	3100	4000	—	5285	3100	—	—	
	1½ to 7½	3½ to 32	4-16d	—	2-10dx1½	—	5100	4000	4500	5285	3665	—	—	
HWU	1¾ to 3½	9 to 18	4-16d	4-16d	6-10dx1½	1160	6335	5500	5535	6335	5415	—	—	I19, L14, F18
	1¾ to 3½	18½ to 28	4-16d	4-16d	6-10dx1½	965	6335	5500	5535	6335	5415	—	—	
	1¾ to 3½	28½ to 32	4-16d	4-16d	8-10dx1½	985	6335	5500	5535	6335	5415	—	—	
	4½ to 7	9 to 18	4-16d	4-16d	6-10dx1½	1160	6000	5500	5535	6000	5415	—	—	
	4½ to 7	18½ to 28	4-16d	4-16d	6-10dx1½	965	6000	5500	5535	6000	5415	—	—	
	4½ to 7	28½ to 32	4-16d	4-16d	8-10dx1½	985	6000	5500	5535	6000	5415	—	—	

1. Uplift loads are based on DF/SP lumber and have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6. For SPF/HF use 0.86 x DF/SP uplift load.
2. Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from Spruce Pine Fir or similar less dense veneers, use the values found in the SPF/HF column.
3. WP quantity of nail holes in top flange varies.
4. Top Flange Hangers on the following pages with "I" in the model name (e.g. HWI) use the same design information in the above tables for the models without the "I" in the name (e.g. HW).
5. Minimum f'_m = 1500 psi. See Installation Notes on page 159.
6. For hanger heights exceeding the joist height, the allowable load is 0.50 of the table load.
7. **NAILS:** 16d and 16d DPLX = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

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UPDATED 5/8/2013

GLTV/HGLTV *Heavy Duty Hangers*

GLTV and HGLTV hangers are designed for structural composite lumber header applications that require high loads. The top flange nails are sized and specifically located to prevent degradation of the header due to splitting of laminations.

For heavy loads with a face-mount application, see the HGUS and GU series.

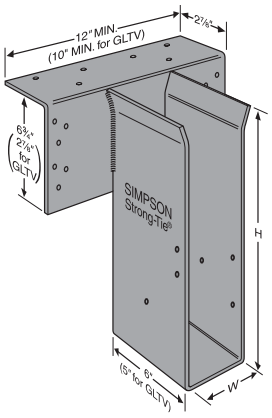
MATERIAL: Top flange—3 gauge; Stirrups—7 gauge

FINISH: Simpson Strong-Tie® gray paint; HDG available. Contact Simpson Strong-Tie.

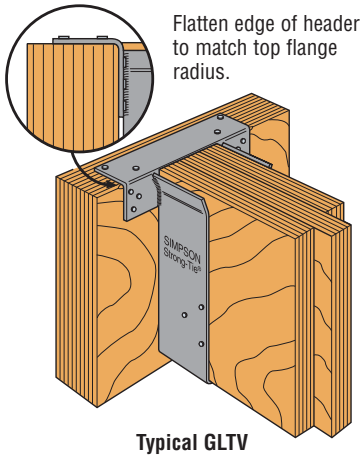
INSTALLATION: • Use all specified fasteners. Verify that the header can take the required fasteners specified in the table.
- This series may be used for weld-on applications. Minimum required weld is a 3/16" x 2½" fillet weld at each end of the top flange for GLTV, and a ¼" x 2½" fillet weld at each end of the top flange for HGLTV, see page 17 for weld information. Weld-on applications produce maximum loads listed. For uplift loads refer to T-WELDUPLFT.
- Web stiffeners are required with I-joists using this hanger style.
- GLTV or HGLTV hangers may be installed on ledgers provided the ledgers are made of 4x solid sawn or 3½" SCL shown in the table below. Thinner lumber must be evaluated by the building Designer.
- HGLTV hangers should not be attached to nailers.

OPTIONS: • Hot-dip galvanized: specify HDG.
- See Hanger Options, pages 215-224. Saddle hanger versions are available in some engineered wood sizes.

CODES: See page 13 for Code Reference Key Chart.



HGLTV
(GLTV similar)



Typical GLTV Installation

Model No.	Fasteners			Allowable Loads Header Type							Code Ref.
	Top	Face	Joist	Uplift (160)	LVL[5]	PSL	LSL	DF/SP	SPF/HF	Nailer[6]	
GLTV series	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	5930	I19, L14, F18
HGLTV series	6-16d	12-16d	6-16d	1295	10500	9485	9000[4]	8835	6770	—	

1. Uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. Uplift loads only apply when "H" is 28" or less. Uplift loads for nailer applications is limited to 710 lbs.
3. For hanger heights exceeding the joist height, the allowable load is 0.50 of the table load.
4. HGLTV at maximum allowable load may have greater than ⅛" deflection.
5. Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from Spruce Pine Fir or similar less dense veneers, use the values found in the SPF/HF column.
6. Nailer shall be minimum 2-2x, 3x or 4x DF/SP. Use 16dx2½" nails.
7. For SCL products made primarily from Douglas Fir or Southern Pine use 1640 lbs. for uplift. For SPF member use 1115 lbs. for uplift.
8. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 22-23 for other nail sizes and information.

EGQ *High Capacity Hanger*

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 EGQ hanger is a high capacity top flange connector designed for use with Structural Composite Lumber beams. It utilizes Simpson Strong-Tie® Strong-Drive® screws (SDS) for higher capacity and ease of installation. Available in standard SCL widths and made to specified heights. SDS screws are included.

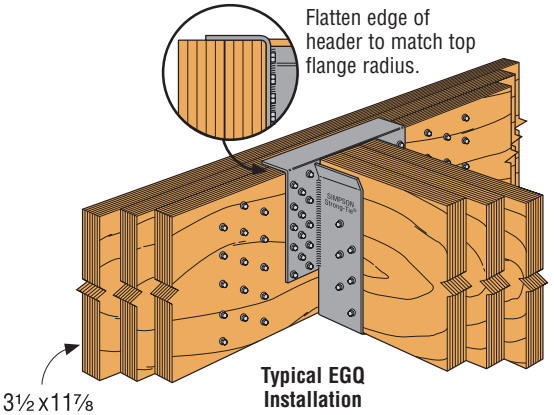
MATERIAL: Top flange—3 gauge; Stirrups—7 gauge

FINISH: Simpson Strong-Tie gray paint; HDG available. Contact Simpson Strong-Tie.

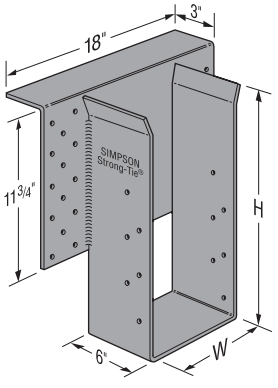
INSTALLATION: • Use all specified fasteners. See General Notes.
- Install with Simpson Strong-Tie SDS ¼"x3" wood screws, which are provided with the EGQ. *(Lag screws will not achieve the same load.)*
- All multiple members must be fastened together to act as a single unit.
- Multiple member headers may require additional fasteners at hanger locations. Quantity and location to be determined by designer. See SDS section for additional information and SDS screws applications.

OPTIONS: • See Hanger Options pages 215-224.

CODES: See page 13 for Code Reference Key Chart.



Typical EGQ Installation



EGQ

Model No.	Joist or Purlin Size	Dimensions		Fasteners		Allowable Loads Header Type				Code Ref.
		W	Min H	Header	Joist	Uplift (160)	LVL/LSL	PSL	DF/SP	
EGQ3.62-SDS3	3½	3⅜	11¼	28-SDS ¼"x3"	12-SDS ¼"x3"	6365	19800	18680	19800	I19, L14
EGQ5.50-SDS3	5¼	5½	11¼	28-SDS ¼"x3"	12-SDS ¼"x3"	6365	19800	18680	19800	
EGQ7.25-SDS3	7	7¼	11¼	28-SDS ¼"x3"	12-SDS ¼"x3"	6365	19800	18680	19800	

1. Loads are based on 750 psi wood bearing for SCL.
2. "Min H" is the minimum H dimension that may be specified.
3. Uplift loads have been increased for wind or earthquake loading with no further increase allowed. For normal loading such as in cantilever construction use an uplift value of 4800 lbs.

MSC *Multiple Seat Connector*

The MSC supports the ridge and two valleys for roof construction. Ideal for dormer roof applications.

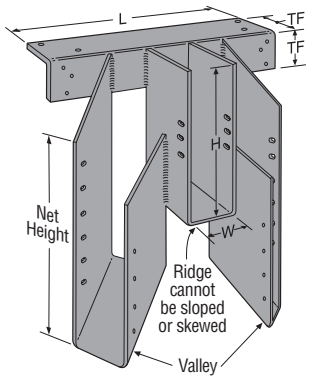
MATERIAL: Top flange—3 gauge, Stirrups—11 gauge (MSC2 and MSC1.81), 7 gauge (MSC4 and MSC5)

FINISH: Simpson Strong-Tie® gray paint; HDG available. Contact Simpson Strong-Tie.

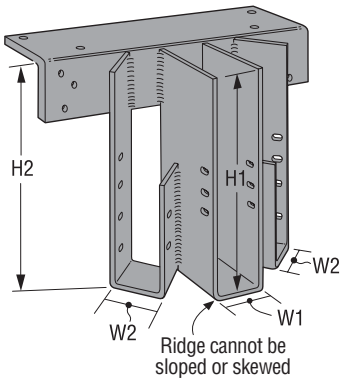
INSTALLATION: • Distribute the total load evenly about the centerline to avoid eccentric loading.
- Fasten all built-up members together as one unit.
- Net height will be calculated based on specified valley member depth and slope by the factory unless noted otherwise.

SLOPED AND/OR SKEWED VALLEYS
- The valley stirrups can be sloped down to 45° and skewed from 25° to 45° . *(MSC5 skewed 20°-45°.)*
- The total design load of the hanger is split between the ridge (20%) and each valley (40%).
- MSC connectors can be used for two valley connections with no ridge member. Divide the total load by two for each valley load.

CODES: See page 13 for Code Reference Key Chart.



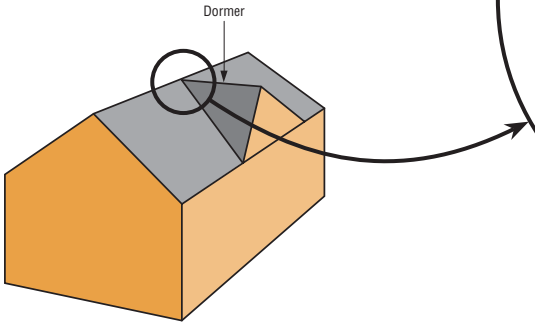
MSC4 with Valley Sloped and Skewed 45°

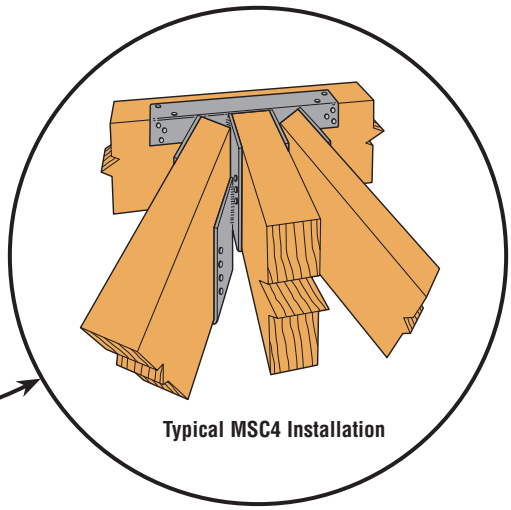


MSC1.81 with Valley Skewed 45° and Sloped 0°

Model No.	Dimensions				Fasteners		Hips		Allowable Loads DF/SP			Code Ref.
	W	H (Min)	TF	L	Header	Joist	Max. Skew	Max. Slope	Floor/Snow/Roof (100/115/125)			
									Valley	Ridge	Total	
MSC2	1⁹⁄₁₆	5½	2⅞	12	10-16d	18-10dx1½	45°	0°	2535	1265	6335	I19, L14, F18
						26-10dx1½		45°	2010	1005	5025	
MSC1.81	1¹³⁄₁₆	5½	2⅞	12	10-16d	18-10dx1½	45°	0°	2535	1265	6335	
						26-10dx1½		45°	2010	1005	5025	
MSC4	3⁹⁄₁₆	7½	2⅞	18	10-16d	18-10d	45°	0°	3335	1665	8335	
						26-10d		45°	3335	1665	8335	
MSC5	5¼	9½	2⅞	26	13-16d	18-16d	45°	0°	6450	3220	16125	
						26-16d		45°	6290	3145	15725	

1. Valley loads are for each valley.
2. Other valley-ridge load distributions are allowed provided the sum of all three carried members is distributed symmetrically about the center of the hanger and combined do not exceed the total load.
3. MSC4 is also available in 3⅛" Glulam width.
4. MSC5 is also available in widths up to 5½". W_2 minimum width is 3⅛".
5. MSC4 is also available in widths down to 1⁹⁄₁₆". Use 10dx1½" nails and MSC2 allowable loads.
6. Refer to technical bulletin T-MSC-WS for the hip valley rafter pitch conversion table *(see page 231 for details).*
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.





Typical MSC4 Installation

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[7] Stiff Reqd	Ga	Dimensions				Fasteners[5]			Allowable Loads Header Type[1,2,6]						
				W	H	B	TF	Solid Header Top	Solid Header Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[3]
1½ x 9¼	ITS1.56/9.25	—	18	1⅝	9³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV1.56/9.25	—	14	1⁹⁄₁₆	9¼	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	1925	1495
	WP29.25	✓	12	1⁹⁄₁₆	9¼	4	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
1½ x 9½	ITS1.56/9.5	—	18	1⅝	9⁷⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT29.5	—	16	1⁹⁄₁₆	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV1.56/9.5	—	14	1⁹⁄₁₆	9½	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	1925	1495
	WP29.5	✓	12	1⁹⁄₁₆	9½	4	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
1½ x 11¼	LBV1.56/11.25	—	14	1⁹⁄₁₆	11¼	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	1925	1495
	WP211.25	✓	12	1⁹⁄₁₆	11¼	4	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
1½ x 11⅞	ITS1.56/11.88	—	18	1⅝	11³¹³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT211.88	—	16	1⁹⁄₁₆	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV1.56/11.88	—	14	1⁹⁄₁₆	11⅞	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	1925	1495
	WP211.88	✓	12	1⁹⁄₁₆	11⅞	4	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
1½ x 14	LBV1.56/14	—	14	1⁹⁄₁₆	14	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	1925	1495
1½ x 16	LBV1.56/16	—	14	1⁹⁄₁₆	16	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	1925	1495
1¾ x 7¼	LBV1.81/7.25	—	14	1¹³⁄₁₆	7¼	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP1.81/7.25	✓	12	1¹³⁄₁₆	7¼	3½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
1¾ x 9¼	LBV1.81/9.25	—	14	1¹³⁄₁₆	9¼	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP9.25	✓	12	1¹³⁄₁₆	9¼	3½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
	WPU1.81/9.25	✓	12	1¹³⁄₁₆	9¼	4	2³⁄₁₆	3-16d	4-16d	6-10dx1½	1095	4700	4880	3650	4165	4165	—
1¾ x 9½	ITS1.81/9.5	—	18	1⅞	9⁷⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT9.5	—	16	1¹³⁄₁₆	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV1.81/9.5	—	14	1¹³⁄₁₆	9½	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP9	✓	12	1¹³⁄₁₆	9½	4½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
1¾ x 11¼	LBV1.81/11.25	—	14	1¹³⁄₁₆	11¼	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPU1.81/11.25	✓	12	1¹³⁄₁₆	11¼	4	2³⁄₁₆	3-16d	4-16d	6-10dx1½	1095	4700	4880	3650	4165	4165	—
1¾ x 11⅞	ITS1.81/11.88	—	18	1⅞	11¹³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT11.88	—	16	1¹³⁄₁₆	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	BA1.81/11.88 (Min)	—	14	1¹³⁄₁₆	11⅞	3	2½	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	1495
	BA1.81/11.88 (Max)	✓	14	1¹³⁄₁₆	11⅞	3	2½	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	1495
	LBV1.81/11.88	—	14	1¹³⁄₁₆	11⅞	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP11	✓	12	1¹³⁄₁₆	11⅞	3½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
	WPU1.81/11.88	✓	12	1¹³⁄₁₆	11⅞	4	2³⁄₁₆	3-16d	4-16d	6-10dx1½	1095	4700	4880	3650	4165	4165	—
1¾ x 14	ITS1.81/14	—	18	1⅞	13¹⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT1.81/14	—	16	1¹³⁄₁₆	14	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV1.81/14	—	14	1¹³⁄₁₆	14	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP14	✓	12	1¹³⁄₁₆	14	3½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030

1. Loads may not be increased for duration of load.
2. Uplift loads are based on DF/SP lumber and have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern. For SPF/HF use 0.86 x DF/SP uplift load.
3. When I-joist is used as header, all nails must be 10dx1½ and allowable loads assume flanges that are at least 1½" thick made of Douglas Fir, LVL or LSL. For other flange thicknesses, apply load adjustment factors found in the table below.
4. Hangers sorted in order of recommended selection for best overall performance and installation value.
5. Other nail schedules and loads are listed on pages 109-112.
6. See pages 109-112 for Code reference numbers.
7. Web stiffeners are required where noted and when supporting double I-joists with flanges less than 1⁹⁄₁₆" thick in hangers that are 14 gauge and thinner.
8. For 2¼"x22" and 24" joist sizes, refer to technical bulletin T-BSERIES *(see page 230 for details).*
9. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

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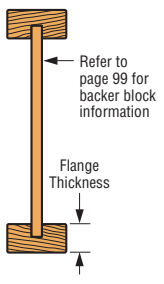
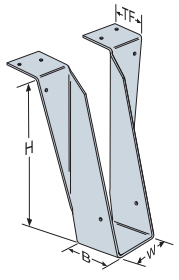
I-Joist Header Load Adjustment Factors					
Flange Material or Thickness	Hanger Series				
	ITS	MIT	LBV	WP	BA
1⅛ to 1¼	0.75	0.75	0.75	0.75	0.75
1⁵⁄₁₆ to 1⅜	0.85	0.85	0.85	0.85	0.85
SPF	0.86	0.72	0.90	1.00	1.00





TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

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Actual Joist Size	Model No.	Web[7] Stiff Reqd	Ga	Dimensions				Fasteners[5]			Allowable Loads Header Type[1,2,6]						
				W	H	B	TF	Solid Header Top	Solid Header Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[3]
1¾ x 16	ITS1.81/16	—	18	1⅞	15⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT1.81/16	—	16	1¹³⁄₁₆	16	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV1.81/16	—	14	1¹³⁄₁₆	16	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	B1.81/16	✓	12	1¹³⁄₁₆	16	3	2½	6-16d	8-16d	6-10dx1½	990	4135	3355	4500	3640	2650	—
	WP16	✓	12	1¹³⁄₁₆	16	3½	2¾₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
2 x 9½	ITS2.06/9.5	—	18	2⅛	9⁷⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV2.06/9.5	—	14	2¹⁄₁₆	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
2 x 11⅞	ITS2.06/11.88	—	18	2⅛	11¹³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV2.06/11.88	—	14	2¹⁄₁₆	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
2 x 14	ITS2.06/14	—	18	2⅛	13⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV2.06/14	—	14	2¹⁄₁₆	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
2 x 16	ITS2.06/16	—	18	2⅛	15⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV2.06/16	—	14	2¹⁄₁₆	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
2¹⁄₁₆ x 9½	ITS2.06/9.5	—	18	2⅛	9⁷⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV2.1/9.5	—	14	2⅛	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
2¹⁄₁₆x11⅞	ITS2.06/11.88	—	18	2⅛	11¹³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV2.1/11.88	—	14	2⅛	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
2¹⁄₁₆ x 14	ITS2.06/14	—	18	2⅛	13⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV2.1/14	—	14	2⅛	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
2¹⁄₁₆ x 16	ITS2.06/16	—	18	2⅛	15⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV2.1/16	—	14	2⅛	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
2¼ x 9½ to 20[8]	2¼" wide joists use the same hangers as 2⁵⁄₁₆" wide joists with the following load adjustments to the table loads: ITS download is the lesser of the table load or 1400 lbs. ITS uplift is 85 lbs. MIT and HIT downloads are the lesser of the table load or 2140 lbs.																
2⁵⁄₁₆ x 9½	ITS2.37/9.5	—	18	2⁷⁄₁₆	9⁷⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV2.37/9.5	—	14	2⅜	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
2⁵⁄₁₆x11⅞	ITS2.37/11.88	—	18	2⁷⁄₁₆	11¹³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT3511.88	—	16	2⁵⁄₁₆	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV2.37/11.88	—	14	2⅜	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	W3511.88	✓	12	2⁵⁄₁₆	11⅞	2½	2½	2-16d	—	2-10dx1½	—	2335	1950	2335	1765	1435	—
2⁵⁄₁₆ x 14	ITS2.37/14	—	18	2⁷⁄₁₆	13⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT3514	—	16	2⁵⁄₁₆	14	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV2.37/14	—	14	2⅜	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP3514	✓	12	2⁵⁄₁₆	14	2½	2¾₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
2⁵⁄₁₆ x 16	ITS2.37/16	—	18	2⁷⁄₁₆	15⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT3516	—	16	2⁵⁄₁₆	16	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV2.37/16	—	14	2⅜	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP3516	✓	12	2⁵⁄₁₆	16	2½	2¾₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
2⁵⁄₁₆ x 18	MIT3518	—	16	2⁵⁄₁₆	18	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	HIT3518	—	16	2⁵⁄₁₆	18	3	3	4-16d	6-16d	2-10dx1½	315	2550	2220	2500	2875	1950	—
	LBV2.37/18	—	14	2⅜	18	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP3518	✓	12	2⁵⁄₁₆	18	2½	2¾₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
2⁵⁄₁₆ x 20	MIT3520	—	16	2⁵⁄₁₆	20	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	HIT3520	—	16	2⁵⁄₁₆	20	3	3	4-16d	6-16d	2-10dx1½	315	2550	2220	2500	2875	1950	—
	LBV2.37/20	—	14	2⅜	20	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP3520	✓	12	2⁵⁄₁₆	20	2½	2¾₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
2⁷⁄₁₆ x 9½ to 16	2⁷⁄₁₆" wide joists use the same hangers as 2½" wide joists with the following load adjustments to the table loads: ITS download is same as table but not to exceed 1400 lbs. ITS uplift is 85 lbs. MIT download is same as table but not to exceed 2140 lbs.																
2½ x 9¼	ITS2.56/9.25	—	18	2⅝	9³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV2.56/9.25	—	14	2⁹⁄₁₆	9¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WI39.25	✓	12	2⁹⁄₁₆	9¼	2	2½	2-16d	—	2-10dx1½	—	2335	1950	2335	1765	1435	—
2½ - 2⁹⁄₁₆ x 9½	ITS2.56/9.5	—	18	2⅝	9⁷⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV2.56/9.5	—	14	2⁹⁄₁₆	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WI39.5	✓	12	2⁹⁄₁₆	9½	2	2½	2-16d	—	2-10dx1½	—	2335	1950	2335	1765	1435	—

See footnotes on page 114.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[7] Stiff Reqd	Ga	Dimensions				Fasteners[5]			Allowable Loads Header Type[1,2,6]						
				W	H	B	TF	Solid Header Top	Solid Header Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[3]
2½ x 11¼	ITS2.56/11.25	—	18	2⅝	11 3/16	2	1 1/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV2.56/11.25	—	14	2 5/16	11¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WI311.25	✓	12	2 5/16	11¼	2	2½	2-16d	—	2-10dx1½	—	2335	1950	2335	1765	1435	—
2½ - 2 5/16 x 11⅞	ITS2.56/11.88	—	18	2⅝	11 3/16	2	1 1/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT311.88	—	16	2 5/16	11⅞	2½	2 5/16	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	BA2.56/11.88 (Min)	—	14	2 5/16	11⅞	3	2½	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	1495
	BA2.56/11.88 (Max)	✓	14	2 5/16	11⅞	3	2½	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	1495
	LBV2.56/11.88	—	14	2 5/16	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPI311.88	✓	12	2 5/16	11⅞	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3220	3695	3255	2600	2030
2½ - 2 5/16 x 14	ITS2.56/14	—	18	2⅝	13 15/16	2	1 1/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT314	—	16	2 5/16	14	2½	2 5/16	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	BA2.56/14 (Min)	—	14	2 5/16	14	3	2½	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	1495
	BA2.56/14 (Max)	✓	14	2 5/16	14	3	2½	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	1495
	LBV2.56/14	—	14	2 5/16	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPI314	✓	12	2 5/16	14	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
2½ - 2 5/16 x 16	ITS2.56/16	—	18	2⅝	15 15/16	2	1 1/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT316	—	16	2 5/16	16	2½	2 5/16	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	BA2.56/16 (Min)	—	14	2 5/16	16	3	2½	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	1495
	BA2.56/16 (Max)	✓	14	2 5/16	16	3	2½	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	1495
	LBV2.56/16	—	14	2 5/16	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPI316	✓	12	2 5/16	16	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
2½ x 18	MIT318	—	16	2 5/16	18	2½	2 5/16	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	HIT318	—	16	2 5/16	18	3	2⅞	4-16d	6-16d	2-10dx1½	315	2550	2220	2500	2875	1950	—
	LBV2.56/18	—	14	2 5/16	18	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPI318	✓	12	2 5/16	18	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
2½ x 20	MIT320	—	16	2 5/16	20	2½	2 5/16	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	HIT320	—	16	2 5/16	20	3	2⅞	4-16d	6-16d	2-10dx1½	315	2550	2220	2500	2875	1950	—
	LBV2.56/20	—	14	2 5/16	20	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPI320	✓	12	2 5/16	20	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
2½ x 22	HIT322	✓	16	2 5/16	22	3	2⅞	4-16d	6-16d	2-10dx1½	315	2550	2220	2500	2875	1950	—
	LBV2.56/22	—	14	2 5/16	22	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPI322	✓	12	2 5/16	22	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
	HWI322	✓	11	2 5/16	22	4	2½	4-16d	—	4-10dx1½	—	5100	4000	4500	5285	3665	—
2½ x 24	HIT324	✓	16	2 5/16	24	3	2⅞	4-16d	6-16d	2-10dx1½	315	2550	2220	2500	2875	1950	—
	LBV2.56/24	—	14	2 5/16	24	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPI324	✓	12	2 5/16	24	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
2½ x 26	HIT326	✓	16	2 5/16	26	3	2⅞	4-16d	6-16d	2-10dx1½	315	2550	2220	2500	2875	1950	—
	LBV2.56/26	—	14	2 5/16	26	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPI326	✓	12	2 5/16	26	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
2½ x 28	LBV2.56/28	—	14	2 5/16	28	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPI328	✓	12	2 5/16	28	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
2½ x 30	LBV2.56/30	—	14	2 5/16	30	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPI330	✓	12	2 5/16	30	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
3 x 9¼	LBV3.12/9.25	—	14	3⅛	9¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP29.25-2	✓	12	3⅛	9¼	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
3 x 9½	LBV3.12/9.5	—	14	3⅛	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP29.5-2	✓	12	3⅛	9½	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
3 x 11¼	LBV3.12/11.25	—	14	3⅛	11¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP211.25-2	✓	12	3⅛	11¼	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
3 x 11⅞	LBV3.12/11.88	—	14	3⅛	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP211.88-2	✓	12	3⅛	11⅞	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030

See footnotes on page 114.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[7] Stiff Reqd	Ga	Dimensions				Fasteners[5]			Allowable Loads Header Type[1,2,6]						
				W	H	B	TF	Solid Header Top	Solid Header Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[3]
3 x 14	LBV3.12/14	—	14	3⅛	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
3 x 16	LBV3.12/16	—	14	3⅛	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
3½ x 7¼	LBV3.56/7.25	—	14	3⁹⁄₁₆	7¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPU3.56/7.25	✓	12	3⁹⁄₁₆	7¼	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	1095	4700	4880	3650	4165	4165	—
3½ x 9¼	ITS3.56/9.25	—	18	3⅝	9³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV3.56/9.25	—	14	3⁹⁄₁₆	9¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	HB3.56/9.25	✓	10	3⁹⁄₁₆	9¼	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI49.25	✓	12	3⁹⁄₁₆	9¼	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
	HWI49.25	✓	11	3⁹⁄₁₆	9¼	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—
	HWU3.56/9.25	✓	10	3⁹⁄₁₆	9¼	3¼	2½	4-16d	4-16d	6-10d	1135	6335	5500	5535	6335	5415	—
	GLTV3.56/9.25	✓	7	3⁹⁄₁₆	9¼	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV3.56/9.25	✓	7	3⁹⁄₁₆	9¼	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
3½ x 9½	ITS3.56/9.5	—	18	3⅝	9⁷⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT49.5	✓	16	3⁹⁄₁₆	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV3.56/9.5	—	14	3⁹⁄₁₆	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	HB3.56/9.5	✓	10	3⁹⁄₁₆	9½	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI49.5	✓	12	3⁹⁄₁₆	9½	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
	HUI49.5TF	✓	12	3⁹⁄₁₆	9½	2½	2½	4-16d	12-16d	6-10d	1125	4550	4550	4550	4550	—	—
	HWI49.5	✓	11	3⁹⁄₁₆	9½	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—
	HWU3.56/9.5	✓	10	3⁹⁄₁₆	9½	3¼	2½	4-16d	4-16d	6-10d	1160	6335	5500	5535	6335	5415	—
	GLTV3.59	✓	7	3⁹⁄₁₆	9½	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV3.59	✓	7	3⁹⁄₁₆	9½	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
3½ x 11¼	ITS3.56/11.25	—	18	3⅝	11³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	LBV3.56/11.25	—	14	3⁹⁄₁₆	11¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	HB3.56/11.25	✓	10	3⁹⁄₁₆	11¼	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI411.25	✓	12	3⁹⁄₁₆	11¼	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
	HWI411.25	✓	11	3⁹⁄₁₆	11¼	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—
	HWU3.56/11.25	✓	10	3⁹⁄₁₆	11¼	3¼	2½	4-16d	4-16d	6-10d	1135	6335	5500	5535	6335	5415	—
	GLTV3.56/11.25	✓	7	3⁹⁄₁₆	11¼	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV3.56/11.25	✓	7	3⁹⁄₁₆	11¼	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
3½ x 11⅞	ITS3.56/11.88	—	18	3⅝	11¹³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT411.88	✓	16	3⁹⁄₁₆	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	BA3.56/11.88 (Min)	—	14	3⁹⁄₁₆	11⅞	3	2½	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	1495
	BA3.56/11.88 (Max)	✓	14	3⁹⁄₁₆	11⅞	3	2½	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	1495
	LBV3.56/11.88	—	14	3⁹⁄₁₆	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	B3.56/11.88	✓	12	3⁹⁄₁₆	11⅞	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB3.56/11.88	✓	10	3⁹⁄₁₆	11⅞	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI411.88	✓	12	3⁹⁄₁₆	11⅞	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030
	HUI411.88TF	✓	12	3⁹⁄₁₆	11⅞	2½	2½	4-16d	12-16d	6-10d	1125	4550	4550	4550	4550	—	—
	WPU3.56/11.88	✓	12	3⁹⁄₁₆	11⅞	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	775	4700	4880	—	4165	4165	—
	HWI411.88	✓	11	3⁹⁄₁₆	11⅞	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—
	HWU3.56/11.88	✓	10	3⁹⁄₁₆	11⅞	3¼	2½	4-16d	4-16d	6-10d	1160	6335	5500	5535	6335	5415	—
	GLTV3.511	✓	7	3⁹⁄₁₆	11⅞	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV3.511	✓	7	3⁹⁄₁₆	11⅞	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
3½ x 12	LBV3.56/12	—	14	3⁹⁄₁₆	12	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	HB3.56/12	✓	10	3⁹⁄₁₆	12	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI412	✓	12	3⁹⁄₁₆	12	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	HWI412	✓	11	3⁹⁄₁₆	12	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—
	GLTV3.512	✓	7	3⁹⁄₁₆	12	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV3.512	✓	7	3⁹⁄₁₆	12	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—

See footnotes on page 114.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[7] Stiff Reqd	Ga	Dimensions				Fasteners[5]			Allowable Loads Header Type[1,2,6]						
				W	H	B	TF	Solid Header Top	Solid Header Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[3]
3½ x 14	ITS3.56/14	—	18	3⅝	13¹⁵⁄₁₆	2	1⅞	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT414	✓	16	3⅜	14	2½	2⅝	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	BA3.56/14 (Min)	—	14	3⅜	14	3	2½	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	1495
	BA3.56/14 (Max)	✓	14	3⅜	14	3	2½	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	1495
	LBV3.56/14	—	14	3⅜	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	B3.56/14	✓	12	3⅜	14	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB3.56/14	✓	10	3⅜	14	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI414	✓	12	3⅜	14	2½	2⅝	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	HUI414TF	✓	12	3⅜	14	2½	2½	4-16d	14-16d	8-10d	1500	4830	4830	4830	4830	—	—
	WPU3.56/14	✓	12	3⅜	14	3	2⅝	3-16d	4-16d	6-10dx1½	1095	4700	4880	—	4165	4165	—
	HWI414	✓	11	3⅜	14	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—
	HWU3.56/14	✓	10	3⅜	14	3¼	2½	4-16d	4-16d	6-10d	1135	6335	5500	5535	6335	5415	—
	GLTV3.514	✓	7	3⅜	14	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV3.514	✓	7	3⅜	14	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
3½ x 16	ITS3.56/16	—	18	3⅝	15¹⁵⁄₁₆	2	1⅞	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085
	MIT416	✓	16	3⅜	16	2½	2⅝	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	BA3.56/16 (Min)	—	14	3⅜	16	3	2½	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	1495
	BA3.56/16 (Max)	✓	14	3⅜	16	3	2½	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	1495
	LBV3.56/16	—	14	3⅜	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	B3.56/16	✓	12	3⅜	16	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB3.56/16	✓	10	3⅜	16	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI416	✓	12	3⅜	16	2½	2⅝	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	WPU3.56/16	✓	12	3⅜	16	3	2⅝	3-16d	4-16d	6-10dx1½	775	4700	4880	—	4165	4165	—
	HWI416	✓	11	3⅜	16	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—
	HWU3.56/16	✓	10	3⅜	16	3¼	2½	4-16d	4-16d	6-10d	1160	6335	5500	5535	6335	5415	—
	GLTV3.516	✓	7	3⅜	16	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV3.516	✓	7	3⅜	16	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
3½ x 18	MIT418	✓	16	3⅜	18	2½	2⅝	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	HIT418	—	16	3⅜	18	3	2⅜	4-16d	6-16d	2-10dx1½	315	2550	2220	2500	2875	1950	—
	LBV3.56/18	—	14	3⅜	18	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	HB3.56/18	✓	10	3⅜	18	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI418	✓	12	3⅜	18	2½	2⅝	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	WPU3.56/18	✓	12	3⅜	18	3	2⅝	3-16d	4-16d	6-10dx1½	775	4700	4880	—	4165	4165	—
	HWI418	✓	11	3⅜	18	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—
	HWU3.56/18	✓	10	3⅜	18	3¼	2½	4-16d	4-16d	6-10d	1160	6335	5500	5535	6335	5415	—
	GLTV3.518	✓	7	3⅜	18	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV3.518	✓	7	3⅜	18	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
3½ x 18¾	GLTV3.56/18.75	✓	7	3⅜	18¾	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV3.56/18.75	✓	7	3⅜	18¾	6	2⅞	6-16d	12-16d	6-16d	1295	10500	7800	9000	8835	6770	—
3½ x 20	MIT420	✓	16	3⅜	20	2½	2⅝	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	HIT420	—	16	3⅜	20	3	2⅜	4-16d	6-16d	2-10dx1½	315	2550	2220	2500	2875	1950	—
	LBV3.56/20	—	14	3⅜	20	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	HB3.56/20	✓	10	3⅜	20	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI420	✓	12	3⅜	20	2½	2⅝	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	WPU3.56/20	✓	12	3⅜	20	3	2⅝	3-16d	4-16d	6-10dx1½	965	4700	4880	—	4165	4165	—
	HWI420	✓	11	3⅜	20	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—
	HWU3.56/20	✓	10	3⅜	20	3¼	2½	4-16d	4-16d	6-10d	965	6335	5500	5535	6335	5415	—
	GLTV3.520	✓	7	3⅜	20	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV3.520	✓	7	3⅜	20	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—

See footnotes on page 114.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[7] Stiff Reqd	Ga	Dimensions				Fasteners[5]			Allowable Loads Header Type[1,2,6]						
				W	H	B	TF	Solid Header Top	Solid Header Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[3]
3½ x 22	HIT422	—	16	3⁹⁄₁₆	22	3	2⅜	4-16d	6-16d	2-10dx1½	315	2550	2220	2500	2875	1950	—
	LBV3.56/22	—	14	3⁹⁄₁₆	22	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	HB3.56/22	✓	10	3⁹⁄₁₆	22	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI422	✓	12	3⁹⁄₁₆	22	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	WPU3.56/22	✓	12	3⁹⁄₁₆	22	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	390	4700	4880	—	4165	4165	—
	HWI422	✓	11	3⁹⁄₁₆	22	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—
3½ x 24	HIT424	—	16	3⁹⁄₁₆	24	3	2⅜	4-16d	6-16d	2-10dx1½	315	2550	2220	2500	2875	1950	—
	LBV3.56/24	—	14	3⁹⁄₁₆	24	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	HB3.56/24	✓	10	3⁹⁄₁₆	24	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI424	✓	12	3⁹⁄₁₆	24	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	WPU3.56/24	✓	12	3⁹⁄₁₆	24	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	390	4700	4880	—	4165	4165	—
	HWI424	✓	11	3⁹⁄₁₆	24	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—
3½ x 26	HIT426	—	16	3⁹⁄₁₆	26	3	2⅜	4-16d	6-16d	2-10dx1½	315	2550	2220	2500	2875	1950	—
	LBV3.56/26	—	14	3⁹⁄₁₆	26	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	HB3.56/26	✓	10	3⁹⁄₁₆	26	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI426	✓	12	3⁹⁄₁₆	26	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	WPU3.56/26	✓	12	3⁹⁄₁₆	26	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	390	4700	4880	—	4165	4165	—
	HWI426	✓	11	3⁹⁄₁₆	26	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—
3½ x 28	LBV3.56/28	—	14	3⁹⁄₁₆	28	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	HB3.56/28	✓	10	3⁹⁄₁₆	28	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI428	✓	12	3⁹⁄₁₆	28	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	WPU3.56/28	✓	12	3⁹⁄₁₆	28	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	390	4700	4880	—	4165	4165	—
	HWI428	✓	11	3⁹⁄₁₆	28	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—
3½ x 30	LBV3.56/30	—	14	3⁹⁄₁₆	30	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	HB3.56/30	✓	10	3⁹⁄₁₆	30	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI430	✓	12	3⁹⁄₁₆	30	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	HWI430	✓	11	3⁹⁄₁₆	30	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—
3½ x 32	WPI432	✓	12	3⁹⁄₁₆	32	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	HWI432	✓	11	3⁹⁄₁₆	32	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—
4 x 9½	MIT4.12/9.5	✓	16	4⅛	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV4.12/9.5	—	14	4⅛	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
4 x 11⅞	MIT4.12/11.88	✓	16	4⅛	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV4.12/11.88	—	14	4⅛	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
4 x 14	MIT4.12/14	✓	16	4⅛	14	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV4.12/14	—	14	4⅛	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
4 x 16	LBV4.12/16	—	14	4⅛	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
4⅛ x 9½	MIT4.28/9.5	—[7]	16	4³²⁄₃₂	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV4.28/9.5	—	14	4³²⁄₃₂	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
4⅛ x 11⅞	MIT4.28/11.88	—[7]	16	4³²⁄₃₂	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV4.28/11.88	—	14	4³²⁄₃₂	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
4⅛ x 14	MIT4.28/14	—[7]	16	4³²⁄₃₂	14	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV4.28/14	—	14	4³²⁄₃₂	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
4⅛ x 16	LBV4.28/16	—	14	4³²⁄₃₂	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
4½ x 9½ to 20	4½" wide joists use the same hangers as 4⅝" wide joists with the following loads adjustments: MIT downloads are the lesser of the table load or 2140 lbs.																
4⅝ x 9½	MIT359.5-2	—[7]	16	4¾	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV4.75/9.5	—	14	4¾	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP359.5-2	✓	12	4¾	9½	2½	2⁵⁄₁₆	3-16d	—	2-10d	—	3635	3320	3650	3255	2600	2030
4⅝ x 11⅞	MIT3511.88-2	—[7]	16	4¾	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV4.75/11.88	—	14	4¾	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP3511.88-2	✓	12	4¾	11⅞	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
4⅝ x 14	MIT3514-2	—[7]	16	4¾	14	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV4.75/14	—	14	4¾	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP3514-2	✓	12	4¾	14	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
4⅝ x 16	MIT4.75/16	—[7]	16	4¾	16	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV4.75/16	—	14	4¾	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP3516-2	✓	12	4¾	16	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
4⅝ x 18	LBV4.75/18	—	14	4¾	18	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP3518-2	✓	12	4¾	18	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
4⅝ x 20	LBV4.75/20	—	14	4¾	20	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WP3520-2	✓	12	4¾	20	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
5 x 9¼	LBV5.12/9.25	—	14	5⅛	9¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495

See footnotes on page 114.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[7] Stiff Reqd	Ga	Dimensions				Fasteners[5]			Allowable Loads Header Type[1,2,6]						
				W	H	B	TF	Solid Header Top	Solid Header Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[3]
5 x 9½	MIT39.5-2	—[7]	16	5⅛	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV5.12/9.5	—	14	5⅛	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPI39.5-2	✓	12	5⅛	9½	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
5 x 11¼	LBV5.12/11.25	—	14	5⅛	11¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
5 x 11⅞	MIT311.88-2	—[7]	16	5⅛	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV5.12/11.88	—	14	5⅛	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPI311.88-2	✓	12	5⅛	11⅞	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
5 x 14	MIT314-2	—[7]	16	5⅛	14	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV5.12/14	—	14	5⅛	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	WPI314-2	✓	12	5⅛	14	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
5 x 16	MIT5.12/16	—[7]	16	5⅛	16	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230
	LBV5.12/16	—	14	5⅛	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495
	HB5.12/16	✓	10	5⅛	16	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI316-2	✓	12	5⅛	16	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
5 x 18	B5.12/18	✓	12	5⅛	18	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB5.12/18	✓	10	5⅛	18	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI318-2	✓	12	5⅛	18	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
5 x 20	B5.12/20	✓	12	5⅛	20	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB5.12/20	✓	10	5⅛	20	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI320-2	✓	12	5⅛	20	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
5 x 22	B5.12/22	✓	12	5⅛	22	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB5.12/22	✓	10	5⅛	22	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI322-2	✓	12	5⅛	22	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
5 x 24	B5.12/24	✓	12	5⅛	24	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB5.12/24	✓	10	5⅛	24	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI324-2	✓	12	5⅛	24	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
5 x 26	B5.12/26	✓	12	5⅛	26	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB5.12/26	✓	10	5⅛	26	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI326-2	✓	12	5⅛	26	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
5 x 28	B5.12/28	✓	12	5⅛	28	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB5.12/28	✓	10	5⅛	28	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
5 x 30	B5.12/30	✓	12	5⅛	30	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB5.12/30	✓	10	5⅛	30	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
5¼ x 7¼	WPU5.50/7.25	✓	12	5½	7¼	3	2⁵⁄₁₆	3-16d	4-16d	6-10d	1095	4700	4880	—	4165	4165	—
5¼ x 9¼	HB5.50/9.25	✓	10	5½	9¼	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	HWU5.50/9.25	✓	10	5½	9¼	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV5.50/9.25	✓	7	5½	9¼	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
5¼ x 9½	HB5.50/9.5	✓	10	5½	9½	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WP5.50/9.5	✓	12	5½	9½	2½	2⁵⁄₁₆	3-16d	—	2-10d	—	3635	3320	3650	3255	2600	2030
	HWU5.50/9.5	✓	10	5½	9½	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV5.59	✓	7	5⁹⁄₁₆	9½	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV5.59	✓	7	5⁹⁄₁₆	9½	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
5¼ x 11¼	HB5.50/11.25	✓	10	5½	11¼	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	HWU5.50/11.25	✓	10	5½	11¼	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV5.50/11.25	✓	7	5½	11¼	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
5¼ x 11⅞	HB5.50/11.88	✓	10	5½	11⅞	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WP5.50/11.88	✓	12	5½	11⅞	2½	2⁵⁄₁₆	3-16d	—	2-10d	—	3635	3320	3650	3255	2600	2030
	HWU5.50/11.88	✓	10	5½	11⅞	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV5.511	✓	7	5⁹⁄₁₆	11⅞	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV5.511	✓	7	5⁹⁄₁₆	11⅞	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
5¼ x 12	HB5.50/12	✓	10	5½	12	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	HWU5.50/12	✓	10	5½	12	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV5.512	✓	7	5⁹⁄₁₆	12	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV5.512	✓	7	5⁹⁄₁₆	12	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
5¼ x 14	HB5.50/14	✓	10	5½	14	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	HWU5.50/14	✓	10	5½	14	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV5.514	✓	7	5⁹⁄₁₆	14	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5700	7200	5145	—
	HGLTV5.514	✓	7	5⁹⁄₁₆	14	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—

See footnotes on page 114.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[7] Stiff Reqd	Ga	Dimensions				Fasteners[5]			Allowable Loads Header Type[1,2,6]						
				W	H	B	TF	Solid Header Top	Solid Header Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[3]
5¼ x 16	HB5.50/16	✓	10	5½	16	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	HWU5.50/16	✓	10	5½	16	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV5.516	✓	7	5⁹⁄₁₆	16	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV5.516	✓	7	5⁹⁄₁₆	16	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
5¼ x 18	HB5.50/18	✓	10	5½	18	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	HWU5.50/18	✓	10	5½	18	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV5.518	✓	7	5⁹⁄₁₆	18	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV5.518	✓	7	5⁹⁄₁₆	18	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
5¼ x 18¾	GLTV5.50/18.75	✓	7	5½	18¾	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV5.50/18.75	✓	7	5½	18¾	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
5¼ x 20	HB5.50/20	✓	10	5½	20	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	HWU5.50/20	✓	10	5½	20	3¼	2½	4-16d	4-16d	6-10d	965	6000	5500	5535	6000	5415	—
	GLTV5.520	✓	7	5⁹⁄₁₆	20	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV5.520	✓	7	5⁹⁄₁₆	20	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
7 x 7¼	HWU7.12/7.25	✓	10	7⅛	7¼	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
7 x 9¼	HB7.12/9.25	✓	10	7⅛	9¼	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI49.25-2	✓	12	7⅛	9¼	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	HWU7.12/9.25	✓	10	7⅛	9¼	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV49.25-2	✓	7	7⅛	9¼	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
7 x 9½	B7.12/9.5	✓	12	7⅛	9½	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB7.12/9.5	✓	10	7⅛	9½	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI49.5-2	✓	12	7⅛	9½	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	HWU7.12/9.5	✓	10	7⅛	9½	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV49.5-2	✓	7	7⅛	9½	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
7 x 11¼	HB7.12/11.25	✓	10	7⅛	11¼	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI411.25-2	✓	12	7⅛	11¼	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	HWU7.12/11.25	✓	10	7⅛	11¼	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV411.25-2	✓	7	7⅛	11¼	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV411.25-2	✓	7	7⅛	11¼	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
7 x 11⅞	B7.12/11.88	✓	12	7⅛	11⅞	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB7.12/11.88	✓	10	7⅛	11⅞	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI411.88-2	✓	12	7⅛	11⅞	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	HWU7.12/11.88	✓	10	7⅛	11⅞	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV411.88-2	✓	7	7⅛	11⅞	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV411.88-2	✓	7	7⅛	11⅞	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
7 x 14	B7.12/14	✓	12	7⅛	14	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB7.12/14	✓	10	7⅛	14	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI414-2	✓	12	7⅛	14	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	HWU7.12/14	✓	10	7⅛	14	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV414-2	✓	7	7⅛	14	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV414-2	✓	7	7⅛	14	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
7 x 16	B7.12/16	✓	12	7⅛	16	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB7.12/16	✓	10	7⅛	16	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	WPI416-2	✓	12	7⅛	16	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030
	HWU7.12/16	✓	10	7⅛	16	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV416-2	✓	7	7⅛	16	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV416-2	✓	7	7⅛	16	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
7 x 18	B7.12/18	✓	12	7⅛	18	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB7.12/18	✓	10	7⅛	18	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	HWI418-2	✓	11	7⅛	18	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—
	HWU7.12/18	✓	10	7⅛	18	3¼	2½	4-16d	4-16d	6-10d	1160	6000	5500	5535	6000	5415	—
	GLTV418-2	✓	7	7⅛	18	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV418-2	✓	7	7⅛	18	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
7 x 18¾	GLTV418.75-2	✓	7	7⅛	18¾	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	4260	—

See footnotes on page 114.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[7] Stiff Reqd	Ga	Dimensions				Fasteners[5]			Allowable Loads Header Type[1,2,6]						
				W	H	B	TF	Solid Header Top	Solid Header Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[3]
7 x 20	B7.12/20	✓	12	7⅛	20	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB7.12/20	✓	10	7⅛	20	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	HWI420-2	✓	11	7⅛	20	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—
	HWU7.12/20	✓	10	7⅛	20	3¼	2½	4-16d	4-16d	6-10d	965	6000	5500	5535	6000	5415	—
	GLTV420-2	✓	7	7⅛	20	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5700	7200	5145	—
	HGLTV420-2	✓	7	7⅛	20	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
7 x 22	B7.12/22	✓	12	7⅛	22	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB7.12/22	✓	10	7⅛	22	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	HWI422-2	✓	11	7⅛	22	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—
	GLTV422-2	✓	7	7⅛	22	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV7.12/22	✓	7	7⅛	22	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
7 x 24	B7.12/24	✓	12	7⅛	24	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB7.12/24	✓	10	7⅛	24	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	HWI424-2	✓	11	7⅛	24	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—
	GLTV424-2	✓	7	7⅛	24	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV7.12/24	✓	7	7⅛	24	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
7 x 26	B7.12/26	✓	12	7⅛	26	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB7.12/26	✓	10	7⅛	26	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	HWI426-2	✓	11	7⅛	26	2½	2½	4-16d	—	6-10d	—	5100	4000	4500	5285	3665	—
	GLTV426-2	✓	7	7⅛	26	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV426-2	✓	7	7⅛	26	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
7 x 28	B7.12/28	✓	12	7⅛	28	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—
	HB7.12/28	✓	10	7⅛	28	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—
	HWI428-2	✓	11	7⅛	28	2½	2½	4-16d	—	6-10d	—	5100	4000	4500	5285	3665	—
	GLTV428-2	✓	7	7⅛	28	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV428-2	✓	7	7⅛	28	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
7 x 30	HWI430-2	✓	11	7⅛	30	2½	2½	4-16d	—	6-10d	—	5100	4000	4500	5285	3665	—
	GLTV430-2	✓	7	7⅛	30	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV430-2	✓	7	7⅛	30	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—
7 x 32	HWI432-2	✓	11	7⅛	32	2½	2½	4-16d	—	6-10d	—	5100	4000	4500	5285	3665	—
	GLTV432-2	✓	7	7⅛	32	5	2⅞	4-16d	6-16d	6-16d	1295	7500	7400	5750	7200	5145	—
	HGLTV432-2	✓	7	7⅛	32	6	2⅞	6-16d	12-16d	6-16d	1295	10500	9485	9000	8835	6770	—

See footnotes on page 114.

RC *Ripper Clip*

The Ripper Clip is designed to connect ripped 2x framing to the top of another wood joist.

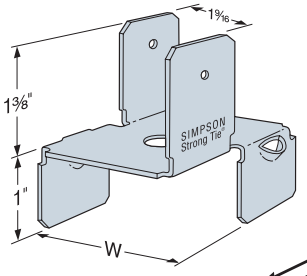
MATERIAL: 20 gauge **FINISH:** Galvanized

INSTALLATION: • Use all specified fasteners. Refer to General Notes.
• Attach RC to ripper, then attach ripper/RC assembly to roof joist.

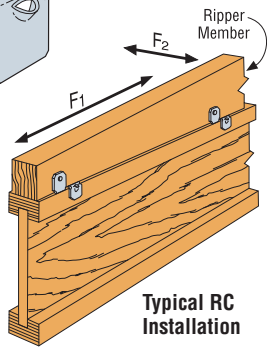
CODES: See page 13 for Code Reference Key Chart.

Model No.	W	Fasteners		Allowable Uplift Load	F_1	F_2	Code Ref.
		Ripper	Joist	(160)			
RC1.56	1⅜	2-10dx1½	2-10dx1½	205	240	205	170
RC1.81	1 13/16						
RC2.1	2⅛						

1. Allowable loads are for DFL ripper members.
2. Uplift loads have been increased for wind or earthquake loading with no other increase allowed. Reduce where other loads govern.
3. Designer to consider stability/blocking requirements for system, if necessary.
4. Spacing of RC per Designer.
5. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



RC1.56
(others similar)
U.S. Patent 5,603,580



Typical RC Installation

HRC *Hip Ridge Connectors*

For complementary top plate connection, see page 126

The HRC series are field slopeable connectors that attach hips to ridge members or trusses. The HRC may be sloped to 45° with no reduction in loads.

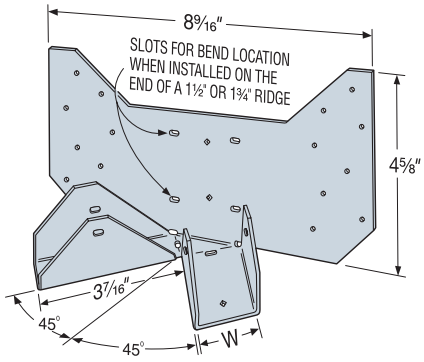
MATERIAL: 16 gauge

FINISH: Galvanized

INSTALLATION:

- Use all specified fasteners. See General Notes.
- On end of ridge–use optional diamond holes to secure the HRC. Bend face flanges back flush with ridge, and complete nailing.
- On face of ridge–adjust to correct height and install nails.
- Double bevel-cut hip members to achieve full bearing capacity.
- The HRC may be sloped to 45° with no reduction in loads.

CODES: See page 13 for Code Reference Key Chart.

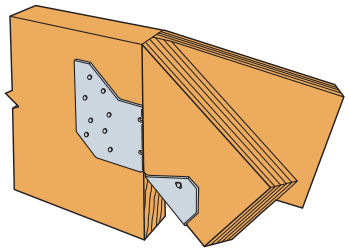


HRC1.81
U.S. Patent 5,380,116

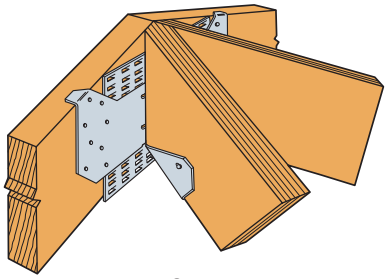
Model No.	W	Member Size		Fasteners		DF/SP Allowable Loads				SPF/HF Allowable Loads				Code Ref.
		Hip	Ridge	Carrying Member	Each Hip	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	
HRC1.81	1¹³⁄₁₆	1¾"	2x or 1¾" wide	16-10dx1½	2-10dx1½	290	720	830	900	250	625	720	780	I8, L15, F7

1. Allowable loads shown are for each hip. Total load carried by the connector is double this number.
2. Uplift loads include a 60% increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. Roof loads are 125% of floor loads unless limited by other criteria.
4. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

For additional SCL sizes, see page 88.



Typical HRC Installation on the End of a Ridge



Optional HRC1.81 Installation

SUR/SUL/HSUR/HSUL *Skewed 45° Hangers for I-Joist and SCL*

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 SUR/L1.81, 2.06, 2.1, 2.37, 2.56 and HSUR/L series are 45° skewed hangers designed specifically to ease the installation of single and double I-joists. In addition to Positive Angle Nailing these hangers encapsulate the top flange of the I-joist, so no web stiffeners are required for standard installation.

The full range of 45° skewed hangers feature obround nail holes on the acute side allowing nails to be easily installed parallel to the joist. Installation is further simplified with no required bevel cuts.

MATERIAL: See table on page 124.

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 14-15.

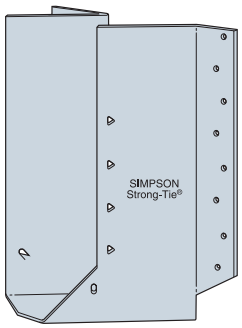
INSTALLATION: • Use all specified fasteners. See General Notes.

- Illustrations show left and right skews SUR/L *(SUR = skewed right; SUL = skewed left).*
- The joist end may be square cut or bevel cut.
- Fill all round and obround nail holes with specified fasteners to achieve table loads. Where noted, triangle holes in the joist flange may be filled for additional uplift capacity *(see footnote on page 124).*
- For I-joists with flanges less than 1⅞", web stiffeners are required for all double joist hangers when using hangers that are 14 gauge and lighter.
- For installations to masonry or concrete, see page 161.

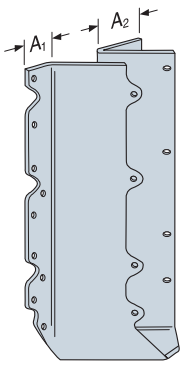
OPTIONS: • These hangers will accommodate a 40° to 50° skew.

- Available with the A_2 flange turned in on 2-2x and 4x models only *(see illustration)*. For example, specify HSURC410, HSULC410, SURC210-2, or SULC210-2.

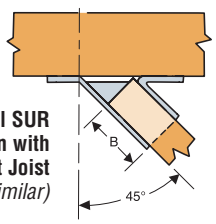
CODES: See page 13 for Code Reference Key Chart.



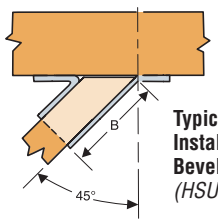
SUL2.56/11



HSUR414



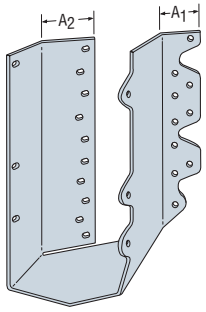
Typical SUR Installation with Square Cut Joist *(HSUR similar)*



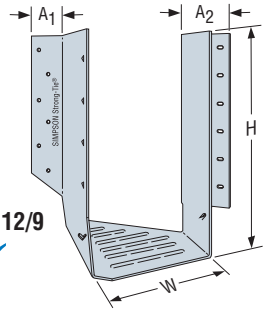
Typical SUL Installation with Bevel Cut Joist *(HSUL similar)*

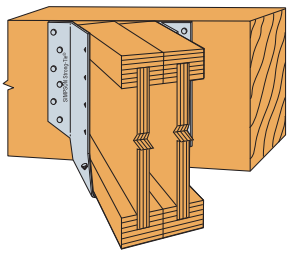
SUR/SUL/HSUR/HSUL *Skewed 45° Hangers for I-Joist and SCL*

HSULC
Available for 3" and 3½" wide joists only



HSUR4.12/9





Typical HSUR4.12/9 Installation

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.

Actual Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions					Fasteners		Allowable Loads								Code Ref.
											DF/SP Species Header				SPF/HF Species Header				
				W	H	B	A_1	A_2	Face	Joist	Uplift[2] (160)	Floor (100)	Snow (115)	Roof (125)	Uplift[2] (160)	Floor (100)	Snow (115)	Roof (125)	
1½x9¼-12	SUR/L210	✓	16	1⁹⁄₁₆	8	2	1⅛	1⁵⁄₁₆	10-16d	10-10dx1½	1250	1440	1635	1760	1075	1240	1405	1515	I9, F6, L17
1½x10-16	SUR/L214	✓	16	1⁹⁄₁₆	10	2	1⅛	1⁵⁄₁₆	12-16d	12-10dx1½	2165	1730	1960	2115	1860	1485	1685	1820	
1¾x9¼-9½	SUR/L1.81/9	—	16	1¹³⁄₁₆	9	3	1⅝	2⁵⁄₁₆	12-16d	2-10dx1½	195	1730	1960	2030	170	1485	1685	1745	I9
1¾x11¼-11⅞	SUR/L1.81/11	—	16	1¹³⁄₁₆	11	3	1⅝	2⁵⁄₁₆	16-16d	2-10dx1½	195	2305	2615	2730	170	1980	2245	2350	
1¾x14	SUR/L1.81/14	—	16	1¹³⁄₁₆	13¾	3	1⅝	2⁵⁄₁₆	20-16d	2-10dx1½	195	2500	2500	2500	170	2150	2150	2150	
2x9½	SUR/L2.06/9	—	16	2¹⁄₁₆	9⁹⁄₁₆	3³⁄₁₆	1⅝	2⅛	14-16d	2-10dx1½	195	2015	2285	2465	170	1735	1965	2120	I9, F8, L12
2x11⅞	SUR/L2.06/11	—	16	2¹⁄₁₆	11¼	3³⁄₁₆	1⅝	2⅛	16-16d	2-10dx1½	195	2305	2615	2665	170	1980	2245	2290	
2x14	SUR/L2.06/14	—	16	2¹⁄₁₆	13⅝	3³⁄₁₆	1⅝	2⅛	18-16d	2-10dx1½	195	2590	2665	2665	170	2230	2290	2290	
2x16	SUR/L2.06/14	✓	16	2¹⁄₁₆	13⅝	3³⁄₁₆	1⅝	2⅛	18-16d	2-10dx1½	195	2590	2665	2665	170	2230	2290	2290	
2⁹⁄₁₆x9½	SUR/L2.1/9	—	16	2⅛	9⁹⁄₁₆	3³⁄₁₆	1⁹⁄₁₆	2⅛	14-16d	2-10dx1½	195	2015	2285	2465	170	1735	1965	2120	
2⁹⁄₁₆x11⅞	SUR/L2.1/11	—	16	2⅛	11³⁄₁₆	3³⁄₁₆	1⁹⁄₁₆	2⅛	16-16d	2-10dx1½	195	2305	2615	2665	170	1980	2245	2290	
2⁹⁄₁₆x14	SUR/L2.1/14	—	16	2⅛	13⁹⁄₁₆	3³⁄₁₆	1⁹⁄₁₆	2⅛	18-16d	2-10dx1½	195	2590	2665	2665	170	2230	2290	2290	
2⁹⁄₁₆x16	SUR/L2.1/14	✓	16	2⅛	13⁹⁄₁₆	3³⁄₁₆	1⁹⁄₁₆	2⅛	18-16d	2-10dx1½	195	2590	2665	2665	170	2230	2290	2290	
2¼-2⁵⁄₁₆x9½	SUR/L2.37/9	—	16	2⅜	8¹⁵⁄₁₆	3³⁄₁₆	1⁹⁄₁₆	2⅛	14-16d	2-10dx1½	195	2015	2285	2465	170	1735	1965	2120	I9
2¼-2⁵⁄₁₆x11⅞	SUR/L2.37/11	—	16	2⅜	11³⁄₁₆	3³⁄₁₆	1⁹⁄₁₆	2⅛	16-16d	2-10dx1½	195	2305	2615	2665	170	1980	2245	2290	
2¼-2⁵⁄₁₆x14	SUR/L2.37/14	—	16	2⅜	13⁷⁄₁₆	3³⁄₁₆	1⁹⁄₁₆	2⅛	18-16d	2-10dx1½	195	2590	2665	2665	170	2230	2290	2290	
2¼-2⁵⁄₁₆x16	SUR/L2.37/14	✓	16	2⅜	13⁷⁄₁₆	3³⁄₁₆	1⁹⁄₁₆	2⅛	18-16d	2-10dx1½	195	2590	2665	2665	170	2230	2290	2290	
2½x9½ (3x10,12)	SUR/L2.56/9	—	16	2⁹⁄₁₆	8¹³⁄₁₆	3³⁄₁₆	1⅛	2⅛	14-16d	2-10dx1½	225	2015	2285	2465	195	1735	1965	2120	
2½-2⁹⁄₁₆x11¼-11⅞	SUR/L2.56/11	—	16	2⁹⁄₁₆	11³⁄₁₆	3³⁄₁₆	1⅛	2⅛	16-16d	2-10dx1½	225	2305	2615	2665	195	1980	2245	2290	
2½x14 (3x14)	SUR/L2.56/14	—	16	2⁹⁄₁₆	13⁵⁄₁₆	3³⁄₁₆	1⅛	2⅛	18-16d	2-10dx1½	225	2590	2665	2665	195	2230	2290	2290	
2½x16	SUR/L2.56/14	✓	16	2⁹⁄₁₆	13⁵⁄₁₆	3³⁄₁₆	1⅛	2⅛	18-16d	2-10dx1½	225	2590	2665	2665	195	2230	2290	2290	
3x9¼-14	SUR/L210-2	✓	16	3⅛	8¹¹⁄₁₆	2⅝	1⁷⁄₁₆	2⅜	14-16d	6-16dx2½	1300	2015	2285	2465	1120	1735	1965	2120	I9, F6, L17
	HSUR/L210-2	✓	14	3⅛	8¹¹⁄₁₆	2⁷⁄₁₆	1¼	2⅜	20-16d	6-16dx2½	1300	2975	3360	3610	1120	2565	2895	3110	
3x14-20	SUR/L214-2	✓	16	3⅛	12¹¹⁄₁₆	2⁷⁄₁₆	1⁷⁄₁₆	2⅜	18-16d	8-16dx2½	1765	2500	2500	2500	1520	2150	2150	2150	I9
	HSUR/L214-2	✓	14	3⅛	12¹¹⁄₁₆	2⁷⁄₁₆	1¼	2⁹⁄₁₆	26-16d	8-16dx2½	1795	3870	4365	4695	1550	3330	3760	4045	I9, F6, L17
3½x9¼-14	SUR/L410	✓	16	3⁹⁄₁₆	8½	2⅝	1	2⅜	14-16d	6-16d	1300	2015	2285	2465	1120	1735	1965	2120	I9, F8, L12
	HSUR/L410	✓	14	3⁹⁄₁₆	8½	2⁷⁄₁₆	1	2⁹⁄₁₆	20-16d	6-16d	1300	2975	3360	3610	1120	2565	2895	3110	
3½x14-20	SUR/L414	✓	16	3⁹⁄₁₆	12½	2⅝	1	2⅜	18-16d	8-16d	1765	2500	2500	2500	1520	2150	2150	2150	
	HSUR/L414	✓	14	3⁹⁄₁₆	12½	2⁷⁄₁₆	1	2⁹⁄₁₆	26-16d	8-16d	1795	3870	4365	4695	1550	3330	3760	4045	
4x9½	HSUR/L4.12/9	—	14	4⅛	9	3	1⁷⁄₁₆	2⅜	12-16d	2-10dx1½	165	1785	2015	2025	140	1540	1735	1740	I9
4x11⅞	HSUR/L4.12/11	—	14	4⅛	11⅞	3	1⁷⁄₁₆	2⅜	16-16d	2-10dx1½	165	2380	2685	2890	140	2050	2315	2490	
4x14	HSUR/L4.12/14	—	14	4⅛	13¾	3	1⁷⁄₁₆	2⅜	20-16d	2-10dx1½	165	2975	3330	3330	140	2565	2865	2865	
4x16	HSUR/L4.12/16	—	14	4⅛	15¾	3	1⁷⁄₁₆	2⅜	24-16d	2-10dx1½	165	3330	3330	3330	140	2865	2865	2865	
4⅛x9½	HSUR/L4.28/9	—	14	4⁵⁄₁₆	9	3	1⁷⁄₁₆	2⅜	12-16d	2-10dx1½	165	1785	2015	2025	140	1540	1735	1740	
4⅛x11⅞	HSUR/L4.28/11	—	14	4⁵⁄₁₆	11⅞	3	1⁷⁄₁₆	2⅜	16-16d	2-10dx1½	165	2380	2685	2890	140	2050	2315	2490	
4⅛x14-16	HSUR/L4.28/11	✓	14	4⁵⁄₁₆	11⅞	3	1⁷⁄₁₆	2⅜	16-16d	2-10dx1½	165	2380	2685	2890	140	2050	2315	2490	
4⅝x9½	HSUR/L4.75/9	—	14	4¾	8¹⁵⁄₁₆	2¾	1⁷⁄₁₆	2⅜	12-16d	2-10dx1½	165	1785	2015	2025	140	1540	1735	1740	
4⅝x11⅞	HSUR/L4.75/11	—	14	4¾	10¹⁵⁄₁₆	2¾	1⁷⁄₁₆	2⅜	16-16d	2-10dx1½	165	2380	2685	2890	140	2050	2315	2490	
4⅝x14	HSUR/L4.75/14	—	14	4¾	13¾	2¾	1⁷⁄₁₆	2⅜	20-16d	2-10dx1½	165	2975	3330	3330	140	2565	2865	2865	
4⅝x16	HSUR/L4.75/16	—	14	4¾	15¾	2¾	1⁷⁄₁₆	2⅜	24-16d	2-10dx1½	165	3330	3330	3330	140	2865	2865	2865	
5x9½	HSUR/L5.12/9	—	14	5⅛	9	2¹³⁄₁₆	1⁷⁄₁₆	2⅜	12-16d	2-10dx1½	165	1785	2015	2025	140	1540	1735	1740	
5x11⅞	HSUR/L5.12/11	—	14	5⅛	11	2¹³⁄₁₆	1⁷⁄₁₆	2⅜	16-16d	2-10dx1½	165	2380	2685	2890	140	2050	2315	2490	
5x14	HSUR/L5.12/14	—	14	5⅛	13¾	2¹³⁄₁₆	1⁷⁄₁₆	2⅜	20-16d	2-10dx1½	165	2975	3330	3330	140	2565	2865	2865	
5x16	HSUR/L5.12/16	—	14	5⅛	15¾	2¹³⁄₁₆	1⁷⁄₁₆	2⅜	24-16d	2-10dx1½	165	3330	3330	3330	140	2865	2865	2865	

1. Uplift loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Triangle nail holes may be filled *(requires web stiffeners)* with 10dx1½" nails for additional uplift.
   - SUR/SUL 9- and 11-inch and all HSUR/HSUL models have (4) additional holes, that when filled can resist 795 lbs. for Douglas Fir or Southern Pine or 685 lbs. for SPF/HF.
   - SUR/SUL 14-inch models have (6) additional holes, that when filled can resists 1190 lbs. for DF/SP and 1025 lbs. for SPF/HF.
3. When the supported member is an I-joist with flanges less than 1⁵⁄₁₆ inches thick, the allowable uplift shall not exceed 190 lbs. without web stiffeners.
4. Allowable downloads are based on a joist bearing capacity of 750 psi.
5. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

LSU/LSSU/LSSUI *Light Slopeable/Skewable U Hangers for I-Joists and SCL*

SIMPSON Strong-Tie®

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.

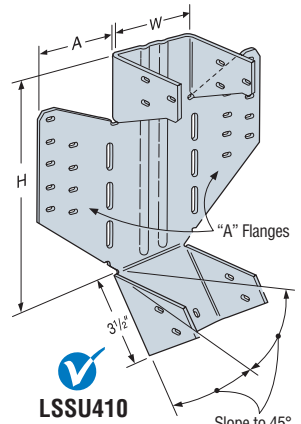
This series attaches joists or rafters to headers, sloped up or down, and skewed left or right, up to 45°.

MATERIAL: See table

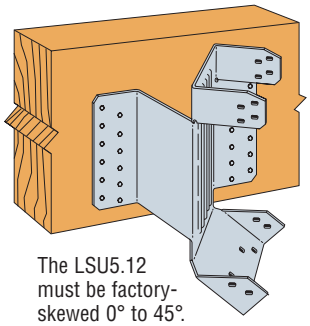
FINISH: Galvanized

INSTALLATION: • Use all specified fasteners. See General Notes.
- Attach the sloped joist at both ends so that the horizontal force developed by the slope is fully supported by the supporting members.
- Web stiffeners required for I-joist applications.
- To see an installation video on this product, visit ***www.strongtie.com***.

CODES: See page 13 for Code Reference Key Chart.



LSSU410
(LSSU210-2, LSSUH310 similar)

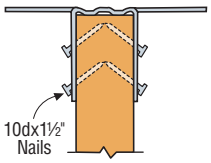


The LSU5.12 must be factory-skewed 0° to 45°. It may be field-sloped to 45°. *(LSU4.12, LSU4.28 and LSU3510-2 similar)*

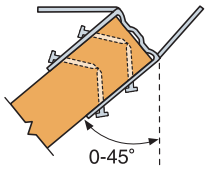
Hanger shown skewed right

LSU and LSSU INSTALLATION SEQUENCE

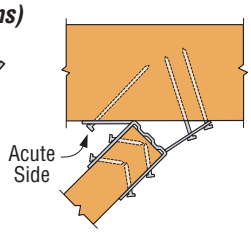
(For Skewed or Sloped/Skewed Applications)



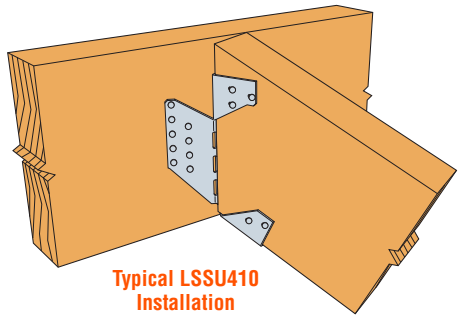
STEP 1
Nail hanger to slope-cut carried member, installing seat nail first. No bevel necessary. Install joist nails at 45° angle.



STEP 2
Skew flange from 0-45°. Bend other flange back along centerline of slots until it meets the header. Bend one time only.



STEP 3
Attach hanger to the carrying member, acute angle side first *(see foonote 5)*. Install nails at an angle.



Typical LSSU410 Installation

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.

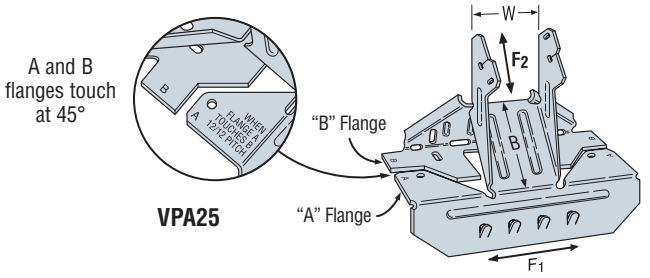
Actual Joist Width	Model No.	Ga	Dimensions W	H	A	Fasteners Face	Joist	Allowable Loads DF/SP Species Header Uplift (160)	Floor (100)	Roof Snow (115)	Roof Const. (125)	SPF/HF Species Header Uplift (160)	Floor (100)	Roof Snow (115)	Roof Const. (125)	Code Ref.
SLOPED ONLY HANGERS																
1½	LSSU210	18	1⁹⁄₁₆	8½	1⅝	10-10d	7-10dx1½	875	1110	1275	1390	625	960	1105	1200	I8, L15, F7
1¾	LSSUI25	18	1¹³⁄₁₆	8½	1½	10-10d	7-10dx1½	875	1110	1275	1390	625	960	1105	1200	
2	LSSUI2.06	18	2¹⁄₁₆	8½	1¾	10-10d	7-10dx1½	875	1110	1275	1390	625	960	1105	1200	170
2¹⁄₁₆	LSSU2.1	18	2⅛	8½	1¾	10-10d	7-10dx1½	875	1110	1275	1390	625	960	1105	1200	
2¼ - 2⁵⁄₁₆	LSSUI35	18	2⁵⁄₁₆	8½	1⅝	10-10d	7-10dx1½	875	1110	1275	1390	625	960	1105	1200	I8, L15, F7
2½ - 2⁹⁄₁₆	LSSUH310	16	2⁹⁄₁₆	8½	3⅛	18-16d	12-10dx1½	1150	2295	2295	2295	990	1930	1930	1930	170
3	LSSU210-2	16	3⅛	8½	2⅞	18-16d	12-10dx1½	1150	2430	2795	3035	990	2160	2485	2700	I8, L15, F7
3½	LSSU410	16	3⁹⁄₁₆	8½	2⅝	18-16d	12-10dx1½	1150	2430	2795	3035	990	2160	2485	2700	
4	LSU4.12	14	4⅛	9	2¼	24-16d	16-10dx1½	1150	3215	3700	4020	990	2785	3200	3480	170
4⅛	LSU4.28	14	4¼	9	2⅜	24-16d	16-10dx1½	1150	3215	3700	4020	990	2785	3200	3480	
4½ - 4¾	LSU3510-2	14	4¾	8⅞	3⅝	24-16d	16-10dx1½	1150	3215	3700	4020	990	2785	3200	3480	
5	LSU5.12	14	5⅛	9	2¼	24-16d	16-10dx1½	885	3215	3700	3785	760	2785	3200	3280	
SKEWED HANGERS OR SLOPED AND SKEWED HANGERS																
1½	LSSU210	18	1⁹⁄₁₆	8½	1⅝	9-10d	7-10dx1½	785	995	1145	1205	625	860	995	1050	I8, L15, F7
1¾	LSSUI25	18	1¹³⁄₁₆	8½	1½	9-10d	7-10dx1½	785	995	1145	1205	625	860	995	1050	
2	LSSUI2.06	18	2¹⁄₁₆	8½	1¾	9-10d	7-10dx1½	785	995	1145	1205	625	860	995	1050	170
2¹⁄₁₆	LSSU2.1	18	2⅛	8½	1¾	9-10d	7-10dx1½	785	995	1145	1205	625	860	995	1050	
2¼ - 2⁵⁄₁₆	LSSUI35	18	2⁵⁄₁₆	8½	1⅝	9-10d	7-10dx1½	785	995	1145	1205	625	860	995	1050	I8, L15, F7
2½ - 2⁹⁄₁₆	LSSUH310	16	2⁹⁄₁₆	8½	3⅛	14-16d	12-10dx1½	1150	1600	1600	1600	990	1385	1385	1385	170
3	LSSU210-2	16	3⅛	8½	2⅞	14-16d	12-10dx1½	1150	1625	1625	1625	990	1365	1365	1365	I8, L15, F7
3½	LSSU410	16	3⁹⁄₁₆	8½	2⅝	14-16d	12-10dx1½	1150	1625	1625	1625	990	1365	1365	1365	
4	LSU4.12[3]	14	4⅛	9	2¼	24-16d	16-10dx1½	1150	2300	2300	2300	990	1990	1990	1990	170
4⅛	LSU4.28[3]	14	4¼	9	2⅜	24-16d	16-10dx1½	1150	2300	2300	2300	990	1990	1990	1990	
4½ - 4¾	LSU3510-2[3]	14	4¾	8⅞	3⅝	24-16d	16-10dx1½	1150	2300	2300	2300	990	1990	1990	1990	
5	LSU5.12[3]	14	5⅛	9	2¼	24-16d	16-10dx1½	885	1790	1790	1790	760	1550	1550	1550	

1. Roof loads are 125% of floor loads unless limited by other criteria.
2. Uplift loads include a 60% increase for wind or earthquake loading with no further increase is allowed; reduce where other loads govern.
3. LSU3510-2, LSU4.12, LSU4.28 and LSU5.12 skew option must be factory-ordered.
4. Minimum 11" joist height for LSU3510-2, LSU4.12, LSU5.12; 9½" for all others.
5. For skewed LSSU/LSSUI hangers, the inner most face fasteners on the acute angle side are not installed.
6. Do not substitute 10dx1½" nails for face nails on slope and skew combinations or skewed only LSU, LSSU and LSSUI. See page 22-23 for other nail sizes and information.
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

VPA *Variable Pitch Connector*

The VPA may be sloped in the field, offering a versatile solution for attaching rafters to the top plate. It will adjust to accommodate slopes between 3:12 and 12:12, making it a complement to the versatile LSSU. This connector eliminates the need for notched rafters, beveled top plates and toe nailing.

MATERIAL: 18 gauge
FINISH: Galvanized
INSTALLATION: • Use all specified fasteners. See General Notes.
CODES: See page 13 for Code Reference Key Chart.

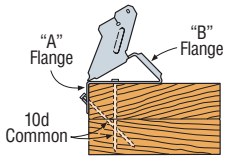


VPA25

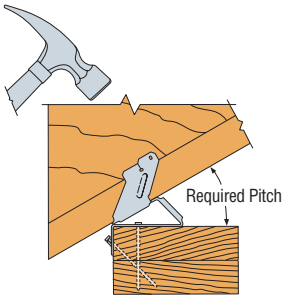
Actual Joist Width	Model No.	W	B	Fasteners		Allowable Loads								Code Ref.
						Uplift		Download		Lateral				
				Carrying Member	Carried Member	DF/SP Species	SPF Species			DF/SP Species (160)		SPF/HF Species (160)		
						(160)	(160)	DF/SP	SPF	F_1	F_2	F_1	F_2	
1½	VPA2	1⁹⁄₁₆	2	8-10d	2-10dx1½	295	250	1050	870	375	250	325	250	I8, L15, F7
1¾	VPA25	1¹³⁄₁₆	2	8-10d	2-10dx1½	295	250	1050	870	375	250	325	250	
2	VPA2.06	2¹⁄₁₆	2	9-10d	2-10dx1½	295	250	1230	1020	375	250	325	250	170
2¹⁄₁₆	VPA2.1	2⅛	2	9-10d	2-10dx1½	295	250	1230	1020	375	250	325	250	
2¼ - 2⁵⁄₁₆	VPA35	2⁵⁄₁₆	2	9-10d	2-10dx1½	295	250	1230	1020	375	250	325	250	I8, L15, F7
2½ - 2⁹⁄₁₆	VPA3	2⁹⁄₁₆	2	9-10d	2-10dx1½	295	250	1230	1020	375	250	325	250	
3½	VPA4	3⁹⁄₁₆	2	11-10d	2-10dx1½	295	250	1230	1020	375	250	325	250	

1. Uplift loads include a 60% increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Loads may not be increased for short-term loading.
3. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

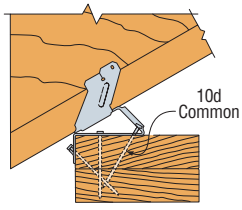
VPA INSTALLATION SEQUENCE



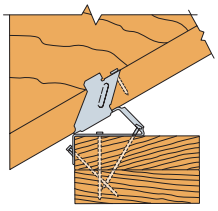
STEP 1
Install top nails and face PAN nails in "A" flange to outside wall top plate.



STEP 2
Seat rafter with a hammer, adjusting "B" flange to the required pitch.



STEP 3
Install "B" flange nails in the obround nail holes, locking the pitch.



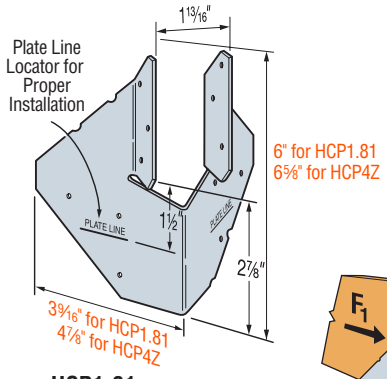
STEP 4
Bend tab with hammer and install 10dx1½" nail into tab nail hole. Hammer nail in at an approximate 45° angle to limit splitting.

HCP *Hip Corner Plates*

For complementary ridge connection, see page 123

The HCP connects a rafter or joist to double top plates at a 45° angle.

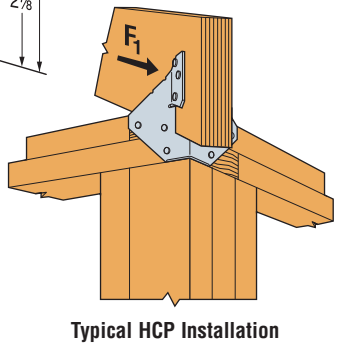
MATERIAL: 18 gauge
FINISH: Galvanized
INSTALLATION: • Use all specified fasteners. See General Notes.
• Attach HCP to double top plates; birdsmouth not required for table loads.
• Install rafter and complete nailing. Rafter may be sloped to 45°.
CODES: See page 13 for Code Reference Key Chart.



HCP1.81
(HCP4Z similar)
U.S. Patent 5,380,115

Member Size	Model No.	Fasteners		DF/SP Allowable Loads (160)		SPF/HF Allowable Loads (160)		Code Ref.
		To Rafters	To Plates	Uplift	F_1	Uplift	F_1	
1¾	HCP1.81	6-10dx1½	6-10dx1½	645	300	555	260	I8, L15, F7
3½	HCP4Z	8-10d	8-10d	1000	265	860	230	

1. Loads include a 60% increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. The HCP can be installed on the inside and the outside of the wall with a flat bottom chord truss and achieve twice the load capacity.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



Typical HCP Installation

PAI/MPAI *Purlin Anchors*

SIMPSON Strong-Tie®

Wood-to-concrete and wood-to-CMU connectors that satisfy code requirements for wind and seismic design categories (SDC) A-F. The PA's dual embedment line allows installation in concrete or CMU wall. The PAI and MPAI are code listed under the 2009 and 2012 IBC and IRC ESR-2920 and have been tested to meet the requirements of ICC-ES acceptance criteria AC-398 for cracked and un-cracked concrete.

MATERIAL: MPAI—14 gauge; PAI—12 gauge

FINISH: Galvanized. Some products available HDG or ZMAX® coating.

INSTALLATION:

- Use all specified fasteners; some models have extra fastener holes. See General Notes.
- Allowable loads are for a horizontal installation into the side of a concrete or CMU wall.

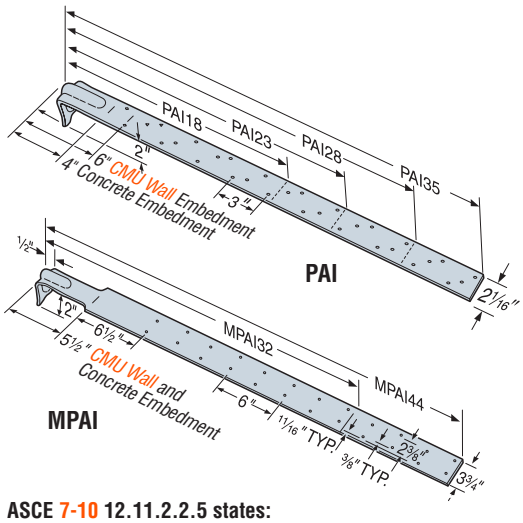
EDGE DISTANCE—Minimum concrete edge distance is 5". Minimum CMU wall left-to-right edge distance is 20".

CONCRETE CMU WALLS—The minimum wall specifications are:

- **A** One #4 vertical rebar, 32" long, 16" each side of anchor;
- **B** Two courses of grout filled block above and below the anchor *(no cold joints allowed)*;
- **C** A horizontal bond beam with two #4 rebars, 40" long, a maximum of two courses above or below the anchor.
- **D** Minimum CMU compressive strength, f'_m = 1500 psi.

OPTIONS: See LTT and HTT Tension Ties.

CODES: See page 13 for Code Reference Key Chart.



ASCE 7-10 12.11.2.2.5 states:

Diaphragm to structural wall anchorage using embedded straps shall be attached to, or hooked around the reinforcing steel, or otherwise terminated to effectively transfer forces to the reinforcing steel.

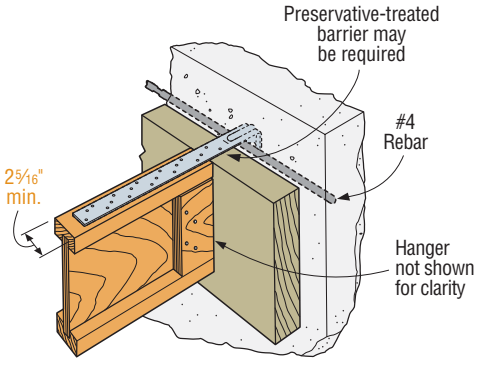
WIND AND SDC A & B – ALLOWABLE TENSION LOADS (lbs.)

Max. Ledger Size	Model No.	Strap Length, L (in.)	Embed. Length, l_e (in.)		Non-Cracked Concrete		Cracked Concrete		CMU Wall		Max. Allowable Strap Tensile Capacity	Code Ref.
			Concrete	CMU	Required Nails	Tension	Required Nails	Tension	Required Nails	Tension		
4x Ledger	PAI18	18½	4	6	9 -10dx1½	1820	9 -10dx1½	1820	9-10d	1055	NA	I25
	PAI23	23¾	4	6	14 -10dx1½	2835	12 -10dx1½	2360	14-10d	1805	NA	
	PAI28	29	4	6	16 -10dx1½	3370	12 -10dx1½	2360	16-10d	2705	NA	
	PAI35	35	4	6	18 -10dx1½	3370	12 -10dx1½	2360	18-10d	2815	NA	
	MPAI32	32	5½		16 -10dx1½	2355	—	—	16-10d	2355	—	
	MPAI44	44	5½		24 -10dx1½	2865	—	—	24-10d	2865	—	

SDC C-F – ALLOWABLE TENSION LOADS (lbs.)

Max. Ledger Size	Model No.	Strap Length, L (in.)	Embed. Length, l_e (in.)		Non-Cracked Concrete		Cracked Concrete		CMU Wall		Max. Allowable Strap Tensile Capacity	Code Ref.
			Concrete	CMU	Required Nails	Tension	Required Nails	Tension	Required Nails	Tension		
4x Ledger	PAI18	18½	4	6	9 -10dx1½	1820	9 -10dx1½	1820	9-10d	1055	4180	I25
	PAI23	23¾	4	6	14 -10dx1½	2830	10 -10dx1½	1980	14-10d	1805	4180	
	PAI28	29	4	6	20 -10dx1½	2830	10 -10dx1½	1980	16-10d	2705	5070	
	PAI35	35	4	6	26 -10dx1½	2830	10 -10dx1½	1980	18-10d	2815	5070	
	MPAI32	32	5½		—	—	—	—	16-10d	2355	—	
	MPAI44	44	5½		—	—	—	—	24-10d	2865	—	

1. Allowable loads have been increased for earthquake or wind load durations with no further increases allowed.
2. Deflection at highest allowable loads for standard installation are as follows: PAI18 = 0.10", PAI23 = 0.158", PAI28 = 0.167" and PAI35 = 0.13".
3. Multiply Seismic and Wind ASD load values by 1.4 or 1.6 respectively to obtain LRFD capacities.
4. Minimum center-to-center spacing is 3 times the required embedment for PA/HPA's acting in tension simultaneously , where l_e = embedment depth. Standard installation is based on minimum 5" end distance.
5. For wall anchorage systems in SDC C-F, the maximum allowable strap tensile capacity shall not be less than 1.4 times the ASD anchor design load.
6. Nail quantities are based on Douglas Fir (DF) or equivalent specific gravity of 0.50 or better. For use on Spruce-Pine-Fir (SPF) or Hem Fir (HF) nail quantites must be increased by 1.15 to achieve allowable loads.
7. Structural composite lumber beams have sides that show either the wide face or the lumber strands/veneers. Values in the tables reflect installation in the wide face.
8. Concrete shall have a minimum concrete strength, f'_c of 3000 psi. Minimum f'_m = 1500 psi for masonry.
9. 10dx1½ installation directly to framing. For installation over wood structural panel sheathing, use 2⅛" minimum nail lengths for ½" nominal sheathing.
10. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



PAI Purlin to Concrete Wall
(MPAI similar)

SDW *Strong-Drive® Structural Wood Screws*

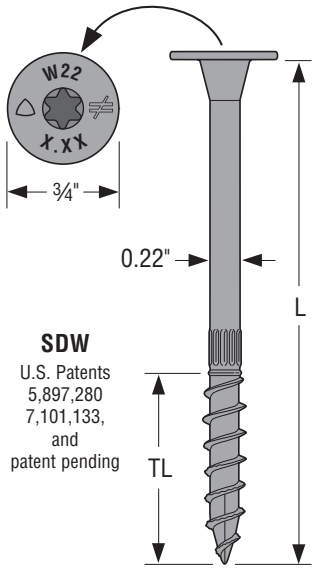
SIMPSON Strong-Tie®

The Strong-Drive® SDW screw is a 0.22" diameter, high-strength structural wood screw specifically designed for fastening multi-ply wood members such as plated trusses, engineered-lumber products and solid-sawn lumber. The SDW installs easily with no pre-drilling and is available in optimized lengths for fastening 2, 3 and 4-ply trusses or 1¾" engineered lumber such as structural composite lumber (SCL). The SDW enables single-side fastening, while still allowing concurrent loading on both sides of the assembly to the full allowable head or tip-side load of the fastener.

- Low-profile head for reduced interference during handling or installation of hardware on the assembly
- High shear values enable wider screw spacing
- Bold thread design firmly cinches plies together to close gaps in multi-ply assemblies
- Optimal screw lengths provide maximum penetration

MATERIAL: Heat-treated carbon steel
FINISH: Black E-coat™
WARNING: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, the SDW wood screws should only be used in dry, interior and non-corrosive environments.
INSTALLATION: • Use all specified fasteners. See General Notes.

- SDW screws install best with a low-speed ½" drill and a T-40 6-lobe bit. The matched bit included with the screws is recommended for best results.
- Pre-drilling is typically not required. SDW screws may be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Section 8.9.2 are met *(pre-drilling required through the plate using a maximum of 5⁄32" bit).*
- Screw heads that are countersunk flush to the wood surface are acceptable if the screw has not spun out.
- Individual screw locations may be adjusted up to 3" to avoid conflicts with other hardware or to avoid lumber defects.



SDW
U.S. Patents 5,897,280 7,101,133, and patent pending

T-40 Driver Bit *(included)* **BIT40-R1**

NOTES TO THE DESIGNER:

1. Single-fastener shear loads for Tables 1-4, and withdrawal loads in this section, are based on testing per ICC-ES AC233. Allowable withdrawal load for DF/SP/SCL is 200 pounds per inch (lbs./in.) and for SPF/HF withdrawal is 150 lbs/in. Total allowable withdrawal load is based on actual thread penetration into the main member.
2. Allowable loads in tables are shown at the load duration factor of C_D = 1.00 and shall be multiplied by all applicable adjustment factors per the NDS. Loads may be increased for load duration per the building code up to a C_D of 1.6.
3. Minimum fastener spacing requirements: 6" end distance, 1 7⁄16" edge distance, ⅝" between staggered rows of fasteners, 4" between non-staggered rows of fasteners and 6" between fasteners in a row. Note exceptions in Table 5.
4. Maximum fastener spacing is recommended to not exceed 24" on-center except as approved by a qualified Designer.
5. For structural composite lumber (SCL = LVL, PSL or LSL) loads, assume an equivalent Specific Gravity of 0.50 or higher.
6. Tabular loads in this document are based on the capacity of the Simpson Strong-Tie® SDW22 fasteners. The capacity of the multi-ply assembly must be checked by a qualified Designer.
7. For top loaded solid sawn 2x built-up assemblies that are evenly loaded across the entire assembly width, the recommended fastener spacing is two rows at 32" o.c.. For top-loaded SCL 1¾" built up assemblies that are evenly loaded across the entire assembly width, the recommended fastener spacing is two rows at 24" o.c. for up to 18" deep members, and 3 rows at 24" o.c. for members deeper than 18".

CODES: See page 13 for Code Reference Key Chart.

Product Information

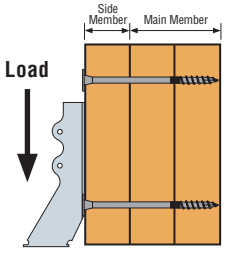
Model No.[2,3]	Head Stamp Length	Nominal Screw Length (L) (in.)	Typical Application[1]	Thread Length (TL) (in.)	Retail Box[3] Quantity (1 Bit)	Retail Boxes/ Carton	Mini-Bulk Bucket Quantity[2] (1 Bit)	Bulk Bucket Quantity (2 Bits)
SDW22300	3.00	2⅞	2x/Truss	1 7⁄16	50	6	250	950
SDW22338	3.37	3⅜	SCL	1 9⁄16	50	6	250	900
SDW22438[4]	4.37	4⅜	2x/Truss Desert	1 7⁄16	50	4	200	600
SDW22458[4]	4.62	4⅝	2x/Truss	1 7⁄16	50	4	200	600
SDW22500	5.00	5	SCL/3x2PCT	1 9⁄16	50	4	200	600
SDW22600[5]	6.00	6	2x/Truss Desert	1 7⁄16	50	4	200	500
SDW22638[5]	6.37	6⅜	2x/Truss	1 7⁄16	50	4	200	500
SDW22634	6.75	6¾	SCL/4x2PCT	1 9⁄16	50	4	200	500

1. Typical screw application key:
   2x/Truss = Solid-sawn dimensional lumber and plated wood trusses.
   2x/Truss Desert = Solid-sawn dimensional lumber and plated wood trusses in desert environments *(scant lumber).*
   SCL = 1¾" plies of structural-composite lumber.
   SCL/3x2PCT = 1¾" plies of structural-composite lumber or double 3x2 parallel-chord trusses.
   SCL/4x2PCT = 1¾" or 3½" plies of structural-composite lumber or double 4x2 parallel-chord trusses.
2. To order mini-bulk buckets add the letters MB to the model number, e.g. SDW22458MB.
3. To order retail pack boxes add "-R50" to the model number, e.g. SDW22458-R50.
4. If assembly is less than or equal to 4 9⁄16" thick, use the SDW22438.
5. If assembly is less than or equal to 6 3⁄16" thick, use the SDW22600.

Table 1 – Single Fastener Shear Loads for Solid Sawn and 2x Truss Loaded on Head Side

Assembly	Model No.	Nominal Screw Length (L) (in.)	Thread Length (TL) (in.)	Nominal Side Member Thickness (in.)	Main Member Penetration (in.)	DF/SP Allowable Shear (lbs.)	SPF/HF Allowable Shear (lbs.)	Code Ref.
2-ply 2x/Truss	SDW22300	2⅞	1 7⁄16	1½	1⅜[1]	325	255	IP4, F32
3-ply 2x/Truss Desert	SDW22438	4⅜	1 7⁄16	1½	2⅞	400	325	
3-ply 2x/Truss	SDW22458	4⅝	1 7⁄16	1½	2⅞	400	325	
4-ply 2x/Truss Desert	SDW22600	6	1 7⁄16	1½	4½	400	340	
4-ply 2x/Truss	SDW22638	6⅜	1 7⁄16	1½	4½	400	340	

1. For minimum penetration into main member of 1⅛", use 235 lbs. for DF/SP and 210 lbs. for SPF/HF.

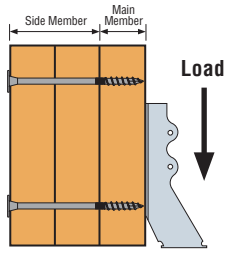


Loaded on Head Side
(3-ply assembly shown – other configurations similar)

Table 2 – Single Fastener Shear Loads for Solid Sawn and 2x Truss Loaded on Tip Side

Assembly	Model No.	Nominal Screw Length (L) (in.)	Thread Length (TL) (in.)	Nominal Side Member Thickness (in.)	Main Member Penetration (in.)	DF/SP Allowable Shear (lbs.)	SPF/HF Allowable Shear (lbs.)	Code Ref.
2-ply 2x/Truss	SDW22300	2⅞	1⅞16	1½	1⅜[1]	325	255	IP4, F32
3-ply 2x/Truss Desert	SDW22438	4⅜	1⅞16	3	1⅜[1]	275	255	170
3-ply 2x/Truss	SDW22458	4⅝	1⅞16	3	1⅜[1]	275	255	
4-ply 2x/Truss Desert	SDW22600	6	1⅞16	4½	1⅜[1]	275	255	
4-ply 2x/Truss	SDW22638	6⅜	1⅞16	4½	1⅜[1]	275	255	

1. For minimum penetration into main member of 1⅛", use 235 lbs. for DF/SP and 210 lbs. for SPF/HF.



Loaded on Tip Side
(3-ply assembly shown – other configurations similar)

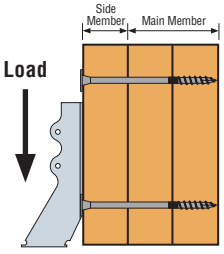
LUMBER FASTENING IN DRY CLIMATES

The highlighted regions on this map may experience drier conditions which can result in reduced lumber thickness *(scant lumber)* due to wood shrinkage. To help ensure optimum thread penetration into the main *(last)* member without excessive protrusion, Simpson Strong-Tie offers the 4⅜" and 6" lengths of the SDW screw, which are sized for the thinner members common in these "desert" climates *(see table above)*. It is the responsibility of the Truss Manufacturer or contractor/installer to determine the appropriate fastener length for any given application. *(See tables and footnotes for minimum required penetration.)*

Table 3 – Single Fastener Shear Loads for LVL, PSL and LSL Loaded on Head Side

Assembly	Model No.	Nominal Screw Length (L) (in.)	Thread Length (TL) (in.)	Nominal Side Member Thickness (in.)	Main Member Penetration (in.)	Allowable Shear (lbs.)	Code Ref.
2-ply 1¾ SCL	SDW22338	3⅜	1⅜16	1¾	1⅝[1]	400	IP4, F32
3-ply 1¾ SCL	SDW22500	5	1⅜16	1¾	3¼	400	
4-ply 1¾ SCL	SDW22634	6¾	1⅜16	1¾	5	400	
2-ply 3½ SCL	SDW22634	6¾	1⅜16	3½	3¼	400	

1. For minimum penetration into main member of 1½", use 300 lbs.

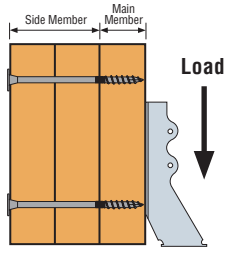


Loaded on Head Side
(3-ply assembly shown – other configurations similar)

Table 4 – Single Fastener Shear Loads for LVL, PSL and LSL Loaded on Tip Side

Assembly	Model No.	Nominal Screw Length (L) (in.)	Thread Length (TL) (in.)	Nominal Side Member Thickness (in.)	Main Member Penetration (in.)	Allowable Shear (lbs.)	Code Ref.
2-ply 1¾ SCL	SDW22338	3⅜	1⅜16	1¾	1⅝[1]	400	IP4, F32
3-ply 1¾ SCL	SDW22500	5	1⅜16	3½	1½	300	170
4-ply 1¾ SCL	SDW22634	6¾	1⅜16	5¼	1½	300	
2-ply 3½ SCL	SDW22634	6¾	1⅜16	3½	3¼	400	IP4, F32

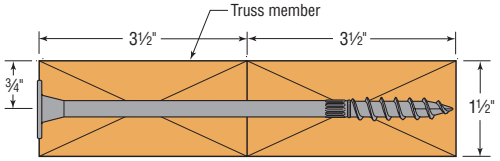
1. For minimum penetration into main member of 1½", use 300 lbs.



Loaded on Tip Side
(3-ply assembly shown – other configurations similar)

Table 5 – Single Fastener Shear Loads for Two-Ply 3x2/4x2 Parallel-Chord Trusses Loaded on Either Side

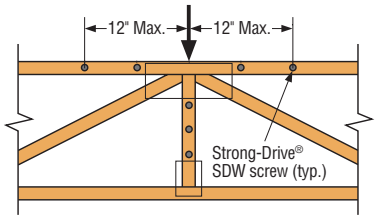
Assembly	Model No.	Nominal Screw Length (L) (in.)	DF/SP Allowable Shear (lbs.)	SPF/HF Allowable Shear (lbs.)	Code Ref.
2-ply 3x2 PCT	SDW22500	5	280	200	170
2-ply 4x2 PCT	SDW22634	6¾	280	200	



SDW Screw Position in 2-Ply 4x2 Truss
(2-ply 3x2 similar)

1. To transfer uniform or concentrated loads applied to simply supported spans on assembly top chord:
   a. Space screws as required to transfer half the load into the supporting truss.
   b. Minimum screw spacing shall be 4" o.c.
2. To transfer concentrated loads applied to simply supported spans on an assembly top chord or vertical web:
   a. Concentrated loads must be applied at a panel point.
   b. Screws to be installed within 12" of the concentrated load on top-chord assembly
3. Gap between the trusses shall not exceed ⅛".
4. Floor sheathing shall be screwed or nailed to each top-chord ply. *(Fastener spacing per the applicable Code requirements, or 12" o.c.)*
5. SDW screws shall not be installed in areas where lumber wane exceeds ¼".
6. Hangers on skewed girders:
   a. Hanger loads not exceeding 34" o.c. on a skewed girder *(resulting from uniformly spaced joists up to 24" o.c.)* may be converted to a uniform load.
   b. For girders with hanger load spacing in excess of 34" o.c. the loads shall be considered as concentrated loads at the applicable locations.
7. Other configurations acceptable as long as approved by Truss Designer.

Concentrated Load



Uniform Load

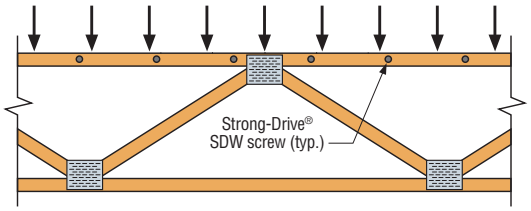
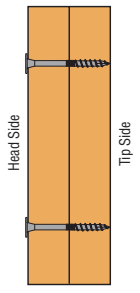


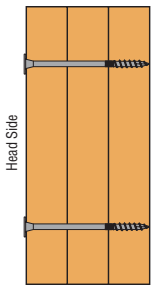
Table 6 – Sideloaded Multi-Ply Assemblies – Allowable Uniform Load Applied to Either Outside Member

Multiple Members		Nominal Screw Length (in.)	Loaded Side	DF/SP						SPF/HF					
				SDW @ 12" o.c.		SDW @ 16" o.c.		SDW @ 24" o.c.		SDW @ 12" o.c.		SDW @ 16" o.c.		SDW @ 24" o.c.	
Assembly	Components			2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows
A-W	2 -ply 2x/Truss	2⅞	Either	1300	1950	975	1465	650	975	1020	1530	765	1150	510	765
B-W	3 -ply 2x/Truss	4⅜ or 4⅝	Head	1200	1800	900	1350	600	900	975	1465	730	1095	490	730
			Tip	825	1240	620	930	415	620	765	1150	575	860	385	575
C-W	4 -ply 2x/Truss	6 or 6⅜	Head	1065	1600	800	1200	535	800	905	1360	680	1020	455	680
			Tip	735	1100	550	825	365	550	680	1020	510	765	340	510

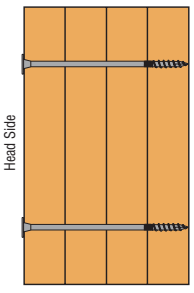
1. Each ply is assumed to carry same proportion of load.
2. Loads may be applied to the head side and tip side concurrently provided neither published allowable load is exceeded. *(Example: a 3-ply DF assembly with a head side load of 1300 plf and tip side load of 900 plf may be fastened together with 3 rows of SDW @ 16" o.c.)*
3. When hangers are installed on tip side, hanger face fasteners must be a minimum of 3" long.
4. Tables are based on Main Member Penetration as noted in Tables 1 and 2.
5. Hanger load spacing on the multi-ply assembly should not exceed 24" o.c. Exception: On a skewed girder, hanger loads up to 34" o.c. *(resulting from joists uniformly spaced up to 24" o.c.)* may be converted to a uniform load.



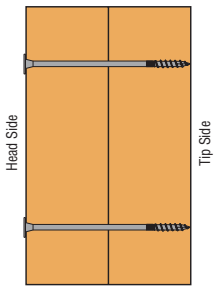
Assembly A-W



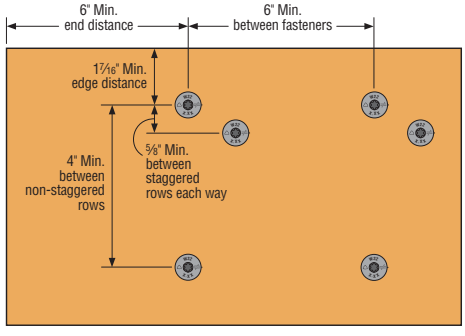
Assembly B-W



Assembly C-W



Assembly F-W



Spacing Requirements

Table 7 – Sideloaded Multi-Ply LVL, PSL and LSL Assemblies – Allowable Uniform Load Applied to Either Outside Member

Multiple Members		Nominal Screw Length (in.)	Loaded Side	SDW @ 12" o.c.		SDW @ 16" o.c.		SDW @ 24" o.c.	
Assembly	Components			2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows
A-W	2-ply SCL	3⅜	Either	1600	2400	1200	1800	800	1200
B-W	3-ply SCL	5	Head	1200	1800	900	1350	600	900
			Tip	900	1350	675	1015	450	675
C-W	4-ply SCL	6¾	Head	1065	1600	800	1200	535	800
			Tip	800	1200	600	900	400	600
F-W	2- ply SCL	6¾	Either	1600	2400	1200	1800	800	1200

1. Each ply is assumed to carry same proportion of load.
2. Loads may be applied to the head side and tip side concurrently provided neither published allowable load is exceeded. *(Example: a 3-ply assembly with a head side load of 1300 plf and tip side load of 1000 plf may be fastened together with 3 rows of SDW @ 16" o.c.)*
3. When hangers are installed on tip side, hanger face fasteners must be a minimum of 3" long.
4. Tables are based on Main Member Penetration as noted in Tables 3 and 4.

THA/THAC *Adjustable Truss Hangers*

SIMPSON Strong-Tie®

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 THA series have extra long straps that can be field-formed to give height adjustability and top flange hanger convenience. THA hangers can be installed as top flange or face mount hangers.

THA4x and THA2x-2 models feature a dense nail pattern in the straps, which provides more installation options and allows for easy top flange installation.

MATERIAL: See table

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 14-15.

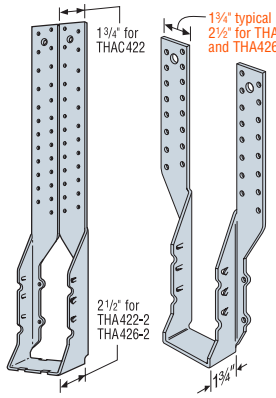
INSTALLATION: • Use all specified fasteners. See General Notes.

The following installation methods may be used:

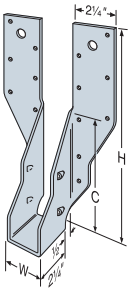
- **Top Flange Installation**—The straps must be field formed over the header – see table for minimum top flange requirements. Install top and face nails according to the table. Top nails shall not be within ¼" from the edge of the top flange members. For the THA29, nails used for joist attachment must be driven at an angle so that they penetrate through the corner of the joist and into the header. For all other top flange installations, straighten the double shear nailing tabs and install the nails straight into the joist.
- **Face Mount Installation**—Install all face nails according to the table. Not all nail holes will be filled on all models. On models where there are more nail holes than required, the lowest 4 face holes must be filled. Nails used for the joist attachment must be driven at an angle so that they penetrate through the corner of the joist into the header.
- **Alternate Installation**— The THA 4x hangers may be installed in a top flange configuration using the tabulated fasteners for face mount installation and achieve the face mount installation loads. Install the tabulated face nails into the face and top of the carrying member. Nails used for the joist attachment must be driven at an angle so that they penetrate through the corner of the joist into the header.
- **Uplift**— Lowest face nails must be filled to achieve uplift loads.

OPTIONS: • THA hangers available with the header flanges turned in for 3⅝" *(except THA413)* and larger, with no load reduction – order THAC hanger.

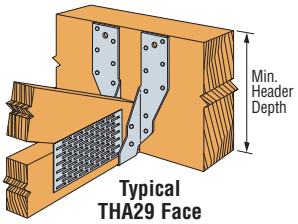
CODES: See page 13 for Code Reference Key Chart.



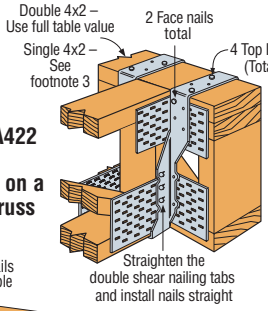
THAC422 **THA418**



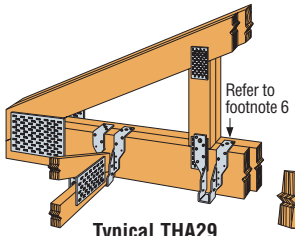
THA29



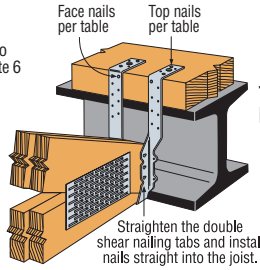
Typical THA29 Face Mount Installation



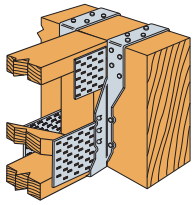
Typical THA422 Top Flange Installation on a 4x2 Floor Truss



Typical THA29 Top Flange Installation

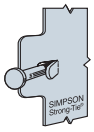


Typical THA Top Flange Installation on a Nailer *(except THA29)*

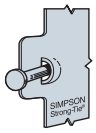


Alternate Installation of THA422

Double-Shear Nailing Top View



Double-Shear Nailing Side View Do not bend tab unless otherwise noted



Dome Double-Shear Nailing Side View *(available on some models)*

U.S. Patent 5,603,580

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.

Model No.	Ga	Dimensions W	H	C	Min.[5] Top Flange	Min. Header Depth	Fasteners Carrying Member Top	Carrying Member Face	Carried Member Straight	Carried Member Slant	DF/SP Allowable Loads Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	SPF/HF Allowable Loads Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Code Ref.
TOP FLANGE INSTALLATION[3]																					
THA29	18	1⅝	9 11/16	5⅛	2 7/16	—	4-10d	4-10d	—	4-10d	560	2260	2310	2350	2350	480	1740	1785	1815	1815	I8, L15, F7
THA213	18	1⅝	13 5/16	5½	1½	—	4-10d	2-10d	4-10dx1½	—	—	1615	1615	1615	1615	—	1280	1280	1280	1280	
THA218	18	1⅝	17 3/16	5½	2	—	4-10d	2-10d	4-10dx1½	—	—	1615	1615	1615	1615	—	1280	1280	1280	1280	
THA218-2	16	3⅛	17 11/16	8	2	—	4-16d	2-16d	6-10d	—	—	2245	2245	2245	2245	—	1935	1935	1935	1935	
THA222-2	16	3⅛	22 3/16	8	2	—	4-16d	2-16d	6-10d	—	—	2245	2245	2245	2245	—	1935	1935	1935	1935	
THA413	18	3⅝	13 5/16	4½	1½	—	4-10d	2-10d	4-10d	—	—	1615	1615	1615	1615	—	1280	1280	1280	1280	
THA418	16	3⅝	17½	7⅞	2	—	4-16d	2-16d	6-10d	—	—	2245	2245	2245	2245	—	1935	1935	1935	1935	
THA422	16	3⅝	22	7⅞	2	—	4-16d	2-16d	6-10d	—	—	2245	2245	2245	2245	—	1935	1935	1935	1935	I8, F7
THA426	14	3⅝	26	7⅞	2	—	4-16d	4-16d	6-16d	—	—	2435	2435	2435	2435	—	2095	2095	2095	2095	F23
THA422-2	14	7¼	22 11/16	9¾	2	—	4-16d	4-16d	6-16d	—	—	3330	3330	3330	3330	—	2865	2865	2865	2865	170
THA426-2	14	7¼	26 1/16	9¾	2	—	4-16d	4-16d	6-16d	—	—	3330	3330	3330	3330	—	2865	2865	2865	2865	170
FACE MOUNT INSTALLATION[4]																					
THA29	18	1⅝	9 11/16	5⅛	—	9 11/16	—	16-10d	—	4-10d	560	2125	2310	2350	2350	480	1740	1785	1815	1815	I8, L15, F7
THA213	18	1⅝	13 5/16	5½	—	13 5/16	—	14-10d	—	4-10d	1170	1940	2000	2030	2030	780	1385	1425	1450	1450	
THA218	18	1⅝	17 3/16	5½	—	17 3/16	—	18-10d	—	4-10d	1170	1940	2000	2030	2030	780	1385	1425	1450	1450	
THA218-2	16	3⅛	17 11/16	8	—	14 1/16	—	22-16d	—	6-16d	1855	3695	3695	3695	3695	1595	3185	3185	3185	3185	
THA222-2	16	3⅛	22 3/16	8	—	14 1/16	—	22-16d	—	6-16d	1855	3695	3695	3695	3695	1595	3185	3185	3185	3185	
THA413	18	3⅝	13 5/16	4½	—	13⅜	—	14-10d	—	4-10d	1170	1940	2235	2400	2400	780	1660	1910	2075	2210	
THA418	16	3⅝	17½	7⅞	—	14 1/16	—	22-16d	—	6-16d	1855	3695	3695	3695	3695	1595	3185	3185	3185	3185	
THA422	16	3⅝	22	7⅞	—	14 1/16	—	22-16d	—	6-16d	1855	3695	3695	3695	3695	1595	3185	3185	3185	3185	I8, F7
THA426	14	3⅝	26	7⅞	—	16 1/16	—	30-16d	—	6-16d	1855	4550	4550	4550	4550	1595	3915	3915	3915	3915	F23
THA422-2	14	7¼	22 11/16	9¾	—	16 3/16	—	30-16d	—	6-16d	1855	5160	5520	5520	5520	1595	4440	4745	4745	4745	170
THA426-2	14	7¼	26 1/16	9¾	—	18	—	38-16d	—	6-16d	1855	5520	5520	5520	5520	1595	4745	4745	4745	4745	170

1. Uplift has been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Wind (160) is a download rating.
3. For single 4x2 top chord carrying members or single 2x nailers, the following THA hangers can be installed using 10dx1½" top nails and 2-16d face nails with reduced allowable loads as noted: THA418/THA422: 1415 lbs. for DF/SP, 1215 lbs. for SPF; THA426: 2245 lbs. for DF/SP, 1930 lbs. for SPF; THA422-2/THA426-2: 2345 lbs. for DF/SP, 2015 lbs. for SPF. Loads are based on hanger installations at panel points.
4. Face mount installation loads are based on minimum of 2-ply 2x carrying member. For single 2x carrying members, use 10dx1½" nails into the carrying member and tabulated fasteners into the carried member, and use 0.80 of the table value for 18 gauge, and 0.68 of the table value for 16 gauge and 14 gauge.
5. Min. Top Flange refers to the minimum length of strap that must be field formed over the header.
6. For the THA 2x models, one strap may be installed vertically according to the face mount nailing requirements and the other strap wrapped over the truss chord according to the top flange nailing requirements *(see drawing above)* and achieve full tabulated top flange installation loads.
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

THASR/L *Adjustable/Skewable Truss Hangers*

The THASR/L hangers combine the height adjustability of THA hangers with field skewability, offering maximum flexibility for the installer, and eliminating the need for special orders. Shipped at 22½° right or left, the THASR/L hangers can be field skewed from 22½° to 75°.

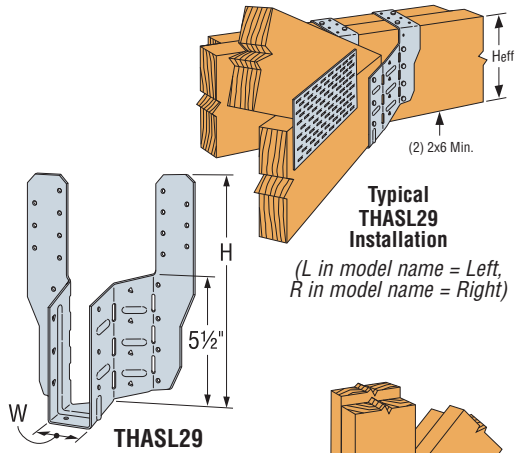
The new THASR/L29, 29-2 and 422 are replacing the former 218, 218-2 and 418 versions.

FEATURES: • The THASR/L single and two-ply versions have straps 9" tall. The 4x version has 22" straps to fit more parallel-chord truss applications.
- The new versions have only one acute side bend line to ease design and installation.
- Joist fasteners are only required from one side for skews greater than 22½°.
- Rated for installation with either nails or Simpson Strong-Tie® Strong-Drive® SD screws.

MATERIAL: 16 gauge **FINISH**: Galvanized

INSTALLATION: • Use all specified fasteners. See General Notes.
- Product is factory skewed to 22½° and may be field skewed from 22½° to 75°. See Installation Sequence below for skews greater than 22½°.
- For 22½° skew installations, fill all triangle holes. Triangle holes do not need to be filled for skews greater than 22½°.
- For all installations, fill the fastener hole(s) in the bottom of the hanger seat *(THASR/L29 has one and all other models have two).*
- For top flange installations, the straps must be field-formed over the header a minimum of 2".
- THASR/L29 and THASR/L29-2—For installations where either strap cannot be field-formed over the header, install the strap(s) vertical and fill all holes. Loads must be reduced as noted in the table footnotes.
- THASR/L422—For face-mount installations, install the carrying member fasteners into the lowest holes.

CODES: See page 13 for Code Reference Key Chart.

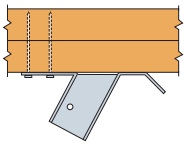


Typical THASL29 Installation

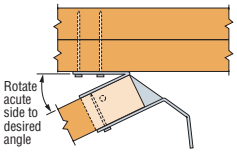
(L in model name = Left, R in model name = Right)

THASL29

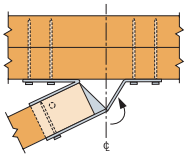
INSTALLATION SEQUENCE FOR SKEWS > 22½°



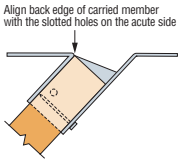
Step 1: Install acute side top and/or face header fasteners.



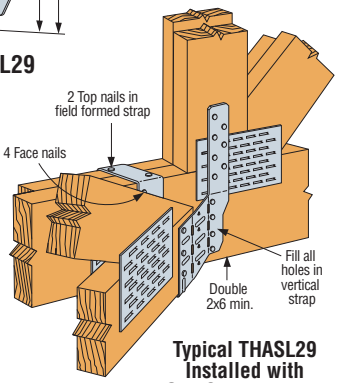
Step 2: Utilizing a piece of scrap fastened to the hanger *(on obtuse side only)*, bend the hanger along the acute side bend line to the desired angle.



Step 3: Bend the obtuse side of the hanger back toward the header until the narrow nailing flange lies flat against the header, and install obtuse side header top and/or face fasteners.



Step 4: Install joist/truss and install the carried member fasteners on the obtuse side and seat only.



Typical THASL29 Installed with One Strap Vertical

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 27 for more information.

Allowable Loads for Installation with Nails

Min. Carried Member	Model No.	Dimensions W	Dimensions H	Min. Heff[4]	Skew (Degree)	Fasteners: Carrying Member Top	Fasteners: Carrying Member Face	Fasteners: Carried Member	DF/SP Allowable Loads: Uplift (160)	DF/SP: Floor (100)	DF/SP: Snow (115)	DF/SP: Roof (125)	DF/SP: Wind (160)	SPF/HF Allowable Loads: Uplift (160)	SPF/HF: Floor (100)	SPF/HF: Snow (115)	SPF/HF: Roof (125)	SPF/HF: Wind (160)	Code Ref.
TOP FLANGE INSTALLATION[5]																			
2x Truss	THASR/L29	1⅝	9⅞	5½	22½	4-10d	8-10d	7-10dx1½	795	1975	1975	1975	1975	685	1695	1700	1700	1700	160
					23 to 45	4-10d	8-10d	4-10dx1½	385	1485	1485	1485	1485	330	1275	1275	1275	1275	
					46 to 75	4-10d	8-10d	4-10dx1½	385	1485	1485	1485	1485	330	1275	1275	1275	1275	
2-2x Truss	THASR/L29-2	3⅛	9⅞	5½	22½	4-10d	8-10d	8-10d	825	1660	1660	1660	1660	710	1425	1425	1425	1425	160
					23 to 45	4-10d	8-10d	5-10d	295	1285	1285	1285	1285	255	1105	1105	1105	1105	
					46 to 75	4-10d	8-10d	5-10d	260	1285	1285	1285	1285	225	1105	1105	1105	1105	
4x Truss	THASR/L422	3⅝	22	8	22½	4-10d	4-10d	8-10d	—	1115	1115	1115	1115	—	960	960	960	960	160
					23 to 45	4-10d	4-10d	5-10d	—	925	925	925	925	—	795	795	795	795	
					46 to 75	4-10d	4-10d	5-10d	—	745	745	745	745	—	640	640	640	640	
FACE MOUNT INSTALLATION																			
4x Truss	THASR/L422	3⅝	22	5½	22½	—	8-10d	8-10d	—	810	810	810	810	—	700	700	700	700	160
					23 to 45	—	8-10d	5-10d	—	730	730	730	730	—	625	625	625	625	
					46 to 75	—	8-10d	5-10d	—	730	730	730	730	—	625	625	625	625	

Allowable Loads for Installation with Strong-Drive® SD Screws

Min. Carried Member	Model No.	Dimensions W	Dimensions H	Min. Heff[4]	Skew (Degree)	Fasteners: Carrying Member Top	Fasteners: Carrying Member Face	Fasteners: Carried Member	DF/SP Allowable Loads: Uplift (160)	DF/SP: Floor (100)	DF/SP: Snow (115)	DF/SP: Roof (125)	DF/SP: Wind (160)	SPF/HF Allowable Loads: Uplift (160)	SPF/HF: Floor (100)	SPF/HF: Snow (115)	SPF/HF: Roof (125)	SPF/HF: Wind (160)	Code Ref.
TOP FLANGE INSTALLATION[5]																			
2x Truss	THASR/L29	1⅝	9⅞	5½	22½	4-SD #9x2½	8-SD #9x2½	7-SD #9x1½	1085	2510	2665	2765	2790	935	1735	1835	1905	2140	160
					23 to 45	4-SD #9x2½	8-SD #9x2½	4-SD #9x1½	660	1995	2075	2125	2220	540	1400	1450	1485	1600	
					46 to 75	4-SD #9x2½	8-SD #9x2½	4-SD #9x1½	535	1995	2075	2125	2220	460	1400	1450	1485	1600	
2-2x Truss	THASR/L29-2	3⅛	9⅞	5½	22½	4-SD #9x2½	8-SD #9x2½	8-SD #9x2½	1450	2745	2745	2745	2745	1075	2360	2360	2360	2360	160
					23 to 45	4-SD #9x2½	8-SD #9x2½	5-SD #9x2½	530	1915	1915	1915	1915	455	1645	1645	1645	1645	
					46 to 75	4-SD #9x2½	8-SD #9x2½	5-SD #9x2½	665	1530	1530	1530	1530	540	1315	1315	1315	1315	
4x Truss	THASR/L422	3⅝	22	5½	22½	4-SD #9x2½	4-SD #9x2½	8-SD #9x2½	—	1140	1140	1140	1140	—	980	980	980	980	160
					23 to 45	4-SD #9x2½	4-SD #9x2½	5-SD #9x2½	—	1065	1065	1065	1065	—	915	915	915	915	
					46 to 75	4-SD #9x2½	4-SD #9x2½	5-SD #9x2½	—	870	870	870	870	—	750	750	750	750	
FACE MOUNT INSTALLATION																			
4x Truss	THASR/L422	3⅝	22	5½	22½	—	8-SD #9x2½	8-SD #9x2½	—	1600	1720	1720	1720	—	895	1030	1120	1435	160
					23 to 45	—	8-SD #9x2½	5-SD #9x2½	—	1330	1330	1330	1330	—	895	1030	1120	1145	
					46 to 75	—	8-SD #9x2½	5-SD #9x2½	—	1330	1330	1330	1330	—	895	1030	1120	1145	

1. Uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. Wind (160) is a download rating.
3. Minimum carried member heel height shall be 4½".
4. Heff is the distance from the top of the hanger seat to the top of the carried member.
5. For tabulated top flange installation loads, the straps must be wrapped over the header a minimum of 2". Allowable downloads for the THASR/L29 and THASR/L29-2 with one or both straps installed vertically *(with all holes filled)* are 90% of the tabulated downloads for skews greater than 22½° and 85% of the tabulated downloads for 22½° skews. Allowable uplift capacities are 100% of the tabulated uplift load capacities.
6. Where noted, the THASR/L29 allowable downloads for 75° skews are 1850 lbs. (100) or 1895 lbs. (115/125/160) for DF, and 1380 lbs. (100), 1420 lbs. (115/125), or 1545 lbs. (160) for SPF/HF. Allowable downloads with one or both straps installed vertically (with all holes filled) shall be limited to 75% of these loads.
7. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.
8. **SCREWS:** SD #9x1½" (model SD9112) = 0.131" dia. x 1½" long, SD #9x2½" (model SD9212) = 0.131" dia. x 2½" long.

W/WP/WM *Plated Truss Top Flange Hangers*

The W and WP hangers offer design flexibility and versatility supporting trusses off of wood or steel. WM hangers are designed for use on standard 8" grouted masonry block wall construction.

MATERIAL: W, WM—12 gauge top flange and stirrup, WP—7 gauge top flange and 12 gauge stirrup

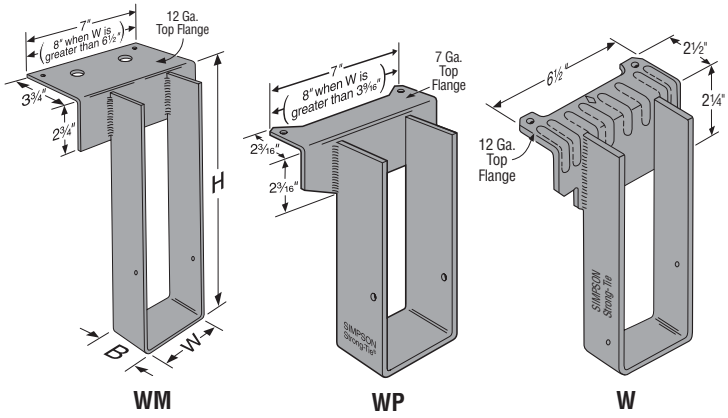
FINISH: Simpson Strong-Tie® gray paint; hot-dip galvanized available: specify HDG.

INSTALLATION: • Use all specified fasteners.

- Hangers may be welded to steel headers with ⅛" for W, and 3/16" for WP, by 1½" fillet welds located at each end of the top flange. Weld-on applications produce maximum allowable load listed. Uplift loads do not apply to this application.
- Hangers can support multi-ply carried members; the individual members must be secured together to work as a single unit before installation into the hanger.
- **MID-WALL INSTALLATION:** Installed between blocks with duplex nails cast into grout with a minimum of one grouted course above and below the top flange and one #5 vertical rebar minimum 24" long in each adjacent cell.
- **TOP OF WALL INSTALLATION:** Install on top of wall to a grouted beam with masonry screws.

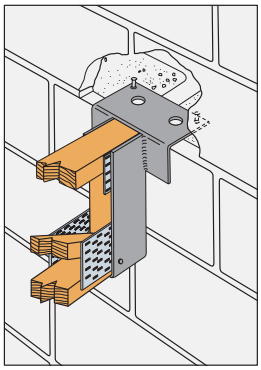
OPTIONS: For 4x2 trusses, specify "alternate nail pattern" (ANP) which relocates the nails to the bottom of the joist. See Hanger Options, pages 216-217 for hanger modifications.

CODES: See page 13 for Code Reference Key Chart.

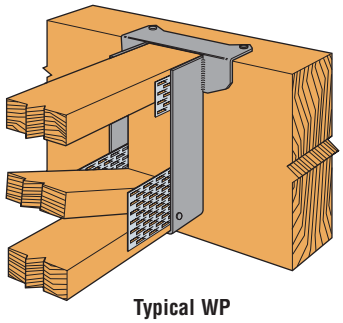


Model	Nailer	Top Flange Nailing	Allowable Loads		
			DF/SP	SPF/HF	LSL
W	2x	2-10dx1½	1600	1600	—
	2-2x	2-10d	1665	1665	—
	3x	2-16dx2½	1765	1740	—
	4x	2-10d	2200	2200	—
WP	2x	2-10dx1½	2525	2500	3375
	2-2x	2-10d	3255	3255	—
	3x	2-16dx2½	3000	2510	3375
	4x	2-10d	3255	3255	—

NAILER TABLE
The table indicates the maximum allowable loads for W and WP hangers used on wood nailers. Nailers are wood members attached to the top of a steel I-beam, concrete or masonry wall.



Typical WM Installation with Alternate Nail Pattern (ANP) for 4x2 Truss



Typical WP Installation with Alternate Nailing Pattern (ANP) for 4x2 Truss

W SERIES WITH VARIOUS HEADERS

Model	Joist		Fasteners			Allowable Loads Header Type								Code Ref.
	Width[4]	Depth	Top	Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	I-Joist	Masonry	
W	1½ to 3½	3½ to 30	2-10dx1½	—	2-10dx1½	—	1635	1740	—	1600	1415	—	—	170
	1½ to 3½	3½ to 30	2-10d	—	2-10dx1½	—	2150	2020	—	2200	1435	—	—	I10, L11, F9
	1½ to 3½	3½ to 30	2-16d	—	2-10dx1½	—	2335	1950	2335	1765	1435	—	—	
WM	1½ to 7	3½ to 30	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175	IL12, L16
WP	1½ to 7	3½ to 30	2-10dx1½	—	2-10dx1½	—	2865	3250	—	2500	2000	2030	—	170
	1½ to 7	3½ to 30	2-10d	—	2-10dx1½	—	2525	3250	3650	3255	2600	—	—	I19, L14, F18
	1½ to 7	3½ to 30	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	—	—	

1. Uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. WM hangers are limited based on joist bearing capacity for the specific wood species, up to the maximum test value of 4175 lbs. All headers are grouted masonry block.
3. Joist dimensions do not include truss plate thickness.
4. **NAILS:** 16d and 16d DPLX = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

Model No.	Ga	Dimensions				Fasteners		DF/SP Allowable Loads				SPF/HF Allowable Loads			
		W	Min.[3] H	B	TF	Carrying Member	Carried Member	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)
W1.62x	12	1⅝	4	2½	2½	2-10d	2-10dx1½	2200	2200	2200	2200	1435	1435	1435	1435
WM1.62x	12	1⅝	4	2	3¾	2-16d DPLX	2-10dx1½	1890	1920	1940	1955	1445	1470	1485	1500
WP3.31x	12	3⁵⁄₁₆	4	2½	2³⁄₁₆	2-10d	2-10d	3255	3255	3255	3255	2600	2600	2600	2600
WM3.31x	12	3⁵⁄₁₆	4	2	3¾	2-16d DPLX	2-10d	3635	3675	3700	3720	2765	2795	2820	2835
W3.62x	12	3⅝	4	2½	2½	2-10d	2-10d	2200	2200	2200	2200	1435	1435	1435	1435
WP3.62x	12	3⅝	4	2½	2³⁄₁₆	2-10d	2-10d	3255	3255	3255	3255	2600	2600	2600	2600
WM3.62x	12	3⅝	4	2	3¾	2-16d DPLX	2-10d	4175	4175	4175	4175	3190	3220	3240	3260
WP7.25x	12	7¼	4	2½	2³⁄₁₆	2-10d	2-10d	3255	3255	3255	3255	2600	2600	2600	2600
WM7.25x	12	7¼	4	2	3¾	2-16d DPLX	2-10d	4175	4175	4175	4175	4175	4175	4175	4175

1. WM hangers are limited based on joist bearing capacity for the specific wood species, up to the maximum test value of 4175 lbs. All headers are grouted masonry block.
2. Wind (160) is a download rating.
3. "Min. H" is the minimum H dimension that may be ordered and desired H dimension should be specified. For hanger heights exceeding the joist height, the allowable load is 0.50 of the table load.
4. **NAILS:** 16d DPLX = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

LUS/MUS/HUS/HHUS/HGUS/HUSC *Double Shear Joist Hangers*

SIMPSON Strong-Tie®

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.

All hangers in this series have double shear nailing – an innovation that distributes the load through two points on each joist nail for greater strength. This allows for fewer nails, faster installation, and the use of all common nails for the same connection.

Double shear hangers range from the light capacity LUS hangers to the highest capacity HGUS hangers. For medium load truss applications, the MUS offers a lower cost alternative and easier installation than the HUS or THA hangers, while providing greater load capacity and bearing than the LUS.

MATERIAL: See tables below and on page 135.

FINISH: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, page 14-15.

INSTALLATION • Use all specified fasteners. See General Notes.
- Nails must be driven at an angle through the joist or truss into the header to achieve the table loads.
- Not designed for welded or nailer applications.

OPTIONS: • LUS and MUS hangers cannot be modified.
- HUS hangers available with the header flanges turned in for 2-2x (3⅛") and 4x only, with no load reduction. See HUSC Concealed Flange illustration.
- Concealed flanges are not available for HGUS and HHUS.
- See Hanger Options, page 216, for sloped and/or skewed HHUS models.
- Other sizes available; consult your Simpson Strong-Tie representative.

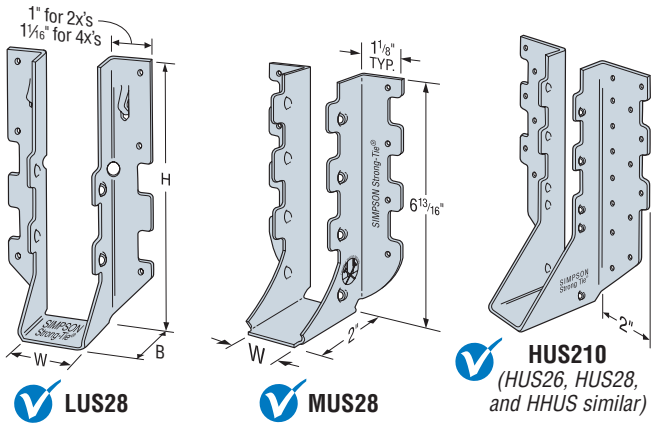
CODES: See page 13 for Code Reference Key Chart.

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.

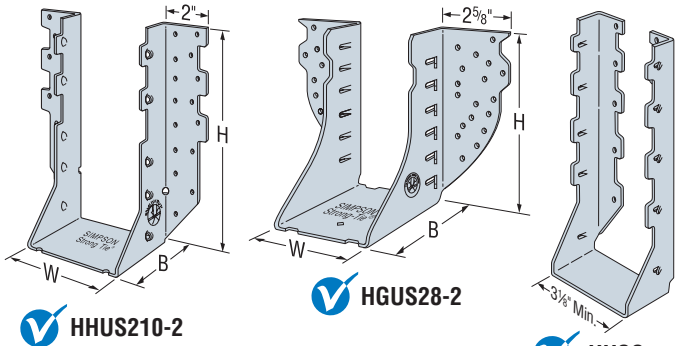
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Model No.	Min. Heel Height	Ga	Dimensions W	H	B	Fasteners Carrying Member	Carried Member
SINGLE 2x SIZES							
LUS24	2⅝	18	1⁹⁄₁₆	3⅛	1¼	4-10d	2-10d
LUS26	4¼		1⁹⁄₁₆	4¾	1¼	4-10d	4-10d
MUS26	4¹¹⁄₁₆	18	1⁹⁄₁₆	5³⁄₁₆	2	6-10d	6-10d
HUS26	4⁵⁄₁₆	16	1⅝	5⅜	3	14-16d	6-16d
HGUS26	4⁹⁄₁₆	12	1⅝	5⅜	5	20-16d	8-16d
LUS28	4⁹⁄₁₆	18	1⁹⁄₁₆	6⅝	1¼	6-10d	4-10d
MUS28	6⁹⁄₁₆	18	1⁹⁄₁₆	6¹³⁄₁₆	2	8-10d	8-10d
HUS28	6½	16	1⅝	7	3	22-16d	8-16d
HGUS28	6⁹⁄₁₆	12	1⅝	7⅛	5	36-16d	12-16d
LUS210	4¼	18	1⁹⁄₁₆	7¹³⁄₁₆	1¼	8-10d	4-10d
HUS210	8⅜	16	1⅝	9	3	30-16d	10-16d

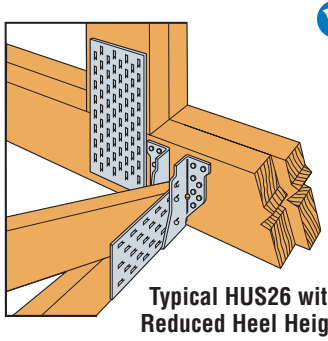
1. See table on page 135 for allowable loads.



LUS28 | MUS28 | HUS210 *(HUS26, HUS28, and HHUS similar)*

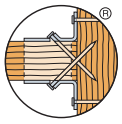


HHUS210-2 | HGUS28-2 | **HUSC Concealed Flanges** *(not available for HHUS, HGUS and HUS2x)*

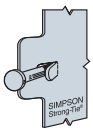


(Truss Designer to provide fastener quantity for connecting multiple members together)

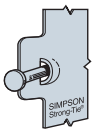
Typical HUS26 with Reduced Heel Height



Double Shear Nailing Top View



Double Shear Nailing Side View Do not bend tab



Dome Double Shear Nailing Side View *(available on some models)*

U.S. Patent 5,603,580

Model No.	DF Allowable Loads Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	SP Allowable Loads Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	SPF/HF Allowable Loads Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Code Ref.
SINGLE 2x SIZES																
LUS24	490	670	765	825	1045	490	725	830	895	1135	420	575	655	705	895	
LUS26	1165	865	990	1070	1355	1165	940	1075	1165	1475	1005	740	845	915	1160	I7, F6, L17
MUS26	1090	1295	1480	1605	1825	1090	1410	1610	1745	1825	940	1110	1265	1370	1570	
HUS26	1550	2720	3095	3335	3335	1550	2950	3335	3335	3335	1335	2330	2650	2820	2865	
HGUS26	1765	4360	4885	5230	5390	1765	4725	5290	5390	5390	1520	3750	4200	4500	4635	L17
LUS28	1165	1100	1255	1360	1725	1165	1200	1365	1480	1835	1005	940	1075	1165	1475	
MUS28	1555	1730	1975	2140	2645	1555	1880	2150	2330	2645	1335	1475	1690	1830	2275	I7, F6, L17
HUS28	2000	3965	4120	4220	4335	2000	3790	3960	4070	4335	1720	2905	3035	3125	3435	
HGUS28	3015	6745	6970	7125	7275	3015	6460	6705	6870	7275	2595	4960	5160	5290	5745	L17
LUS210	1165	1340	1525	1650	2090	1165	1445	1660	1795	2270	1005	1145	1305	1415	1745	I7, F6, L17
HUS210	3000	4255	4445	4575	5020	3000	4105	4310	4450	4930	2580	3150	3315	3425	3815	

Note: For dimensions and fastener information, see table above. See table footnotes on page 135.

FACE MOUNT HANGERS

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 27 for more information.

Model No.	Min. Heel Height	Ga	Dimensions			Fasteners		DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
			W	H	B	Carrying Member	Carried Member	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	
DOUBLE 2x SIZES																		
LUS24-2	2¼	18	3⅛	3⅛	2	4-16d	2-16d	440	800	910	985	1250	380	680	780	845	1070	I7, F6, L17
LUS26-2	4⁹⁄₁₆	18	3⅛	4⅞	2	4-16d	4-16d	1165	1030	1180	1280	1625	1000	880	1010	1090	1385	
HHUS26-2	4⁵⁄₁₆	14	3⁵⁄₁₆	5⅜	3	14-16d	6-16d	1550	2785	3155	3405	4265	1335	2390	2710	2925	3665	I7, L17, F23
HGUS26-2	4⁹⁄₁₆	12	3⁵⁄₁₆	5⁷⁄₁₆	4	20-16d	8-16d	2155	4355	4875	5230	5575	1855	3750	4200	4500	4795	
LUS28-2	4⁹⁄₁₆	18	3⅛	7	2	6-16d	4-16d	1165	1315	1500	1625	2060	1000	1125	1285	1390	1765	I7, F6, L17
HHUS28-2	6⁹⁄₁₆	14	3⁵⁄₁₆	7¼	3	22-16d	8-16d	2000	4210	4770	5140	6440	1720	3615	4095	4415	5375	
HGUS28-2	6⁹⁄₁₆	12	3⁵⁄₁₆	7⁹⁄₁₆	4	36-16d	12-16d	3235	7460	7460	7460	7460	2785	6415	6415	6415	6415	I7, L17, F23
LUS210-2	6⁷⁄₁₆	18	3⅛	9	2	8-16d	6-16d	1745	1830	2090	2265	2870	1500	1565	1785	1935	2455	I7, F6, L17
HHUS210-2	8⅜	14	3⁵⁄₁₆	8⅞	3	30-16d	10-16d	4000	5635	6380	6880	7165	3525	4835	5270	5380	5765	I7, L17, F23
HGUS210-2	8⁹⁄₁₆	12	3⁵⁄₁₆	9⁹⁄₁₆	4	46-16d	16-16d	4095	9100	9100	9100	9100	3525	7465	7730	7825	7825	
TRIPLE 2x SIZES																		
HGUS26-3	4¹³⁄₁₆	12	4¹⁵⁄₁₆	5½	4	20-16d	8-16d	2155	4355	4875	5230	5575	1855	3750	4200	4500	4795	I7, L17, F23
HGUS28-3	6¹³⁄₁₆	12	4¹⁵⁄₁₆	7¼	4	36-16d	12-16d	3235	7460	7460	7460	7460	2785	6415	6415	6415	6415	
HGUS210-3	8¹³⁄₁₆	12	4¹⁵⁄₁₆	9¼	4	46-16d	16-16d	4095	9100	9100	9100	9100	3525	7825	7825	7825	7825	
HGUS212-3	10⅝	12	4¹⁵⁄₁₆	10¾	4	56-16d	20-16d	5045	9600	9600	9600	9600	4335	8255	8255	8255	8255	
HGUS214-3	12⅝	12	4¹⁵⁄₁₆	12¾	4	66-16d	22-16d	5515	10100	10100	10100	10100	4745	8685	8685	8685	8685	
QUADRUPLE 2x SIZES																		
HGUS26-4	5½	12	6⁹⁄₁₆	5⁷⁄₁₆	4	20-16d	8-16d	2155	4355	4875	5230	5575	1855	3750	4200	4500	4795	I7, L17, F23
HGUS28-4	7¼	12	6⁹⁄₁₆	7⁹⁄₁₆	4	36-16d	12-16d	3235	7460	7460	7460	7460	2785	6415	6415	6415	6415	
HGUS210-4	9¼	12	6⁹⁄₁₆	9⁹⁄₁₆	4	46-16d	16-16d	4095	9100	9100	9100	9100	3525	7825	7825	7825	7825	
HGUS212-4	10⅝	12	6⁹⁄₁₆	10⅝	4	56-16d	20-16d	5045	9600	9600	9600	9600	4335	8255	8255	8255	8255	
HGUS214-4	12⅝	12	6⁹⁄₁₆	12⅝	4	66-16d	22-16d	5515	10100	10100	10100	10100	4745	8685	8685	8685	8685	
4x SIZES																		
LUS46	4⅜	18	3⁹⁄₁₆	4¾	2	4-16d	4-16d	1165	1030	1180	1280	1625	1000	880	1010	1090	1385	I7, F6, L17
HGUS46	4⁷⁄₁₆	12	3⅝	4⁷⁄₁₆	4	20-16d	8-16d	2155	4355	4875	5230	5575	1855	3750	4200	4500	4795	I7, L17, F23
HHUS46	4⁵⁄₁₆	14	3⅝	5³⁄₁₆	3	14-16d	6-16d	1550	2790	3160	3410	4265	1335	2390	2710	2925	3665	
LUS48	4⅜	18	3⁹⁄₁₆	6¾	2	6-16d	4-16d	1165	1315	1500	1625	2060	1000	1125	1285	1390	1765	I7, F6, L17
HUS48	6⅛	14	3⁹⁄₁₆	7	2	6-16d	6-16d	1550	1595	1815	1960	2470	1550	1365	1555	1680	2115	
HHUS48	6½	14	3⅝	7⅛	3	22-16d	8-16d	2000	4215	4770	5150	6440	1720	3615	4095	4415	5535	I7, L17, F23
HGUS48	6⁷⁄₁₆	12	3⅝	7¹⁄₁₆	4	36-16d	12-16d	3235	7460	7460	7460	7460	2785	6415	6415	6415	6415	
LUS410	6¼	18	3⁹⁄₁₆	8¾	2	8-16d	6-16d	1745	1830	2090	2265	2870	1500	1565	1785	1935	2455	I7, F6, L17
HHUS410	8⅜	14	3⅝	9	3	30-16d	10-16d	3745	5640	6385	6890	7165	3440	4835	5480	5910	6165	
HGUS410	8⁷⁄₁₆	12	3⅝	9¹⁄₁₆	4	46-16d	16-16d	4095	9100	9100	9100	9100	3525	7825	7825	7825	7825	I7, L17, F23
HGUS412	10⁷⁄₁₆	12	3⅝	10⁷⁄₁₆	4	56-16d	20-16d	5045	9600	9600	9600	9600	4335	8255	8255	8255	8255	I7, L17
HGUS414	11⁷⁄₁₆	12	3⅝	12⁷⁄₁₆	4	66-16d	22-16d	5515	10100	10100	10100	10100	4745	8685	8685	8685	8685	

1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6.
2. Wind (160) is a download rating.
3. Minimum heel height shown is required to achieve full table loads. For less than minimum heel height, see technical bulletin T-REDHEEL *(see page 232 for details)*.
4. Truss chord cross-grain tension may limit allowable loads in accordance with ANSI/TPI 1-2007. Simpson Strong-Tie® Connector Selector™ Software includes the evaluation of cross-grain tension in its hanger allowable loads. For additional information, contact Simpson Strong-Tie.
5. Loads shown are based on minimum of 2-ply 2x carrying member. With 3x carrying members, use 16dx2½" nails into the header and 16d commons into the joist with no load reduction. With single 2x carrying members, use 10dx1½" nails into the header and 10d commons into the joist, and reduce the load to 0.64 of the table value.
6. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 22-23 for other nail sizes and information.

HTU *Face Mount Truss Hangers*

The HTU face mount truss hangers have nail patterns designed specifically for shallow heel heights, so that full allowable loads *(with minimum nailing)* apply to heel heights as low as 3⅞". Minimum and maximum nailing options provide solutions for varying heel heights and end conditions.

Alternate allowable loads are provided for gaps between the end of the truss and the carrying member up to ½" max. to allow for greater construction tolerances *(maximum gap for standard allowable loads is ⅛" per ASTM D1761 and D7147).*

MATERIAL: 16 gauge

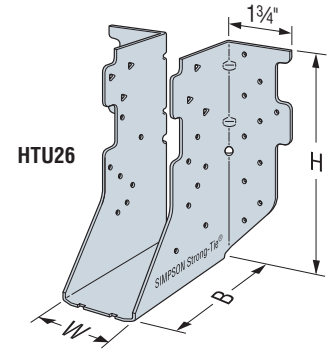
FINISH: Galvanized

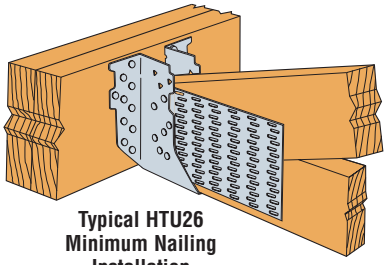
INSTALLATION:

- Use all specified fasteners. See General Notes.
- Can be installed filling round holes only, or filling round and triangle holes for maximum values.
- See alternate installation for applications using the HTU26 on a 2x4 carrying member or HTU28 or HTU210 on a 2x6 carrying member for additional uplift capacity.

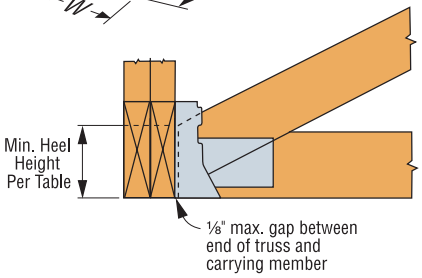
OPTIONS: • See Hanger Options on pages 216-217 for skew options.

CODES: See page 13 for Code Reference Key Chart.

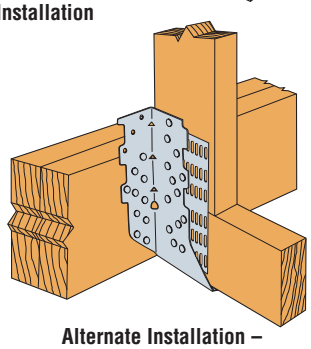




Typical HTU26 Minimum Nailing Installation



HTU Installation for Standard Allowable Loads
(For ½" maximum gap, use Alternate Allowable Loads.)



Alternate Installation – HTU28 installed on 2x6 carrying member
(HTU210 similar)

Standard Allowable Loads (⅛" Maximum Hanger Gap)

Model No.	Min. Heel Height	Dimensions			Fasteners		DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
		W	H	B	Carrying Member	Carried Member	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	
SINGLE 2x SIZES																	
HTU26	3½	1⅝	5⅞	3½	20-16d	11-10dx1½	730	2940	3045	3045	3045	630	1920	1920	1920	1920	I7, L17, F22
HTU26 (Min)	3⅞	1⅝	5⅞	3½	20-16d	14-10dx1½	1250	2940	3200	3200	3200	1075	2015	2015	2015	2015	
HTU26 (Max)	5½	1⅝	5⅞	3½	20-16d	20-10dx1½	1555	2940	3340	3600	4010	1335	2530	2870	3095	3450	
HTU28 (Min)	3⅞	1⅝	7⅛	3½	26-16d	14-10dx1½	1235	3820	3895	3895	3895	1060	2920	2920	2920	2920	
HTU28 (Max)	7¼	1⅝	7⅛	3½	26-16d	26-10dx1½	2140	3820	4340	4680	5435	1840	3285	3730	4025	4675	
HTU210 (Min)	3⅞	1⅝	9⅛	3½	32-16d	14-10dx1½	1330	4355	4355	4355	4355	1145	3265	3265	3265	3265	
HTU210 (Max)	9¼	1⅝	9⅛	3½	32-16d	32-10dx1½	3315	4705	5345	5760	5995	2850	4045	4595	4955	5155	
DOUBLE 2x SIZES																	
HTU26-2 (Min)	3⅞	3⅝	5⅞	3½	20-16d	14-10d	1515	2940	3340	3600	3910	1305	2465	2465	2465	2465	I7, L17, F22
HTU26-2 (Max)	5½	3⅝	5⅞	3½	20-16d	20-10d	2175	2940	3340	3600	4485	1870	2530	2870	3095	3855	
HTU28-2 (Min)	3⅞	3⅝	7⅛	3½	26-16d	14-10d	1530	3820	4310	4310	4310	1315	3235	3235	3235	3235	
HTU28-2 (Max)	7¼	3⅝	7⅛	3½	26-16d	26-10d	3485	3820	4340	4680	5850	2995	3285	3730	4025	5030	
HTU210-2 (Min)	3⅞	3⅝	9⅛	3½	32-16d	14-10d	1755	4705	4815	4815	4815	1510	3610	3610	3610	3610	
HTU210-2 (Max)	9¼	3⅝	9⅛	3½	32-16d	32-10d	4110	4705	5345	5760	7200	3535	4045	4595	4955	6190	

1. The maximum hanger gap is measured between the joist *(or truss)* end and the carrying member.
2. Minimum heel heights required for full table loads are based on a minimum 2/12 pitch.
3. Uplift has been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
4. Wind (160) is a download rating.
5. For hanger gaps between ⅛" and ½" use the Alternate Allowable Loads.
6. Truss chord cross-grain tension may limit allowable loads in accordance with ANSI/TPI 1-2007. Simpson Strong-Tie® Connector Selector™ Software includes the evaluation of cross-grain tension in its hanger allowable loads. For additional information, contact Simpson Strong-Tie.
7. Loads shown are based on a minimum 2-ply 2x carrying member. For single 2x carrying members, use N10 (10dx1½") nails into the header and reduce the allowable download to 0.70 of the table value. The allowable uplift is 100% of the table load.
8. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

Alternate Installation Table for 2x4 and 2x6 Carrying Member

Model No.	Min. Heel Height (in.)	Minimum Carrying Member	Fasteners		DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
			Carrying Member	Carried Member	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	
HTU26 (Min)	3⅞	2-2x4	10-16d	14-10dx1½	925	1470	1670	1800	2040	795	1265	1435	1550	1755	I7, L17, F22
HTU26 (Max)	5½	2-2x4	10-16d	20-10dx1½	1310	1470	1670	1800	2250	1125	1265	1435	1550	1935	
HTU28 (Max)	7¼	2-2x6	20-16d	26-10dx1½	1970	2940	3340	3600	3905	1695	2530	2870	3095	3360	
HTU210 (Max)	9¼	2-2x6	20-16d	32-10dx1½	2760	2940	3340	3600	3905	2375	2530	2870	3095	3360	

1. See table above for dimensions and additional footnotes.
2. Maximum hanger gap for the alternate installation is ½".
3. Wind (160) is a download rating.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

HTU *Face Mount Truss Hangers*

SIMPSON Strong-Tie®

Alternate Allowable Loads (½" Maximum Hanger Gap)

Model No.	Min. Heel Height	Dimensions			Fasteners		DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
		W	H	B	Carrying Member	Carried Member	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	
SINGLE 2x SIZES																	
HTU26[8]	3½	1⅜	5⁷⁄₁₆	3½	20-16d	11-10dx1½	670	2735	2735	2735	2735	575	1725	1725	1725	1725	I7, L17, F22
HTU26 (Min)	3⅞	1⅜	5⁷⁄₁₆	3½	20-16d	14-10dx1½	1175	2940	3100	3100	3100	1010	1955	1955	1955	1955	
HTU26 (Max)	5½	1⅜	5⁷⁄₁₆	3½	20-16d	20-10dx1½	1215	2940	3340	3600	3760	1045	2370	2370	2370	2370	
HTU28 (Min)	3⅞	1⅜	7⅛	3½	26-16d	14-10dx1½	1125	3770	3770	3770	3770	970	2825	2825	2825	2825	
HTU28 (Max)	7¼	1⅜	7⅛	3½	26-16d	26-10dx1½	1920	3820	4340	4680	5015	1695	3285	3730	3765	3765	
HTU210 (Min)	3⅞	1⅜	9⅛	3½	32-16d	14-10dx1½	1250	3600	3600	3600	3600	1075	2700	2700	2700	2700	
HTU210 (Max)	9¼	1⅜	9⅛	3½	32-16d	32-10dx1½	3255	4705	5020	5020	5020	2800	3765	3765	3765	3765	
DOUBLE 2x SIZES																	
HTU26-2 (Min)	3⅞	3⁵⁄₁₆	5⁷⁄₁₆	3½	20-16d	14-10d	1515	2940	3340	3500	3500	1305	2205	2205	2205	2205	I7, L17, F22
HTU26-2 (Max)	5½	3⁵⁄₁₆	5⁷⁄₁₆	3½	20-16d	20-10d	1910	2940	3340	3500	3500	1645	2205	2205	2205	2205	
HTU28-2 (Min)	3⅞	3⁵⁄₁₆	7⅛	3½	26-16d	14-10d	1490	3820	3980	3980	3980	1280	2985	2985	2985	2985	
HTU28-2 (Max)	7¼	3⁵⁄₁₆	7⅛	3½	26-16d	26-10d	3035	3820	4340	4680	5555	2610	3285	3730	4025	4165	
HTU210-2 (Min)	3⅞	3⁵⁄₁₆	9⅛	3½	32-16d	14-10d	1755	4255	4255	4255	4255	1510	3190	3190	3190	3190	
HTU210-2 (Max)	9¼	3⁵⁄₁₆	9⅛	3½	32-16d	32-10d	3855	4705	5345	5760	6470	3315	4045	4595	4855	4855	

See table footnotes on page 136.

HGUQ *Multi-Ply Girder Truss Hangers*

HGUQ hangers provide similar capacities as HGUS double shear hangers, but they use Simpson Strong-Tie® Strong-Drive® SDS screws instead of nails for faster and easier installation. In addition, the SDS screws help transfer the load between the plies of the supporting girder when they penetrate all plies.

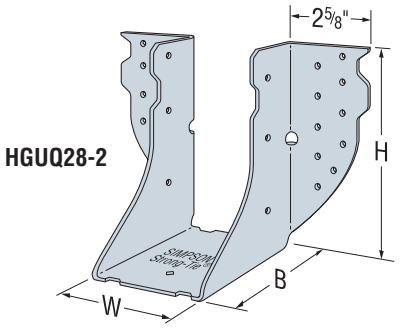
MATERIAL: 12 gauge **FINISH**: Galvanized

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

- Simpson Strong-Tie Strong-Drive SDS screws supplied.
- Not designed for welded or nailer applications.
- The thickness of the supporting girder must be equal to or greater than the screw length. For applications where the length of the supplied screws exceeds the thickness of the supporting girder, 3" or 4½" screws may be substituted for the longer length screws with no load reduction, or a shim block may used as approved by the Designer.

OPTIONS: These hangers cannot be modified.

CODES: See page 13 for Code Reference Key Chart.



Model No.	Ga	Dimensions			SDS Fasteners		DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
		W	H	B	Carrying Member	Carried Member	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	
DOUBLE 2x SIZES																	
HGUQ26-2-SDS3	12	3⁵⁄₁₆	5⁷⁄₁₆	4	(12) ¼"x3"	(4) ¼"x3"	1635	5040	5565	5565	5565	1175	3630	4005	4005	4005	F22
HGUQ28-2-SDS3	12	3⁵⁄₁₆	7³⁄₁₆	4	(20) ¼"x3"	(6) ¼"x3"	2565	7330	7330	7330	7330	1845	5280	5280	5280	5280	
HGUQ210-2-SDS3	12	3⁵⁄₁₆	9³⁄₁₆	4	(28) ¼"x3"	(8) ¼"x3"	3440	7415	7415	7415	7415	2475	5340	5340	5340	5340	
TRIPLE 2x SIZES																	
HGUQ26-3-SDS4.5	12	4¹⁵⁄₁₆	5½	4	(12) ¼"x4½"	(4) ¼"x4½"	1635	5040	5165	5165	5165	1175	3630	3720	3720	3720	F22
HGUQ28-3-SDS4.5	12	4¹⁵⁄₁₆	7¼	4	(20) ¼"x4½"	(6) ¼"x4½"	2565	8400	9175	9175	9175	1845	6050	6605	6605	6605	
HGUQ210-3-SDS4.5	12	4¹⁵⁄₁₆	9¼	4	(28) ¼"x4½"	(8) ¼"x4½"	3440	9745	9745	9745	9745	2475	7015	7015	7015	7015	
QUADRUPLE 2x SIZES																	
HGUQ26-4-SDS6	12	6⁹⁄₁₆	5⁷⁄₁₆	4	(12) ¼"x6"	(4) ¼"x6"	2375	5040	5165	5165	5165	1710	3630	3720	3720	3720	F22
HGUQ28-4-SDS6	12	6⁹⁄₁₆	7³⁄₁₆	4	(20) ¼"x6"	(6) ¼"x6"	4020	8400	8860	8860	8860	2890	6050	6380	6380	6380	
HGUQ210-4-SDS6	12	6⁹⁄₁₆	9³⁄₁₆	4	(28) ¼"x6"	(8) ¼"x6"	4170	10260	10260	10260	10260	3000	7385	7385	7385	7385	
4x SIZES																	
HGUQ46-SDS3	12	3⅝	4⅞	4	(12) ¼"x3"	(4) ¼"x3"	1635	5040	5165	5165	5165	1175	3630	3720	3720	3720	F22
HGUQ48-SDS3	12	3⅝	6⅞	4	(20) ¼"x3"	(6) ¼"x3"	2565	7330	7330	7330	7330	1845	5280	5280	5280	5280	
HGUQ410-SDS3	12	3⅝	8⅞	4	(28) ¼"x3"	(8) ¼"x3"	3440	7415	7415	7415	7415	2475	5340	5340	5340	5340	

1. Uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. Wind (160) is a download rating.
3. Truss chord cross-grain tension may limit allowable loads in accordance with ANSI/TPI 1-2007. Simpson Strong-Tie® Connector Selector™ Software includes the evaluation of cross-grain tension in its hanger allowable loads. For additional information, contact Simpson Strong-Tie.
4. Simpson Strong-Tie Strong-Drive screws are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Sections 7.5.3.4 and 8.9.2 are met *(pre-drilling required through the plate using a maximum of 5⁄32" bit).*
5. SDS screws that penetrate all plies of the supporting girder *(screws must penetrate a minimum of 1" into the last truss ply)* may also be used to transfer the load through all the plies of the supporting girder. When SDS screws do not penetrate all plies of the supporting girder truss, supplemental SDS screws at the hanger locations may be required to transfer the load to the truss plies not penetrated by the face fasteners, as determined by the Designer.
6. The supporting girder truss must have adequate thickness to accommodate the screw length, so that the screw does not protrude out the back of the girder. 3" or 4½" long SDS screws may be substituted for the longer SDS screws with no load reduction.
7. For installations to LSL, use the DF/SP table loads.

HHSUQ *Heavy Severe Skew Truss Hanger*

The new HHSUQ is a high-load, face-mount, truss-to-truss hanger designed to accommodate severe skews (45°-84°) for hip trusses, enabling a greater range of installation applications. Fastening the HHSUQ with Simpson Strong-Tie® Strong-Drive® SDS screws makes installation fast and easy, while eliminating the inconvenience of bolted applications.

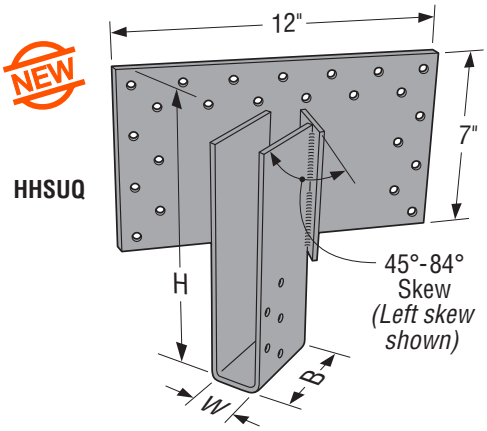
MATERIAL: Back plate—3 gauge; stirrup—7 gauge

FINISH: Simpson Strong-Tie® gray paint

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

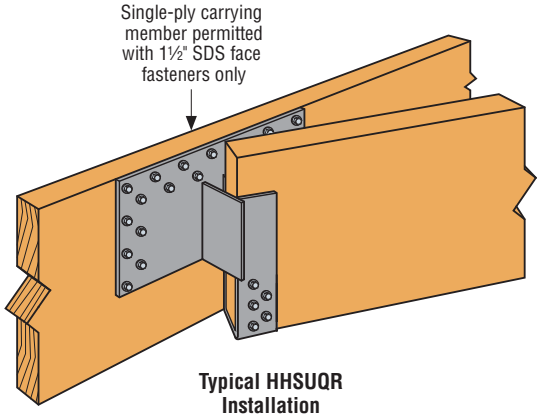
- Illustrations below show left and right skews HHSUQR/L *(HHSUQR=skewed right; HHSUQL=skewed left).*
- The joist/truss end may be square cut or bevel cut. 3⅞" minimum heel height.
- SDS screws supplied for all round holes.
- All multiple members must be fastened together to act as a single unit.

CODES: See page 13 for Code Reference Key Chart.

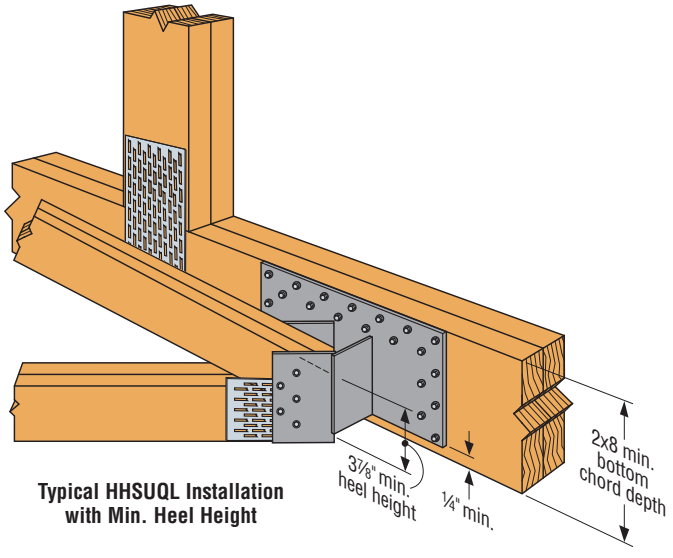


Model Number	Dimensions (in.)			SDS Fasteners		DF/SP Allowable Loads (lbs.)				SPF/HF Allowable Loads (lbs.)				Code Ref.
	W	H	B	Face	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	
HHSUQ28-SDS	1⅝	7¼	3½	23 - ¼"x3"	5 - ¼"x1½"	1170	4215	4405	4530	1005	3025	3160	3250	160
HHSUQ28-2-SDS	3⅝16	7¼	3½	23 - ¼"x3"	5 - ¼"x3"	1250	5065	5065	5065	1075	5065	5065	5065	
HHSUQ210-SDS	1⅝	9¼	3½	23 - ¼"x3"	5 - ¼"x1½"	1170	4215	4405	4530	1005	3025	3160	3250	
HHSUQ210-2-SDS	3⅝16	9¼	3½	23 - ¼"x3"	5 - ¼"x3"	1250	5065	5065	5065	1075	5065	5065	5065	
HHSUQ212-SDS	1⅝	11¼	3½	23 - ¼"x3"	5 - ¼"x1½"	1170	4215	4405	4530	1005	3025	3160	3250	
HHSUQ212-2-SDS	3⅝16	11¼	3½	23 - ¼"x3"	5 - ¼"x3"	1250	5065	5065	5065	1075	5065	5065	5065	
HHSUQ214-SDS	1⅝	13¼	3½	23 - ¼"x3"	5 - ¼"x1½"	1170	4215	4405	4530	1005	3025	3160	3250	
HHSUQ214-2-SDS	3⅝16	13¼	3½	23 - ¼"x3"	5 - ¼"x3"	1250	5065	5065	5065	1075	5065	5065	5065	
HHSUQ48-SDS	3⅝	7¼	3½	23 - ¼"x3"	5 - ¼"x3"	1250	5065	5065	5065	1075	5065	5065	5065	
HHSUQ410-SDS	3⅝	9¼	3½	23 - ¼"x3"	5 - ¼"x3"	1250	5065	5065	5065	1075	5065	5065	5065	
HHSUQ412-SDS	3⅝	11¼	3½	23 - ¼"x3"	5 - ¼"x3"	1250	5065	5065	5065	1075	5065	5065	5065	
HHSUQ414-SDS	3⅝	13¼	3½	23 - ¼"x3"	5 - ¼"x3"	1170	5065	5065	5065	1005	5065	5065	5065	
HHSUQ1.81/7-SDS	1⅜16	7¼	3½	23 - ¼"x3"	5 - ¼"x1½"	1170	5065	5065	5065	1005	5065	5065	5065	
HHSUQ1.81/9-SDS	1⅜16	9½	3½	23 - ¼"x3"	5 - ¼"x1½"	1170	5065	5065	5065	1005	5065	5065	5065	
HHSUQ1.81/11-SDS	1⅜16	11⅞	3½	23 - ¼"x3"	5 - ¼"x1½"	1170	5065	5065	5065	1005	5065	5065	5065	
HHSUQ1.81/14-SDS	1⅜16	14	3½	23 - ¼"x3"	5 - ¼"x1½"	1170	5065	5065	5065	1005	5065	5065	5065	

1. Allowable Uplift loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. SDS screws that penetrate all plies of the supporting girder *(screws must penetrate a minimum of 1" into the last truss ply)* may also be used to transfer the load through all the plies of the supporting girder. When SDS screws do not penetrate all plies of the supporting girder truss, supplemental SDS screws at the hanger locations may be required to transfer the load to the truss plies not penetrated by the face fasteners, as determined by the Designer. 3" long SDS screws into face may be replaced with 4½" or 6" long SDS screws with no load reduction.
3. Loads shown are based on a minimum 2-ply 2x8 carrying member. For single 2x carrying members, replace 3" long SDS face fasteners with 1½" long SDS screws and reduce the allowable download to 2630 lbs. for DF/SP and 1895 lbs. for SPF/HF. The tabulated allowable uplift load is not reduced.
4. Girders must be adequately laterally braced to prevent excessive displacement due to secondary torsional stresses *(Ref ANSI/TPI 1-2007 Section 7.5.3.5).*
5. Truss chord cross-grain tension may limit allowable loads. Designer to refer to ANSI/TPI Section 7.5.3.2 for connection details, limitations, and reductions.
6. Simpson Strong-Tie® Strong-Drive® screws are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Sections 7.5.3.4 and 8.9.2 are met *(pre-drilling required through the plate using a maximum of 5⁄32" bit).*
7. For installations into LSL or PSL, use DF/SP table loads.



Typical HHSUQR Installation



Typical HHSUQL Installation with Min. Heel Height

THAR/L422 *Skewed Truss Hangers*

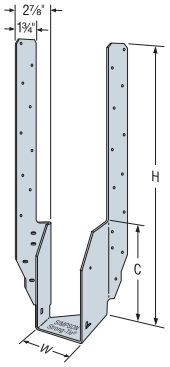
Designed for 4x2 floor trusses and 4x beams, the THAR/L422 has a standard skew of 45°. Straps must be bent for top flange installation. PAN nailing helps eliminate splitting of 4x2 truss bottom chords.

MATERIAL: 16 gauge

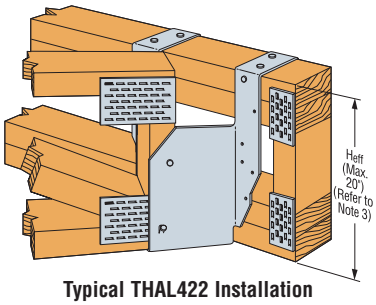
FINISH: Galvanized

INSTALLATION: • Use all specified fasteners. See General Notes.
- Straps must be field-formed over the header a minimum of 2½".
- Minimum and maximum nailing configurations available – see table for nailing requirements.

CODES: See page 13 for Code Reference Key Chart.



THAL422



Typical THAL422 Installation with Minimum Nailing on a Floor Truss with Double 4x2 Top Chord

Model No.	Ga	Dimensions (in.)			Minimum Top Chord on Carrying Member	Effective Height H_{eff}[3]	Fasteners				DF/SP Allowable Loads				SPF/HF Allowable Loads				Code Ref.
							Carrying Member		Carried Member		Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	
		W	H	C			Top	Face	Straight	Slant									
THAR/L422 (Min)	16	3⅜	22⅝	8	Single 4x2	9 min.	4-10dx1½	2-10dx1½	1-10dx1½	2-10dx1½	—	880	880	880	—	755	755	755	I8, L15, F7
					Double 4x2	9 to 12	4-10d	2-10d	1-10d	2-10dx1½	—	1525	1525	1525	—	1315	1315	1315	
						> 12					—	1090	1090	1090	—	935	935	935	
THAR/L422 (Max)	16	3⅜	22⅝	8	Double 4x2	9 min.	4-10d	8-10d	1-10d	2-10dx1½	310	1675	1675	1675	265	1440	1440	1440	

1. Uplift has been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. 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.
3. Where the top of the carried member is flush with the top of the carrying member, H_{eff} is equal to the depth of the carried member. Otherwise, H_{eff} shall be measured from the top of the bearing seat to the top of the carrying member.
4. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

LTHMA *Multiple Truss Hangers*

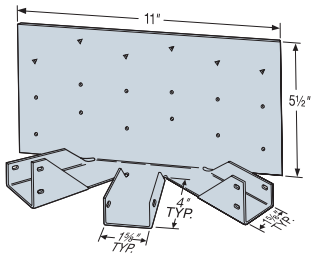
Light capacity hanger designed to carry 2 or 3 trusses in a terminal hip installation.

MATERIAL: 16 gauge

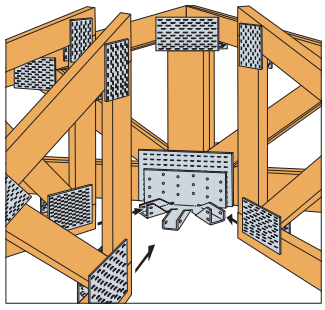
FINISH: Galvanized

INSTALLATION: • Use all specified fasteners. See General Notes.
- The total load must be symmetrically distributed about the centerline to avoid eccentric loading of the connector.
- Fill round holes for girder trusses with 2x4 bottom chords.
- Fill round and triangle holes for girder trusses with 2x6 bottom chords.

CODES: See page 13 for Code Reference Key Chart.



LTHMA



Typical LTHMA Installation

Model No.	Header	Fasteners			DF/SP Allowable Loads												Code Ref.
		Header	Hips (Total)	Jack	Uplift (160)			Floor (100)			Snow (115)			Roof (125/160)			
					Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	
LTHMA	1 ply 2x4	12-10dx1½	6-10dx1½	2-10dx1½	55	20	130	485	110	1080	540	125	1205	540	125	1205	IL15
	2 ply 2x4	12-10d	6-10dx1½	2-10dx1½	55	20	130	600	130	1330	675	150	1500	675	150	1500	
	1 ply 2x6	18-10dx1½	6-10dx1½	2-10dx1½	55	20	130	635	140	1410	635	140	1410	635	140	1410	
	2 ply 2x6	18-10d	6-10dx1½	2-10dx1½	85	25	195	900	200	2000	1035	230	2300	1050	240	2340	

Model No.	Header	Fasteners			SPF/HF Allowable Loads												Code Ref.
		Header	Hips (Total)	Jack	Uplift (160)			Floor (100)			Snow (115)			Roof (125/160)			
					Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	
LTHMA	1 ply 2x4	12-10dx1½	6-10dx1½	2-10dx1½	50	10	110	440	55	935	485	65	1035	485	65	1035	IL15
	2 ply 2x4	12-10d	6-10dx1½	2-10dx1½	50	10	110	540	70	1150	570	75	1215	570	75	1215	
	1 ply 2x6	18-10dx1½	6-10dx1½	2-10dx1½	50	10	110	570	75	1215	570	75	1215	570	75	1215	
	2 ply 2x6	18-10d	6-10dx1½	2-10dx1½	85	15	185	815	100	1730	930	125	1985	940	120	2000	

1. Allowable loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Hip loads are for each hip.
3. Load distribution is 45% for each hip and 10% for jack. Other hip/jack load distributions are allowed if the sum of all three carried members does not exceed the total load and the hip members are equally loaded.
4. Truss chord cross-grain tension may limit allowable loads in accordance with ANSI/TPI 1-2007. Simpson Strong-Tie® Connector Selector™ Software includes the evaluation of cross-grain tension in its hanger allowable loads. For additional information, contact Simpson Strong-Tie.
5. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

THJU *Truss Hip/Jack Hanger*

The THJU hip/jack hanger offers the most flexibility and ease of installation without sacrificing performance. The U-shaped hanger works for right and left hand hips and can be ordered to fit a range of hip skews *(up to 67½ degrees)* as well as various single and 2-ply hip/jack combinations. Also can be installed before or after the hip and jack.

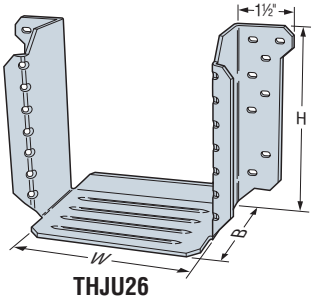
THJU26 is sized for the standard hip/jack combination with a 45-degree left or right-hand hip. The wide seat of THJU26-W accommodates a 2-ply hip and 2-ply jack combination with a 45 degree maximum hip skew, or a standard single-ply hip/jack configuration with a maximum 67½-degree hip skew. Intermediate seat widths are available for other hip/jack or hip/hip combinations.

MATERIAL: 12 gauge **FINISH:** Galvanized

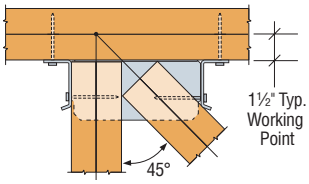
INSTALLATION: • Use all specified fasteners. See General Notes.

OPTIONS: Other seat widths available. See Hanger Options on pages 215-224 for more information.

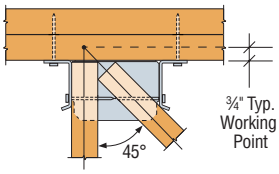
CODES: See page 13 for Code Reference Key Chart.



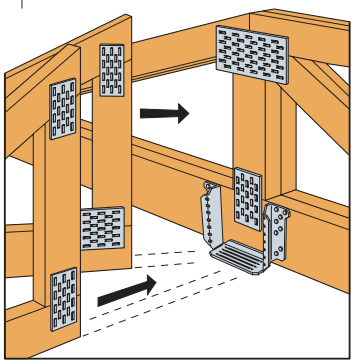
THJU26



THJU26-W Top View
2-Ply Hip/2-Ply Jack Installation



THJU26 Top View
Right Hand Hip
Installation



Typical THJU26 Installation

Model No.	Min. Carried Member	Dimensions (in.)			Fasteners			DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
		W	H	B	Carrying Member	Hip	Jack	Uplift (160)	Download Floor (100)	Download Snow (115)	Download Roof (125)	Download Wind (160)	Uplift (160)	Download Floor (100)	Download Snow (115)	Download Roof (125)	Download Wind (160)	
THJU26	2x4	5⅛	5⅜	3½	16-10d	4-10d	4-10d	745	1915	1915	1915	1915	645	1645	1645	1645	1645	F23
	2x6 or End. Vert.[3]				16-10d	7-10d	7-10d	1310	2255	2350	2350	2350	1125	1935	2020	2020	2020	
THJU26-W	2x4	8⅛	5⅜	3½	16-10d	4-10d	4-10d	710	1825	1825	1825	1825	610	1570	1570	1570	1570	
	2x6 or End. Vert.[3]				16-10d	7-10d	7-10d	1240	1965	1965	1965	1965	1065	1690	1690	1690	1690	

1. Tabulated loads are the total allowable loads of the hip and jack members combined; 65%-85% of the total load shall be distributed to the hip member, and the remaining percentage of total load shall be distributed to the jack. The combined hip and jack load may not exceed the published total load.
2. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed.
3. For full load, the jack requires either a min. 2x6 bottom chord or a min. 2x4 end vertical; the hip requires either a min. 2x6 bottom chord or a min. 2x6 end vertical for hip skews up to 60°. For hip skews greater than 60° (THJU26-W only), a min. 2x6 bottom chord or min. 2x8 end vertical is required.
4. With single 2x carrying members use 10dx1½" nails and use 100% of the table value.
5. For single 2x jacks, 10dx1½" nails may be substituted for the specified 10d commons with no reduction in load.
6. Truss chord cross-grain tension may limit allowable loads.
7. **NAILS:** 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.

TJC37 *Jack Truss Connector*

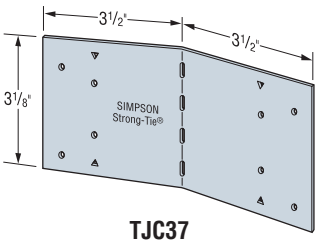
TJC37 is a versatile connector for jack trusses. Adjustable from 0 to 67.5 degree *(shipped with 67.5 degree bend)*. Nail hole locations allow for easy installation. Minimum nailing option provides faster installation and lower installed cost.

MATERIAL: 16 gauge **FINISH**: Galvanized

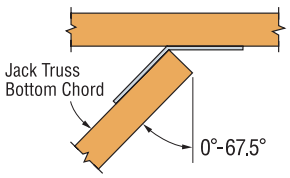
INSTALLATION: • Use all specified fasteners; see General Notes.

- Can be installed filling round holes only, or filling round and triangle holes for maximum values.
- To reduce the potential for splitting, install the TJC37 with a minimum 3/16" edge distance on the chord members *(must be centered on 2x4 chords)*.
- Position the jack truss on the inside of the bend line with the end of the jack truss flush with the bend line.
- Bend the TJC37 to the desired position *(one bend cycle only)*.
- No bevel cut required.
- Applications involving attachment of TJC37 to the carried truss top chord requires minimum 2x6 carrying member for jack truss pitches up to 7/12, and 2x8 or larger for pitches greater than 7/12. 2x4 carried truss top chord allows for pitches from 0/12 to 3/12.

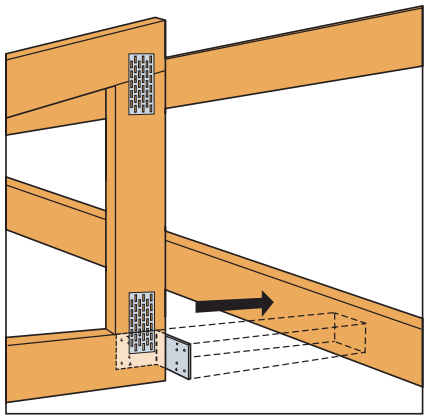
CODES: See page 13 for Code Reference Key Chart.



TJC37



Top View Installation



Typical TJC37 Installation

Model No.	Fasteners		Allowable Loads						Code Ref.
	Carrying Member	Carried Member	DF/SP 0°	DF/SP 1°-60°	DF/SP 61°-67.5°	SPF/HF 0°	SPF/HF 1°-60°	SPF/HF 61°-67.5°	
TJC37 (Min)	4-8dx1½	4-8dx1½	340	300	320	290	260	275	IP1, L18, F25
TJC37 **(Max)**	6-8dx1½	6-8dx1½	580	485	425	500	415	365	

1. No load duration increase allowed.
2. Allowable loads are for upward or downward direction.
3. **NAILS:** 8dx1½ = 0.131" dia. x 1½" long. See page 22-23 for other nail sizes and information.

UPDATED 5/8/2013

LTHJA26 *Truss Hip/Jack Hangers*

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.

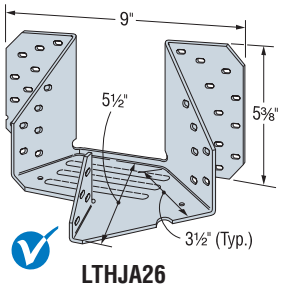
The LTHJA26 is a lighter capacity version of the THJA26 and offers the lowest cost alternative for light hip/jack load applications.

MATERIAL: 18 gauge **FINISH**: Galvanized

INSTALLATION: • Use all specified fasteners. See General Notes.
- Shall be attached to a double girder truss to allow for required minimum nail penetration. See footnote 3.
- 10dx1½" nails must be installed into bottom of hip members through bottom of hanger seat for table loads.

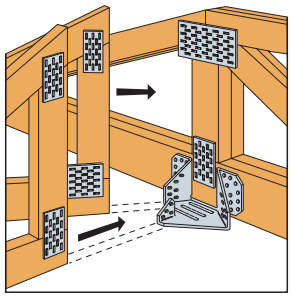
OPTIONS: These hangers can not be modified.

CODES: See page 13 for Code Reference Key Chart.

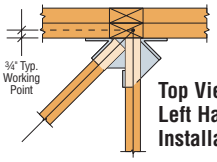


LTHJA26

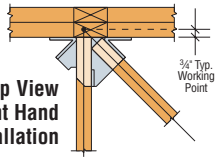
US Patent 7,913,472



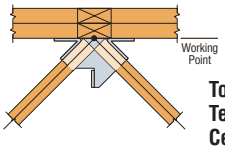
Typical LTHJA26 Installation



Top View Left Hand Hip Installation



Top View Right Hand Hip Installation



Top View Terminal Hip without Center Common Jack

Model No.	Carried Member Combination	Fasteners			Carried Member	DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
		Carrying Member	Hip (each)	Jack		Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	
LTHJA26	Side Hip & Center Jack	20-10d	7-10dx1½	4-10dx1½	Jack	75	290	290	290	290	65	245	245	245	245	I11, F10
					Hip	220	875	875	875	875	185	735	735	735	735	
					Hip & Jack	295	1165	1165	1165	1165	250	980	980	980	980	
	Double (Terminal) Hip	20-10d	7-10dx1½	—	Hip (each)	290	635	635	635	635	245	535	535	535	535	
					Two Hips	580	1270	1270	1270	1270	490	1070	1065	1065	1065	

1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Wind (160) is a download rating.
3. Loads shown are based on a minimum 2-2x6 carrying member. For single 2x carrying members (min. 2x6), use 10dx1½" nails and use 0.67 of the table value.
4. Tabulated hip and jack allowable loads assume that 75% of the total load is distributed to the hip and 25% to the jack. It is permitted to distribute 65% to 85% of the tabulated total load to the hip, and the remaining percentage of total load to the jack. The combined hip and jack load may not exceed the published Total Load.
5. Truss chord cross-grain tension may limit allowable loads in accordance with ANSI/TPI 1-2007. Simpson Strong-Tie® Connector Selector™ Software includes the evaluation of cross-grain tension in its hanger allowable loads. For additional information, contact Simpson Strong-Tie.
6. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

THJA26 *Truss Hip/Jack Hangers*

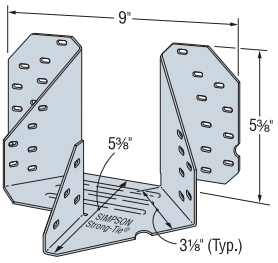
The versatile THJA26 can accommodate right or left hand hips *(at 45-degree skews)*, and can be installed before or after the hip and jack. Can also be used for double *(terminal)* hips.

MATERIAL: 14 gauge **FINISH:** Galvanized

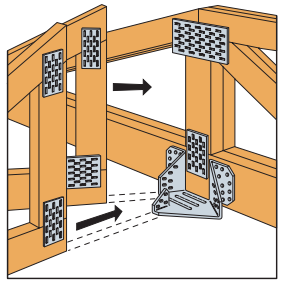
INSTALLATION: • Use all specified fasteners. See General Notes.
- All multiple members must be fastened together to act as a single unit.
- Shall be attached to a double girder truss to allow for required minimum nail penetration. See footnote 3.

OPTIONS: These hangers cannot be modified.

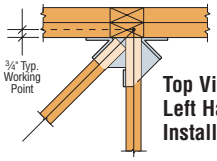
CODES: See page 13 for Code Reference Key Chart.



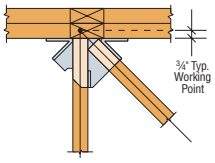
THJA26



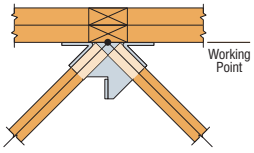
Typical THJA26 Installation



Top View Left Hand Hip Installation



Top View Right Hand Hip Installation



Top View Terminal Hip without Center Common Jack

Model No.	Fasteners			Carried Member	DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
	Carrying Member	Hip	Jack		Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	
THJA26	20-16d	6-10dx1½	4-10dx1½	Hip	720	2010	2310	2450	2450	590	1740	2000	2100	2100	I11, F10
				Jack	240	670	770	815	815	195	580	670	700	700	
				Total	960	2680	3080	3265	3265	785	2320	2670	2800	2800	

1. Uplift loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Wind (160) is a download rating.
3. Loads shown are based on a minimum 2-2x6 carrying member. For single 2x carrying members *(min. 2x6)*, use 10dx1½" nails and use 0.67 of the table value. For 2-2x4 carrying members, multiply the download by 0.50.
4. 16d sinkers (0.148" dia. x 3¼" long) may be substituted for the specified 16d commons at 0.85 of the table load.
5. Tabulated hip and jack allowable loads assume that 75% of the total load is distributed to the hip and 25% to the jack. It is permitted to distribute 65% to 85% of the tabulated total load to the hip, and the remaining percentage of total load to the jack. The combined hip and jack load may not exceed the published Total Load.
6. For terminal hips, divide the total allowable load by 2 to determine the allowable load for each hip.
7. Truss chord cross-grain tension may limit allowable loads in accordance with ANSI/TPI 1-2007. Simpson Strong-Tie® Connector Selector™ Software includes the evaluation of cross-grain tension in its hanger allowable loads. For additional information, contact Simpson Strong-Tie.
8. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

MTHMQ/MTHMQ-2 *Multiple Truss Hangers*

The MTHMQ and MTHMQ-2 are redesigned versions of our medium-to-high load capacity hangers for carrying 2 or 3 trusses. The new design offers concealed flanges and installs with Strong-Drive® SDS screws for easier installation.

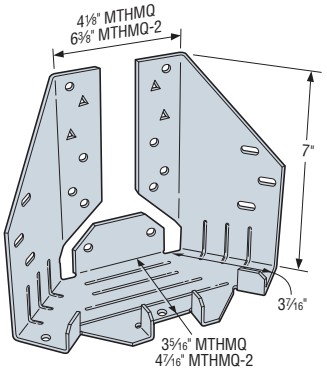
MATERIAL: 12 gauge

FINISH: Galvanized (G90)

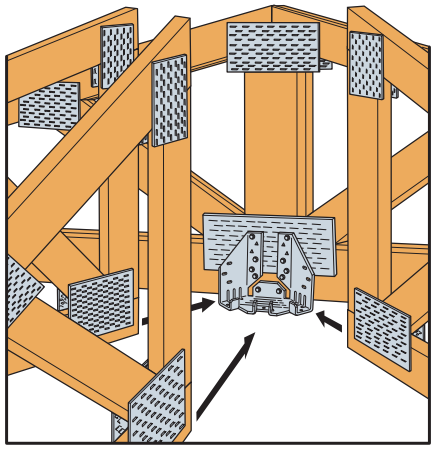
INSTALLATION:

- Use all specified fasteners. See General Notes.
- Can be installed filling round holes only, or filling round and triangle holes for maximum load. For all installations, fill the fastener holes in the bottom of the hanger seat.
- For installations at panel points with 2x6 bottom chords, do not fill the triangle holes unless approved by the Truss Designer.

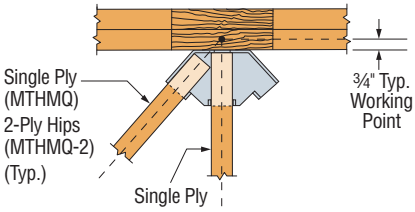
CODES: See page 13 for Code Reference Key Chart.



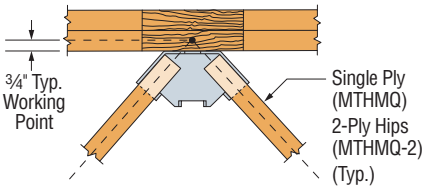
MTHMQ-SDS3
(MTHMQ-2-SDS3 similar)



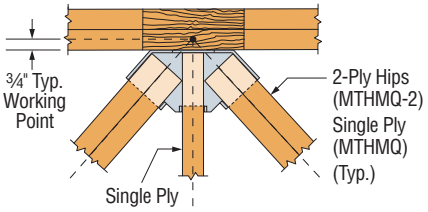
Typical MTHMQ Min. Installation at Panel Point



MTHMQ Top View Left Hand Hip Installation
(MTHMQ-2 similar)



MTHMQ Top View Terminal Installation without Center Common Jack
(MTHMQ-2 similar)



MTHMQ-2 Top View Terminal Installation with Center Common Jack
(MTHMQ similar)

Right or Left Hand Hip Installation *(Two-Member Connection)*[3,4]

Model No.	Min. Carrying Member[2,3]	Fasteners			DF/SP Allowable Loads						SPF/HF Allowable Loads						Code Ref.
		Carrying Member	Hip	Jack	Uplift (160)			Download (100/115/125/160)			Uplift (160)			Download (100/115/125/160)			
					Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	
MTHMQ-SDS3 (Min)	(2)-2x6	10-SDS ¼"x3"	4-SDS ¼"x3"	1-SDS ¼"x3"	440	145	585	1965	655	2620	315	105	420	1415	470	1885	170
MTHMQ-SDS3 (Max)	(2)-2x8	14-SDS ¼"x3"	4-SDS ¼"x3"	1-SDS ¼"x3"	440	145	585	2715	905	3620	315	105	420	1955	650	2605	
MTHMQ-2-SDS3 (Min)	(2)-2x6	12-SDS ¼"x3"	5-SDS ¼"x3"	1-SDS ¼"x3"	800	265	1065	2905	970	3875	575	190	765	2090	700	2790	
MTHMQ-2-SDS3 (Max)	(2)-2x8	16-SDS ¼"x3"	5-SDS ¼"x3"	1-SDS ¼"x3"	800	265	1065	3330	1110	4440	575	190	765	2395	800	3195	

Terminal Type Installation *(Three-Member Connection)*[5]

Model No.	Min. Carrying Member[2,3]	Fasteners			DF/SP Allowable Loads						SPF/HF Allowable Loads						Code Ref.
		Carrying Member	Hips (Total)	Jack	Uplift (160)			Download (100/115/125/160)			Uplift (160)			Download (100/115/125/160)			
					Hip (Ea)	Jack	Total	Hip (Ea)	Jack	Total	Hip (Ea)	Jack	Total	Hip (Ea)	Jack	Total	
MTHMQ-SDS3 (Min)	(2)-2x6	10-SDS ¼"x3"	8-SDS ¼"x3"	1-SDS ¼"x3"	505	250	1260	1470	730	3670	360	185	905	1055	530	2640	170
MTHMQ-SDS3 (Max)	(2)-2x8	14-SDS ¼"x3"	8-SDS ¼"x3"	1-SDS ¼"x3"	505	250	1260	1985	995	4965	360	185	905	1430	715	3575	
MTHMQ-2-SDS3 (Min)	(2)-2x6	12-SDS ¼"x3"	10-SDS ¼"x3"	1-SDS ¼"x3"	685	340	1710	2015	1010	5040[7]	490	250	1230	1450	730	3630[7]	
MTHMQ-2-SDS3 (Max)	(2)-2x8	16-SDS ¼"x3"	10-SDS ¼"x3"	1-SDS ¼"x3"	685	340	1710	2655	1330	6640	490	250	1230	1910	960	4780	

1. Allowable loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. A minimum 2-ply carrying member is required for the tabulated loads. With single 2x carrying members, use ¼"x1½" Strong-Drive® SDS screws into the carrying member and reduce the load to 0.60 of the table value.
3. For installations on 2x6 carrying members not at a panel point, the four uppermost face fasteners are not installed. For installations on 2x6 carrying members at a panel point, fasteners are installed into the round holes only *(minimum vertical member sizes are 2x6 and 2x8 for the MTHMQ and MTHMQ-2, respectively)*.
4. Tabulated two-member allowable loads assume that 75% of the total load is distributed to the hip and 25% to the jack. It is permitted to distribute 65% to 85% of the tabulated total load to the hip, and the remaining percentage of total load to the jack. The combined hip and jack load may not exceed the published Total Load.
5. For terminal hips divide the total allowable load by 2 to determine the allowable load for each hip.
6. Tabulated three-member loads assume that each hip carries 40% of the total load and the jack carries 20% of the total load. Other hip/jack load distributions are allowed if the sum of all three carried members does not exceed the total load and the hip members are equally loaded.
7. The total allowable download for the MTHMQ-2-SDS3 (Min) for a 3-member connection at the 115/125/160 load duration is 5400 lbs. (DF/SP) and 3890 lbs. (SPF/HF).
8. Truss chord cross-grain tension may limit allowable loads as determined by the Designer in accordance with ANSI/TPI 1-2007.
9. Simpson Strong-Tie Strong-Drive screws are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Section 7.5.3.4 and 8.9.2 are met *(pre-drilling required through the plate using a maximum of 5⁄32" bit)*.

THJM *Multiple Truss Hip Jack Hanger*

The new THJM is a non-welded hanger designed to carry radial-end jack framing and provide optimal efficiency for those multi-plane, angled bay roofs over breakfast, study and library alcoves. The unique patent pending design of the THJM accommodates 2x4 girder bottom chords and uses our Strong-Drive® SDS screws for easy installation with minimal fasteners.

FEATURES:

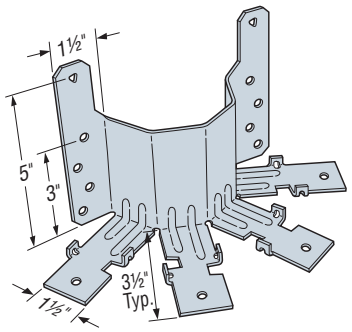
- The THJM hangers are designed for installation with SDS ¼"x3" screws that are included with the parts.
- The THJM2-4-SDS3 is designed for four incoming jack trusses with the outer jacks being 22½° from the face of the girder and the inner jacks being 45° from each other and the outer jacks.
- The THJM2-5-SDS3 is designed for five jacks coming into the hanger at 30° from the girder and each other.
- Tabs on the seats of the THJM assist in the placement of the jacks and also include obround holes for optional slant nails (10dx1½") when increased uplift is required.

MATERIAL: 12 gauge **FINISH:** Galvanized

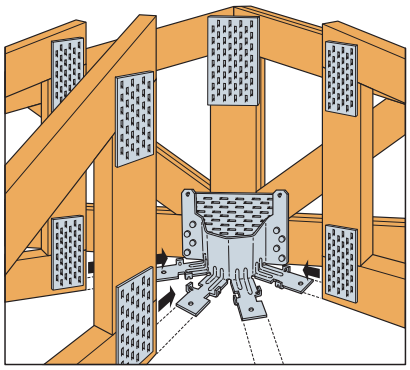
INSTALLATION: • Use all specified fasteners. See General Notes.

- Each carried jack truss requires one SDS ¼"x3" screw installed into the bottom chord through the bottom of the hanger seat.
- For installation on girders with 2x6 or 2x8 bottom chords, install one additional SDS ¼"x3" screw in the triangular hole on each vertical strap.
- Install two (2) 10dx1½" slant nails in the obround holes on each of the seat tabs to achieve the additional uplift load noted in the footnote.

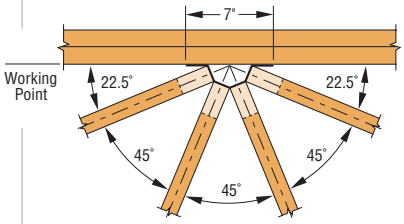
CODES: See page 13 for Code Reference Key Chart.



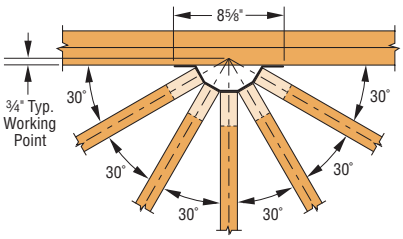
THJM2-4-SDS3
(THJM2-5-SDS3 similar)
U.S. Patent Pending



Typical THJM Installation



THJM2-4-SDS3
Top View Installation



THJM2-5-SDS3
Top View Installation

Model No.	Fasteners		DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
	Carrying Member[3]	Carried Members (Total)	Total Uplift (160)[6]	Total Download				Total Uplift (160)[6]	Total Download				
				Floor (100)	Snow (115)	Roof (125)	Wind (160)		Floor (100)	Snow (115)	Roof (125)	Wind (160)	
THJM2-4-SDS3	8-SDS ¼"x1½"	4-SDS ¼"x3"	535	2000	2300	2500	3030	535	1440	1655	1800	2180	I13
	8-SDS ¼"x3"	4-SDS ¼"x3"	535	3270	3270	3270	3270	535	2355	2355	2355	2355	
THJM2-5-SDS3	8-SDS ¼"x1½"	5-SDS ¼"x3"	620	2000	2300	2500	3030	445	1440	1665	1800	2180	
	8-SDS ¼"x3"	5-SDS ¼"x3"	620	3360	3765	3765	3765	620	2420	2710	2710	2710	

1. Tabulated loads are the total allowable loads of all carried members combined; the load on any single carried member shall not exceed 25% of the total published load for the THJM2-4 or 20% of the total published load for the THJM2-5.
2. Uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
3. A minimum 2-ply carrying member is required for the SDS ¼"x3" screws *(provided)*. For single 2x carrying members, use SDS ¼"x1½" screws *(not supplied)* with corresponding loads.
4. A minimum 2-ply carrying member is required for the tabulated loads.
5. Truss chord cross-grain tension may limit allowable loads per ANSI/TPI 1-2007. The optional triangle holes may be used for installation on 2x6 and larger carrying members, for a total of 10 fasteners into the carrying member, to resist cross-grain tension forces when no other mechanical reinforcement is available.
6. Tabs on the seats of the THJM hangers have obround holes for optional 10dx1½" slant nails *(2 per carried member)* when additional uplift capacity is required. Total allowable uplift with the optional 10dx1½" slant nailing is 970 lbs. (DF/SP/SPF/HF).

DSC *Drag Strut Connector*

The DSC drag-strut connector transfers the diaphragm shear forces from the girder truss or beam to the shearwalls. The new DSC5 has been designed to optimize fastener location, resulting in a connector that outperforms the DSC4 with fewer fasteners. The DSC2 is a smaller, lighter version that installs with fewer screws.

FEATURES

- The DSC5 requires 40% fewer fasteners than our previous DSC4, and gets 12% higher loads
- Left hand and right hand versions available
- DSCs install with the Simpson Strong-Tie® SDS ¼"x3" screws provided

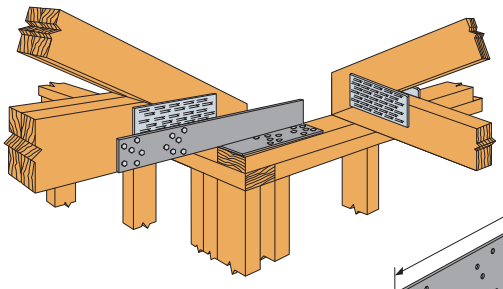
MATERIAL: DSC2—7 gauge, DSC5—3 gauge

FINISH: DSC2—Galvanized; DSC5—Simpson Strong-Tie® gray paint

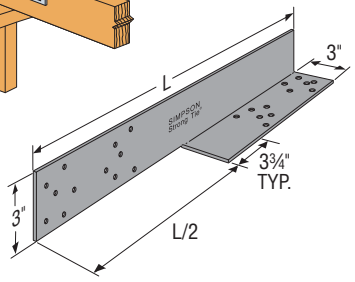
INSTALLATION: • Use all specified fasteners; see General Notes.

- Strong-Drive® SDS screws are provided.

CODES: See page 13 for Code Reference Key Chart.



Typical DSC5R-SDS3 Installation
(DSC2 similar)



DSC5R/L-SDS3
(DSC2 similar)
(Right hand DSC shown; specify right or left hand when ordering)
U.S. Patent 6,655,096

Model No.	L (in.)	Fasteners	DF/SP Allowable Loads		SPF/HF Allowable Loads		Code Ref.
			Compression (160)	Tension (160)	Compression (160)	Tension (160)	
DSC2R/L-SDS3	16	20-SDS ¼"x3"	2590	3720	1865	2680	F12
DSC5R/L-SDS3	21	24-SDS ¼"x3"	4745	5925	3415	4265	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Simpson Strong-Tie SDS screws minimum penetration is 2¾", minimum end distance is 2½" for DSC2 and 3¾" for DSC5 and minimum edge distance is ⅝" for full load values.
3. Simpson Strong-Tie® Strong-Drive® SDS screws are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Section 7.5.3.4 are met *(pre-drilling required through the plate using a maximum of 5⁄32" bit)*.

THGQ/THGQH/HTHGQ *SCL-to-Truss Girder Hangers*

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.

A lower cost alternative to bolted hangers, the THGQ and THGQH hangers for multi-ply girder trusses use Simpson Strong-Tie® Strong-Drive® SDS screws to provide high load capacities and easier installation compared to bolts. The SDS screws help transfer the load between the plies of the supporting girder when they penetrate all plies.

THGQ and THGQH models offer minimum and optional maximum fastener quantities to accommodate varying design needs. Allowable loads for various girder web member sizes provide additional installation options.

The HTHGQ is a high-load version designed to carry multi-ply trusses or composite lumber up to 5-ply girder trusses. For high-load capacities and easier installation compared to bolts, the HTHGQ is designed for use with Simpson Strong-Tie® SDS screws.

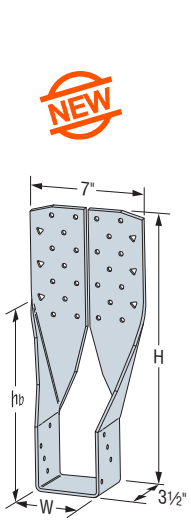
MATERIAL: THGQ—7 gauge, THGQH/HTHGQ—3 gauge

FINISH: THGQ—Galvanized, THGQH/HTHGQ—Simpson Strong-Tie® gray paint

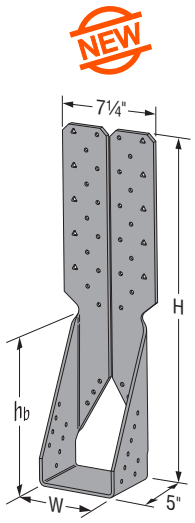
INSTALLATION:
- Use all specified fasteners. See General Notes.
- Can be installed filling round holes only, or filling round and triangle holes for maximum values.
- SDS screws supplied for all round and triangle holes. Installation may not require use of all SDS screws.
- All multiple members must be fastened together to act as a single unit.
- The thickness of the supporting girder must be equal to or greater than the screw length. For applications where the length of the supplied screws exceeds the thickness of the supporting girder, 3" or 4½" screws may be substituted for the longer length screws with no load reduction, or a shim block may be used as approved by the Designer.
- Girders must be adequately laterally braced to prevent excessive displacement due to secondary torsional stresses *(Ref ANSI/TPI 1-2007 Section 7.5.3.5).*

OPTIONS: THGQH hangers for multi-ply truss girders may be skewed 45 degrees. THGQH for structural composite lumber (SCL) cannot be skewed. See Hanger Options on pages 215-224.

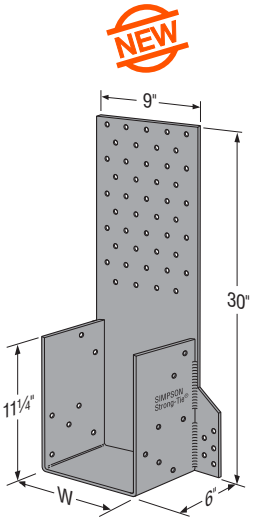
CODES: See page 13 for Code Reference Key Chart.



THGQ3.62
(others similar)

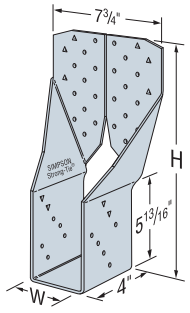


THGQH5.50
(others similar)

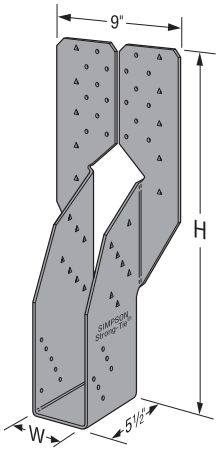


HTHGQ
(others similar)

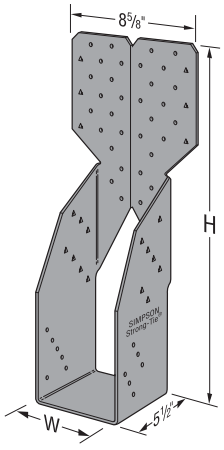
U.S. Patent Pending



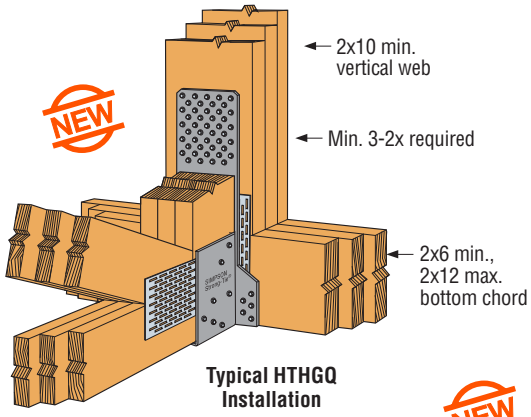
THGQ2-SDS3
(THGQ3-SDS4.5 similar)



THGQH2-SDS3

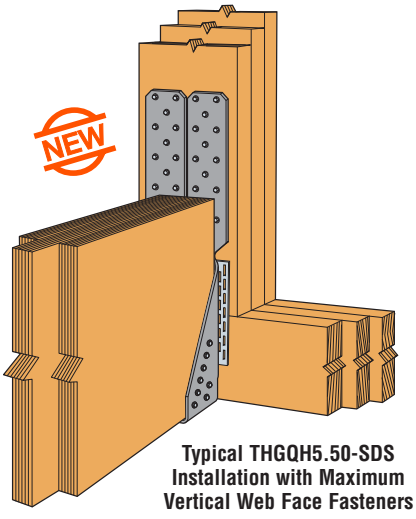


THGQH3-SDS4.5
(THGQH4-SDS6 similar)



Typical HTHGQ Installation

Typical THGQ3.62-SDS Installation with Minimum Vertical Web Face Fasteners



Typical THGQH5.50-SDS Installation with Maximum Vertical Web Face Fasteners

THGQ/THGQH/HTHGQ *SCL-to-Truss Girder Hangers*

SIMPSON Strong-Tie®

Allowable Loads for Multi-Ply Truss Girder

Model No.	Dim. (in.) W	Dim. (in.) H	Max. B.C. Depth	Min. Vert. Web Size	SDS Fasteners Face	SDS Fasteners Joist	DF/SP Allowable Loads Uplift (160)	DF/SP Floor (100)	DF/SP Snow (115)	DF/SP Roof (125)	DF/SP Wind (160)	SPF/HF Allowable Loads Uplift (160)	SPF/HF Floor (100)	SPF/HF Snow (115)	SPF/HF Roof (125)	SPF/HF Wind (160)	Code Ref.
THGQ2-SDS3 (Min)	3 5/16	16	2x8	2x6	(22) ¼"x3"	(10) ¼"x3"	3600	7920	7920	7920	7920	2590	5700	5700	5700	5700	F23
				2x8	(28) ¼"x3"		3600	10080	10080	10080	10080	2590	7260	7260	7260	7260	
THGQ2-SDS3 (Max)	3 5/16	16	2x8	2x6	(22) ¼"x3"	(14) ¼"x3"	4535	9240	9770	9770	9770	3265	6655	7035	7035	7035	
				2x8	(28) ¼"x3"		4535	11760	12435	12435	12435	3265	8465	8955	8955	8955	
THGQH2-SDS3 (Min)	3 5/16	25	2x10	2x6	(18) ¼"x3"	(12) ¼"x3"	3875	7560	8275	8275	8275	2790	5445	5960	5960	5960	
				2x8	(28) ¼"x3"		3875	11760	11950	11950	11950	2790	8465	8605	8605	8605	
THGQH2-SDS3 (Max)	3 5/16	25	2x10	2x6	(18) ¼"x3"	(26) ¼"x3"	7635	7560	7940	7940	7940	5495	5445	5715	5715	5715	
				2x8	(28) ¼"x3"		9900	11760	12350	12350	12350	7130	8465	8890	8890	8890	
THGQ3-SDS4.5 (Min)	4 15/16	16	2x8	2x6	(22) ¼"x4½"	(10) ¼"x4½"	3600	7920	7920	7920	7920	2590	5700	5700	5700	5700	
				2x8	(28) ¼"x4½"		3600	10080	10080	10080	10080	2590	7260	7260	7260	7260	
THGQ3-SDS4.5 (Max)	4 15/16	16	2x8	2x6	(22) ¼"x4½"	(14) ¼"x4½"	4535	9140	9140	9140	9140	3265	6580	6580	6580	6580	
				2x8	(28) ¼"x4½"		4535	11635	11635	11635	11635	3265	8375	8375	8375	8375	
THGQH3-SDS4.5 (Min)	4 15/16	25	2x10	2x8	(32) ¼"x4½"	(12) ¼"x4½"	3875	12565	12565	12565	12565	2790	9045	9045	9045	9045	
				2x10	(38) ¼"x4½"		3875	14920	14920	14920	14920	2790	10740	10740	10740	10740	
THGQH3-SDS4.5 (Max)	4 15/16	25	2x10	2x8	(32) ¼"x4½"	(26) ¼"x4½"	9900	12980	12980	12980	12980	7130	9345	9345	9345	9345	
				2x10	(38) ¼"x4½"		9900	15415	15415	15415	15415	7130	11100	11100	11100	11100	
THGQH4-SDS6 (Min)	6 9/16	25	2x12	2x8	(34) ¼"x6"	(12) ¼"x6"	3875	13875	13875	13875	13875	2790	9990	9990	9990	9990	
				2x10	(40) ¼"x6"		3875	16320	16320	16320	16320	2790	11750	11750	11750	11750	
THGQH4-SDS6 (Max)	6 9/16	25	2x12	2x8	(34) ¼"x6"	(26) ¼"x6"	9900	14280	14335	14335	14335	7130	10280	10320	10320	10320	
				2x10	(40) ¼"x6"		9900	16800	16865	16865	16865	7130	12095	12145	12145	12145	

1. Allowable uplift loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Connector must be installed centered on girder vertical webs.
3. Simpson Strong-Tie Strong-Drive screws are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Section 7.5.3.4 and 8.9.2 are met *(pre-drilling required through the plate using a maximum of 5/32" bit)*.
4. SDS screws that penetrate all plies of the supporting girder *(screws must penetrate a minimum of 1" into the last truss ply)* may also be used to transfer the load through all the plies of the supporting girder. When SDS screws do not penetrate all plies of the supporting girder truss, supplemental SDS screws at the hanger locations may be required to transfer the load to the truss plies not penetrated by the face fasteners, as determined by the Designer.
5. The supporting girder truss must have adequate thickness to accommodate the screw length, so that the screw does not protrude out the back of the girder. 3" or 4½" long SDS screws may be substituted for the longer SDS screws with no load reduction.
6. For installations to LSL, use SDS ¼"x3" and use the DF/SP table loads.
7. Wind (160) is a download rating.

Model No.	Width (W)	SDS Fasteners Carrying Member	SDS Fasteners Carried Member	DF/SP Allowable Loads Uplift (160)	DF/SP Floor (100)	DF/SP Snow (115)	DF/SP Roof (125)	DF/SP Wind (160)	SPF/HF Allowable Loads Uplift (160)	SPF/HF Floor (100)	SPF/HF Snow (115)	SPF/HF Roof (125)	SPF/HF Wind (160)	Code Ref.
NEW HTHGQ2	3 5/16	(55) ¼"x 3"	(14) ¼"x 3"	3940	17130	18010	18600	20660	3390	11885	12520	12940	14425	170
NEW HTHGQ3	4 15/16			3940	20735	20735	20735	20735	3390	15710	16345	16765	17835	
NEW HTHGQ4	6 9/16			3940	20735	20735	20735	20735	3390	16630	17835	17835	17835	
NEW HTHGQ5	8⅛			3940	20735	20735	20735	20735	3390	16630	17835	17835	17835	

1. Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.
2. The uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce when other load durations govern.
3. Wind (160) is a download rating.
4. Connector must be installed centered on minimum 2x10 vertical web.
5. A minimum 3-ply carrying member is required for the tabulated loads.
6. Carrying truss plies must be adequately fastened together as determined by Designer.
7. Truss chord cross-grain tension may limit allowable loads as determined by the Designer in accordance with ANSI/TPI 1-2007.
8. Simpson Strong-Tie® Strong-Drive® screws are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Section 7.5.3.4 and 8.9.2 are met *(pre-drilling required through the plate using a maximum of 5/32" bit)*.

Allowable Loads for Structural Composite Lumber (SCL)

Model number	Dimensions (in.) W	Dimensions (in.) H	Dimensions (in.) h_b	Bottom Chord Size	Min. Vert. Web Size	SDS Fasteners Face	SDS Fasteners Joist	DF/SP Allowable Loads (lbs.) Uplift (160)	DF/SP Floor (100)	DF/SP Snow (115)	DF/SP Roof (125)	DF/SP Wind (160)	SPF/HF Allowable Loads (lbs.) Uplift (160)	SPF/HF Floor (100)	SPF/HF Snow (115)	SPF/HF Roof (125)	SPF/HF Wind (160)	Code Ref.
NEW THGQ3.62-SDS3 (Min)	3⅝	16 1/16	10	2x8 Max	2x6	(22) ¼" x 3"	(8) ¼" x 3"	2620	6310	6310	6310	6310	2250	5425	5425	5425	5425	170
NEW THGQ3.62-SDS3 (Max)					2x8	(28) ¼" x 3"	(8) ¼" x 3"	2620	8825	8825	8825	8825	2250	7360	7590	7590	7590	
NEW THGQH3.62-SDS3 (Min)	3⅝	24½	11	2x8 or 2x10	2x6	(24) ¼" x 3"	(18) ¼" x 3"	3525	10080	11080	11080	11080	3030	7200	8280	9000	9530	
NEW THGQH3.62-SDS3 (Max)					2x8	(34) ¼" x 3"	(18) ¼" x 3"	3525	12080	12080	12080	12080	3030	10200	10390	10390	10390	
NEW THGQ5.50-SDS4.5 (Min)	5½	17¼	8¼	2x8 Max	2x6	(22) ¼" x 4½"	(8) ¼" x 4½"	2620	7315	7315	7315	7315	2250	6295	6295	6295	6295	
NEW THGQ5.50-SDS4.5 (Max)					2x8	(28) ¼" x 4½"	(8) ¼" x 4½"	2620	8655	8655	8655	8655	2250	7445	7445	7445	7445	
NEW THGQH5.50-SDS4.5 (Min)	5½	25	11¼	2x8 or 2x10	2x6	(26) ¼" x 4½"	(16) ¼" x 4½"	3525	10640	10640	10640	10640	3030	7800	8970	9150	9150	
NEW THGQH5.50-SDS4.5 (Max)					2x8	(36) ¼" x 4½"	(16) ¼" x 4½"	3525	15120	17325	17325	17325	3030	10800	12420	13500	14900	
NEW THGQH7.25-SDS6 (Min)	7¼	24½	11¼	2x8 or 2x10	2x6	(26) ¼" x 6"	(16) ¼" x 6"	3525	10920	12070	12070	12070	3030	7800	8970	9750	10380	
NEW THGQH7.25-SDS6 (Max)					2x8	(36) ¼" x 6"	(16) ¼" x 6"	3525	15120	15565	15565	15565	3030	10800	12420	13385	13385	
					2x10	(44) ¼" x 6"	(16) ¼" x 6"	3525	18360	18360	18360	18360	3030	13200	15180	15790	15790	

See foonotes above.

THGBV/THGBHV/THGWV *SCL-to-Truss Girder Hangers*

An extension of the THGB/THGBH/THGW series, these high-capacity hangers are designed for attaching 2-ply, 3-ply or 4-ply sized structural composite lumber (SCL) to a girder truss. The THGBV offers optional installation with Simpson Strong-Tie Strong-Drive SDS screws, while the bolted THGBHV and THGWV offer higher load capacities. Two bucket heights are available for each width to accommodate a range of SCL sizes. Options for skewing or dropping the buckets for conditions where the SCL joist is lower than the girder bottom chord provide additional design flexibility for a variety of SCL-to-truss connections.

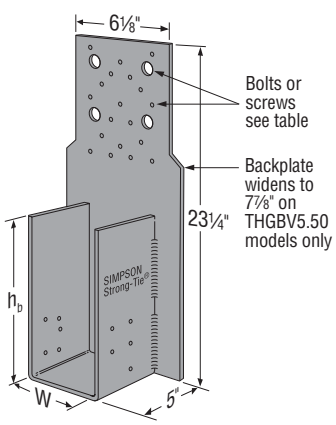
MATERIAL: 3 gauge

FINISH: Simpson Strong-Tie® gray paint

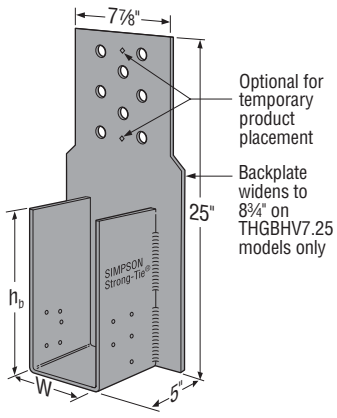
INSTALLATION:
- Use all specified fasteners. See General Notes.
- All multiple members must be fastened together to act as a single unit.
- Maximum 11⅞" bottom chord in the carrying member to allow for the minimum bolt end distance.
- Bolts must be installed symmetrically when using less than 8 bolts on the 8-bolt backplate.
- Girders must be adequately laterally braced to prevent excessive displacement due to secondary torsional stresses *(Ref. ANSI/TPI 1-2007 Section 7.5.3.5)*.
- Shall be attached to a 2-ply girder truss to allow for required minimum screw penetration. See footnote 4.

OPTIONS: • See Hanger Options pages 215-224 for hanger modifications and associated load reductions.

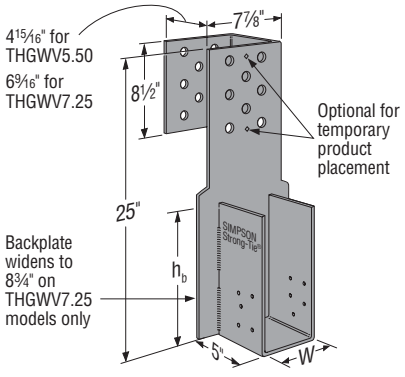
CODES: See page 13 for Code Reference Key Chart.



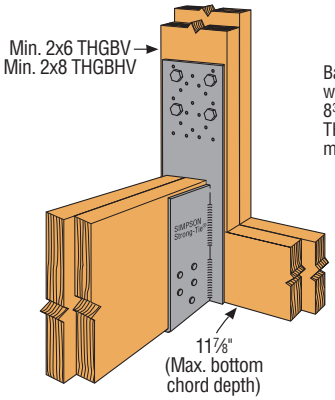
THGBV



THGBHV



THGWV



Typical THGBV3.62/9 Installation

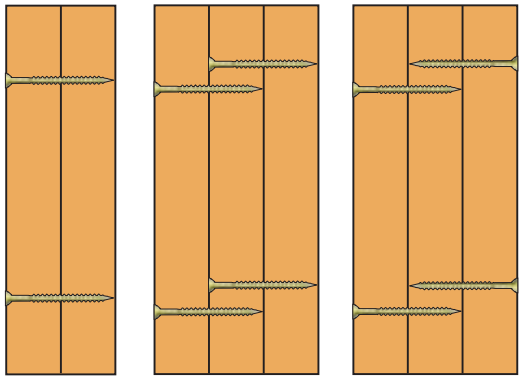
Joist Dimensions		Model No.	Hanger Dimensions	
Width	Depth		W	h_b
3½	9¼ - 14	THGBV3.62/9	3⅝	9
		THGBHV3.62/9		
	11¼ - 20	THGBV3.62/11		11
		THGBHV3.62/11		
5¼	9¼ - 14	THGBV5.50/9	5½	9
		THGBHV5.50/9		
		THGWV5.50/9		
	11¼ - 20	THGBV5.50/11		11
		THGBHV5.50/11		
		THGWV5.50/11		
7	9¼ - 14	THGBHV7.25/9	7¼	9
		THGWV7.25/9		
	11¼ - 20	THGBHV7.25/11		11
		THGWV7.25/11		

QUIK DRIVE® AUTO-FEED SYSTEM FOR 2-PLY AND 3-PLY GIRDERS

Simpson Strong-Tie® Quik Drive® WSNTL wood screws are a safe, fast and reliable method for attaching multi-ply trusses. The QD WSNTL screws, like their Strong-Drive® SDW screw counterpart, virtually eliminate ply separation during handling.

See the *Fastening Systems* catalog *(form C-FS)* for more information. *(See page 228 for details)*

Simpson Strong-Tie Quik Drive WSNTL Series Screw



WSNTL Installation in 2-ply and 3-ply Assemblies

THGBV/THGBHV/THGWV *SCL-to-Truss Girder Hangers*

SIMPSON Strong-Tie®

Model No.	Width (W)	Fasteners		Length of Bolt in Carrying Member	DF/SP Allowable Loads					SPF/HF Allowable Loads				
		Carried Member	Carrying Member		Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)
THGBV3.62/9 THGBV3.62/11	3⅝	10-10d	4-¾" MB	3	2570	6030	6835	7375	8715	2570	5160	5840	6290	7320
				4½		6910	7780	8350	8715		6385	7185	7320	7320
				6		6910	7780	8350	8715		6400	7200	7320	7320
			19-SDS ¼"x3"	—		7980	8675	8675	8675		5700	6245	6245	6245
THGBHV3.62/9 THGBHV3.62/11	3⅝	10-10d	8-¾" MB	3	2570	10105	10345	10505	10915	2570	7465	7675	7815	8285
				4½		10915	10915	10915	10915		9165	9165	9165	9165
				6		10915	10915	10915	10915		9165	9165	9165	9165
THGBV5.50/9 THGBV5.50/11	5¼	10-10d	4-¾" MB	3	2570	6030	6835	7375	8715	2570	5160	5840	6290	7320
				4½		6910	7780	8350	8715		6385	7185	7320	7320
				6		6910	7780	8350	8715		6400	7200	7320	7320
			19-SDS ¼"x3"	—		7980	8675	8675	8675		5700	6245	6245	6245
THGBHV5.50/9 THGBHV5.50/11	5¼	10-10d	8-¾" MB	3	2570	10915	10915	10915	10915	2570	9165	9165	9165	9165
				4½		12665	12665	12665	12665		10500	10640	10640	10640
				6		12815	12815	12815	12815		10500	10710	10765	10765
THGBHV7.25/9 THGBHV7.25/11	7	10-10d	4-¾" MB	3	2570	6040	6850	7390	8715	2570	5165	5845	6295	7320
				4½		6910	7780	8350	8715		6385	7185	7320	7320
				6		6910	7780	8350	8715		6400	7200	7320	7320
THGBHV7.25/9 THGBHV7.25/11	7	10-10d	6-¾" MB	3	2570	9065	10010	10010	10010	2570	7750	8410	8410	8410
				4½		10010	10010	10010	10010		8410	8410	8410	8410
				6		10010	10010	10010	10010		8410	8410	8410	8410
THGBHV7.25/9 THGBHV7.25/11	7	10-10d	8-¾" MB	3	2570	10915	10915	10915	10915	2570	9165	9165	9165	9165
				4½		13830	15060	15060	15060		12650	12650	12650	12650
				6		13830	15060	15060	15060		12650	12650	12650	12650
THGWV5.50/9 THGWV5.50/11	5¼	10-10d	8-¾" MB	4½	2570	21320	21835	21835	21835	2570	18340	18340	18340	18340
THGWV7.25/9 THGWV7.25/11	7	10-10d	8-¾" MB	6	2570	24165	24165	24165	24165	2570	20300	20300	20300	20300

1. Allowable loads are based on a SCL (LVL, PSL or LSL) carried member with an allowable $F'_{c\perp}$ of 750 psi and equivalent Specific Gravity of 0.50 or higher.
2. Uplift loads have been increased for earthquake or wind loading with no further increase allowed. Reduce where other loads govern.
3. A 3-ply carrying member is required for the THGWV5.50/9 and THGWV5.50/11; a 4-ply carrying member is required for the THGWV7.25/9 and THGWV7.25/11.
4. Simpson Strong-Tie® SDS screws require a minimum 2-ply (3") carrying member.
5. Bolts and Simpson Strong-Tie Strong-Drive screws are permitted to be installed through metal truss connector plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Sections 7.5.3.4 and 8.9.2 are met.
6. Wind (160) is a download rating.
7. To achieve published loads, machine bolts (MB) into the girder truss shall be installed with the nut on the opposite side of the hanger with a standard cut washer *(except THGWVs)*.
8. **NAILS:** 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.

THGB/THGBH/THGW *Truss Girder Hangers*

High capacity, welded hangers for multi-ply girder trusses. The THGB series offers optional installation with Simpson Strong-Tie® Strong-Drive® screws (SDS), and the bolted THGBH and THGW hangers offer higher design loads. For a lower cost alternative that uses SDS screws instead of bolts and offers high load capacities, see the THGQ/THGQH series.

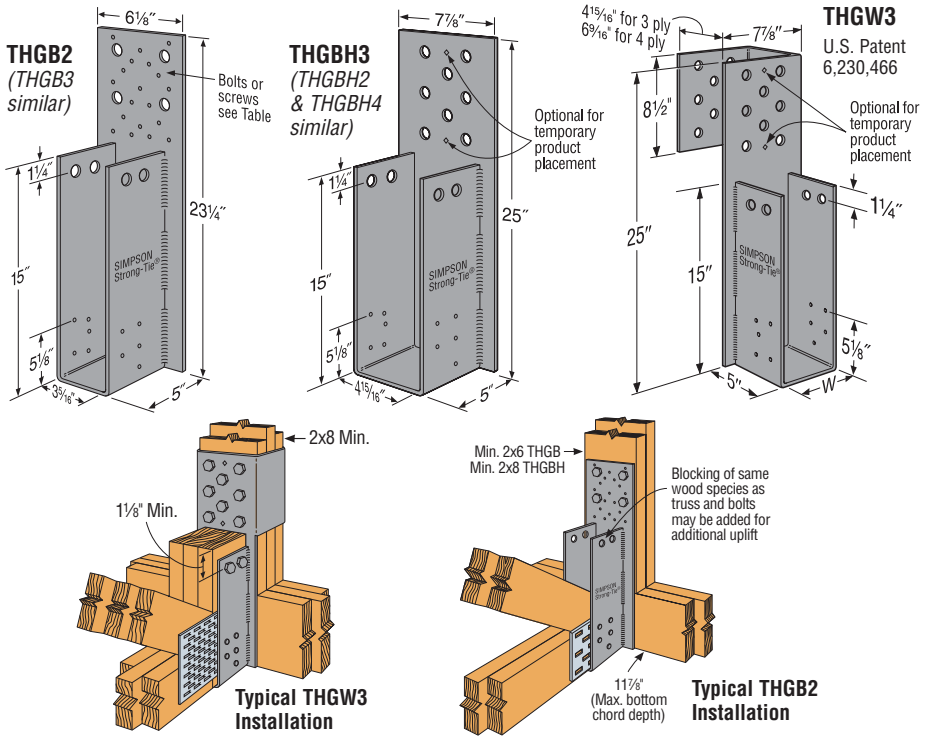
MATERIAL: 3 gauge

FINISH: Simpson Strong-Tie® gray paint

INSTALLATION:
- Use all specified fasteners. See General Notes.
- All multiple members must be fastened together to act as a single unit.
- Maximum 11⅞" bottom chord in the carrying member to allow for the minimum bolt end distance.
- Bolts must be installed symmetrically when using less than 8 bolts on the 8-bolt backplate.
- Girders must be adequately laterally braced to prevent excessive displacement due to secondary torsional stresses *(Ref ANSI/TPI 1-2007 Section 7.5.3.5).*

OPTIONS:
- See Hanger Options, page 216 for THGB/THGBH skew options.

CODES: See page 13 for Code Reference Key Chart.



Model No.	Width (W)	Fasteners		Length of Bolt in Carrying Member	DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
		Carried Member	Carrying Member		Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	
THGB2	3⁵⁄₁₆	10-10d & 2-¾" MB	4-¾" MB	3	9700	6030	6835	7375	8715	8145	5160	5840	6290	7320	F23
				4½	9700	6910	7780	8350	8715	8145	6385	7185	7320	7320	
				6	9700	6910	7780	8350	8715	8145	6400	7200	7320	7320	
THGB2	3⁵⁄₁₆	10-10d & 2-¾" MB	19-SDS ¼"X3"	—	8675	7980	8675	8675	8675	6245	5700	6245	6245	6245	
THGBH2	3⁵⁄₁₆	10-10d & 2-¾" MB	8-¾" MB	3	9700	10105	10345	10505	10915	8145	7465	7675	7815	8285	
				4½	9700	10915	10915	10915	10915	8145	9165	9165	9165	9165	
				6	9700	10915	10915	10915	10915	8145	9165	9165	9165	9165	
THGB3	4¹⁵⁄₁₆	10-10d & 2-¾" MB	4-¾" MB	3	9700	6030	6835	7375	8715	8145	5160	5840	6290	7320	
				4½	9700	6910	7780	8350	8715	8145	6385	7185	7320	7320	
				6	9700	6910	7780	8350	8715	8145	6400	7200	7320	7320	
THGB3	4¹⁵⁄₁₆	10-10d & 2-¾" MB	19-SDS ¼"X3"	—	8675	7980	8675	8675	8675	6245	5700	6245	6245	6245	
THGBH3	4¹⁵⁄₁₆	10-10d & 2-¾" MB	8-¾" MB	3	9700	10915	10915	10915	10915	8145	9165	9165	9165	9165	
				4½	9700	12665	12665	12665	12665	8145	10500	10640	10640	10640	
				6	9700	12815	12815	12815	12815	8145	10500	10710	10765	10765	
THGBH4	6⁹⁄₁₆	10-10d & 2-¾" MB	4-¾" MB	3	9700	6040	6850	7390	8715	8145	5165	5845	6295	7320	
				4½	9700	6910	7780	8350	8715	8145	6385	7185	7320	7320	
				6	9700	6910	7780	8350	8715	8145	6400	7200	7320	7320	
THGBH4	6⁹⁄₁₆	10-10d & 2-¾" MB	6-¾" MB	3	9700	9065	10010	10010	10010	8145	7750	8410	8410	8410	
				4½	9700	10010	10010	10010	10010	8145	8410	8410	8410	8410	
				6	9700	10010	10010	10010	10010	8145	8410	8410	8410	8410	
THGBH4	6⁹⁄₁₆	10-10d & 2-¾" MB	8-¾" MB	3	9700	10915	10915	10915	10915	8145	9165	9165	9165	9165	
				4½	9700	13830	15060	15060	15060	8145	12650	12650	12650	12650	
				6	9700	13830	15060	15060	15060	8145	12650	12650	12650	12650	
THGW3-3[6]	4¹⁵⁄₁₆	10-10d & 2-3/4" MB	8-¾" MB	4½	9700	21830	21830	21830	21830	8145	18340	18340	18340	18340	
THGW3-4[6]				6	9700	21830	21830	21830	21830	8145	18340	18340	18340	18340	
THGW4-3[6]	6⁹⁄₁₆	10-10d & 2-3/4" MB	8-¾" MB	4½	9700	24165	24165	24165	24165	8145	20300	20300	20300	20300	
THGW4-4[6]				6	9700	24165	24165	24165	24165	8145	20300	20300	20300	20300	

1. Uplift loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. A 3-ply carrying member is required for the THGW3-3 and THGW4-3; a 4-ply carrying member is required for the THGW3-4 and THGW4-4. For all other models, a minimum 2-ply carrying member is required.
3. Simpson Strong-Tie® SDS screws require a minimum 2-ply (3") carrying member.
4. Bolts and Simpson Strong-Tie® Strong Drive® screws are permitted to be installed through metal truss connector plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Sections 7.5.3.4 and 8.9.2 are met.
5. 10-10d nails for the carried member will achieve the maximum down loads. Uplift loads are 2570 lbs. for DF/SP and 2210 lbs. for SPF/HF. To achieve maximum uplift, install nails and bolts listed in the table.
6. Loads for THGW models are based on end grain bearing.
7. Wind (160) is a download rating.
8. To achieve published loads, machine bolts (MB) into the girder truss shall be installed with the nut on the opposite side of the hanger with a standard cut washer *(except THGW's).*
9. **NAILS:** 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.

HTHMQ *Heavy Multiple Truss Hangers*

SIMPSON Strong-Tie®

The HTHMQ is a versatile, high-capacity truss hanger designed for various lumber types and multiple-ply trusses. The truss hanger accommodates a greater range of structural designs carry while accommodating right or left hand hips (at 30°- 60° skews), which can be used for terminal hips with or without the center common jack. The HTHMQ can accommodate various widths of lumber.

FEATURES:

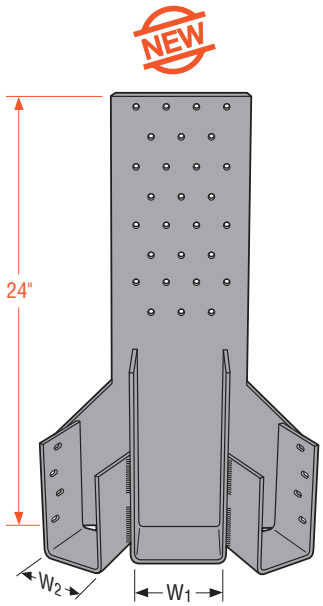
- Available in various stirrup widths to accommodate various lumber types and multiple ply trusses
- Installed with Simpson Strong-Tie® SDS screws that eliminate the inconvenience of bolted installation
- Enables 2-3 member connection for a broader range of structural designs

MATERIAL: Back plate—3 gauge; stirrup—7 gauge

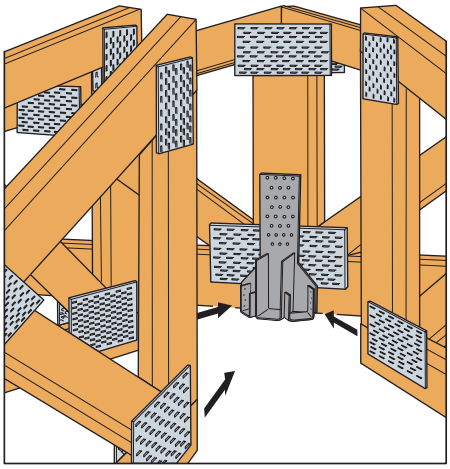
FINISH: Simpson Strong-Tie® gray paint

INSTALLATION:
- Use all specified fasteners. See General Notes.
- SDS screws supplied for all round holes.
- All multiple members must be fastened together to act as a single unit.
- Shall be attached to a minimum double girder truss to allow for required minimum screw penetration. See footnote 5.
- Girders must be adequately laterally braced to prevent excessive displacement due to secondary torsional stresses *(Ref ANSI/TPI 1-2007 Section 7.5.3.5)*.
- See below for different installation options.

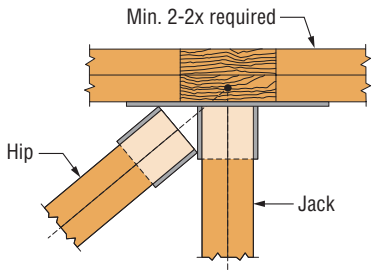
CODES: See page 13 for Code Reference Key Chart.



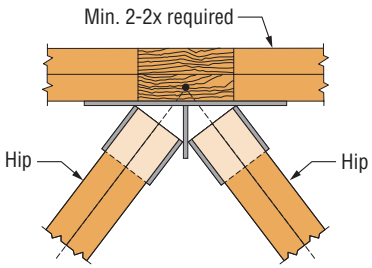
HTHMQ



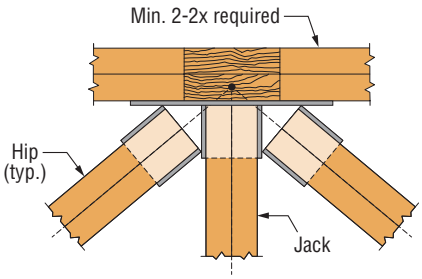
Typical HTHMQ Installation



HTHMQL Top View
Left Hand Hip Installation



HTHMQN Top View
Terminal Hip Installation
without Common Center Jack



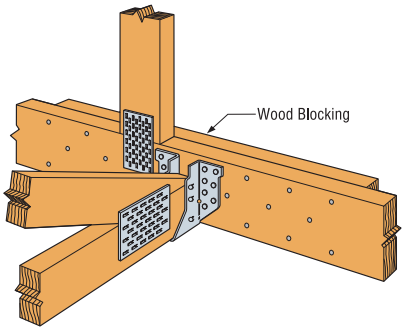
HTHMQ Top View
Terminal Installation
with Center Common Jack

Model No.	Dimensions (in.)			Fasteners			DF/SP Allowable Loads						SPF/HF Allowable Loads						Code Ref.
							Uplift (160)			Download (100/115/125/160)			Uplift (160)			Download (100/115/125/160)			
	W_1	W_2	Hip Skew Angle	Carrying Member	Hips (Total)	Jack	Hip (ea)	Jack	Total	Hip (ea)	Jack	Total	Hip (ea)	Jack	Total	Hip (ea)	Jack	Total	
HTHMQ-SDS	1⅝ - 4 15/16	1⅝	30°-60°	34-SDS ¼"x2½"	8-SDS ¼"x1½"	4-SDS ¼"x1½"	1085	545	2715	4045	2020	10110	935	470	2340	2790	1395	6975	170
HTHMQ-2-SDS	1⅝ - 4 15/16	3 5/16	30°-60°	34-SDS ¼"x2½"	8-SDS ¼"x2½"	4-SDS ¼"x2½"	1085	545	2715	4585	2290	11460	935	470	2340	3945	1970	9860	
HTHMQN-SDS	—	1⅝	30°-60°	34-SDS ¼"x2½"	8-SDS ¼"x1½"	—	920	—	1840	4045	—	8090	790	—	1580	2790	—	5580	
HTHMQN-2-SDS	—	3 5/16	30°-60°	34-SDS ¼"x2½"	8-SDS ¼"x2½"	—	920	—	1840	4695	—	9390	790	—	1580	4040	—	8080	
HTHMQR/L-SDS	1⅝ - 4 15/16	1⅝	30°-60°	34-SDS ¼"x2½"	4-SDS ¼"x1½"	4-SDS ¼"x1½"	1470	490	1960	4045	1350	5395	1265	420	1685	2790	930	3720	
HTHMQR/L-2-SDS	1⅝ - 4 15/16	3 5/16	30°-60°	34-SDS ¼"x2½"	4-SDS ¼"x2½"	4-SDS ¼"x2½"	1470	490	1960	6190	2065	8255	1265	420	1685	4865	1620	6485	

1. Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.
2. The uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce when other load durations govern.
3. Specify W_1 where applicable and Hip Skew Angle.
4. Connector must be installed centered on minimum 2x8 vertical web.
5. A minimum 2-ply carrying member is required for the tabulated loads.
6. Carrying truss plies must be adequately fastened together as determined by Designer.
7. Truss chord cross-grain tension may limit allowable loads as determined by the Designer in accordance with ANSI/TPI 1-2007.
8. Tabulated allowable loads for three-member configurations assume that each hip carries 40% of the total load and the jack carries 20% of the total load. Tabulated allowable loads for single hip-jack configurations assume that 75% of the total load is distributed to the hip and 25% to the jack.
9. Simpson Strong-Tie Strong-Drive® screws are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Section 7.5.3.4 and 8.9.2 are met *(pre-drilling required through the plate using a maximum of 5/32" bit)*.

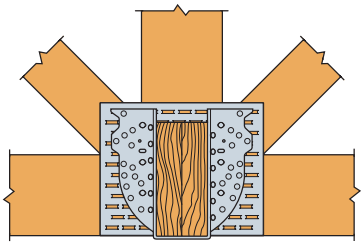
ALTERNATE INSTALLATIONS

- Block(s) should be of similar size/grade as the truss member to which it is attached. Blocking should be designed to act as one unit with the truss members.
- Block(s) should be of sufficient size to accept all carried/carrying member nails, and develop full seat bearing as specified in Simpson Strong-Tie publications.
- Truss Designer is to confirm blocking size/grade, fasteners required and application.
- Fasteners used to attach the additional blocking should be independent of the truss hanger fasteners.



1 Use of Wood Blocking to Achieve the Full Design Load Value of a Face Mount Hanger Attached to a Single Ply Carrying (Girder) Member. *(Block designed by Engineer of Record or Truss Designer)*

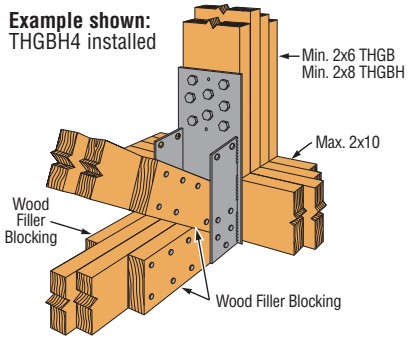
Example shown: HGUS210-2 installed on a 2x6 bottom chord *(other applications similar)*



2 Connection Design to Achieve Specified Nailing of a Face Mount Hanger at a Panel Point.

Nails located in joints formed by the intersection of wood members or with edge or end distances less than suggested by NDS have no load resistance. The hanger allowable load value shall be reduced by the nail shear value for each header nail less than the specified quantity. Connection shall be approved by the Truss Designer.

Example shown: THGBH4 installed



3 Use of Wood Filler Blocking for Carried Member Width Less than Hanger Width. *(Block designed by Designer or Truss Designer)*

MSCPT *Multiple Truss Hangers*

The MSCPT is a high capacity, top flange welded hanger designed to carry 2 or 3 trusses in a terminal hip installation. The top flange is notched at the center to accommodate vertical and diagonal web members in the girder truss.

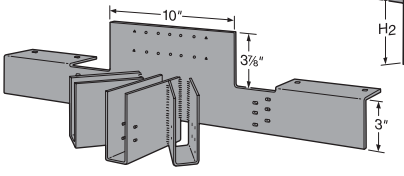
MATERIAL: Top flange–3 gauge; stirrup–11 gauge (MSCPT2, MSCPT2N), 7 gauge (MSCPT2-2, MSCPT2-2N)

FINISH: Simpson Strong-Tie® gray paint

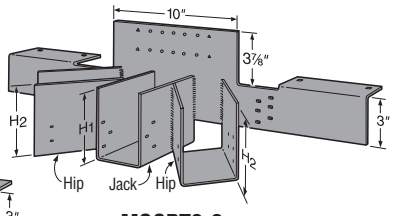
INSTALLATION: • Use all specified fasteners. See General Notes.
- The total load must be evenly distributed about the centerline to avoid eccentric loading.
- All multiple members must be fastened together to act as a single unit.
- Minimum vertical carrying member sizes are 2x6 for MSCPT2 and MSCPT2N, and 2x8 for MSCPT2-2 and MSCPT2-2N.
- Minimum carrying member bottom chord is a 2-ply 2x6.

OPTIONS: • H_1 and H_2 should be equal to the bottom chord depth of the carrying member in order to maintain all members flush at the bottom.
- Hip stirrups can be skewed from 25° to 45°.
- The W_1 and W_2 of the MSCPT2 may be increased up to 3⁷⁄₁₆", provided the stirrups' configuration remains symmetrical.

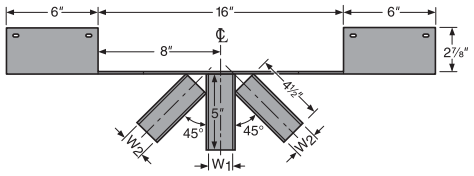
CODES: See page 13 for Code Reference Key Chart.



MSCPT2

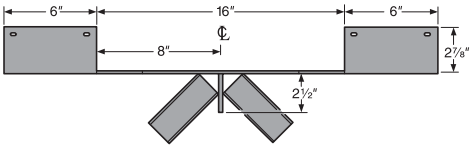


MSCPT2-2



MSCPT2 Top View *(MSCPT2-2 similar)*

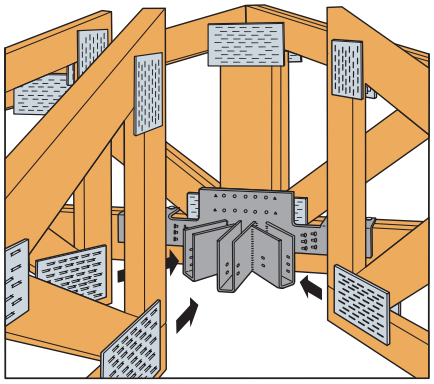
Model No.	Dimensions			Fasteners		DF/SP Allowable Loads[1,2]						Code Ref.
						Uplift (160)			Floor/Snow/Roof/Wind (100/115/125/160)			
	W_1 & W_2	H_1 & H_2 (min.)	TF	Header	Joists	Hip	Jack	Total	Hip	Jack	Total	
MSCPT2	1⅜	5¼	2⅞	26-16d	18-10dx1½	750	370	1870	3145	1570	7860	F23
MSCPT2N	1⅜	5¼	2⅞	26-16d	14-10dx1½	750	—	1500	3930	—	7860	
MSCPT2-2	3⅝	5¼	2⅞	30-16d	20-10d	750	370	1870	3470	1735	8675	
MSCPT2-2N	3⅝	5¼	2⅞	30-16d	14-10d	750	—	1500	4335	—	8675	



MSCPT2N Top View *(MSCPT2-2N similar)*

Model No.	Dimensions			Fasteners		SPF/HF Allowable Loads[1,2]						Code Ref.
						Uplift (160)			Floor/Snow/Roof/Wind (100/115/125/160)			
	W_1 & W_2	H_1 & H_2 (min.)	TF	Header	Joists	Hip	Jack	Total	Hip	Jack	Total	
MSCPT2	1⅜	5¼	2⅞	26-16d	18-10dx1½	645	320	1610	3000	1500	7500	F23
MSCPT2N	1⅜	5¼	2⅞	26-16d	14-10dx1½	645	—	1290	3470	—	6940	
MSCPT2-2	3⅝	5¼	2⅞	30-16d	20-10d	645	320	1610	3000	1500	7500	
MSCPT2-2N	3⅝	5¼	2⅞	30-16d	14-10d	645	—	1290	3750	—	7500	

1. For MSCPT2 and MSCPT2-2 models, allowable hip loads are 0.40 x Total Loads, and Jack Loads are 0.20 x Total Loads.
2. Uplift loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. Wind (160) is a download rating.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



Typical MSCPT2 Installation

AHEP *Adjustable Hip-End Purlin*

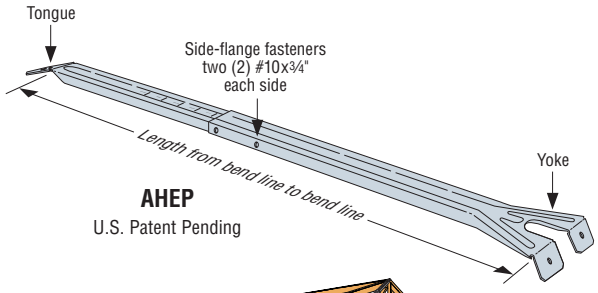
For wood and cold-formed steel trusses, the Simpson Strong-Tie® AHEP is a structural purlin that also serves as an installation lateral restraint and spacer during the truss erection process. The AHEP attaches to the leading edge of step-down hip trusses, eliminating the need for drop-top chords, 2x lumber or gable end fillers. The interlocking design of the AHEP allows them to install linearly, aligned with the end jacks, to maintain framing spacing from eave to hip or peak. Roof sheathing/decking attaches directly to the purlin with knurled pneumatic fasteners or low-profile head, self-drilling screws. Adjustable in length, the AHEP is designed to accommodate a pitch range of 3/12 to 9/12 as a structural purlin and up to 12/12 as an installation lateral restraint and spacer.

FEATURES: • A structural purlin to which sheathing can be directly attached – no need to remove temporary bracing
- Accurately spaces the installed trusses and helps meet the temporary top-chord lateral restraint recommendations of WTCA/TPI BCSI on step-down hip ends
- Adjustable in length to accommodate a wide pitch range

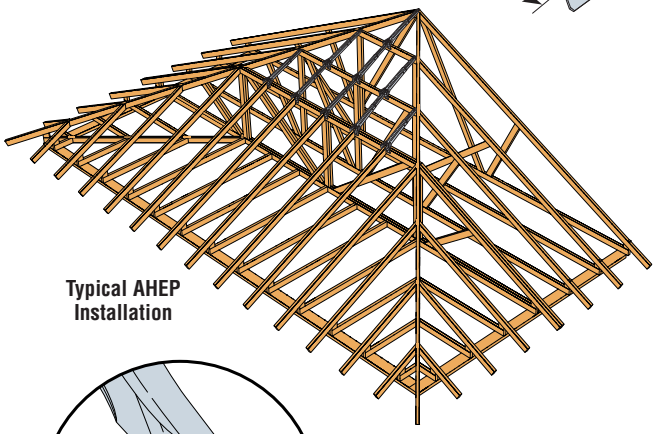
MATERIAL: 20 gauge (33 mil) **FINISH**: Galvanized

INSTALLATION: • Use all specified fasteners; see General Notes.
- Prior to installation, the AHEP must be set to the proper length and the two tubes fastened together with four #10x¾" self-drilling screws through the round holes in the side flanges for pitches between 3/12 and 9/12; and in the triangular and upper round hole when the AHEP will be used as an installation restraint and spacer at pitches 9/12 up to 12/12.
- For trusses spaced 24" o.c., the pitch markings on the inner tube may be used to line up the tubes to the correct length for a given pitch. For other spacings, the length of the AHEP must be set to the calculated sloping length *(from leading edge to leading edge of the framing members)*.
- To install the AHEPs on wood trusses, use four 10d (.148"x3") nails. The two nails at the bottom of the part *(the yoke end)* must be clinched.
- Sheathing is attached to the AHEP with knurled pneumatic fasteners or low-profile-head, self-drilling screws.
- For efficiency, the AHEPs should be installed in line with the end jacks so that framing alignment can be maintained from eave to hip/ridge.

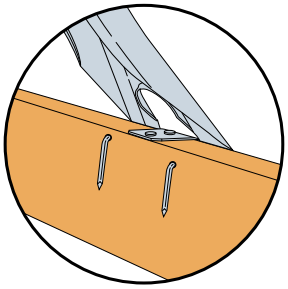
CODES: See page 13 for Code Reference Key Chart.



AHEP
U.S. Patent Pending



Typical AHEP Installation



The two nails at the bottom of the part *(the yoke end)* must be clinched

Online Calculator for AHEP Installation

A Web-based calculator is available to help Designers check AHEP applicability based on the actual hip-end roof pitch, input live and dead loads, truss and purlin spacing and the selected sheathing and deflection criteria. To view the calculator, visit ***www.strongtie.com/webapps/ahep***.

Model No.	Fasteners		Sheathing Option	Allowable Down Loads (lbs.)						Code Ref.
	AHEP Side Flanges	To Hip Trusses		3/12 Pitch		3.1/12 Pitch		9/12 Pitch		
				L/180	3/16"	L/180	3/16"	L/180	3/16"	
AHEP	4 - #10	4 - 10d	None	180	240	180	240	135	150	I13
			15/32" (Min.) Wood Sheathing	250	345	210	275	160	175	

1. No load duration increase allowed.
2. Allowable loads apply to wood with a specific gravity of 0.42 or greater.
3. Designer shall insure attached members are adequately designed to resist applied loads.
4. Straight line interpolation can be used to determine allowable loads for pitches between 3.1/12 and 9/12.
5. **Nails:** 10d = 0.148 dia. x 3" long. **Screws:** #10 = #10 x ¾" long self-drilling screws. See page 22-23 for other nail sizes and information.

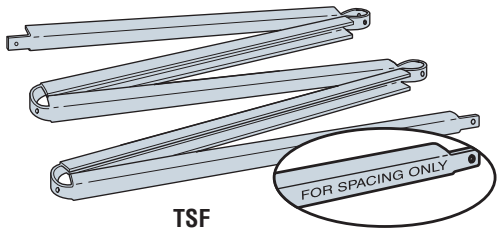
TSF *Truss Spacer*

The TSF is a fast and accurate method for spacing trusses that eliminates layout marking of top plates and can be left in place under the sheathing. Accuracy is improved, spacing errors are minimized, and it is easy to use.

MATERIAL: 24 gauge **FINISH:** Galvanized

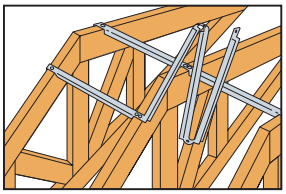
INSTALLATION: • See Installation Sequence below.
- TSF Truss Spacers do not provide bracing of any kind and are not structural members. The TSF is for spacing only. Refer to instructions from architect, engineer, truss manufacturer or other for bracing and installation information.

CODES: See page 13 for Code Reference Key Chart.

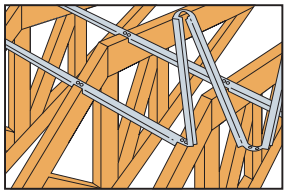


TSF

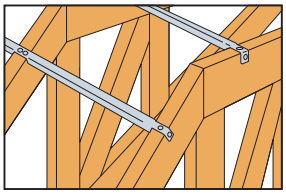
Model No.	Dimensions			Code Ref.
	W	O.C. Spacing	Total Length	
TSF2-16	1½	16	8'	180
TSF2-24	1½	24	10'	



STEP 1
Nail starting notch to first member.



STEP 2
As each successive member is positioned, unfold TSF to next notch. The notch teeth grip member and align it for nailing.



STEP 3
If spacer does not align with end truss, break spacer off at notch. Then, hammer spacer flat, fold it under and nail.

TSBR *Truss Spacer-Restraint*

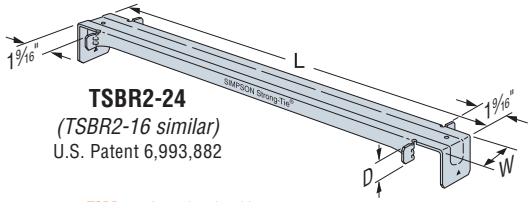
The Simpson Strong-Tie® TSBR truss spacer-restraint is a time-saving lateral-restraint product for wood and CFS framing that improves quality and safety while helping to meet the prescriptive recommendations of the WTCA/TPI. Easier to install than wood bracing, the TSBR firmly grips the trusses, capturing on-center spacing and keeping them vertical and plumb after placement, resulting in a better truss installation. The unique design eliminates additional time spent measuring truss spacing and laying out temporary lateral bracing. And once installed, the TSBR can remain in place to be sheathed over, thereby eliminating the need to remove temporary bracing and creating a safer, more stable work platform.

FEATURES: • Enables the quick and accurate spacing of trusses without measuring or adjusting
- Helps meet prescriptive temporary bracing recommendations of the BCSI
- Easily "grabs" onto the truss – may be put in place with one hand
- Stays in place during sheathing, saving time and making the roof more stable for workers
- Installs in less time and requires less total bracing material than prescriptive wood bracing methods – reducing labor costs
- The TSBR is a direct replacement for the TSB Truss Spacer Bracer.

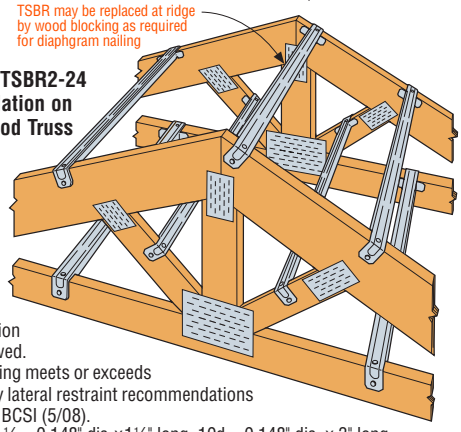
MATERIAL: 22 gauge **FINISH**: Galvanized

INSTALLATION: • Use all specified fasteners; see General Notes.
- TSBR lateral restraint locations are as recommended in Table B2-1 of WTCA/TPI BCSI or the BCSI B2 Summary Sheet. For more information see the Simpson Strong-Tie *Wood Truss Bracing and Restraint Guide* (F-TSBRTBD22).

CODES: See page 13 for Code Reference Key Chart.



TSBR2-24
(TSBR2-16 similar)
U.S. Patent 6,993,882



Typical TSBR2-24 Installation on 2x Wood Truss

Model No.	Dimensions (in)			Fasteners (Total)	Allowable Loads (lbs)				Code Ref.
					DF/SP		SPF/HF		
	L	W	D		Compression	Tension	Compression	Tension	
TSBR2-16[2] (Min)	17½	1¼	1¼	2-10d	540	180	465	155	170
TSBR2-16 (Max)	17½	1¼	1¼	4-10dx1½"	540	455	465	390	
TSBR2-24[2] (Min)	25½	1¾	1	2-10d	500	180	430	155	I13, F12
TSBR2-24 (Max)	25½	1¾	1	4-10dx1½"	500	455	430	390	

1. No load duration increase allowed.
2. Minimum nailing meets or exceeds the temporary lateral restraint recommendations of WTCA/TPI BCSI (5/08).
3. **NAILS:** 10dx1½ = 0.148" dia.x1½" long, 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.

TBD22 *Diagonal Brace*

The TBD22 diagonal truss brace offers a time-saving subsitute for 2x4 diagonal bracing that helps meet the recommendations of WTCA/TPI BCSI. The TBD travels in a box like a flat strap, and is formed into an A-shape as it is pulled from the carton to provide rigidity and prevent sagging between trusses during installation. As it is fastened to the trusses the brace flattens, allowing sheathing to be installed right over it and saving the time typically needed to remove 2x4 bracing.

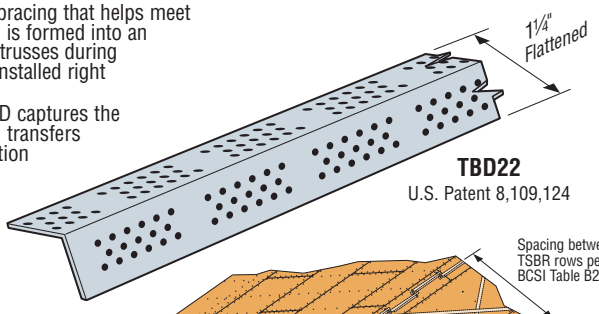
When installed on the top and bottom chords as well as the web planes, the TBD captures the lateral construction and wind forces delivered by the TSBR truss spacer restraints and transfers it diagonally in tension to the edge of the braced-truss system. When used in conjunction with the TSBR, the TBD22 meets or exceeds the the recommendations set forth by the WTCA/TPI BCSI.

FEATURES: • Helps meet prescriptive temporary bracing recommendations of the WTCA/TPI BCSI.
- Rigid A-shape design virtually eliminates sagging between trusses spaced 16"-24" on center.
- Can be sheathed over after installation, no need to remove bracing.
- Dimpled nailing grid allows installation with standard pneumatic fasteners.
- 160' of bracing in an easy-to-handle carton.

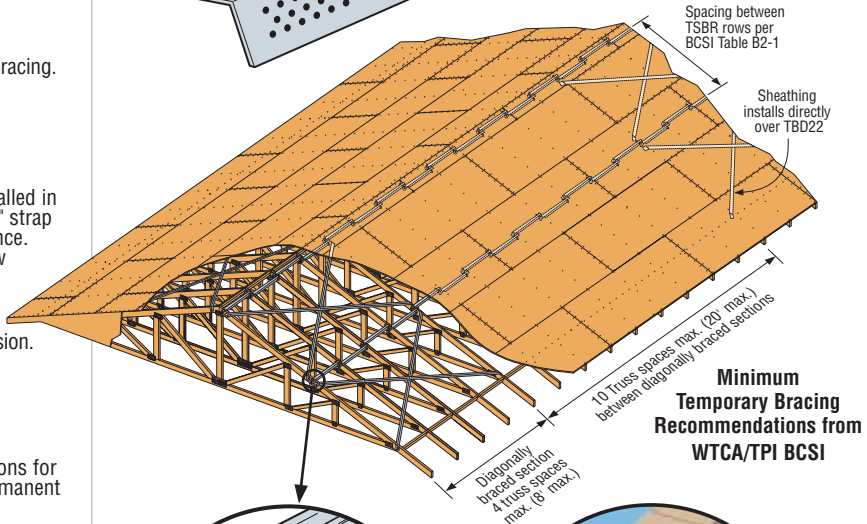
MATERIAL: 22 gauge **FINISH**: Galvanized

INSTALLATION: • Use all specified fasteners; see General Notes.
- Strap does not have holes for fasteners. Nails shall be installed in the dimpled areas and placed to maintain a minimum of ¼" strap edge distance and a minimum of ½" center to center distance. Nails should be installed in the center of the lumber narrow face and with a minimum edge distance of 1" on the lumber wide face.
- TBD22 straps span diagonally at approximately 45°.
- Strap shall not be slack, but tight and ready to engage in tension.
- To resist construction forces, diagonal X-bracing is required at each end and every 10 truss spaces *(20' max)*. Refer to WTCA/TPI BCSI for additional information.
- At the end of the TBD braces trusses shall be laterally braced to resist out of plane forces.
- Bracing locations shown in the drawing are recommendations for temporary bracing only. Installation of TBD braces for permanent lateral bracing shall be per the Building Designer.

CODES: See page 13 for Code Reference Key Chart.



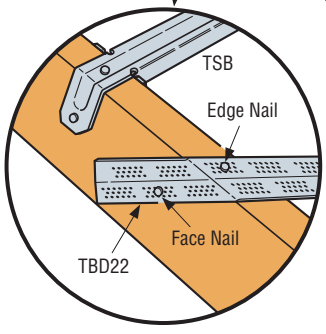
TBD22
U.S. Patent 8,109,124



Minimum Temporary Bracing Recommendations from WTCA/TPI BCSI

Model No.	Fasteners		Allowable Tension Loads		Code Ref.
	Strap Ends	Intermediate Trusses	DF/SP	SPF/HF	
TBD22[2] (Min)	1-10dx1½ in face and 1-10dx1½ in edge	1-10dx1½	430	390	170
TBD22 (Max)	2-10dx1½ in face and 1-10dx1½ in edge	1-10dx1½	565	520	

1. Allowable loads have been increased for construction and wind loading with no further increase allowed.
2. Minimum nailing meets or exceeds the temporary bracing recommendations of WTCA/TPI BCSI.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



Typical TBD22 Top Chord Installation with Minimum Nailing

TBD22 Dispenser Detail

TBE *Truss Bearing Enhancers*

SIMPSON Strong-Tie®

The TBE transfers load from the truss or girder to plates for bearing-limited conditions and provides exceptional uplift capacity. Replaces nail-on scabs that provide lower load transfer, or in some cases, an additional ply when needed for bearing. One size works with any number of girder plies.

The table lists allowable loads for TBE4 used on 2x4 and TBE6 used on 2x6 top plates. The table gives the different loads calculated for TBE with and without wood bearing. See Fastener Schedule below and page 154 for Alternate Installation.

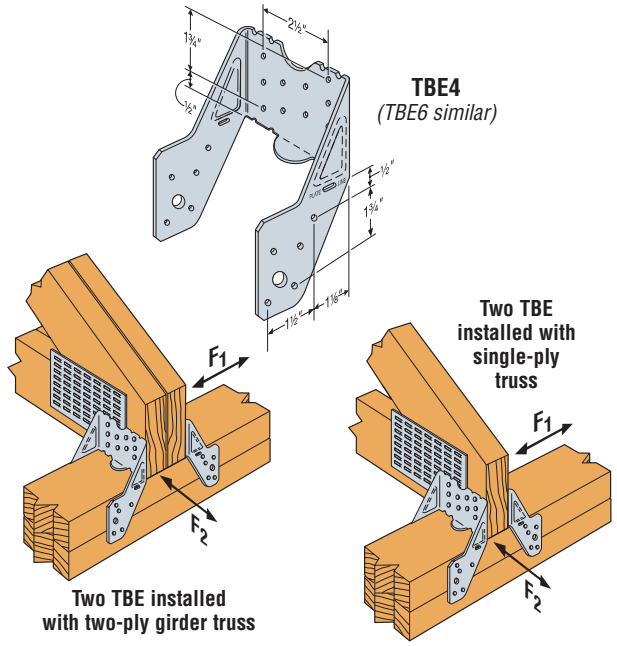
MATERIAL: 18 gauge

FINISH: Galvanized. See Corrosion Information, page 14-15.

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

- TBE must be installed in pairs.
- Top plate size is 2x4 for TBE4, 2x6 for TBE6. Use alternate installation for TBE4 and TBE6 on larger plates or pre-sheathed walls. See page 154.

CODES: See page 13 for Code Reference Key Chart.



TBE FASTENER SCHEDULE

Model No.	Truss Plies	Fasteners per each TBE	
		Rafter	Plate
TBE4	1	10-10dx1½	10-10dx1½
	2 or more	10-10d	10-10d
TBE6	1	10-10dx1½	10-10dx1½
	2 or more	10-10d	10-10d

NAILS:
10d = 0.148" dia. x 3" long,
10dx1½ = 0.148" dia. x 1½" long.
See page 22-23 for other nail sizes and information.

Model No.	Wall Top Plate	Top Plate or Truss Wood Species[2]	No. of Truss Plies	Allowable Loads[1,2,3] (lbs.)											Equivalent Bearing Length[7] of TBE and Top Plate (in.)				Code Ref.
				Uplift	Download								Lateral (160)						
					TBE Only				TBE & Wood Top Plate										
				(160)	(100)	(115)	(125)	(160)	(100)	(115)	(125)	(160)	F_1	F_2	(100)	(115)	(125)	(160)	
TBE4	2x4	Douglas Fir Larch	1	850	1820	2095	2230	2230	5100	5375	5510	5510	400	1000	5.44	5.73	5.88	5.88	
			2	850	2220	2230	2230	2230	8785	8795	8795	8795	400	1000	4.68	4.69	4.69	4.69	
			3	850	2220	2230	2230	2230	12065	12075	12075	12075	400	1000	4.29	4.29	4.29	4.29	
			4	850	2220	2230	2230	2230	15345	15355	15355	15355	400	1000	4.09	4.09	4.09	4.09	
		Southern Pine	1	850	1820	2095	2230	2230	4785	5060	5195	5195	400	1000	5.65	5.97	6.13	6.13	
			2	850	2220	2230	2230	2230	8155	8165	8165	8165	400	1000	4.81	4.82	4.82	4.82	
			3	850	2220	2230	2230	2230	11120	11130	11130	11130	400	1000	4.37	4.38	4.38	4.38	
			4	850	2220	2230	2230	2230	14085	14095	14095	14095	400	1000	4.15	4.16	4.16	4.16	
		Spruce-Pine-Fir	1	850	1560	1795	1950	2080	3790	4025	4180	4310	375	1000	5.95	6.32	6.56	6.76	
			2	850	1920	2100	2100	2100	6385	6565	6565	6565	375	1000	5.01	5.15	5.15	5.15	
			3	850	1920	2100	2100	2100	8615	8795	8795	8795	375	1000	4.50	4.60	4.60	4.60	
			4	850	1920	2100	2100	2100	10845	11025	11025	11025	375	1000	4.25	4.32	4.32	4.32	
		Hem Fir	1	850	1560	1795	1950	2080	3685	3920	4075	4205	375	1000	6.07	6.45	6.71	6.92	
			2	850	1920	2100	2100	2100	6175	6355	6355	6355	375	1000	5.08	5.23	5.23	5.23	
			3	850	1920	2100	2100	2100	8300	8480	8480	8480	375	1000	4.55	4.65	4.65	4.65	
			4	850	1920	2100	2100	2100	10425	10605	10605	10605	375	1000	4.29	4.36	4.36	4.36	I13, F12
TBE6	2x6	Douglas Fir Larch	1	935	1820	2095	2275	2425	6975	7250	7430	7580	300	1000	7.44	7.73	7.93	8.09	
			2	935	2220	2555	2735	2735	12535	12870	13050	13050	300	1000	6.68	6.86	6.96	6.96	
			3	935	2220	2555	2735	2735	17690	18025	18205	18205	300	1000	6.29	6.41	6.47	6.47	
			4	935	2220	2555	2735	2735	22845	23180	23360	23360	300	1000	6.09	6.71	6.82	6.90	
		Southern Pine	1	935	1820	2095	2275	2425	6480	6755	6935	7085	300	1000	7.65	7.97	8.18	8.36	
			2	935	2220	2555	2735	2735	11545	11880	12060	12060	300	1000	6.81	7.01	7.11	7.11	
			3	935	2220	2555	2735	2735	16205	16540	16720	16720	300	1000	6.37	6.50	6.58	6.58	
			4	935	2220	2555	2735	2735	20865	21200	21380	21380	300	1000	6.15	6.25	6.31	6.31	
		Spruce-Pine-Fir	1	935	1560	1795	1950	2080	5065	5300	5455	5585	300	965	7.95	8.32	8.55	8.76	
			2	935	1920	2210	2400	2560	8935	9225	9415	9575	300	965	7.01	7.23	7.38	7.51	
			3	935	1920	2210	2400	2560	12440	12730	12920	13080	300	965	6.50	6.66	6.75	6.84	
			4	935	1920	2210	2400	2560	15945	16235	16425	16585	300	965	6.25	6.37	6.44	6.50	
		Hem Fir	1	935	1560	1795	1950	2080	4900	5135	5290	5420	300	965	8.07	8.45	8.70	8.92	
			2	935	1920	2210	2400	2560	8605	8895	9085	9245	300	965	7.08	7.32	7.48	7.61	
			3	935	1920	2210	2400	2560	11945	12235	12485	12645	300	965	6.55	7.32	7.48	7.61	
			4	935	1920	2210	2400	2560	15285	15575	15765	15925	300	965	6.29	6.41	6.49	6.55	

1. Loads are for a pair of TBEs.
2. When truss chord wood species is different than the wall top plate wood species, choose the tabulated allowable loads based on the species with the lower tabulated download capacity.
3. Allowable loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
4. Allowable loads are determined only by nail shear calculations or tests of the metal connectors based on the lowest of 0.125" of deflection or the ultimate load with a 3 times factor of safety. The attached wood members must be designed to withstand the loads imposed by the nails.
5. Perpendicular to Plate loads are reduced for Alternate Installation.
6. Parallel to Plate loads are not reduced for Alternate Installation.
7. Equivalent Top Plate Bearing Width is the actual top plate width (TBE4 = 3½", TBE6 = 5½") plus the enhanced bearing width provided by the TBE.

UPDATED 5/8/2013

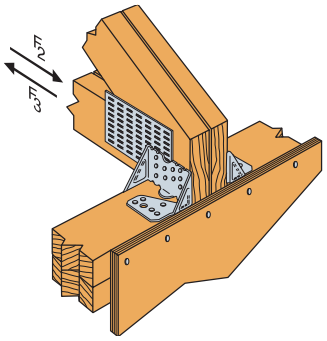
TBE *Truss Bearing Enhancers*

ALTERNATE INSTALLATION

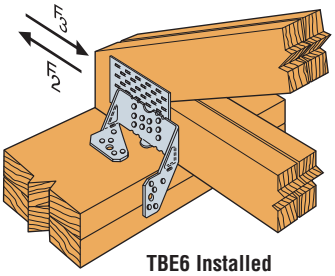
(See illustrations at right)

Model No.	Alternate Installation Allowable Loads[5,6] Perpendicular to Plate			
	DF/SP (160)		SPF/HF (160)	
	F_2	F_3	F_2	F_3
TBE4	1000	300	860	260
TBE6				

1. Use full table loads for uplift and parallel-to-plate allowable loads.
2. Download capacities are 0.80 of table loads.
3. See additional footnotes on opposite page.



Pre-sheathed shearwall. Bend tab along slot and nail one leg to top of the plate.



TBE6 Installed on Double 2x8 Top Plate

Alternate Installation Allowable Down Loads are 0.80 and Allowable Uplift Loads are 1.0 of the TBE only table loads on page 153.

TC *Truss Connectors*

The TC truss connector is an ideal connector for scissor trusses and can allow horizontal movement up to 1¼". The TC also attaches plated trusses to top plates or sill plates to resist uplift forces. Typically used on one or both ends of truss as determined by the Designer.

MATERIAL: 16 gauge **FINISH:** Galvanized

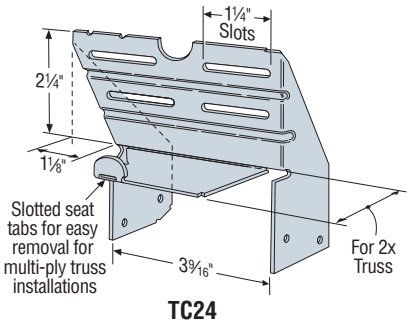
INSTALLATION:

- Use all specified fasteners. See General Notes.
- Drive 10d nails into the truss at the inside end of the slotted holes *(inside end is towards the center of the truss and clinch on back side)*. Do not seat these nails into the truss–allow room under the nail head for movement of the truss with respect to the wall.
- After installation of roofing materials nails may be required to be fully seated into the truss. *(As required by the Designer or Truss Designer.)*

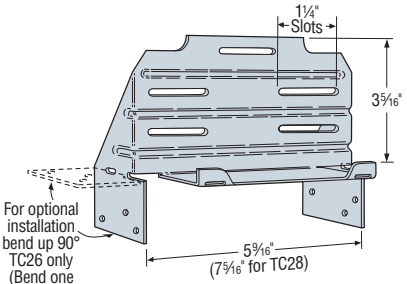
Optional TC Installation

- Bend one flange up 90°. Drive specified nails into the top and face of the top plates or install Titen® screws into the top and face of masonry wall. See optional load tables and installation details.

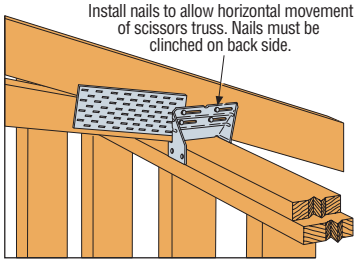
CODES: See page 13 for Code Reference Key Chart.



TC24



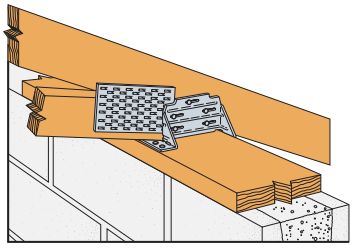
TC26
(TC28 similar)



Typical TC24 Installation

Model No.	Fasteners		DF/SP Allowable Loads	SPF/HF Allowable Loads	Code Ref.
	Truss	Plate	Uplift (160)	Uplift (160)	
TC24	4-10d	4-10d	400	345	I13, F12
TC26	5-10d	6-10d	665	570	
TC28	5-10d	6-10d	665	570	

See footnotes below.

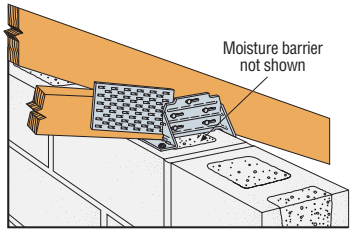


Optional TC26 Installation for Grouted Concrete Block using a Wood Nailer
(8", 10", 12" Wall Installation similar)

OPTIONAL TC INSTALLATION TABLE

Model No.	Fasteners		DF/SP Allowable Loads	SPF/HF Allowable Loads	Masonry Allowable Loads	Code Ref.
	Truss	Plate	Uplift (160)	Uplift (160)	Uplift (160)	
TC26	5-10dx1½	6-10dx1½	430	350	—	I13, F12
	5-10d	6-10d	450	390	—	
	5-10d	6-⅜₁₆x2¼ Titen	—	—	195	

1. Loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Grout strength is 2000 psi minimum.
3. Nail values based on single 2x truss. 10d joist nails must be clinched.
4. Optional TC26 installation with 10d nails requires minimum 3" top plate thickness.
5. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



Optional TC26 Installation for Grouted Concrete Block using Titen Screws

HTC *Heavy Truss Clips*

For alignment control between a roof truss and nonbearing walls; the 2½" slot permits vertical truss chord movement when loads are applied.

MATERIAL: 18 gauge

FINISH: Galvanized

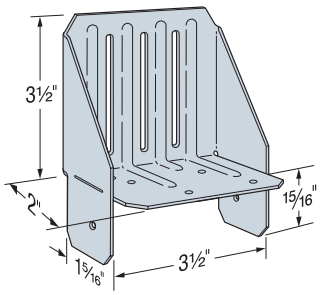
INSTALLATION: • Use all specified fasteners; see General Notes.

- The HTC has a 2½" slot to accommodate truss movement
- This connector has high lateral capacity.
- The S/HTC is available for steel truss applications.

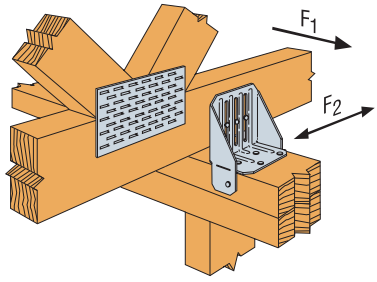
CODES: See page 13 for Code Reference Key Chart.

Model No.	Dimensions	Fasteners		Allowable Loads[1] (160)				Code Ref.
	Top Plate	Base	Slot	Without Gap[2]		With 1¼" Gap[3]		
				F_1	F_2	F_1	F_2	
HTC4	2x4 Plate	6-10d	3-10d	390	305	85	280	170
	2x6 Plate	6-10d	3-10d	485	280	155	280	

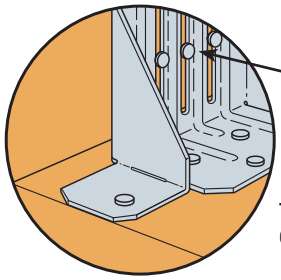
1. Loads may not be increased for short-term loading.
2. Truss or rafter must be bearing on top plate to achieve the allowable loads under "WITHOUT GAP."
3. When installed with maximum 1¼" space between rafter or truss and top plate use loads under "WITH 1¼" GAP." Where loads are not required, space is not limited to 1¼".
4. **NAILS:** 10d = 0.148" dia. x 3" long.
See page 22-23 for other nail sizes and information.



HTC4



Typical HTC4 Installation on a 2x4 Plate



Allow 1/16" gap between nailhead and truss clip to help prevent squeaking

Nails should not be driven completely flush against the connector, to allow vertical truss movement.

Typical HTC4 Installation on a 2x6 or Larger Plate

STC/STCT/DTC *Roof Truss Clips*

For alignment control between a roof truss and nonbearing walls; the 1½" slot permits vertical truss chord movement when loads are applied.

MATERIAL: 18 gauge

FINISH: Galvanized

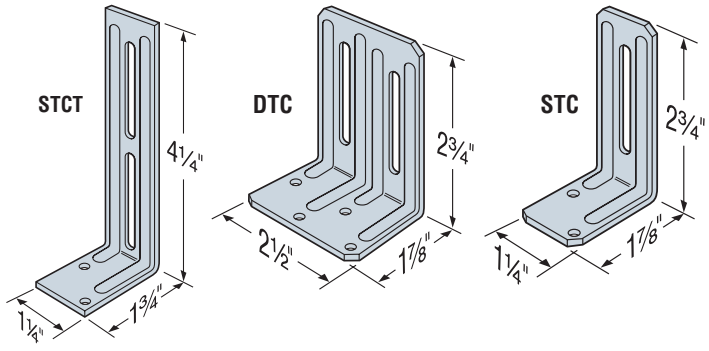
INSTALLATION: • Use all specified fasteners; see General Notes.

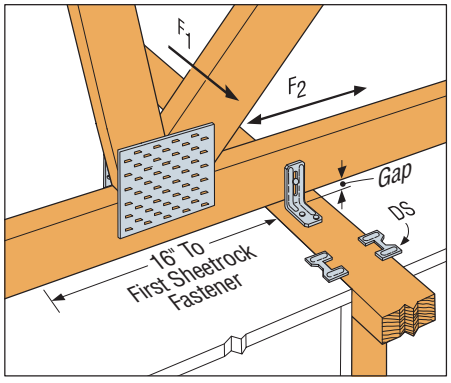
- Use STC or DTC depending on required loads. STC, installed with Drywall Stop (DS), helps prevent fasteners tearing through the ceiling sheetrock *(see illustration)*.
- Use STCT where truss or rafter is separated from the top plate of the nonbearing wall.
- Install slot nails in the middle of the slot.
- Products not intended for floor applications.

CODES: See page 13 for Code Reference Key Chart.

Model No.	Fasteners		Allowable Loads[1] (160)						Code Ref.
	Base	Slot	Without Gap[2]		¼" Max Gap		¼" < Gap ≤ ½"		
			F_1	F_2	F_1	F_2	F_1	F_2	
STC	2-8d	1-8d	85	55	35	35	30	40	170
STCT	2-8d	1-8d	—	—	—	—	—	—	
DTC	4-8d	2-8d	125	210	85	135	55	70	

1. Loads may not be increased for short-term loading.
2. Truss or rafter must be bearing on top plate to achieve the allowable loads under "WITHOUT GAP."
3. Clips are required on both sides of the truss to achieve F_1 loads in both directions *(stagger parts to avoid nail interferences)*.
4. **NAILS:** 8d = 0.131" dia. x 2½" long.
See page 22-23 for other nail sizes and information.





Typical STC Installation with DS

Nails should not be driven completely flush against the connector, to allow vertical truss movement.

VTCR *Single-Sided Valley Truss Clip*

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 VTCR is single-sided valley truss clip that provides a positive connection between the valley truss and the supporting framing below. Installed on top of the roof sheathing, it eliminates the need to add a support wedge under the valley truss or to bevel the bottom chord to match the roof pitch.

- Single-sided for new construction or retrofit applications – can be installed after the valley truss is set in place
- Accommodates pitches from 0/12 to 12/12
- Can be installed on either beveled or non-beveled bottom chords
- Installs with nails or Simpson Strong-Tie® Strong-Drive® SD structural-connector screws

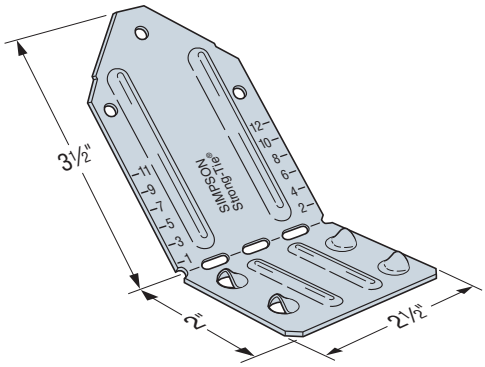

Designed for Connectors

MATERIAL: 18 gauge **FINISH:** Galvanized

INSTALLATION:

- The dome holes assist in installing the fasteners into the supporting framing at approximately 45°.

CODES: See page 13 for Code Reference Key Chart.

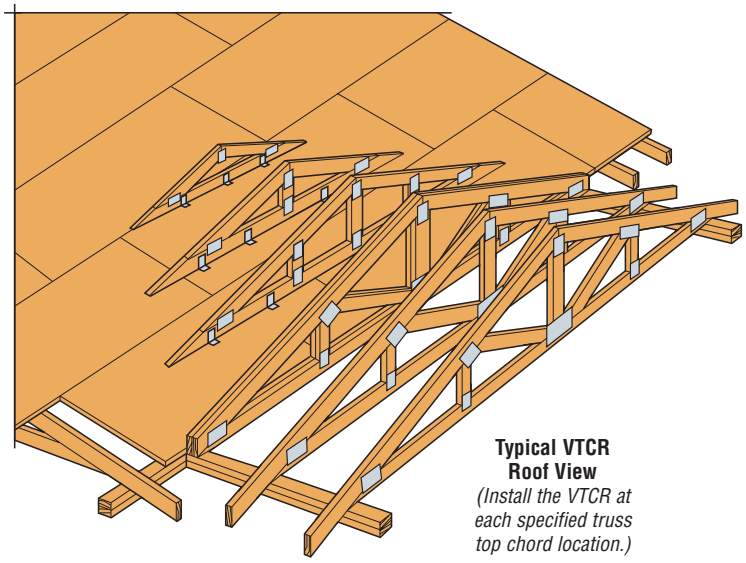


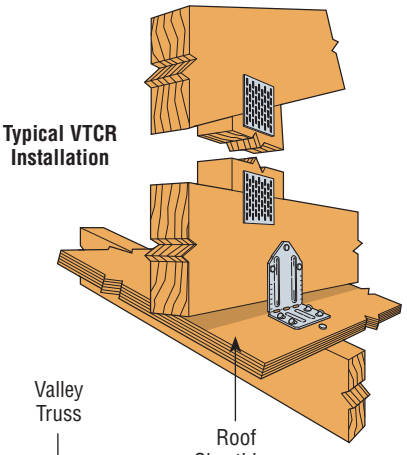
VTCR

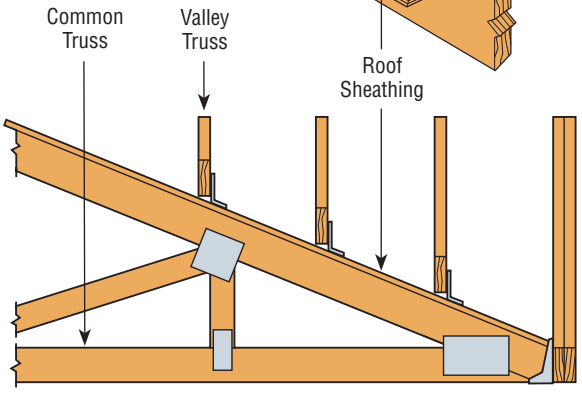
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Model No.	Fasteners		Supporting Roof Pitch	DF/SP Allowable Loads		SPF/HF Allowable Loads		Code Ref.
	Supporting Framing	Valley Truss		Uplift[3] (160)	Download[5] (100/115/125/160)	Uplift[3] (160)	Download[6] (100/115/125/160)	
VTCR	4-10d	3-10dx1½"	< 4/12	370	790	320	655	I13, F12
			4/12 to 12/12	370	790	320	655	
	4-SD #9x2½"	3-SD #9x1½"	< 4/12	390	790	335	655	
			4/12 to 12/12	500	790	430	655	

1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed.
2. Loads are based on installation over 7/16" or 15/32" sheathing. For installation over 19/32" or 5/8" sheathing, allowable uplift loads are 285 lbs. (DF/SP) and 245 lbs. (SPF/HF) when installed with nails, or 370 lbs. (DF/SP) and 320 lbs. (SPF/HF) when installed with screws.
3. When attached directly to the supporting framing with either screws or nails, the allowable uplift for pitches less than 4/12 is 240 lbs. (DF/SP) and 205 lbs. (SPF/HF). For pitches 4/12 to 12/12, use the tabulated uplift loads.
4. Allowable uplift loads are based on the lower of the test loads at 3/16" deflection or the ultimate load divided by 3.
5. Southern pine allowable download is 750 lbs.
6. Hem fir allowable download is 625 lbs.
7. When the valley truss and supporting framing are of different species, use the lower tabulated values.
8. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.
9. **SCREWS:** SD #9x1½" *(model SD9112)* = 0.131" dia. x 1½" long, SD #9x2½" *(model SD9212)* = 0.131" dia. x 2½" long.


Typical VTCR Roof View
(Install the VTCR at each specified truss top chord location.)


Typical VTCR Installation



Typical VTCR Side View

GBC *Gable Brace Connector*

SIMPSON Strong-Tie®

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 GBC provides a proven, tested connection for the anchorage of building stability bracing to the top of the gable end wall. With allowable bracing installation angles between 40° to 60°, the GBC offers greater flexibility in a connector rated for both tension and compression loads.

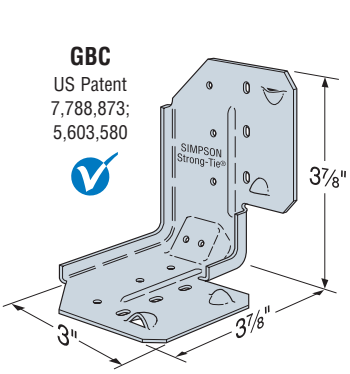
MATERIAL: 16 gauge

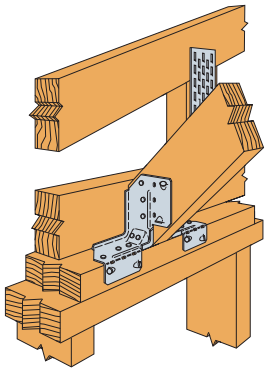
FINISH: Galvanized

INSTALLATION:

- Use all specified fasteners. See General Notes.
- The GBC must be installed in pairs to achieve full load capacity.

CODES: See page 13 for Code Reference Key Chart.

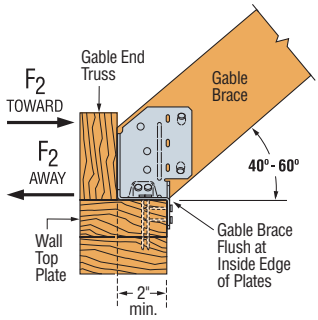




Typical GBC Installation

Model No.	Qty Req'd	Fasteners per Connector		DF/SP Allowable Loads (160) Perpendicular to Endwall (F_2)				SPF/HF Allowable Loads (160) Perpendicular to Endwall (F_2)				Code Ref.
				Toward GBC		Away from GBC		Toward Anchors		Away from Anchors		
		Gable Brace	Top Plates	Gable Brace Angle		Gable Brace Angle		Gable Brace Angle		Gable Brace Angle		
				40°-45°	46°-60°	40°-45°	46°-60°	40°-45°	46°-60°	40°-45°	46°-60°	
GBC	2	5-8dx1½	7-8d	635	570	425	325	535	480	355	275	I13, F12

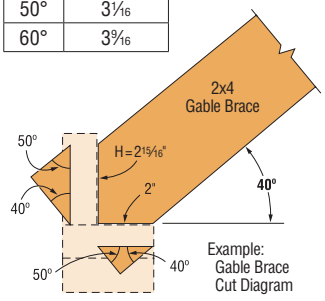
1. For 1¾ x 3½ (or larger) LVL gable brace, the allowable load at 40° to 45° is 635 lbs. towards anchors, 515 lbs. away from anchors.
2. Loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. Use a minimum 2x4 gable brace. Larger members may be used.
4. **NAILS:** 8d = 0.131" dia. x 2½" long, 8dx1½ = 0.131" dia. x 1½" long. See page 22-23 for other nail sizes and information.



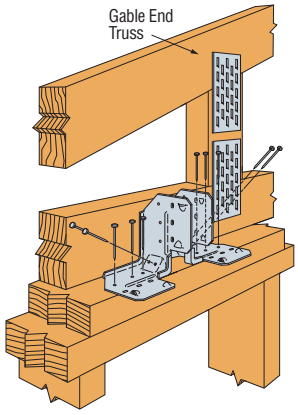
Typical Sloped Installation

GBC INSTALLATION SEQUENCE

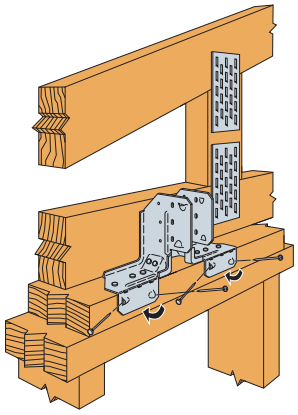
Slope	H Dimension
40°	2 15/16
50°	3 1/16
60°	3 9/16



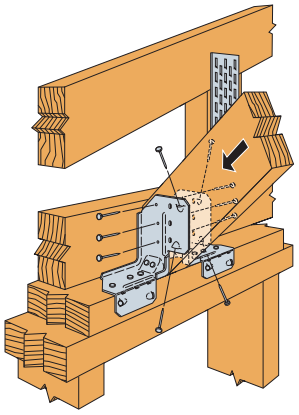
STEP 1
Double angle cut the gable brace to sit flat on the wall double top plate and flush against the gable end truss for 2x4 top plate. The double angle cuts should form a 90° angle on the end of the gable brace.



STEP 2
Set each GBC on top of the double top plate so that the bend line slots are flush with the inside edge of the double top plate. Install fasteners into the top of the double top plate.



STEP 3
Bend GBC legs *(one time only)* over the inside of the double top plate and install fasteners.



STEP 4
Install fasteners into the gable brace.

NOTE: Attach the other end of the gable brace to blocking at the roof diaphragm as directed by the Designer.

CHC *Component Hoist Clip*

The CHC component hoist clip provides a tested, load-rated solution for the safe lifting and placement of assembled wood components. The CHC is load-rated with Strong-Drive® SDS screws for easy installation and removal, and superior shear and withdrawal strength during lifting.

FEATURES:

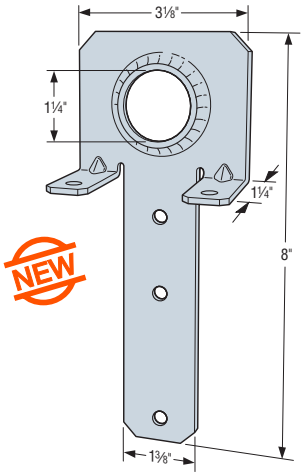
- Attaches easily to wood members using Strong-Drive SDS screws *(sold separately)*
- May be used alone or in pairs for increased load
- Tested in multiple load directions for versatility

MATERIAL: 12 gauge **FINISH:** Galvanized

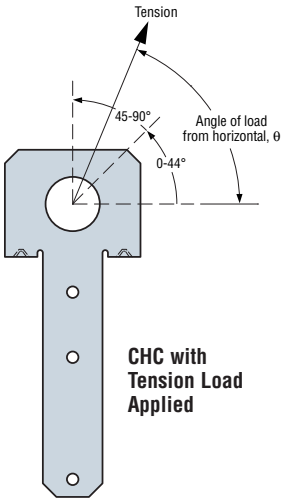
INSTALLATION:

- Use all specified fasteners. See General Notes.
- Fasteners require full penetration into the framing members.
- Use one time only.
- Lifting devices should be connected to the CHC with a closed-loop attachment of sufficient strength to carry the allowable load.

CODES: See page 13 for Code Reference Key Chart.



CHC
Patent pending



CHC with Tension Load Applied

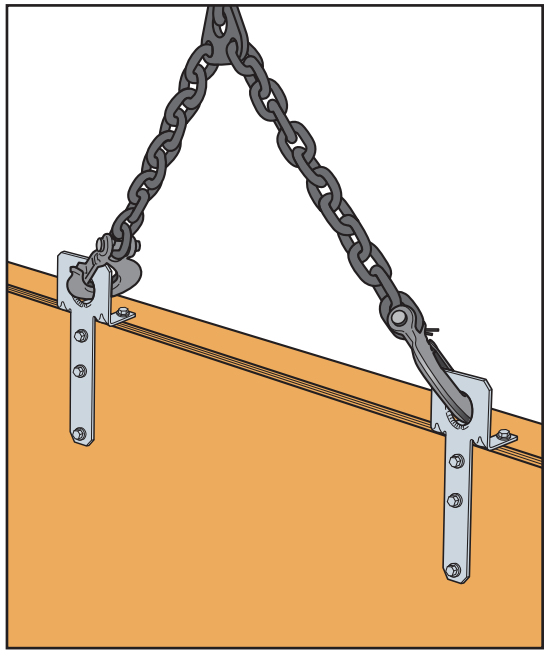
Single Part Allowable Loads

Model No.	Fasteners[4]		Angle from Horizontal, θ	Allowable Tension DF/SP/SPF/HF (125)	Code Ref.
	Top	Face			
CHC	2-SDS ¼"x3"	3-SDS ¼"x3"	0-44	610	170
			45-90	975	

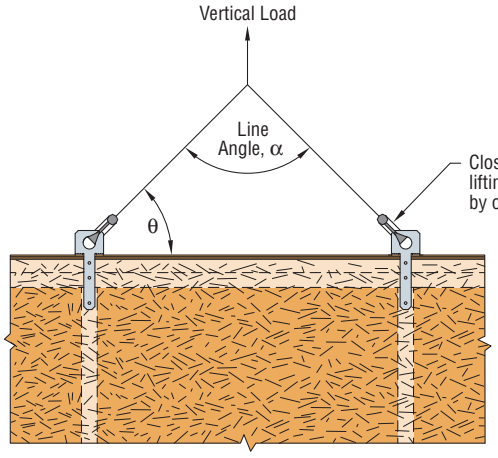
1. Allowable loads are based on the lowest ultimate test load of 3 test specimens, or the average of 6 specimens, divided by 5.
2. No load duration increase allowed.
3. Allowable loads are based on installation over sheathing on stud walls with double 2x top plates and max. ⅝" sheathing.
4. Fasteners require full penetration into the framing members.
5. All lifting devices and spreader bars that are used in conjuction with the CHC shall be of sufficient strength to carry the required load. Spreader bars must also have sufficient rigidity to resist bending of the lifted component.

Allowable Loads for Two Parts

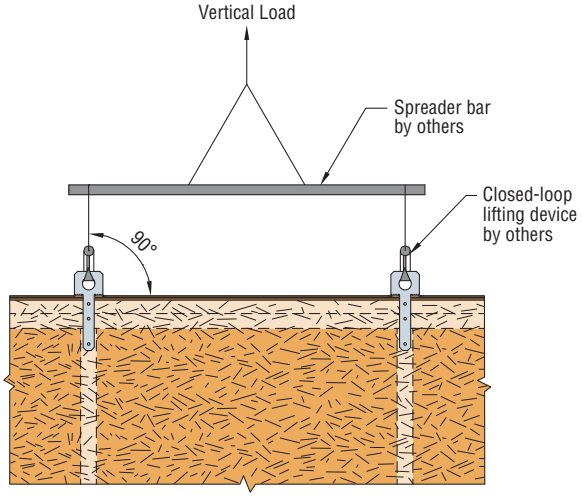
Model No.	Type of Connection	Angle from Horizontal, θ	Line Angle, α	Total Allowable Vertical Load DF/SP/SPF/HF (125)	Code Ref.
CHC	1	30	120	610	170
		45	90	1380	
		60	60	1690	
	2	90	—	1950	



Typical CHC Installation Using Two Parts



1 Typical CHC Installation with Angular Loading



2 Typical CHC Installation with Spreader Bar

TITEN® *Screws*

Titen screws are 3⁄16" and 1⁄4" diameter masonry screws for attaching various components to concrete and masonry. Available in hex and phillips head and both carbon and stainless steel (see the Simpson Strong-Tie® *Anchoring and Fastening Systems for Concrete and Masonry* catalog for information on stainless steel versions). Use with appropriately sized Titen drill bits included with each box.
CODES: FL 2355.1

WARNING: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, use this product in dry and noncorrosive environments only or provide a moisture barrier.

Titen Hex Head

Titen Screw Anchors for Concrete

Titen Diameter (in.)	Drill Bit Diameter (in.)	Embed. Depth (in.)	Critical Spacing (in.)	Critical Edge Dist. (in.)	Allowable Loads			
					Concrete		CMU	
					Tension	Shear	Tension	Shear
3⁄16	5⁄32	1	2 1⁄4	1 1⁄8	125	255	110	205
3⁄16	5⁄32	1 1⁄2	2 1⁄4	1 1⁄8	305	415	—	—
1⁄4	3⁄16	1	3	1 1⁄2	145	225	150	250
1⁄4	3⁄16	1 1⁄2	3	1 1⁄2	365	400	—	—

1. Allowable loads may not be increased for short term loading due to wind or seismic forces.
2. Concrete shall have a minimum f'_c = 2000 psi. CMU is based on installation into face shell of hollow and grout-filled CMU.
3. The attached member or element may govern the allowable load. The designer shall verify allowable load.
4. Refer to the Simpson Strong-Tie® *Anchoring and Fastening Systems for Concrete and Masonry* catalog *(form C-SAS)* for complete information on the Titen screws *(see page 228 for details)*.

WM/WMI/WMU *Hangers*

See page 160 for sizes, fasteners and load information.

WMs are designed for use on standard 8" grouted masonry block wall construction.

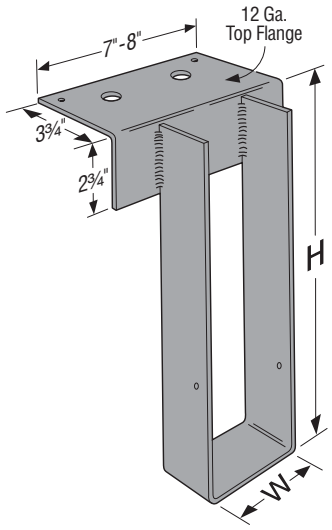
MATERIAL: See table on page 160; WM, WMI, WMU—12 ga. top flange and stirrup
FINISH: Simpson Strong-Tie® gray paint; hot-dip galvanized available: specify HDG.
INSTALLATION:

- Use all specified fasteners.
- WM—two 16d duplex nails must be installed into the top flange and embedded into the grouted wall. Verify that the grouted wall can take the required fasteners specified in the table.
- **MID-WALL INSTALLATION:** Installed between blocks with duplex nails cast into grout with a minimum of one grouted course above and below the top flange and one #5 vertical rebar minimum 24" long in each adjacent cell.
- **TOP OF WALL INSTALLATION:** Install on top of wall to a grouted beam with masonry screws.
- Refer to technical bulletin T-SLOPEJST for information regarding load reductions on selected hangers which can be used without modification to support joists which have shallow slopes (3⁄4:12) *(see page 232 for details)*.

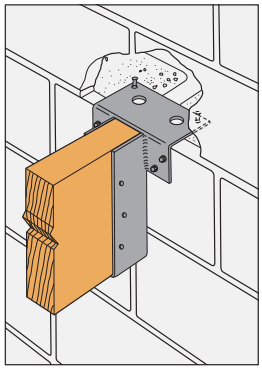
OPTIONS:

- See Hanger Options, pages 216-217 for hanger modifications and associated load reductions.
- WMU may not be modified.

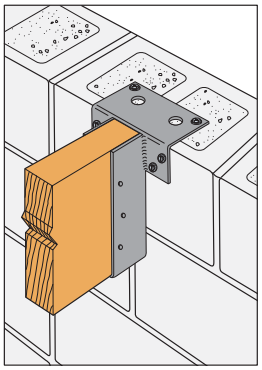
CODES: See page 13 for Code Reference Key Chart.



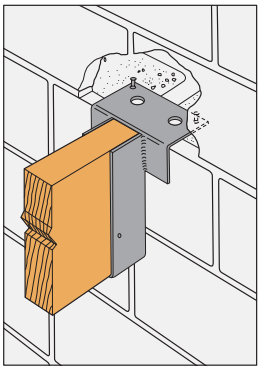
WM



WMU Mid-Wall Installation



WMU Top-of-Wall Installation



WM Mid-Wall Installation

WM/WMI/WMU *Hangers*

SIMPSON Strong-Tie®

Joist Size	Model No.	Dimensions		Fasteners				Masonry Allowable Loads						Code Ref.
								Mid-Wall Installation			Top-of-Wall Installation			
		W	H	Top Fasteners Mid-Wall Installation	Top Fasteners Top-Of-Wall Installation	Face	Joist	Uplift	Download (100/115)	Download (125)	Uplift	Download (100/115)	Download (125)	
STANDARD LUMBER SIZES - UPLIFT														
Specify	WMU	1½ to 7½	9 to 28	2-16d Duplex	2-¼x1¾ Titen	4-¼x1¾ Titen	6-10dx1½	625	4175	4175	545	3380	3380	170
STANDARD LUMBER SIZES														
2x6	WM26	1 9/16	5⅜	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	I21, L16
2x8	WM28	1 9/16	7⅛	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2x10	WM210	1 9/16	9⅛	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2x12	WM12	1 9/16	11	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2x14	WM12	1 9/16	13	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2x16	WM12	1 9/16	15	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2x6 double	WM26-2	3⅛	5⅜	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2x8 double	WM28-2	3⅛	7⅛	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2x10 double	WM210-2	3⅛	9⅛	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2x12 double	WM12-2	3⅛	11	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3x6	WM36	2 9/16	5⅜	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3x8	WM38	2 9/16	7⅛	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3x10	WM310	2 9/16	9⅛	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3x12	WM312	2 9/16	11	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3x14	WM314	2 9/16	13	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3x16	WM316	2 9/16	15	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
4x6	WM46	3 9/16	5⅜	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
4x8	WM48	3 9/16	7⅛	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
4x10	WM410	3 9/16	9⅛	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
4x12	WM412	3 9/16	11	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
4x14	WM414	3 9/16	13	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
4x16	WM416	3 9/16	15	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
6x6	WM66	5½	5⅜	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
6x8	WM68	5½	7⅛	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
6x10	WM610	5½	9⅛	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
ENGINEERED LUMBER SIZES														
1½x9¼	WM29.25	1 9/16	9¼	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	I21, L16
1½x9½	WM29.5	1 9/16	9½	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
1½x11¼	WM211.25	1 9/16	11¼	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
1½x11⅞	WM211.88	1 9/16	11⅞	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
1¾x9½	WM9	1 13/16	9½	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
1¾x11⅞	WM11	1 13/16	11⅞	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
1¾x14	WM14	1 13/16	14	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
1¾x16	WM16	1 13/16	16	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2 5/16x11⅞	WM3511.88	2 5/16	11⅞	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2 5/16x14	WM3514	2 5/16	14	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2 5/16x16	WM3516	2 5/16	16	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2 5/16x18	WM3518	2 5/16	18	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2 5/16x20	WM3520	2 5/16	20	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2½x14	WMI314	2 9/16	14	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2½x16	WMI316	2 9/16	16	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2½x18	WMI318	2 9/16	18	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
2½x20	WMI320	2 9/16	20	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3x9¼	WM29.25-2	3⅛	9¼	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3x9½	WM29.5-2	3⅛	9½	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3x11¼	WM211.25-2	3⅛	11¼	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3x11⅞	WM211.88-2	3⅛	11⅞	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3½x9½	WM3.56/9.5	3 9/16	9½	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3½x11⅞	WM3.56/11.88	3 9/16	11⅞	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3½x12	WMI412	3 9/16	12	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3½x14	WMI414	3 9/16	14	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3½x16	WMI416	3 9/16	16	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3½x18	WMI418	3 9/16	18	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
3½x20	WMI420	3 9/16	20	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
4⅝x11⅞	WM3511.88-2	4¾	11⅞	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
4⅝x14	WM3514-2	4¾	14	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
4⅝x16	WM3516-2	4¾	16	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
4⅝x18	WM3518-2	4¾	18	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
4⅝x20	WM3520-2	4¾	20	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
5¼x9½	WM5.50/9.5	5½	9½	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
5¼x11⅞	WM5.50/11.88	5½	11⅞	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
7x9½	WMI49.5-2	7⅛	9½	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
7x11¼	WM411.25-2	7⅛	11¼	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
7x11⅞	WM411.88-2	7⅛	11⅞	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
7x14	WM414-2	7⅛	14	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
7x16	WM416-2	7⅛	16	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
7x18	WM418-2	7⅛	18	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	
7x20	WM420-2	7⅛	20	2-16d Duplex	2-¼x1 ¾ Titen	—	2-10dx1½	—	4175	4175	—	3380	3380	

1. Uplift loads have been increase for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. See figures for Top-of-Wall and Mid-Wall installation. Minimum f'_m = 1500 psi.
3. Products shall be installed such that Titen® screws are not exposed to weather.
4. For hanger heights that exceed the joist height, the allowable dowload is 0.50 of the table load.
5. **NAILS:** 16d Duplex = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

HU/HUC/HSUR/L *Hangers*

HU and HUC products are heavy duty face mount joist hangers made from 14 gauge galvanized steel.

- The HUC is a concealed flange version of the HU. Concealed flange hangers have the header flanges turned in.
- HU is available with header flanges concealed, provided the W dimension is 2⁵⁄₁₆" or greater, at 100% of the table load. Specify HUC.
- HU is available with one header flange concealed when the W dimension is less than 2⁵⁄₁₆" at 100% of the table load.
- For allowable loads on HU products not listed in the table request technical bulletin T-HUHUCTTN *(see page 231 for details).*

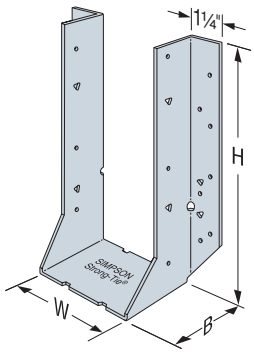
MATERIAL: 14 gauge

FINISH: Galvanized, ZMAX® and stainless steel available

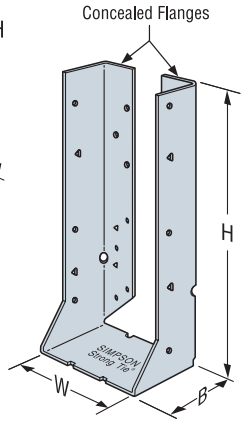
INSTALLATION: • These hangers are attached to grouted CMU walls using ¼"x2¾" hex head Simpson Strong-Tie® Titen® screws or for concrete walls using ¼"x1¾" hex head Titen screws. Titen screws are not provided.

- Drill the ³⁄₁₆" diameter hole to the specified embedment depth plus ½".
- Alternatively, drill the ³⁄₁₆" diameter hole to the specified embedment depth and blow it clean using compressed air.
- Caution: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with the base material and will reduce the anchor's load capacity.
- The hangers should be installed such that a minimum end and edge distance of 1½" is maintained.
- Provide moisture barrier between beam and wall per jurisdictional requirements.

CODES: See page 13 for Code Reference Key Chart.



HU410

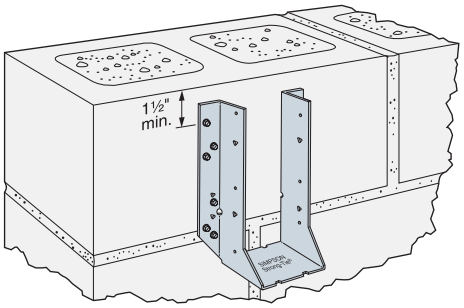


HUC410

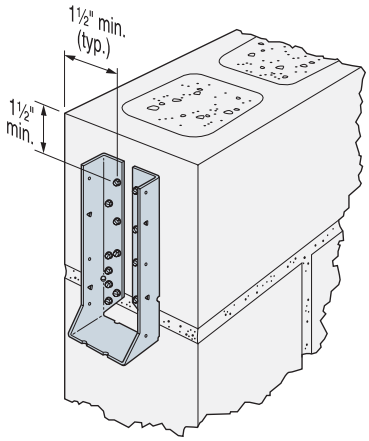
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Dimensions			Fasteners			Allowable Loads (DF/SP)		Code Ref.
	W	H	B	CMU	Concrete	Joist	Uplift (160)	Down (100/115/125)	
HU26	1⁹⁄₁₆	3¹⁄₁₆	2¼	4-¼x2¾ Titen	4-¼x1¾ Titen	2-10dx1½	290	1545	170
HU28[3]	1⁹⁄₁₆	5¼	2¼	6-¼x2¾ Titen	6-¼x1¾ Titen	4-10dx1½	575	2400	
HU210	1⁹⁄₁₆	7⅛	2¼	8-¼x2¾ Titen	8-¼x1¾ Titen	4-10dx1½	575	2400	
HU46	3⁹⁄₁₆	5³⁄₁₆	2½	12-¼x2¾ Titen	12-¼x1¾ Titen	6-10d	1085	3950	
HU26-2	3⅛	5⅜	2½	12-¼x2¾ Titen	12-¼x1¾ Titen	6-10d	1085	3950	
HU48	3⁹⁄₁₆	6¹³⁄₁₆	2½	14-¼x2¾ Titen	14-¼x1¾ Titen	6-10d	1085	4350	
HU28-2	3⅛	7	2½	14-¼x2¾ Titen	14-¼x1¾ Titen	6-10d	1085	4350	
HU410	3⁹⁄₁₆	8⅝	2½	18-¼x2¾ Titen	18-¼x1¾ Titen	10-10d	1810	5085	
HU210-2	3⅛	8¹³⁄₁₆	2½	18-¼x2¾ Titen	18-¼x1¾ Titen	10-10d	1810	5085	
HSUR/L26-2	3⅛	4¹⁵⁄₁₆	2⁷⁄₁₆	12-¼x2¾ Titen	12-¼x1¾ Titen	4-16dx2½	815	2625[5]	

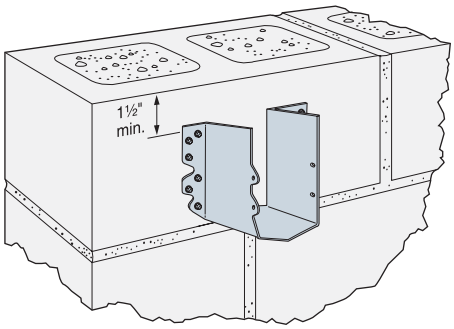
1. Uplift loads have been increased for wind or earthquake loading with no further increase is allowed. Reduce where other loads govern.
2. Minimum concrete strength f'_c shall be 2500 psi. CMU shall have a minimum grout strength of 2500 psi with standard ASTM C90 units and type N or S mortar.
3. The HU28 can be ordered skewed 45° and achieve the same loads.
4. See page 159 for Titen screw information. Use stainless-steel Titen® screws and products in exposed applications. Tabulated loads apply to stainless-steel applications.
5. Noted loads for the HSUR/L shall be 0.8 the table loads for concrete applications.
6. Table allowable loads were determined using tested lowest ultimate/3 or fastener calculation values.
7. **NAILS:** 16dx2½ = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



HU410 Installed on Masonry Block Sidewall



HUC410 Installed on Masonry Block End Wall



HSUR/L26-2 Installed on Masonry Block Sidewall

LGUM/HGUM *High Capacity Beam/Girder Hangers for Concrete/Masonry*

High-capacity beam or girder hangers for concrete or masonry applications. Installation is made easier using Simpson Strong-Tie® Strong-Drive® SDS screws *(provided)* into the wood member and Titen HD® anchors *(provided)* into the masonry.

MATERIAL: See table **FINISH**: Galvanized

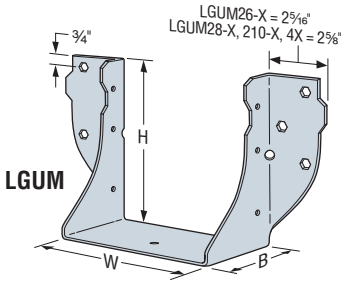
INSTALLATION: • Use all specified fasteners *(included)*.

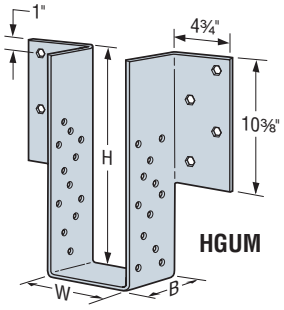
- Attach hanger to a concrete or grouted CMU wall using Titen HD anchors. Note the following:
  - Drill holes using drill bits equal in diameter to the specified Titen HD anchor.
  - Holes shall be drilled ½" deeper than the specified Titen HD length *(i.e. 4½" for a 4" long Titen HD anchor)*
  - Caution: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with the base material and will reduce the anchor's load capacity.
- Titen HD is not recommended for exposed exterior applications.
- Provide moisture barrier between beam and wall per jurisdictional requirements.

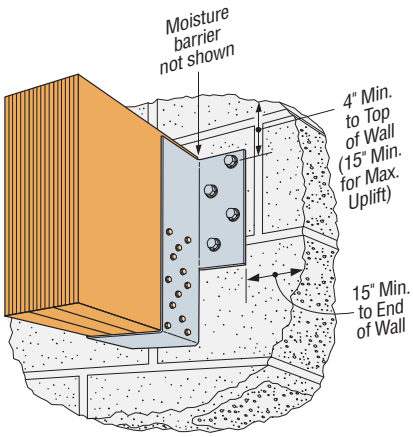
OPTIONS: • For HGUM only—Other seat widths available. Order as "X" version.

- HGUM available with one flange concealed.
- LGUM/HGUM available in skews up to 45°. See Hanger Options, pages 215-224.

CODES: See page 13 for Code Reference Key Chart.



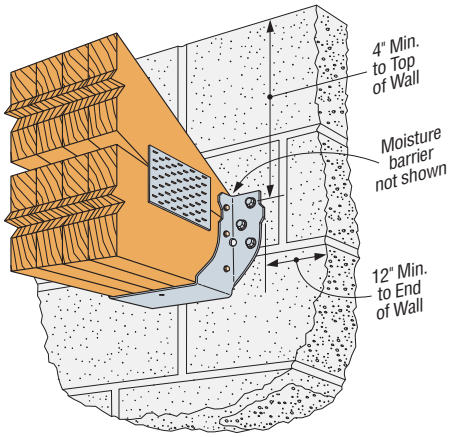




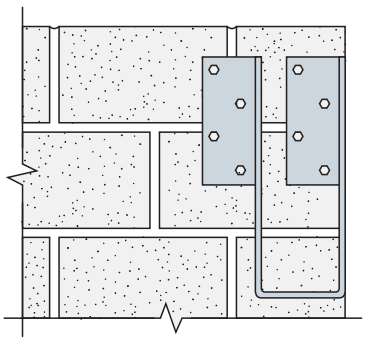
Typical HGUM Installation

Model No.	Ga	Dimensions W	Dimensions H	Dimensions B	Fasteners CMU/Concrete Titen HD Anchors	Fasteners Joist SDS Screws	Allowable Loads Uplift (160) 4" Min. to Top of Wall	Allowable Loads Uplift (160) 15" Min. to Top of Wall	Allowable Loads Download (DF, SP, LVL, PSL, LSL) CMU (100/115/125)	Allowable Loads Download (DF, SP, LVL, PSL, LSL) Concrete (100/115/125)	Code Ref.
DOUBLE 2x SIZES											
LGUM26-2-SDS	12	3⁹⁄₁₆	5⁷⁄₁₆	4	4 - ⅜"x4"	4 - ¼"x2½"	1430	1430	5595		
LGUM28-2-SDS	12	3⁹⁄₁₆	7³⁄₁₆	4	6 - ⅜"x4"	6 - ¼"x2½"	2435	2435	8250		
LGUM210-2-SDS	12	3⁹⁄₁₆	9³⁄₁₆	4	8 - ⅜"x4"	8 - ¼"x2½"	3575	3575	9575		
TRIPLE 2x SIZES											
LGUM26-3-SDS	12	4¹⁵⁄₁₆	5½	4	4 - ⅜"x4"	4 - ¼"x2½"	1430	1430	5610		
LGUM28-3-SDS	12	4¹⁵⁄₁₆	7¼	4	6 - ⅜"x4"	6 - ¼"x2½"	2435	2435	8290		
LGUM210-3-SDS	12	4¹⁵⁄₁₆	9¼	4	8 - ⅜"x4"	8 - ¼"x2½"	3575	3575	9715		
QUADRUPLE 2x SIZES											
LGUM26-4-SDS	12	6⁹⁄₁₆	5⁷⁄₁₆	4	4 - ⅜"x4"	4 - ¼"x2½"	1430	1430	5625		
LGUM28-4-SDS	12	6⁹⁄₁₆	7³⁄₁₆	4	6 - ⅜"x4"	6 - ¼"x2½"	2435	2435	8335		
LGUM210-4-SDS	12	6⁹⁄₁₆	9³⁄₁₆	4	8 - ⅜"x4"	8 - ¼"x2½"	3575	3575	9860		F27
4x SIZES											
LGUM46-SDS	12	3⅝	4⅞	4	4 - ⅜"x4"	4 - ¼"x2½"	1430	1430	5600		
LGUM48-SDS	12	3⅝	6⅞	4	6 - ⅜"x4"	6 - ¼"x2½"	2435	2435	8260		
LGUM410-SDS	12	3⅝	8⅞	4	8 - ⅜"x4"	8 - ¼"x2½"	3575	3575	9620		
ENGINEERED WOOD & STRUCTURAL COMPOSITE LUMBER SIZES (Heavy Duty)											
HGUM5.25-SDS	7	5¼	11 to 30	5¼	8 - ⅝"x5"	24 - ¼"x2½"	4230[2]	6180[2]	14965	16015	
HGUM5.50-SDS	7	5½		5¼	8 - ⅝"x5"	24 - ¼"x2½"	4230[2]	6180[2]	14940	16015	
HGUM7.00-SDS	7	7		5¼	8 - ⅝"x5"	24 - ¼"x2½"	4230[2]	6180[2]	14770	16015	
HGUM7.25-SDS	7	7¼		5¼	8 - ⅝"x5"	24 - ¼"x2½"	4230[2]	6180[2]	14740	16015	
HGUM9.00-SDS	7	9		5¼	8 - ⅝"x5"	24 - ¼"x2½"	4230[2]	6180[2]	14545	16015	

1. Uplift loads have been increased for wind or earthquake loading with no further increase is allowed.
2. HGUM uplift loads for concrete applications are 5840 lbs. with a 4" min. distance to top of wall and 6960 lbs. with a 15" min. distance to top of wall.
3. Minimum f'_m = 1500 psi and f'_c = 2500 psi.
4. LGUM must be installed on minimum 6" thick wall and HGUM on minimum 8" thick wall. *(Nominal values for CMU)*
5. Titen HD anchors may be installed into the head or bed joints.
6. Simpson Strong-Tie Strong-Drive screws are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Sections 7.5.3.4 and 8.9.2 are met *(pre-drilling required through the plate using a maximum of 5⁄32" bit).*



Typical LGUM Installation



HGUM with right flange concealed

(See page 224 for reduction factors)

MBHU *Masonry Beam Hangers*

The new MBHU beam hanger provides a face-mounted solution for connecting beams to masonry or concrete walls. A non-welded, one-piece connector, the MBHU is suitable for solid sawn and engineered wood beams as well as trusses. Installation is simplified because the Titen HD® screw anchor and Strong-Drive® SDS screws are included with the hanger. Since the Titen HD anchor is installed after the wall is built, locating the anchor in the right spot is easier than with cast-in-place bolts.

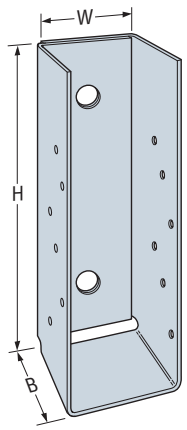
MATERIAL: 10 gauge

FINISH: Galvanized

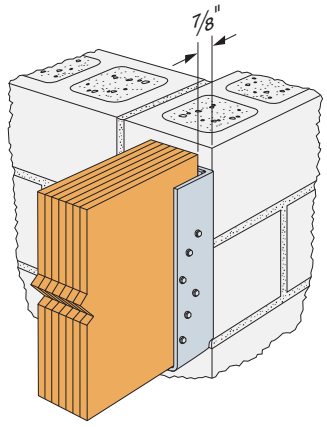
INSTALLATION: • Use all specified fasteners *(included)*.

- Attach hanger to a concrete or grouted CMU wall using Titen HD anchors. Note the following:
  - Drill holes using drill bits equal in diameter to the specified Titen HD anchor.
  - Holes shall be drilled ½" deeper than the specified Titen HD length *(i.e. 5½" for a 5" long Titen HD anchor)*
  - Caution: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with the base material and will reduce the anchor's load capacity.
- Titen HD is not recommended for exposed exterior applications.
- Provide moisture barrier between beam and wall per jurisdictional requirements.

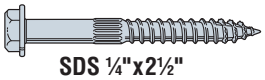
CODES: See page 13 for Code Reference Key Chart.



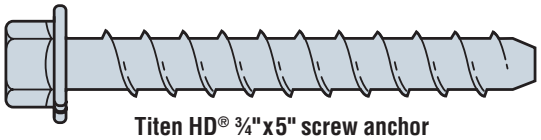
MBHU



Typical MBHU Installation



SDS ¼"x2½"



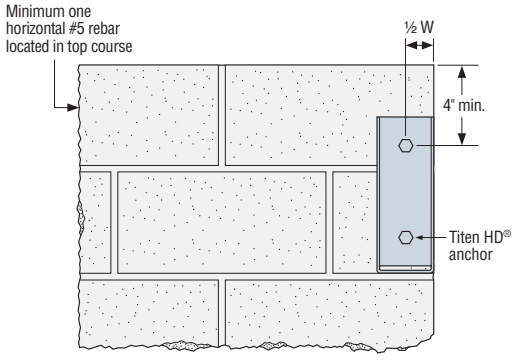
Titen HD® ¾"x5" screw anchor

Model No.	Dimensions	
	Width (W) (in.)	Height (H) (in.)
MBHU3.56/9.25KT	3⁹⁄₁₆	9¼
MBHU3.56/11.25KT	3⁹⁄₁₆	11¼
MBHU3.56/11.88KT	3⁹⁄₁₆	11⅞
MBHU3.56/14KT	3⁹⁄₁₆	14
MBHU3.56/16KT	3⁹⁄₁₆	16
MBHU3.56/18KT	3⁹⁄₁₆	18
MBHU5.50/9.25KT	5½	9¼
MBHU5.50/11.25KT	5½	11¼
MBHU5.50/11.88KT	5½	11⅞
MBHU5.50/14KT	5½	14
MBHU5.50/16KT	5½	16
MBHU5.50/18KT	5½	18

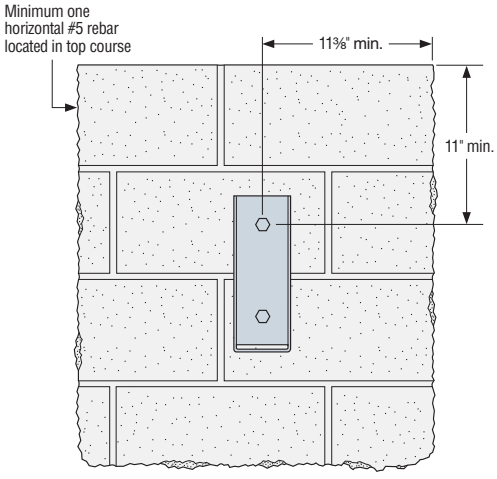
1. Each MBHU hanger includes (2) ¾"x5" Titen HD® anchors and (12) ¼"x2½" Strong-Drive® SDS screws.

Series Model No.	Ga	Dimensions (in.)			Fasteners		Allowable Loads End of Wall / Outside Corner DF/SP				Allowable Loads Away from Edge DF/SP		Code Ref.
							CMU		Concrete		CMU/Concrete		
		W	H	B	CMU/ Concrete	Joist	Uplift[3]	Download	Uplift	Download	Uplift	Download	
					Titen HD® Anchors	SDS Screws	(160)	(100/ 115/125)	(160)	(100/ 115/125)	(160)	(100/ 115/125)	
MBHU3.56	10	3⁹⁄₁₆	9¼ to <14	3½	2 - ¾"x5"	12 - ¼"x2½"	1720	2440	2715	4190	2210	4005	F24
			14 to 18				1720	2440	2715	4190	3345	6065	
MBHU5.50	10	5½	9¼ to <14	3½	2 - ¾"x5"	12 - ¼"x2½"	1720	2440	2715	4190	2210	4005	
			14 to 18				2175	3260	3485	6970	3345	6065	

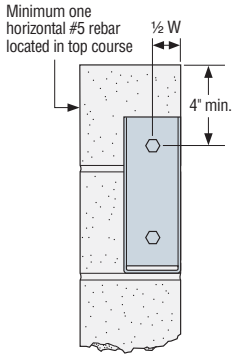
1. Uplift loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Minimum CMU compressive strength f'_m shall be 1500 psi and concrete compressive strength f'_c shall be 2500 psi.
3. Structural composite lumber (SCL) shall have a minimum specific gravity of 0.5.
4. Allowable loads only apply to installation on 8" nominal grouted CMU walls, with minimum one horizontal #5 rebar located in the top course.
5. Products shall be installed such that the Titen HD® anchors are not exposed to the weather.
6. Allowable loads are based upon the tested ultimate load with a safety factor of 3.



Installation at Outside Corner
(Minimum Load)



Installation Away from Edge of Wall
(Maximum Load)

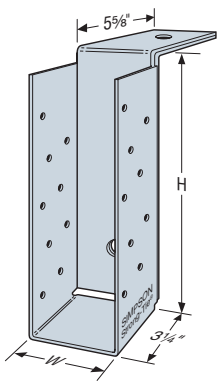


Installation on End of Wall
(Minimum Load)

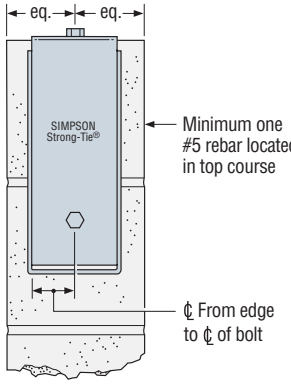
MBHA *Masonry Hangers*

The MBHA is a single piece, non-welded connector available for solid sawn, truss and engineered wood products.
MATERIAL: 10 gauge
FINISH: Galvanized
INSTALLATION: • Use all specified fasteners. See General Notes.
OPTIONS: See Hanger Options, pages 215-224.
CODES: See page 13 for Code Reference Key Chart.

Model No.	℄	Dimensions	
		W	H
MBHA3.12/9.25	1 9/16	3 1/8	9 1/4
MBHA3.12/11.25	1 9/16	3 1/8	11 1/4
MBHA3.56/7.25	1 3/4	3 9/16	7 1/4
MBHA3.56/9.25	1 3/4	3 9/16	9 1/4
MBHA3.56/11.25	1 3/4	3 9/16	11 1/4
MBHA3.56/11.88	1 3/4	3 9/16	11 7/8
MBHA3.56/14	1 3/4	3 9/16	14
MBHA3.56/16	1 3/4	3 9/16	16
MBHA3.56/18	1 3/4	3 9/16	18
MBHA5.50/7.25	2 3/4	5 1/2	7 1/4
MBHA5.50/9.25	2 3/4	5 1/2	9 1/4
MBHA5.50/11.25	2 3/4	5 1/2	11 1/4
MBHA5.50/11.88	2 3/4	5 1/2	11 7/8
MBHA5.50/14	2 3/4	5 1/2	14
MBHA5.50/16	2 3/4	5 1/2	16
MBHA5.50/18	2 3/4	5 1/2	18



MBHA



Typical MBHA Installation

Model No.	Fasteners[1]			Solid Concrete Allowable Loads DF/SP		Grouted CMU Allowable Loads DF/SP		Code Ref.
	Header		Joist	Uplift[7]	Maximum Down Load	Uplift[7]	Maximum Down Load	
	Top	Face		(160)		(160)		
MBHA	1-ATR3/4[4]	1-ATR3/4[4]	18-10d	3775	6050	3475	5330	I20, L16, F19
MBHA models with H = 7 1/4	1-ATR3/4[4]	1-ATR3/4[5]	18-10d	1885	4380	1885	4380	

1. ATR is all threaded rod.
2. Minimum concrete strength f'c shall be 2500 psi. CMU shall have a minimum grout strength of 2500 psi with standard ASTM C90 units and type N or S mortar.
3. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
4. Loads are based on installation using Simpson Strong-Tie® ET Epoxy-Tie® adhesive 6¾" minimum embedment required. All thread rods to be ¾" diameter, grade A307 or better. Refer to the Simpson Strong-Tie® *Anchoring and Fastening Systems for Concrete and Masonry* catalog *(form C-SAS – see page 228 for details).*
5. MBHA hangers with height of 7¼" require a 3½" minimum embedment of the face bolt using ET Epoxy-Tie adhesive. All thread rods to be ¾" diameter, grade A307 or better.
6. Additional anchorage products to be designed by others.
7. Uplift loads are for Southern Pine. For Doug Fir use 3515 lbs.
8. Table allowable loads were determined using test ultimate/3 or fastener calculation values.
9. **NAILS:** 10d = 0.148" dia. x 3" long.
See page 22-23 for other nail sizes and information.

H *Seismic & Hurricane Ties* / LTA2 *Lateral Truss Anchor*

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

The H10S provides a high capacity connection from truss/rafter to wall. Also suitable for wood-to-wood applications *(see page 181).*

The HM9 is designed to retrofit roof truss/rafters for block construction. The HM9 hurricane tie provides high uplift and lateral capacity using Simpson Strong-Tie® concrete fasteners.

The presloped 5/12 seat of the H16 provides for a tight fit and reduced deflection. The strap length provides for various truss heights up to a maximum of 13½". Minimum heel height for H16 series is 4".

The new LTA2 is an embedded truss anchor for grouted CMU and concrete walls that develops high loads with shallow embedment. Designed for 2x4 minimum truss chords, the LTA2 resists uplift and lateral loads parallel and perpendicular to the wall with a minimum heel height requirement.

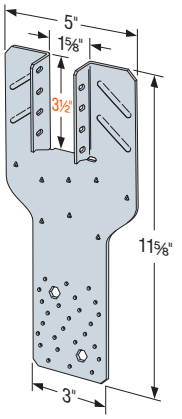
FEATURES:
- Simplified design of the embedded portion allows for easy positioning close to rebar
- Ideal for anchoring trusses running perpendicular or parallel to the wall
- Embedment line stamped on part simplifies installation and helps avoid installation errors

MATERIAL: H Ties—see table; LTA2—18 gauge
FINISH: Galvanized; see Corrosion Information, page 14-15.
INSTALLATION: • Use all specified fasteners. See General Notes.

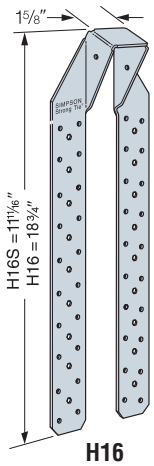
H Ties:
- Connectors attached using hex head Simpson Strong-Tie® Titen® screws.
- Attach to grouted concrete block with a minimum one #5 rebar horizontal in the course.
- Hurricane Ties do not replace solid blocking.

LTA2:
- Whether in grouted CMU or concrete, the LTA2 must be embedded to the depth of the embedment line stamped on the part.
- A minimum of one horizontal #5 rebar is required at top of concrete or in the top course of grouted CMU.
- For parallel-to-wall applications, install the LTA2 with flanges facing the center of the wall. Minimum edge distance of 1½" required.

CODES: See page 13 for Code Reference Key Chart.

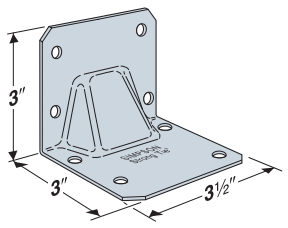


H10S

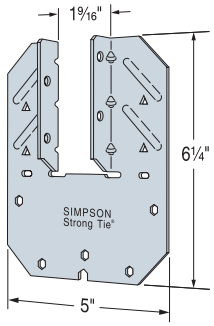


H16
(H16-2 similar)

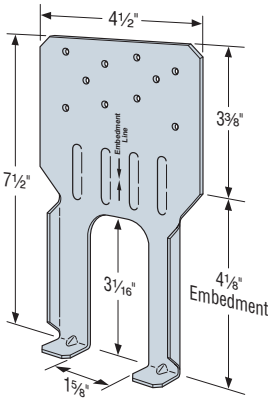
Presloped at 5/12. Truss/Rafter Pitch of 3/12 to 7/12 is acceptable



HGAM10



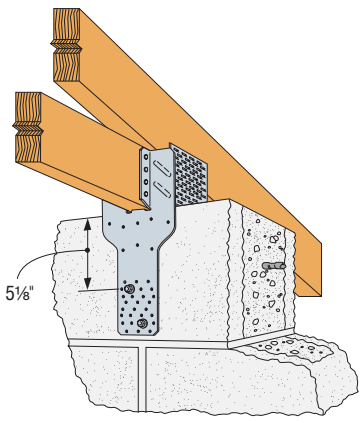
HM9



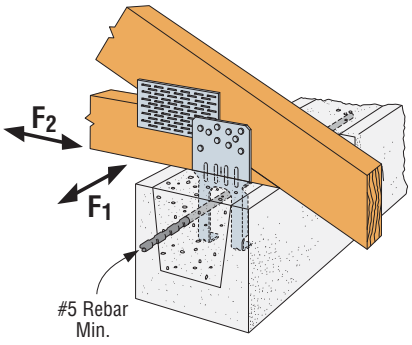
LTA2

Model No.	Ga	W	L	Fasteners			DF/SP Allowable Loads[1,2]			SPF/HF Allowable Loads[1,2]			Code Ref.
				To Rafters/ Truss	To CMU	To Concrete	Uplift[4]	Lateral (160)		Uplift[4]	Lateral (160)		
							(160)	F_1	F_2	(160)	F_1	F_2	
HM9KT[3]	18	1⁹⁄₁₆	6¼	4-SDS ¼"x1½"	5-¼x2¼ Titen	5-¼x1¾ Titen	595	425	200	595	425	200	F27
HGAM10KTA[3]	14	—	—	4-SDS ¼"x1½"	4-¼x2¾ Titen	4-¼x1¾ Titen	850	1005	1105[7]	610	725	795[7]	
H10S	18	1⅝	11⅝	8-8dx1½	2-⅜x4 Titen HD	2-⅜x4 Titen HD	1065	—	—	915	—	—	IP1, F25
LTA2 Perpendicular to Wall Installation	18	—	—	10-10dx1½	Embed	Embed	1210[8]	415	875	1015	415	735	F24
LTA2 Parallel to Wall Installation	18	—	—	10-10dx1½	Embed	Embed	1210[8]	950	220	1015	800	220	
H16	18	1⅝	18¾	2-10dx1½	6-¼x2¼ Titen	6-¼x1¾ Titen	1470	—	—	1265	—	—	F26
H16S	18	1⅝	11¹¹⁄₁₆	2-10dx1½	6-¼x2¼ Titen	6-¼x1¾ Titen	1470	—	—	1265	—	—	
H16-2	18	3¼	18¾	2-10dx1½	6-¼x2¼ Titen	6-¼x1¾ Titen	1470	—	—	1265	—	—	
H16-2S	18	3¼	11¹¹⁄₁₆	2-10dx1½	6-¼x2¼ Titen	6-¼x1¾ Titen	1470	—	—	1265	—	—	

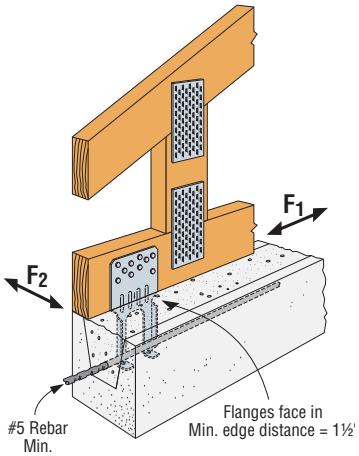
1. Loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. Allowable loads are for one anchor. A minimum rafter thickness of 2½" must be used when framing anchors are installed on each side of the joist and on the same side of the plate.
3. The HM9KT and HGAM10KTA are kits with (20) HM9 and (10) HGAM10 connectors packaged with Simpson Strong-Tie® Strong-Drive® SDS screws and 2¼" and 2¾" Titen® screws, respectively. *(1¾" Titen screws for concrete installations sold separately.)*
4. See page 159 for Titen screw information.
5. Table allowable loads were determined using test ultimate/3 or fastener calculation values.
6. Products shall be installed such that the Titen screws and Titen HD® anchors are not exposed to the weather.
7. HGAM10 F_2 loads are for forces into the connector. See illustration 2 for loads away from the connector.
8. LTA2 allowable uplift on SP is 1425 lbs. for perpendicular to wall installation and 1390 lbs. for parallel to wall installation.
9. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long, 8dx1½ = 0.131" dia. x 1½" long. See page 22-23 for other nail sizes and information.



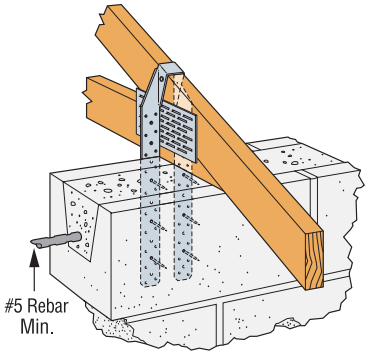
Typical H10S Installation



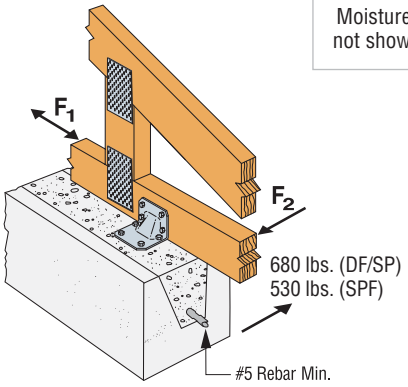
LTA2 Perpendicular to Wall Installation



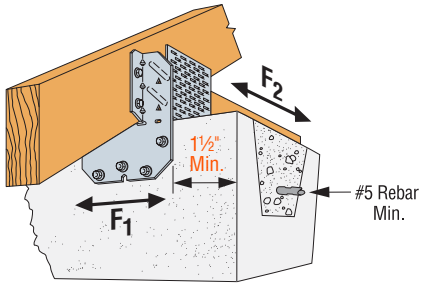
LTA2 Parallel to Wall Installation



1 H16S Installed into Masonry



2 HGAM10 Installed into Masonry



3 HM9 Attaching Truss to Masonry

META/HETA/HHETA/HETAL/DETAL/TSS *Embedded Truss Anchors and Truss Seat Snap-In*

The embedded truss anchor series provides an engineered method to properly attach roof trusses to concrete and masonry walls. The products are designed with staggered nail patterns for greater uplift resistance. Information regarding the use of two anchors on single- and multi-ply trusses is included.

The TSS, a companion product of the META, provides a moisture barrier between the concrete and truss. The preassembled unit is riveted with no height adjustment.

The DETAL20 is a high capacity embedded truss anchor for attachment of single-ply trusses to concrete and masonry walls. It combines dual embedded anchors with a structural moisture-barrier seat that is partially embedded in the concrete or grout. This seat serves to protect the truss and also provides additional lateral and uplift capacity. The embedded anchors are pre-attached to the moisture barrier through slots that allow for a slight amount of adjustability, providing flexibility during installation to avoid rebar. The moisture-barrier seat includes tabs at each end for optional attachment to the form board in concrete tie-beam applications.

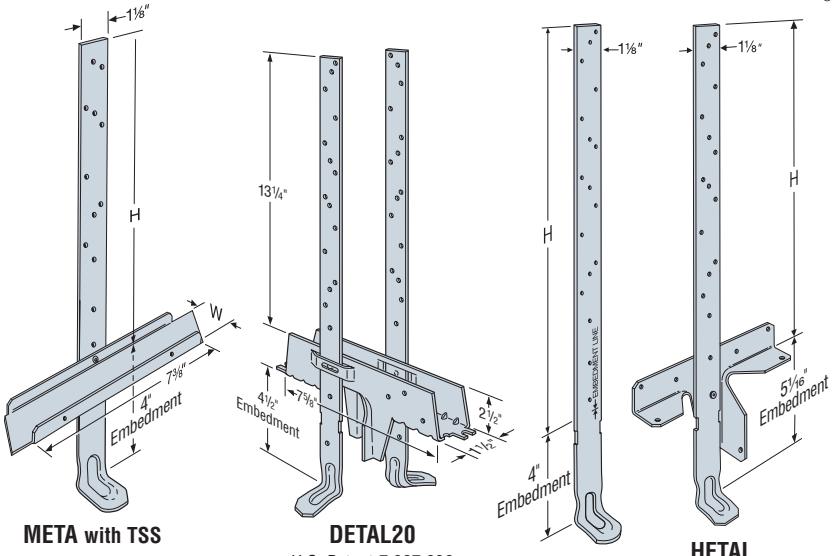
MATERIAL: HHETA–14 gauge; HETA–16 gauge; HETAL–strap 16 gauge, truss seat 18 gauge; META–18 gauge; TSS–22 gauge; DETAL–16 gauge *(Barrier–18 gauge)*

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 14-15.

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

- The META, HETA and HHETA are embedded 4" into a 6" min. concrete beam or 8" nominal grouted block wall; HETAL is embedded 5¹⁄₁₆"; DETAL is embedded 4½".
- The DETAL20 is installed centered and flush on top of an 8" masonry bond beam or concrete tie beam. The moisture barrier seat bears on masonry face shell or concrete tie beam form boards; the two flanges embed into grout or concrete. The two embedded anchors shall be installed vertically into grout or concrete.
- The TSS moisture barrier may be preattached to the truss using 6d commons.
- For mislocated truss anchors which are greater than ⅛" but less than 1½" from the face of the truss, a shim must be provided. Shim design by Truss Engineer. When gap is greater than 1½", install new anchors.
- In double embedded anchor installations, do not install fasteners where the straps overlap when wrapped over the truss heel.

CODES: See page 13 for Code Reference Key Chart.



META with TSS

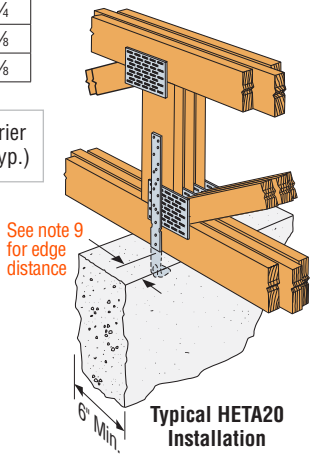
Model No.	W
TSS2	1¾
TSS2-2	3⅛
TSS4	3⅝

DETAL20
U.S. Patent 7,987,636

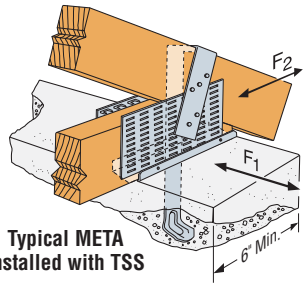
HETA20
(HHETA similar)

HETAL

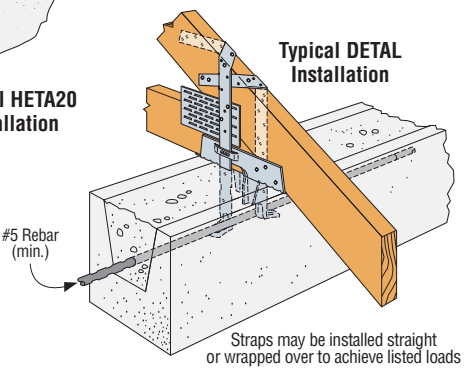
Moisture barrier not shown (Typ.)



Typical HETA20 Installation



Typical META Installed with TSS



Typical DETAL Installation

Straps may be installed straight or wrapped over to achieve listed loads

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.

Single Embedded Anchor Installation

Model No.	H	SP Uplift Load 160 Load Duration Increase				Lateral Loads (160)		Code Ref.
		10dx1½		16d				
		Quantity	Load	Quantity	Load	F_1	F_2	
META12	8	7	1450	6	1450	340	725	
META14	Discontinued – See META12 and META16							
META16	12	7	1450	6	1450	340	725	
META18	14	7	1450	6	1450	340	725	
META20[6]	16	7	1450	6	1450	340	725	
META22	18	7	1450	6	1450	340	725	
META24	20	7	1450	6	1450	340	725	
META40	36	7	1450	6	1450	340	725	
HETA12	8	7	1520	7	1780	340	725	
HETA16	12	9	1810	8	1810	340	725	
HETA20[6]	16	9	1810	8	1810	340	725	F27
HETA24	20	9	1810	8	1810	340	725	
HETA40	36	9	1810	8	1810	340	725	
HHETA12	8	7	1565	7	1820	340	815	
HHETA16	12	10	2235	9	2235	340[7]	815	
HHETA20[6]	16	10	2235	9	2235	340[7]	815	
HHETA24	20	10	2235	9	2235	340[7]	815	
HHETA40	36	10	2235	9	2235	340[7]	815	
HETAL12	7	10[4]	1085	10[4]	1270	415[5]	1100	
HETAL16	11	14[4]	1810	13[4]	1810	415[5]	1100	
HETAL20	15	14[4]	1810	13[4]	1810	415[5]	1100	

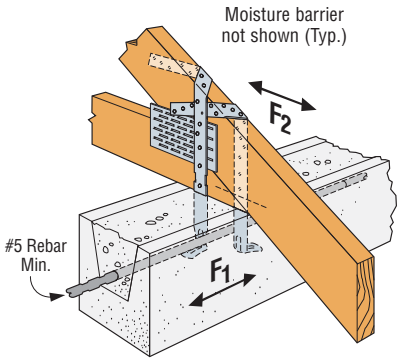
1. Loads have been increased for wind or seismic loading. Reduce where other loads govern.
2. Minimum f'_c = 2500 psi. Minimum f'_m = 1500 psi.
3. For simultaneous loads in more than one direction, the connector must be evaluated as described in Note e, page 18 under Instructions to the Designer.
4. Five nails must be installed into the truss seat of the HETAL.
5. Parallel-to-wall load towards face of HETAL is 1975 lbs.
6. It is acceptable to use a reduced number of fasteners provided that there is a reduction in uplift load capacity. See example on page 175. Lateral loads do not apply when fewer than 7 fasteners are used with the HETA and HHETA anchors or less than 6-16d or 7-10dx1½ fasteners are used with the META anchor.
7. The HHETA allowable F_1 load can be increased to 435 lbs. if the strap is wrapped over the truss and a minimum of 12 nails are installed.
8. Minimum spacing for multiple anchor installation is 2 times the embedment depth for full load. See Double Embedded Anchor Installation table on page 167 for loads on closer spaced anchors.
9. Minimum edge distance for HETA/META is 1½" for concrete and 2" for masonry.
10. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

META/HETA/HHETA/HETAL/DETAL/TSS *Embedded Truss Anchors and Truss Seat Snap-In*

SIMPSON Strong-Tie®

Double Embedded Anchor Installation

Model No.	Qty.	Application	SP Uplift Load Capacity (160)				Lateral Loads (160)[6]		Code Ref.
			1 Ply		2 or 3 Ply		F_1	F_2	
			Fasteners[5]	Load	Fasteners[5]	Load			
DETAL20	1	CMU	18-10dx1½	2480	—	—	2000[9]	1370	F27
		Concrete	18-10dx1½	2480	—	—	2000	1505	
META	2	CMU	10-10dx1½	1985	14-16d	1900	1210[7]	1160	
		Concrete	10-10dx1½	1985	14-16d	2565	1210[7]	1160	
HETA	2	CMU	10-10dx1½	2035	12-16d	2500	1225[7]	1520	
		Concrete	10-10dx1½	2035	12-16d	2700	1225[7]	1520	
HHETA	2	CMU	10-10dx1½	2035	12-16d	2500	1225[7]	1520	
		Concrete	10-10dx1½	2035	14-16d[8]	3350	1225[7]	1520	



Typical Installation with two METAs

1. Loads include a 60% load duration increase on the fasteners for wind or seismic loading.
2. Minimum f'_c = 2500 psi. Minimum f'_m = 1500 psi.
3. For simultaneous loads in more than one direction, the connector must be evaluated as described in Note e, page 18 under General Instructions for the Designer.
4. Install with spoons facing outward and straps spaced no more than ⅛" wider than the truss width.
5. The DETAL20 requires 6-10dx1½" nails in the truss seat and 6-10dx1½" nails into each strap. For all other models, install half of the required fasteners in each strap.
6. Lateral loads for META, HETA and HHETA anchors apply only to 2- or 3-ply applications with anchors spaced a minimum of 3" apart. For single-ply applications use lateral loads from the Single Embedded Anchor Installation table on page 166. DETAL lateral loads apply for single-ply application.
7. F_1 lateral loads listed may cause an additional 1/16" deflection beyond the standard ⅛" limit where the straps are installed not wrapped over the heel as shown.
8. Two HHETA anchors may be installed in a concrete tie beam on a 2- or 3-ply truss with 2 fewer nails for an allowable uplift load of 3050 lbs.
9. Noted F_1 lateral loads for the DETAL20 may cause an additional 1/32" deflection beyond the standard ⅛" limit.
10. Single-ply trusses may use either 10dx1½ or 16d nails with allowable loads limited to the single-ply column. 2- or 3-ply trusses shall use 16d nails.
11. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

MSTAM/MSTCM *Straps Ties*

MSTAM and MSTCM models are designed for wood to masonry applications.

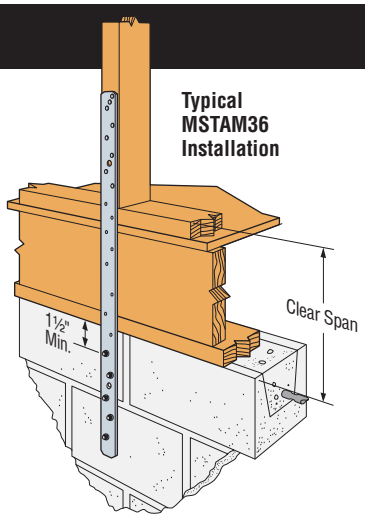
The MSTC series has countersunk nail slots for a lower nailing profile.

FINISH: Galvanized. Some products are available in stainless steel or ZMAX® coating; see Corrosion Information, page 14-15.

INSTALLATION:

- Use all specified fasteners. See General Notes.
- Attaches to grouted concrete block and wood framing.
- Minimum end and edge distance for Titen® screws is 1½".

CODES: See page 13 for Code Reference Key Chart.



Typical MSTAM36 Installation

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.

Masonry Application

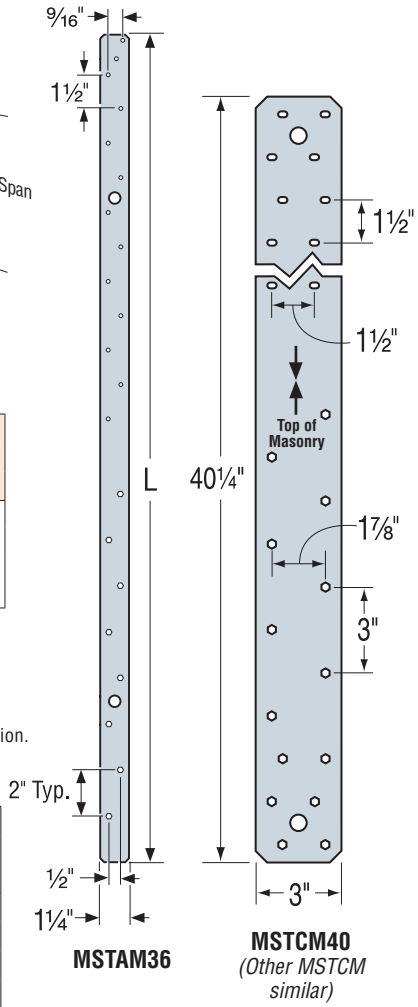
Model No.	Ga	Dimensions		Fasteners (Total)			Allowable Tension/Uplift Loads		Code Ref.
		W	L	Nails	CMU	Concrete	DF/SP (160)	SPF/HF (160)	
MSTAM24	18	1¼	24	9-10d	5-¼x2¼ Titen	5-¼x1¾ Titen	1500	1500	F27
MSTAM36	16	1¼	36	13-10d	8-¼x2¼ Titen	8-¼x1¾ Titen	1870	1870	
MSTCM40	16	3	40¼	26-16d sinkers	14-¼x2¼ Titen	14-¼x1¾ Titen	4220	4220	
MSTCM60	16	3	59½	26-16d sinkers	14-¼x2¼ Titen	14-¼x1¾ Titen	4220	4220	

1. Loads include a 60% load duration increase on the fasteners for wind or earthquake loading.
2. Minimum edge distance 1½" using Titen® screws.
3. Minimum f'_m = 1500 psi and f'_c = 2500 psi.
4. Products shall be installed such that the Titen screws are not exposed to the weather.
5. See page 159 for Titen screw information.
6. **NAILS:** 16d Sinker = 0.148" dia. x 3¼" long, 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.

Floor-to-Floor Clear Span Table

Model No.	Clear Span	Fasteners (Total)			Allowable Tension/Uplift Loads		Code Ref.
		Nails	CMU	Concrete	DF/SP (160)	SPF/HF (160)	
MSTAM36	16 or 18	7-10d	4-¼x2¼ Titen	4-¼x1¾ Titen	1400	1380	F27
MSTCM40	16 or 18	14-16d sinkers	10-¼x2¼ Titen	10-¼x1¾ Titen	2800	2420	
MSTCM60	22¼	26-16d sinkers	14-¼x2¼ Titen	14-¼x1¾ Titen	4220	4220	
MSTCM60	26¼	20-16d sinkers	14-¼x2¼ Titen	14-¼x1¾ Titen	3840	3320	

See notes above.



MTSM/HTSM *Twist Straps*

The MTSM and HTSM offer high strength truss to masonry connections.

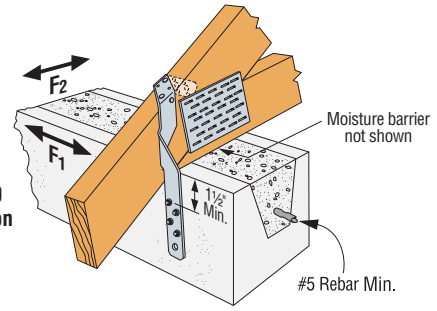
MATERIAL: MTSM–16 gauge; HTSM–14 gauge

FINISH: Galvanized. See Corrosion Information, page 14-15.

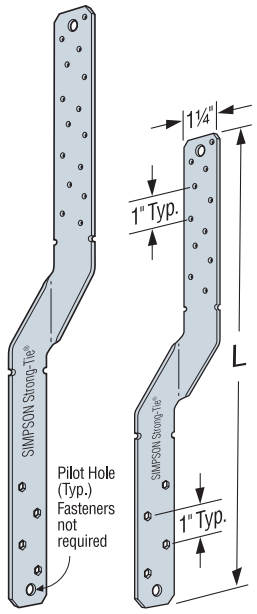
INSTALLATION:

- Use all specified fasteners. See General Notes.
- Installs with hex head Titen® screws.
- Attach to either side of grouted concrete block with a minimum one #5 rebar horizontal.

CODES: See page 13 for Code Reference Key Chart.



Typical MTSM20 Installation



HTSM20 *(MTSM20 similar)*

MTSM16 *(HTSM16 similar)*

Model No.	L	Fasteners[2]			DF/SP Allowable Uplift Loads[1]		SPF/HF Allowable Uplift Loads[1]		Allowable Lateral Loads (DF/SP/SPF/HF)		Code Ref.
		Truss	CMU	Concrete	10d (160)	10dx1½ (160)	10d (160)	10dx1½ (160)	F_1 (160)	F_2 (160)	
MTSM16	16	7-10d	4-¼x2¼ Titen	4-¼x1¾ Titen	860	860	750	750	235[8]	90[8]	F27
MTSM20	20	7-10d	4-¼x2¼Titen	4-¼x1¾ Titen	860	860	750	750			
HTSM16	16	8-10d	4-¼x2¼ Titen	4-¼x1¾ Titen	1175	1175	1020	1020			
HTSM20	20	10-10d	4-¼x2¼Titen	4-¼x1¾Titen	1175	1175	1020	1020			

1. Loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. Twist straps do not have to be wrapped over the truss to achieve the allowable load.
3. Minimum edge distance for Titen screw is 1½".
4. See page 159 for Titen screw information.
5. Table allowable loads were determined using test ultimate/3 or fastener calculation values.
6. Products shall be installed such that the Titen screws are not exposed to the weather.
7. Minimum f'_m = 1500 psi and f'_c = 2500 psi.
8. Lateral loads apply when on the wall side Titen screws are installed into the first four hexagonal holes from the bend line and on the truss/rafter the first seven nail holes near the bend line are filled. Any other fasteners required can be installed in any open hole.
9. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

MGT/HGT *Girder Tiedowns*

The MGT and HGT series are girder tie downs for moderate to high load applications that are typically installed prior to roof sheathing. The MGT wraps over the heel and is anchored on one side of the truss. The HGT straddles the heel and anchors on both sides of the truss. The HGT is field adjustable, making it suitable for trusses with top chord slopes up to 8/12. The HGT is available in sizes for 2-, 3- and 4-ply widths.

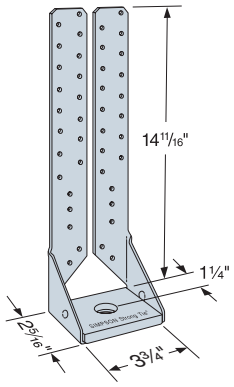
MATERIAL: MGT—12 gauge; HGT—7 gauge

FINISH: MGT— Galvanized; HGT—Simpson Strong-Tie® gray paint

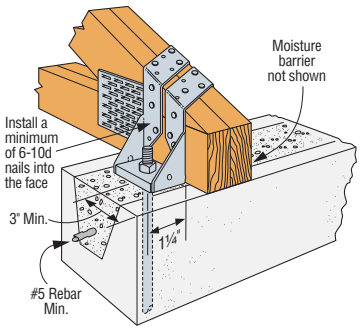
INSTALLATION: • Use all specified fasteners. See General Notes.

- When the HGT-3 is used with a 2-ply girder or beam, shimming is required and must be fastened to act as one unit.
- Attach to grouted concrete block with a minimum one #5 rebar horizontal in the top lintel block.
- See page 188 for wood applications.

CODES: See page 13 for Code Reference Key Chart.



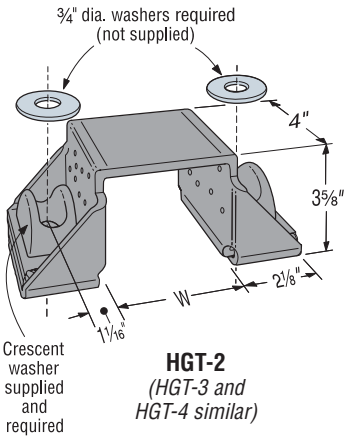
MGT



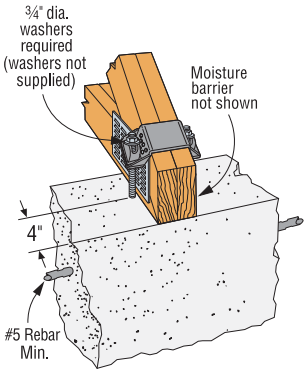
Typical MGT Installation

Model No.	W	O.C. Dim Between Anchors	Fasteners		DF/SP Allowable Uplift Loads (160)	SPF/HF Allowable Uplift Loads (160)	Code Ref.
			Concrete/ CMU	Girder			
MGT	3¾	—	1-⅝	22-10d	3965	3330	F26
HGT-2	3⁵⁄₁₆	5¾	2-¾	16-10d	10980	6485	I20, F19
HGT-3	4¹⁵⁄₁₆	7⅜	2-¾	16-10d	10530	9035	
HGT-4	6⁹⁄₁₆	9	2-¾	16-10d	9250	9250	

1. Attached members must be designed to resist applied loads.
2. Minimum f'_m = 1500 psi and f'_c = 2500 psi.
3. To achieve the loads listed for the MGT and HGT, anchorage into a 8" wide concrete tie-beam or grouted and reinforced CMU tie-beam can be made using Simpson Strong-Tie® SET Epoxy-Tie® adhesive with a minimum embedment depth of 12". Vertical reinforcement may be required to transfer the loads per Designer.
4. Allowable loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
5. The MGT can be installed with straps vertical for full table load provided all specified nails are installed to either a solid header or minimum double 2x6 web.
6. Table allowable loads were determined using tested lowest ultimate/3 or fastener calculation values.
7. **NAILS:** 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.



HGT-2 *(HGT-3 and HGT-4 similar)*



Typical HGT-2 Installation into Concrete

FGTR/LGT/VGT *Retrofit Girder Tiedowns*

The LGT, VGT and FGTR products are moderate to high load capacity girder tie-downs for new or retrofit applications.

LGT connectors provide a low profile connection to the wall for easy installation of drywall. Simple to install and can be installed on the inside or outside of the wall.

The Variable Girder Tiedown (VGT) is a higher capacity alternative to the LGT and MGT for girder trusses. It attaches with Simpson Strong-Tie® Strong-Drive® screws (SDS) to the side of truss and features a predeflected crescent washer that allows it to accommodate top chord pitches up to 8/12. The VGT is also available with one flange concealed for attachment to trusses with no tail.

The Face Mount Girder Tie-Down (FGTR) is a non-pitch specific girder tiedown that offers the highest uplift capacity for retrofit applications. The FGTRHL/R is designed for corner hip applications.

MATERIAL: VGT—7 gauge; LGT2—14 gauge; LGT3/LGT4—12 gauge; FGTR—Straps: 7 gauge, Plate: 3 gauge

FINISH: VGT, LGT—Galvanized; FGTR—Powder Coated

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

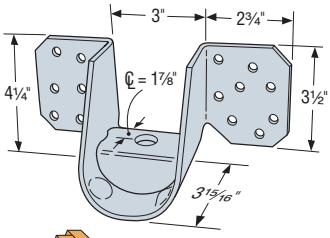
- Connectors attached using Titen® screws shall have hex heads.
- To achieve the loads listed in the table below, the product shall be attached to a grouted and reinforced block wall or a reinforced concrete wall designed by others to transfer the high concentrated uplift loads to the foundation.
- SDS screws included with LGT3, LGT4, VGT Series and FGTR Series.

VGT/FGTR:

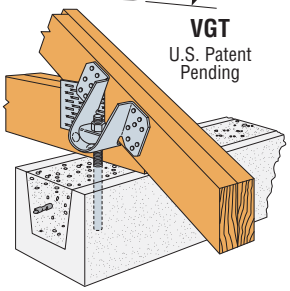
- Screw holes are configured to allow for double installation on a two-ply *(minimum)* truss.
- The product can be installed in a single application or in pairs to achieve a higher uplift capacity.
- Can be installed on roof pitches up to 8/12 or on a bottom chord designed to transfer the loads.
- FGTR —Only 2 of the 4 holes provided on each strap are required to be filled to achieve the catalog loads. The first Titen HD® anchor ½"x5" (THD) shall be installed a minimum of 4" from the top of the wall. Fasteners shall not be installed in adjacent holes.
- VGT—When installed on trusses with no overhangs, specify VGTR/L.
- VGT—Install washer component *(provided)* so that top of washer is horizontal as well as parallel with top of wall.

OPTIONS: LGT3 is available with reduced widths of W = 4 13/16" – order as LGT3N-SDS2.5.

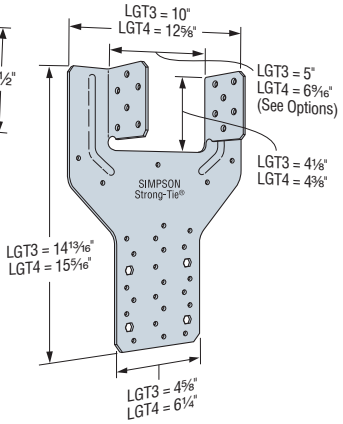
CODES: See page 13 for Code Reference Key Chart.



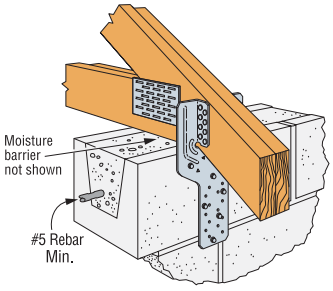
VGT
U.S. Patent Pending



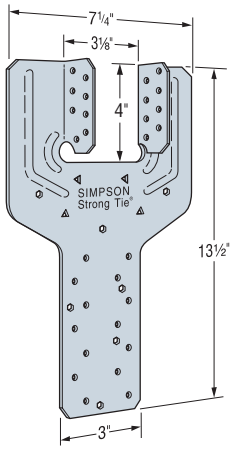
Typical VGT Installation



LGT3-SDS2.5
(LGT4-SDS3 similar)



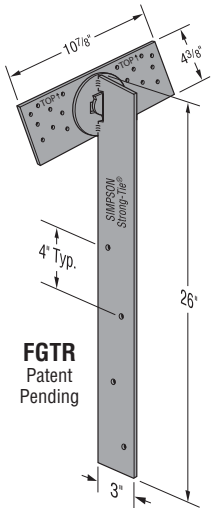
Typical LGT2 Installation into Masonry *(LGT3 similar)*



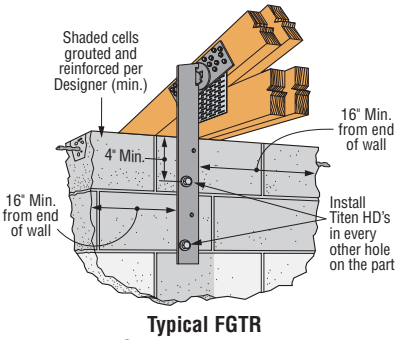
LGT2

Model No.	Qty.	No. of Plies	Fasteners		Allowable Uplift Load (160)		Code Ref.
			To Girder	To Wall	DF/SP	SPF/HF	
LGT2	1	2 ply	16-16d Sinker	7-¼x2¼ Titen[11]	2150	1850	F26
LGT3-SDS2.5	1	3 ply	12-SDS ¼"x2½"	4-⅜x5 Titen HD	3285	2365	
LGT4-SDS3	1	4 ply	16-SDS ¼"x3"	4-⅜x5 Titen HD	3285	2365	
VGT	1	2 ply min.	16-SDS ¼"x3"	1-⅝[2]	4940	3555	
	2	2 ply min.	32-SDS ¼"x3"	2-⅝[2]	7185	5175	
		3 ply min.	32-SDS ¼"x3"	2-⅝[2]	8890	6400	
VGTL/R	1	2 ply min.	16-SDS ¼"x3"	1-⅝[2]	2230	1605	
	2		32-SDS ¼"x3"	2-⅝[2]	5545	3990	
FGTR	1	2 ply min.	18-SDS ¼"x3"	2-½x5 Titen HD	5000	3600	F27
	2		36-SDS ¼"x3"	4-½x5 Titen HD	9400	6770	
FGTRHL/R	1	2 ply min.	18-SDS ¼"x3"	2-½x5 Titen HD	3850	2770	

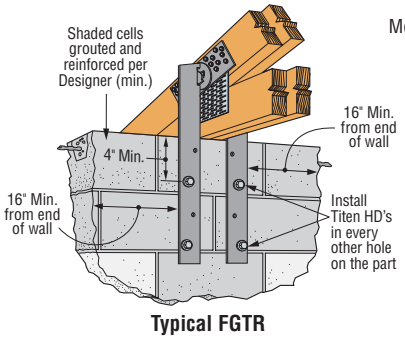
1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. To achieve the loads listed for the VGT single and double connector options, anchorage into a 8" wide concrete tie-beam or grouted and reinforced CMU tie-beam can be made using Simpson Strong-Tie® SET Epoxy-Tie® adhesive with a minimum embedment depth of 12", a minimum end distance of 12" and centered in the 8" member. Vertical reinforcement may be required to transfer the loads per Designer.
3. Minimum concrete strength f'_c shall be 2500 psi. CMU shall have a minimum grout strength of 2500 psi with standard ASTM C90 units and type N or S mortar.
4. FGTR—Minimum edge distance for Titen HD anchor is 4".
5. FGTR—Titen HD anchors should be spaced in every other hole on the part.
6. FGTR—The Titen HD anchors and SDS screws are provided with the part.
7. LGT2—F_1 load = 700, F_2 load = 170.
8. See page 159 for Titen screw information.
9. Table allowable loads were determined using tested lowest ultimate/3 or fastener calculation values.
10. Products shall be installed such that the Titen screws and Titen HD anchors are not exposed to the weather.
11. For concrete wall applications use ¼x1¾ Titen screws.
12. Simpson Strong-Tie® Strong-Drive® screws are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Sections 7.5.3.4 and 8.9.2 are met *(pre-drilling required through the plate using a maximum of 5/32" bit)*.
13. **NAILS:** 16d Sinker = 0.148" dia. x 3¼" long. See page 22-23 for other nail sizes and information.



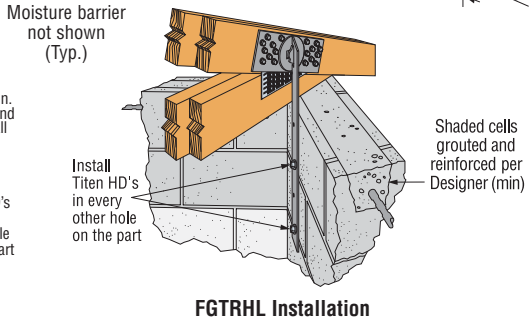
FGTR
Patent Pending



Typical FGTR Single Installation



Typical FGTR Double Installation



FGTRHL Installation
(FGTRHR similar)

CCQM/CCTQM/ECCLQM/ECCLQMD *Column Caps for CMU and Concrete Piers*

The CCQM/CCTQM/ECCLQM embedded column caps are designed for use in raised pier foundations and applications where heavy timbers rest on concrete or concrete block columns. The heavy-gauge beam seats and unique SSTB-style anchor bolts provide the high uplift and lateral resistance needed to help resist high wind events. The new ECCLQMD is a variation that incorporates an additional seat to support a third member at the corner connection.

Framing is fastened with Simpson Strong-Tie® Strong-Drive® SDS wood screws *(included)* that install with no pre-drilling and feature a corrosion-resistant double barrier coating.

CCQM – Intended for use along a floor support beam and non-corner locations.

CCTQM – Also for use along a floor support beam and non-corner locations with a side bucket that accommodates intermediate support beams coming at 90 degrees.

ECCLQM-KT – Intended for use at the corners with MSTQM straps to make the connection from the ECCLQM to the wall framing above.

ECCLL/RQMD-KT – Ideal for applications where a member is needed off the corner of the structure, such as a deck joist/beam.

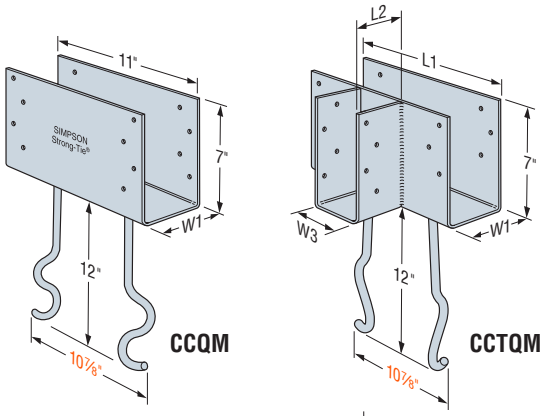
MATERIAL: Column caps—7 gauge; strap (MSTQM)—12 gauge

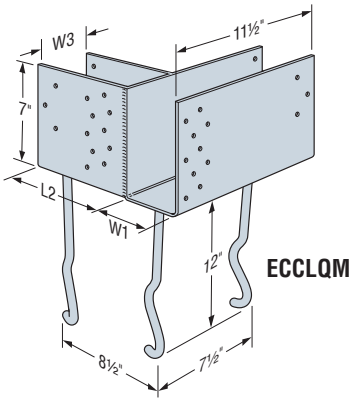
FINISH: Column caps—Hot-dip galvanized or Simpson Strong-Tie® gray paint; strap (MSTQM) = galvanized (ZMAX®)

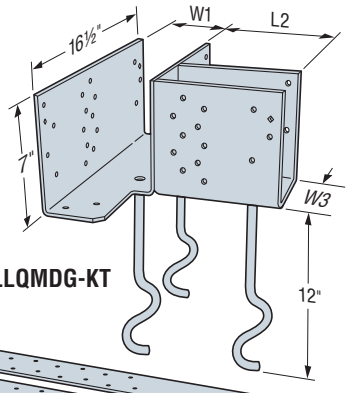
INSTALLATION: • Use all specified fasteners. See General Notes.

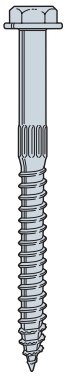
OPTIONS: • For variable widths on side stirrups specify W3 (3¼" to 5½") and add an "X" to the end of the core model name.
Example: CCTQM5.50X-SDSG, W3 = 3⅝".

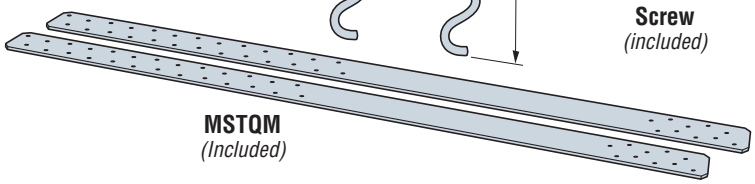
CODES: See page 13 for Code Reference Key Chart.








Strong-Drive® ¼"x2½" SDS Screw *(included)*


MSTQM *(Included)*

Dimensions

Model No.	Main Channel Width (W_1)	Side Stirrup Width (W_3)	Main Channel Length (L_1)	Side Channel Length (L_2)
CCQM3.62-SDSHDG	3⅝	—	11	—
CCQM4.62-SDSHDG	4⅝	—	11	—
CCQM5.50-SDSHDG	5½	—	11	—
CCTQM3.62-SDSG	3⅝	3⅝	11½	4
CCTQM4.62-SDSG	4⅝	4⅝	13½	4
CCTQM5.50-SDSG	5½	5½	13½	4
ECCLQM3.62G-KT[1]	3⅝	3⅝	11½	7¾
ECCLQM4.62G-KT[1]	4⅝	4⅝	11½	7¾
ECCLQM5.50G-KT[1]	5½	5½	11½	7¾
ECCLLQMD3.62G-KT	3⅝	3⅝	16½	7¾
ECCLRQMD3.62G-KT	3⅝	3⅝	16½	7¾
ECCLLQMD4.62G-KT	4⅝	4⅝	16½	7¾
ECCLRQMD4.62G-KT	4⅝	4⅝	16½	7¾
ECCLLQMD5.50G-KT	5½	5½	16½	7¾
ECCLRQMD5.50G-KT	5½	5½	16½	7¾

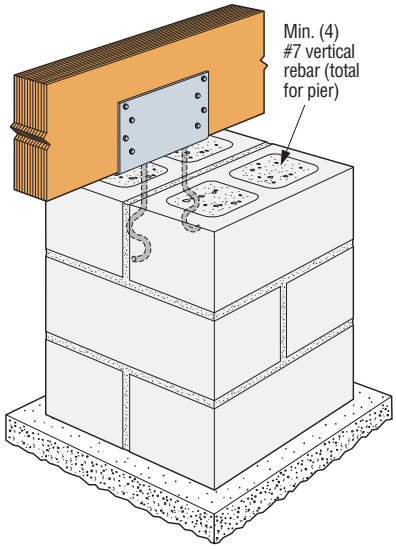
1. The MSTQM strap is a component of the ECCLQM kits. It is 12 ga. (0.101"); 3" wide and 48" long.

These products feature additional corrosion protection.

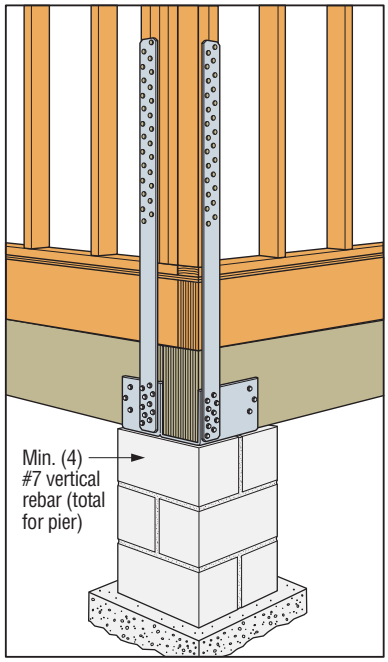
Model No.	No. of SDS ¼"x2½" Screws			16" Square Grout-Filled CMU Pier[3,6]				16" Square CMU Shell Filled with 3000 psi Concrete[3,7]				Deck Joist Connection		Code Ref.
				Uplift (160)			Lateral (160)	Uplift (160)			Lateral (160)	Download	Uplift	
	Main Beam	Side Beam	Deck Beam	Main Beam	Side Beam	Total		Main Beam	Side Beam	Total				
CCQM-SDSHDG	12	—	—	6750	—	6750	2460	6855	—	6855	2770	—	—	F24
CCTQM-SDSG	12	8	—	6750	5375	6750	2460	6855	6720	6855	2770	—	—	
ECCLQMG-KT[8]	16	16	—	6240	6240	7300	2220	6240	6240	8260	2680	—	—	
ECCLQMDG-KT	16	16	6	6240	6240	7300	2220	6240	6240	8260	2680	5475	2010	

1. The allowable loads have been increased for wind or earthquake loading with no further increase allowed.
2. Total uplift load and lateral load is based on tested anchor failure in the pier.
3. Allowable loads are based on either a 16" square grout-filled CMU pier with f'_m of 1500 psi or a 16" square CMU shell filled with 3000 psi concrete. A minimum of (4) #7 vertical rebars are required. The Designer shall design and detail the CMU/concrete pier to resist all forces including uplift, shear, and moment.
4. Pier height per Designer.
5. Side beam and main beam uplift loads assume DF members and are not additive.
6. The allowable loads listed for grout-filled CMU apply to solid concrete piers of 2500 psi concrete a minimum of 16" square.
7. The allowable loads listed for CMU shell-filled with 3000 psi concrete apply to solid concrete piers of 3000 psi concrete a minimum of 12" square.
8. The ECCLQM-KT is a kit packaged with (2) MSTQM straps and (32) SDS ¼"x2½" screws. One strap may be installed on each face of the ECCLQM *(as shown)*, using the SDS screws into the beams and 26-16dx2½" nails *(not provided)* into the wall framing. The MSTQM strap's allowable tension load is 6240 lbs.

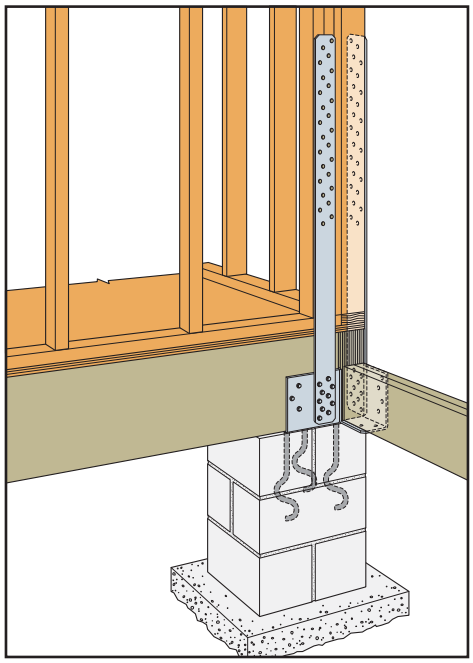
CCQM/CCTQM/ECCLQM/ECCLQMD *Column Caps for CMU and Concrete Piers*



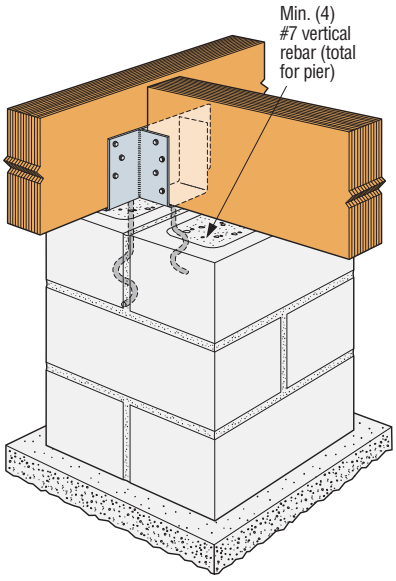
Typical CCQM Installation



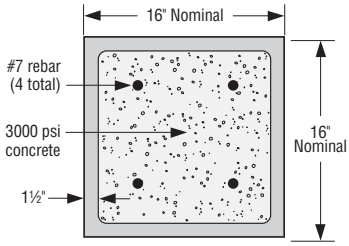
Typical ECCLQM Installation



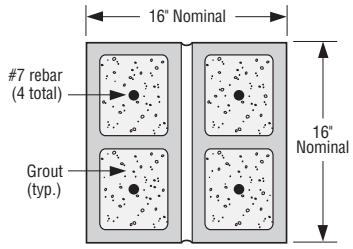
Typical ECCLRQMD-KT Installation



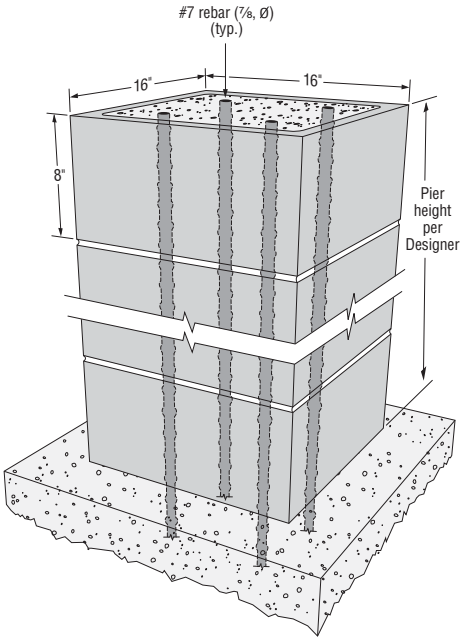
Typical CCTQM Installation



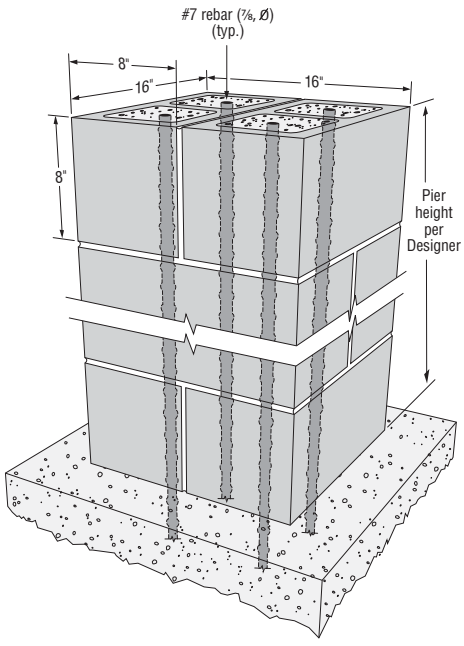
16" Square CMU Pilaster Filled with 3000 psi Concrete
(Plan View)



16" Square Grout-Filled CMU
(Plan View)



16" Square CMU Pilaster Filled with 3000 psi Concrete



16" Square Grout-Filled CMU

HRS/ST/PS/HST/HTP/LSTA/LSTI/MST/MSTA/MSTC/MSTI *Strap Ties*

Straps are designed to transfer tension loads in a wide variety of applications.

HRS—A 12 gauge strap with a nailing pattern designed for installation on the edge of 2x members. The HRS416Z installs with Simpson Strong-Tie® Strong-Drive® SDS screws.

LSTA and MSTA—Designed for use on the edge of 2x members, with a nailing pattern that reduces the potential for splitting.

LSTI—Light straps that are suitable where pneumatic-nailing is necessary through diaphragm decking and wood chord open web trusses.

MST—Splitting may be a problem with installations on lumber smaller than 3½"; either fill every nail hole with 10dx1½" nails or fill every-other hole with 16d common nails. Reduce the allowable load based upon the size and quantity of fasteners used.

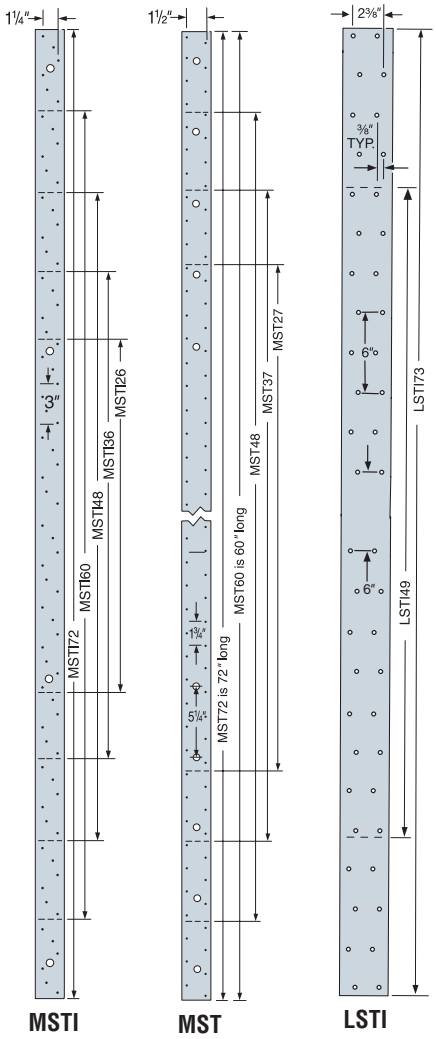
MSTC—High Capacity strap which utilizes a staggered nail pattern to help minimize wood splitting. Nail slots have been countersunk to provide a lower nail head profile.

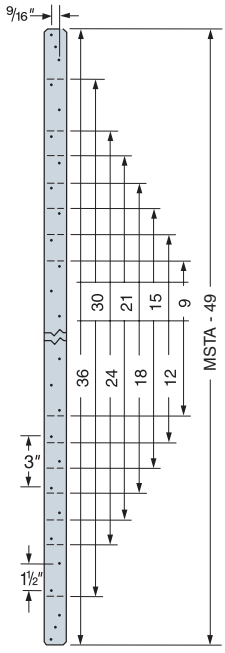
FINISH: PS–HDG; HST3 and HST6–Simpson Strong-Tie® gray paint; all others–galvanized. Some products are available in stainless steel or ZMAX® coating; see Corrosion Information, page 14-15.

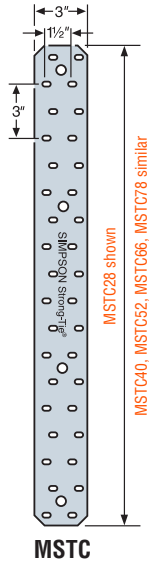
INSTALLATION: Use all specified fasteners. See General Notes.

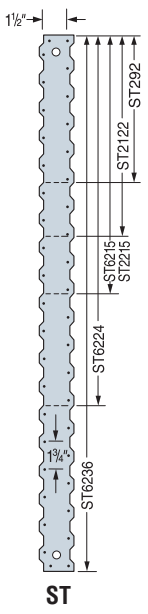
OPTIONS: Special sizes can be made to order. Contact Simpson Strong-Tie.

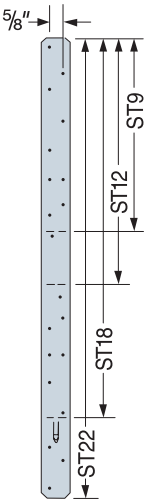
CODES: See page 13 for Code Reference Key Chart.
MSTC and RPS meet code requirements for reinforcing cut members (16 gauge) at top plate and RPS at sill plate.
International Residential Code®– 2000/2006 R602.6.1
International Building Code®– 2000/2006 2308.9.8
(For RPS, refer to page 205.)

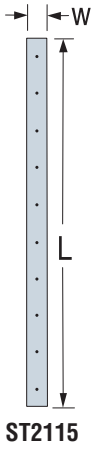


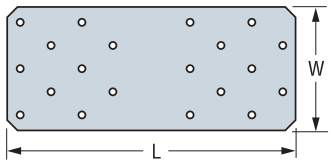


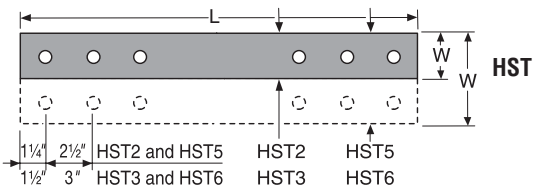


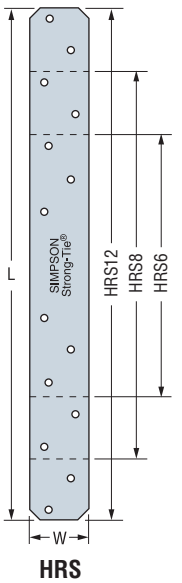


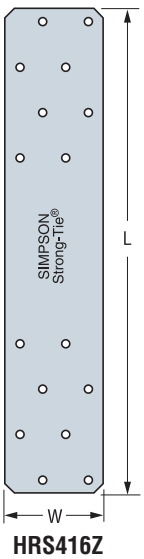


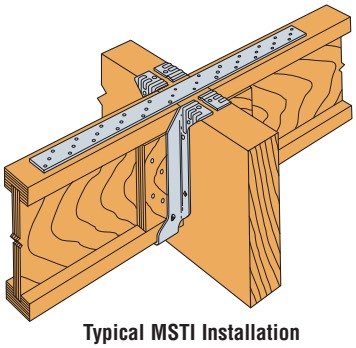




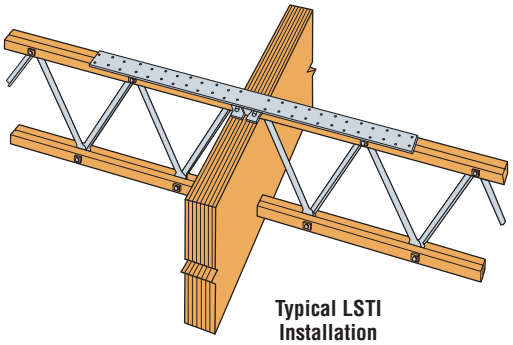




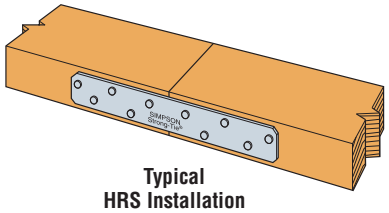




Typical MSTI Installation
(MIT hanger shown)
LSTI similar



Typical LSTI Installation



Typical HRS Installation

HRS/ST/PS/HST/HTP/LSTA/LSTI/MST/MSTA/MSTC/MSTI *Strap Ties*

SIMPSON Strong-Tie®

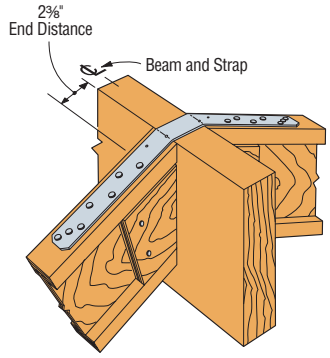
CODES: See page 13 for Code Reference Key Chart.

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 27 for more information.

Model No.	Ga	Dimensions W	Dimensions L	Fasteners (Total)	Allowable Tension Loads (DF/SP) (160)	Allowable Tension Loads (SPF/HF) (160)	Code Ref.
LSTA9	20	1¼	9	8-10d	740	635	I4, L3, F2
LSTA12		1¼	12	10-10d	925	795	
LSTA15		1¼	15	12-10d	1110	950	
LSTA18		1¼	18	14-10d	1235	1110	
LSTA21		1¼	21	16-10d	1235	1235	
LSTA24		1¼	24	18-10d	1235	1235	
ST292		2⅛	9⅝	12-16d	1265	1120	
ST2122		2⅛	12⅜	16-16d	1530	1505	
ST2115		¾	16⅝	10-16d	660	660	
ST2215		2⅛	16⅝	20-16d	1875	1875	
LSTA30	18	1¼	30	22-10d	1640	1640	
LSTA36		1¼	36	24-10d	1640	1640	
LSTI49		3¾	49	32-10dx1½	2975	2555	
LSTI73		3¾	73	48-10dx1½	4205	3830	
MSTA9		1¼	9	8-10d	750	645	
MSTA12		1¼	12	10-10d	940	810	
MSTA15		1¼	15	12-10d	1130	970	
MSTA18		1¼	18	14-10d	1315	1130	
MSTA21		1¼	21	16-10d	1505	1290	
MSTA24		1¼	24	18-10d	1640	1455	
MSTA30	16	1¼	30	22-10d	2050	1820	
MSTA36		1¼	36	26-10d	2050	2050	
MSTA49		1¼	49	26-10d	2020	2020	F2, L3
ST6215		2⅛	16⅝	20-16d	2095	1900	I4, IL14, L3, F2
ST6224		2⅛	23⅝	28-16d	2540	2540	I4, L3, F2
ST9		1¼	9	8-16d	885	760	
ST12		1¼	11⅝	10-16d	1105	950	
ST18		1¼	17¾	14-16d	1420	1330	
ST22		1¼	21⅝	18-16d	1420	1420	
MSTC28		3	28¼	36-16d sinkers	3455	2980	
MSTC40		3	40¼	52-16d sinkers	4745	4305	
MSTC52		3	52¼	62-16d sinkers	4745	4745	
HTP37Z		3	7	20-10dx1½	1850	1600	170
MSTC66	14	3	65¾	76-16d sinkers	5860	5860	I4, L3, F2
MSTC78		3	77¾	76-16d sinkers	5860	5860	
ST6236		2⅛	33⅜	40-16d	3845	3845	
HRS6	12	1⅜	6	6-10d	605	525	F26
HRS8		1⅜	8	10-10d	1010	880	
HRS12		1⅜	12	14-10d	1415	1230	
MSTI26		2⅛	26	26-10dx1½	2745	2325	I4, L3, F2
MSTI36		2⅛	36	36-10dx1½	3800	3220	
MSTI48		2⅛	48	48-10dx1½	5065	4290	
MSTI60		2⅛	60	60-10dx1½	5080	5080	
MSTI72		2⅛	72	72-10dx1½	5080	5080	
HRS416Z		3¼	16	16-SDS ¼"x1½"	2835	2305	170

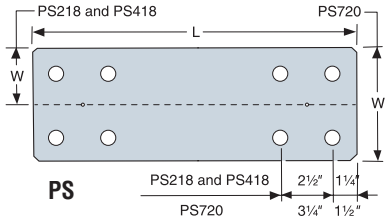
1. Loads include a 60% load duration increase on the fasteners for wind or earthquake loading.
2. 10dx1½" nails may be substituted where 16d sinkers or 10d are specified at 100% of the table loads except where straps are installed over sheathing.
3. 10d commons may be substituted where 16d sinkers are specified at 100% of table loads.
4. 16d sinkers (0.148" dia. x 3¼" long) or 10d commons may be substituted where 16d commons are specified at 0.84 of the table loads.
5. Use half of the nails in each member being connected to achieve the listed loads.
6. Tension loads apply for uplift when installed vertically.
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 16d Sinker = 0.148" dia. x 3¼" long, 10d = 0.148" dia. x 3" long. 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

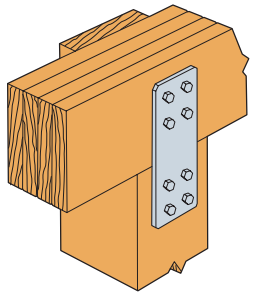


Typical LSTA Installation
(Hanger not shown)
Bend strap one time only

Model No.	Material Thickness Gauge	Dim. W	Dim. L	Bolts Qty	Bolts Dia	Code Ref.
PS218	7 ga	2	18	4	¾	180
PS418		4	18	4	¾	
PS720		6¾	20	8	½	

1. PS strap design loads must be determined by the Designer for each installation. Bolts are installed both perpendicular and parallel-to-grain. Hole diameter in the part may be oversized to accommodate the HDG. Designer must determine if the oversize creates an unacceptable installation.





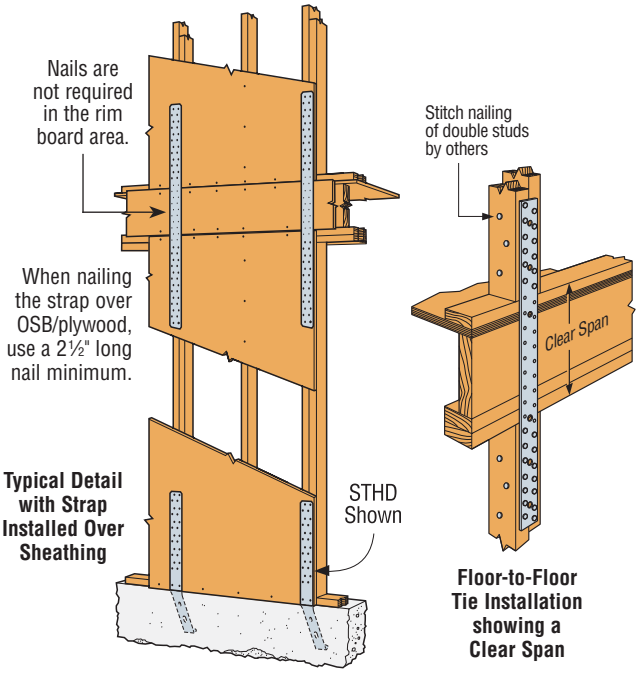
Typical PS720 Installation

HST/MST/MSTC/MSTA *Strap Ties*

These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Floor-to-Floor Clear Span Table

Model No.	Clear Span	Fasteners (Total)	Allowable Tension Loads (DF/SP) (160)	Allowable Tension Loads (SPF/HF) (160)
MSTA49	18	26-10d	2020	2020
	16	26-10d	2020	2020
MSTC28	18	12-16d sinkers	1155	995
	16	16-16d sinkers	1540	1325
MSTC40	24	20-16d sinkers	2310	1985
	18	28-16d sinkers	2695	2320
	16	32-16d sinkers	3080	2650
MSTC52	24	36-16d sinkers	3465	2980
	18	44-16d sinkers	4235	3645
	16	48-16d sinkers	4620	3975
MSTC66	30	48-16d sinkers	4780	4120
	24	54-16d sinkers	5380	4640
	18	64-16d sinkers	5860	5495
	16	68-16d sinkers	5860	5840
MSTC78	30	64-16d sinkers	5860	5495
	24	72-16d sinkers	5860	5860
	18	76-16d sinkers	5860	5860
MST37	24	14-16d	1725	1495
	18	20-16d	2465	2135
	16	22-16d	2710	2345
MST48	24	26-16d	3215	2780
	18	32-16d	3960	3425
	16	34-16d	4205	3640
MST60	30	34-16d	4605	3995
	24	40-16d	5240	4700
	18	46-16d	6235	5405
MST72	30	48-16d	6505	5640
	24	54-16d	6730	6345
	18	62-16d	6730	6475



CODES: See page 13 for Code Reference Key Chart.

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.

Model No.	Ga	Dimensions W	Dimensions L	Fasteners (Total) Nails	Fasteners (Total) Bolts Qty	Fasteners (Total) Bolts Dia	Allowable Tension Loads (DF/SP) Nails (160)	Allowable Tension Loads (DF/SP) Bolts (160)	Allowable Tension Loads (SPF/HF) Nails (160)	Allowable Tension Loads (SPF/HF) Bolts (160)	Code Ref.
MST27	12	2⅛	27	30-16d	4	½	3700	2165	3200	2000	I4, L3, F2
MST37		2⅛	37½	42-16d	6	½	5080	3025	4480	2805	
MST48		2⅛	48	50-16d	8	½	5310	3675	5190	3410	
MST60	10	2⅛	60	68-16d	10	½	6730	4485	6475	4175	
MST72		2⅛	72	68-16d	10	½	6730	4485	6475	4175	
HST2	7	2½	21¼	—	6	⅝	—	5220	—	4835	
HST5		5	21¼	—	12	⅝	—	10650	—	9870	
HST3	3	3	25½	—	6	¾	—	7680	—	6660	
HST6		6	25½	—	12	¾	—	15470	—	13320	

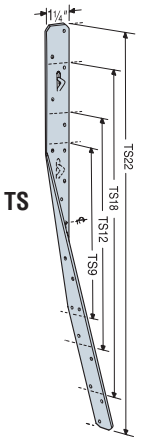
1. Loads include a 60% load duration increase on the fasteners for wind or earthquake loading.
2. Install bolts or nails as specified by Designer. Bolt and nail values may not be combined.
3. Allowable bolt loads are based on parallel-to-grain loading and these minimum member thicknesses: MST–2½"; HST2 and HST5–4"; HST3 and HST6–4½".
4. Use half of the required nails in each member being connected to achieve the listed loads.
5. When installing strap over wood structural panel sheathing, use 2½" long nail minimum.
6. Tension loads apply for uplift as well when installed vertically.
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 16d Sinker = 0.148" dia. x 3¼" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

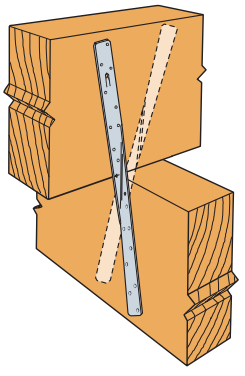
TS *Twist Straps*

Twist straps provide a tension connection between two wood members. An equal number of right and left hand units are supplied in each carton.
MATERIAL: 16 gauge. **FINISH**: Galvanized. See Corrosion Information, page 14-15.
INSTALLATION: • Use all specified fasteners. See General Notes.
• TS should be installed in pairs to reduce eccentricity.
CODES: See page 13 for Code Reference Key Chart.

Model No.	L	Fasteners (Total)	Allowable Loads (160)	Code Ref.
TS9	9	8-16d	530	170
TS12	11⅝	10-16d	665	
TS18	17¾	14-16d	930	
TS22	21⅝	18-16d	1215	

1. Install half of the fasteners on each end of the strap to achieve full loads.
2. Loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. 16d sinkers (0.148" dia. x 3¼") may be substituted for the specified 16d commons at 0.84 of the table loads.
4. Loads are for a single TS.
5. **NAILS:** 16d = 0.162" dia. x 3½" long, See page 22-23 for other nail sizes and information.




Typical TS Installation

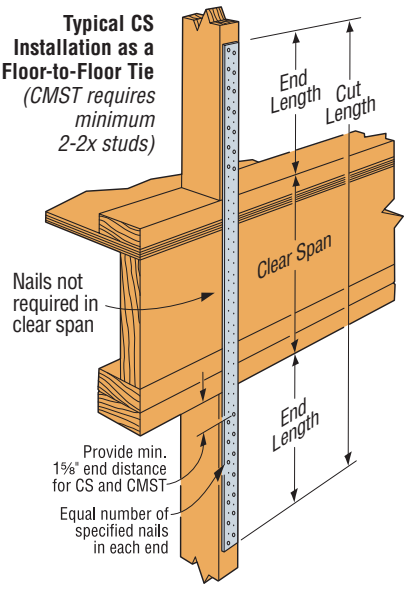
CS/CMST *Coiled Straps*

CMSTC provides nail slots for easy installation; it can be cut to length. CS are continuous utility straps which can be cut to length on the job site. Packaged in lightweight *(about 40 pounds)* cartons.
FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 14-15.
INSTALLATION: • Use all specified fasteners. See General Notes.

- Wood shrinkage after strap installation across horizontal wood members may cause strap to buckle outward.
- Refer to the applicable code for minimum nail penetration and minimum wood edge and end distances.
- The table shows the maximum allowable loads and the nails required to obtain them. Fewer nails may be used; reduce the allowable load as shown in footnote #3.
- The cut length of the strap shall be equal to twice the "End Length" noted in the table plus the clear span dimension.
- CMST only–Use every other round hole if the wood tends to split. Use round and triangle holes for comparable MST loads, providing wood does not tend to split.
- For lap slice and alternate nailing information, refer to technical bulletin T-CMST *(see page 230 for details).*
- CS straps are available in 25' lengths, order CS14-R, CS16-R, CS18-R, CS20-R or CS22-R.

CODES: See page 13 for Code Reference Key Chart.

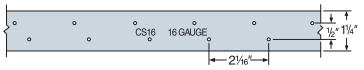
Typical CS Installation as a Floor-to-Floor Tie *(CMST requires minimum 2-2x studs)*



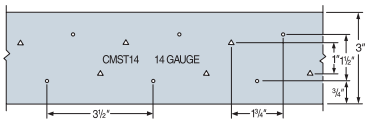
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

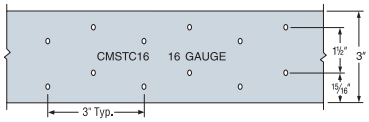
Model No.	Total L	Ga	DF/SP Fasteners	DF/SP End Length	SPF/HF Fasteners	SPF/HF End Length	Allowable Tension Loads (160)	Code Ref.
			160	160	160	160		
CMST12	40'	12	74 - 16d	33"	84 - 16d	38"	9215	I4, L3, F2
			86 - 10d	39"	98 - 10d	44"	9215	
CMST14	52½'	14	56 - 16d	26"	66 - 16d	30"	6490	
			66 - 10d	30"	76 - 10d	34"	6490	
CMSTC16	54'	16	50 - 16d sinker	20"	58 - 16d sinker	25"	4585	
CS14	100'	14	26 - 10d	15"	30 - 10d	16"	2490	
			30 - 8d	16"	36 - 8d	19"	2490	
CS16	150'	16	20-10d	11"	22 - 10d	12"	1705	
			22 - 8d	13"	26 - 8d	14"	1705	
CS18	200'	18	16 - 10d	9"	18 - 10d	10"	1370	
			18 - 8d	11"	22 - 8d	12"	1370	
CS20	250'	20	12 - 10d	6"	14 - 10d	8"	1030	
			14 - 8d	9"	16 - 8d	9"	1030	
CS22	300'	22	10 - 10d	7"	12 - 10d	7"	845	
			12 - 8d	6"	14 - 8d	8"	845	



CS16 Hole Pattern
(all other CS straps similar)



CMST14 Hole Pattern
(CMST12 similar)



CMSTC16 Hole Pattern

Gauge stamped on part for easy identification

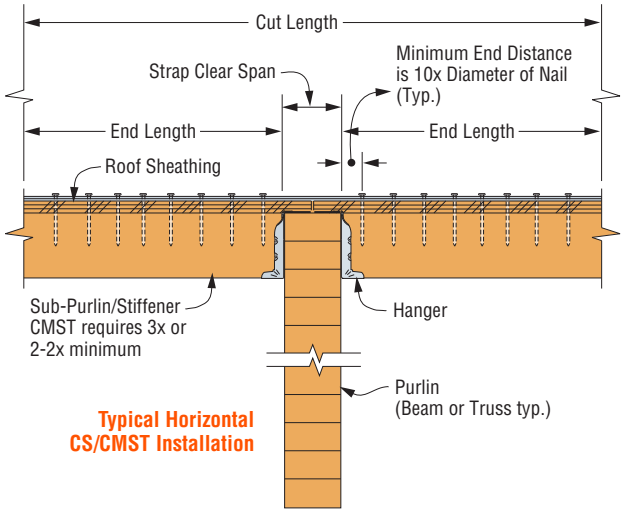
1. Loads include a 60% load duration increase on the fasteners for wind or seismic loading.
2. Use half of the required nails in each member being connected to achieve the listed loads.
3. Calculate the connector value for a reduced number of nails as follows: $\text{Allowable Load} = \frac{\text{No. of Nails Used}}{\text{No. of Nails in Table}} \times \text{Table Load}$

   Example: CMSTC16 in DF/SP with 40 nails total. *(Half of the nails in each member being connected)* $\text{Allowable Load} = \frac{\text{40 Nails (Used)}}{\text{50 Nails (Table)}} \times 4585 \text{ lbs} = 3668 \text{ lbs}$
4. Tension loads apply for uplift when installed vertically.
5. **NAILS:** 16d = 0.162" dia. x 3½" long, 16d Sinker = 0.148" dia. x 3¼" long, 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.

NOT SURE HOW MUCH COIL STRAP YOU NEED?

Simpson Strong-Tie has a web-based app, the Coil Strap Length Calculator, which can help you quickly determine the cut length of each strap and the total amount of coil strap needed for each application on a project.

For more information or to access, go to ***www.strongtie.com/software***.



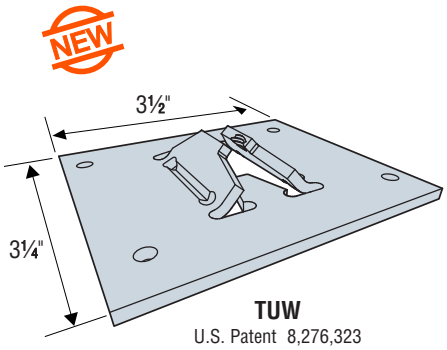
Typical Horizontal CS/CMST Installation

SDWF *Structural Wood Screw*

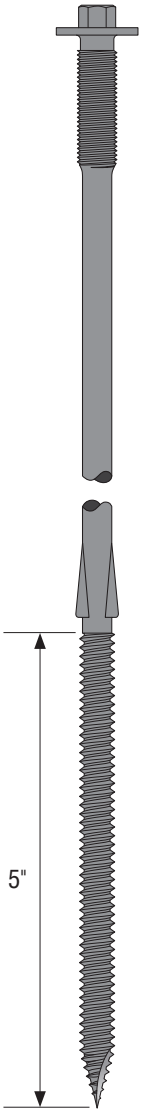
The Simpson Strong-Tie® Strong-Drive® SDWF structural wood screw is designed to simplify the floor-to-floor, wind-uplift restraint connection while providing superior performance over the life of the structure. The unique design of the SDWF enables it to attach upper and lower walls together from the top, spanning the floor system and providing an easy-to-install connection within the continuous uplift load path of the structure.

The innovative TUW take-up washer plays a key role in the long-term performance of the SDWF when installed between the screw and the sole plate of the upper floor. As the structure settles because of shrinkage and construction loading, the threaded portion under the head of the screw ratchets up through the tabs of the TUW, which is fastened with Simpson Strong-Tie Strong-Drive SD screws. The interlock between the tabs of the take-up washer and the threads under the head of the SDWF prevent the screw from sliding back under load, providing a simple yet reliable means of shrinkage compensation up to ¾" per story.

MATERIAL: SDWF – carbon steel, TUW – 10 gauge
FINISH: SDWF—E-Coat™; TUW—Galvanized
INSTALLATION: • Use all specified fasteners. See General Notes.
• Refer to flier F-SDWFTUW12 or visit ***www.strongtie.com***.
CODES: See page 13 for Code Reference Key Chart.



TUW
U.S. Patent 8,276,323

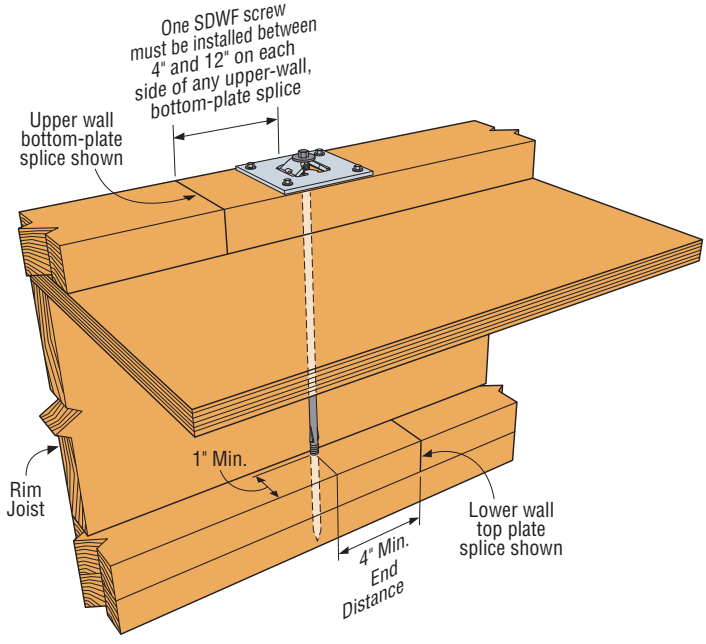


SDWF
U.S. Patent 8,276,323

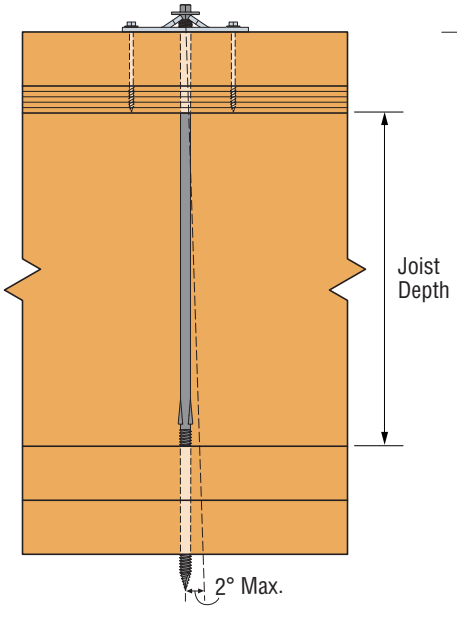
Product Information and Withdrawal Loads

Model No	Size (in.)	Thread Length (in.)	Allowable Joist Depth Below (in.)				Allowable Withdrawal per Thread Penetration (lbs./in.) (100)			Code Ref.
			Single Bottom Plate		Double Bottom Plate					
			Min.	Max.	Min.	Max.	SP	DF	SPF	
SDWF2716-TUW	0.27 x 16	5	8½	10½	6⅞	9	295	250	180	I24, I26, F31
SDWF2720-TUW	0.27 x 20	5	12½	14½	10⅞	13				
SDWF2724-TUW	0.27 x 24	5	16½	18½	14⅞	17				
SDWF2726-TUW	0.27 x 26	5	18½	20½	16⅞	19				

1. Allowable loads may be increased for load duration up to C_D = 1.6.
2. Joist depth listed based on the ¾" subfloor and 3" of thread penetration into double top plates.



Typical SDWF and TUW Installation



Typical SDWF Angle Limit Installation

SDWF *Structural Wood Screw*

Uniform Uplift Loads

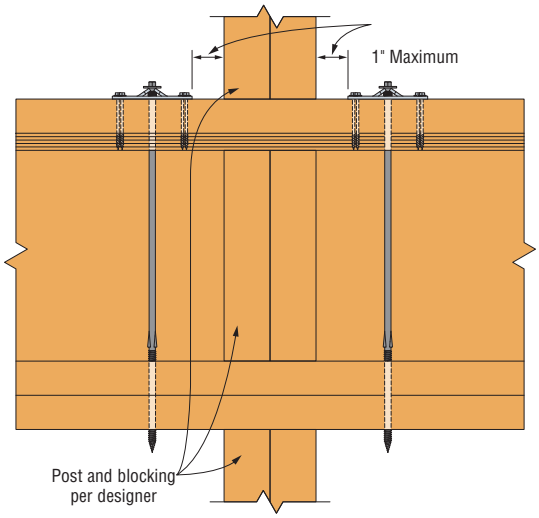
Maximum SDWF Screw Spacing (in.) Along Wall Bottom Plate for Wind Uplift											
Bottom Plate	**Interstory Unit Wind Uplift Lbs. Per Lineal Foot (plf)**										
Single 2x4	**100 plf**	**150 plf**	**200 plf**	**250 plf**	**300 plf**	**350 plf**	**400 plf**	**450 plf**	**500 plf**	**550 plf**	**600 plf**
SP	46	40	36	34	30	28	26	24	24	22	22
DF	48	42	38	34	32	30	30	26	24	22	20
SPF	46	40	36	34	32	30	26	22	20	18	16
Single 2x6	**100 plf**	**150 plf**	**200 plf**	**250 plf**	**300 plf**	**350 plf**	**400 plf**	**450 plf**	**500 plf**	**550 plf**	**600 plf**
SP	56	48	44	40	38	36	34	34	32	30	28
DF	56	48	44	40	38	34	30	26	24	22	20
SPF	52	46	42	38	34	30	26	22	20	18	16

1. Spacing listed based on lesser of: single bottom plate bending allowable load, single bottom plate deflection limited to spacing/240 and ¼" max, screw allowable withdrawal load, and take-up washer allowable load.
2. Withdrawal load is based on a C_D = 1.6 and minimum 3" penetration into lower wall double top plates.
3. Stud-to-plate connections are required to complete the load path. These connections shall not exceed the lesser of 48" o.c. or SDWF spacing
4. Spacing values listed for SP lumber consider new base values adopted by AWC on June 1, 2012.

Concentrated Uplift Loads

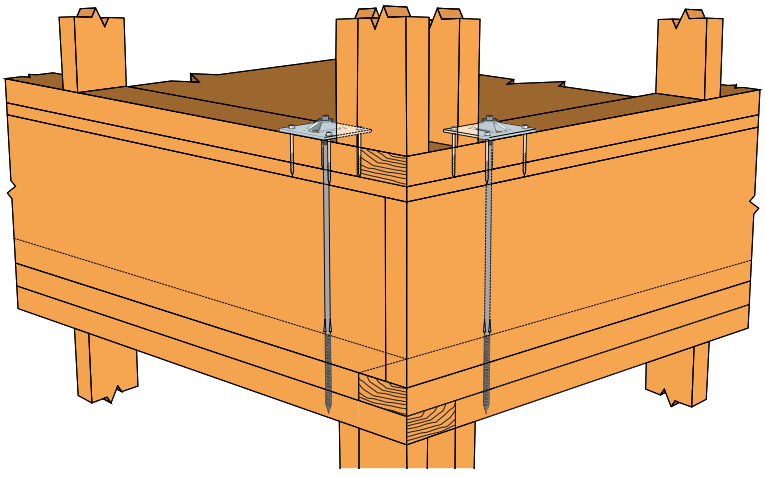
Model No	Single SDWF-TUW				Double SDWF-TUW			
	Allowable Tension Load (lbs.) (160)			Deflection at Highest Allowable Load (in.)	Allowable Tension Load (lbs.) (160)			Deflection at Highest Allowable Load (in.)
	SP	DF	SPF		SP	DF	SPF	
SDWF2716-TUW	1410	1200	865	0.095	2270	2125	1730	0.142
SDWF2720-TUW								
SDWF2724-TUW								
SDWF2726-TUW								

1. Allowable loads listed include a wood load duration factor of C_D = 1.6 for wind or earthquake loading with no further increase allowed.
2. Single and double SDWF-TUW applications listed are for concentrated load uplift restraint conditions *(i.e. end of header, at girders, or at the end of shearwalls).*



Double SDWF-TUW Concentrated Load Restraint Detail at Continuous Wall
(Single SDWF-TUW similar)

Note: Stud-to-plate connections are required to complete the load path and are the responsibility of the Designer.



Perspective View of Corner Conditions with Double SDWF-TUW
(Single SDWF-TUW similar)

FSC *Floor Span Connector*

As an alternative to coil strap, our new FSC-Floor Span Connector connects upper floors to lower floors from the inside of the wall. The convenient obround holes make installation in narrow wall cavities easy. Installs with a ⅜" all thread rod, nut and washer *(not included)*.

MATERIAL: See table

FINISH: Galvanized

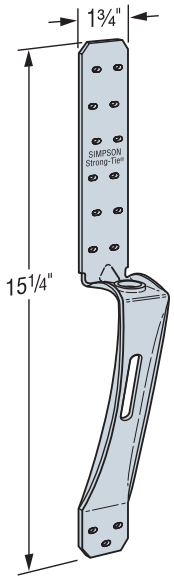
INSTALLATION:

- Can be used on a single 2x stud.
- Threaded rod, washers and nuts are not supplied with the FSC.
- Use ⅜" threaded rod grade A307 or better, with matching nuts and cut washers.
- FSC may be installed a maximum of 18" from the sill or top plates.
- Drill ½" to ¾" diameter hole through the plates for threaded rod access, hole should be located approximately 1½" away from the face of stud used for FSC attachment.
- Nails can be installed up to 30 degree angle with no reduction in load capacity.

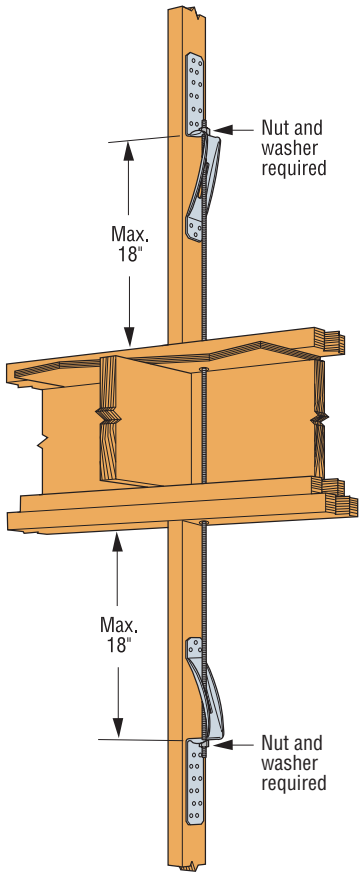
CODES: See page 13 for Code Reference Key Chart.

Model No.	Ga	Fasteners		Allowable Tension Load		Code Ref.
		Stud	Anchor	DF/SP (160)	SPF/HF (160)	
FSC	12	15-10dx1½	⅜" ATR	1830	1570	IP1, L18, F25

1. The allowable loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. Load values are based on a minimum lumber thickness of 1½".
3. Standard cut washer is required with the ⅜" all thread rod.
4. The FSC can be used on offset studs provided the horizontal offset is no greater than 3". Refer to flier F-FSC for more information.
5. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



FSC
Patent Pending



Typical FSC Installation

MSTC48B3/MSTC66B3 *Pre-Bent Straps*

The MSTC48B3 and MSTC66B3 are pre-bent straps designed to transfer tension load from an upper story shearwall to a beam on the story below.

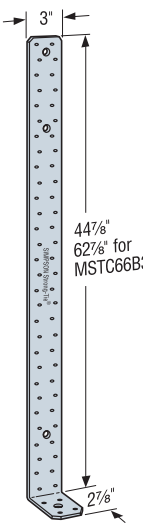
MATERIAL: 14 gauge

FINISH: Galvanized

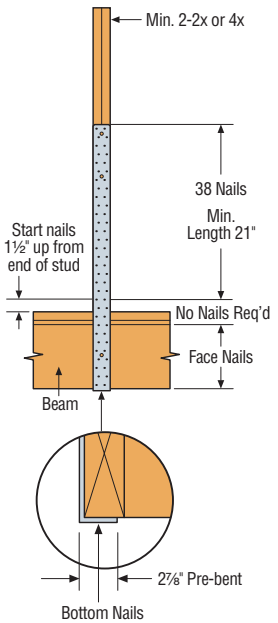
CODES: See page 13 for Code Reference Key Chart.

Model No.	Dimensions		Fasteners			Allowable Tension Loads		Code Ref.
	Beam		Beam		Studs/ Post	DF/SP (160)	SPF/HF (160)	
	Width (min)	Depth (min)	Face	Bottom				
MSTC48B3	3	9¼	12-10d	4-10d	38-10d	3930	3380	F26
MSTC66B3	3½	11¼	14-10d			4440	3820	

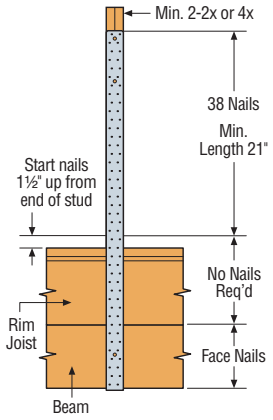
1. Using fewer than 38 nails in the studs/post will reduce the capacity of the connection. To calculate a reduced capacity use 129 lbs. per nail for DFL/SYP or 112 lbs. per nail for HF/SPF.
2. Nails in studs/post shall be installed symmetrically. Nails may be installed over the entire length of the strap over the studs/post.
3. The 3" wide beam may be double 2x members.
4. MSTC48B3 and MSTC66B3 installed over wood structural panel sheathing up to ½" thick achieve 0.85 of table loads.
5. Loads govern by the lower of .125" deflection from static tests on wood members, steel ultimate divided by 2, or the calculated nail values.
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.



MSTC48B3



MSTC48B3 Installation with no Rim Joist



MSTC66B3 Installation with Rim Joist

FTA/LFTA *Floor Tie Anchors*

Designed for use as a floor-to-floor tension tie, one FTA replaces two comparably sized holdowns and the threaded rod.

The LFTA Light Floor Tie Anchor is for nailed installations.

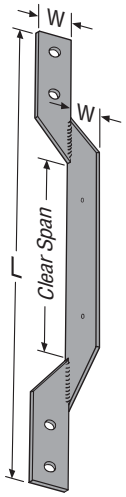
MATERIAL: See table

FINISH: LFTA–galvanized;
FTA–Simpson Strong-Tie® gray paint

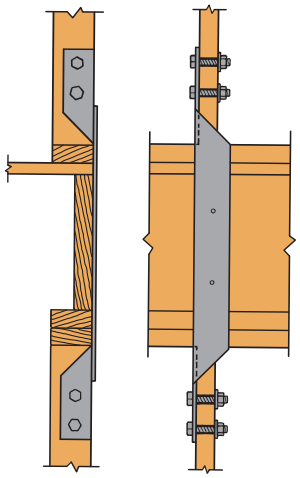
INSTALLATION: • Use all specified fasteners. See General Notes.
• Washers required on side opposite FTA for full loads.
• Nail holes between floors allow preattachment to the joist during installation; these nails are not required.

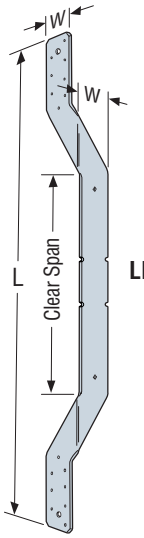
OPTIONS:
• The standard model's clear span of 17" will accommodate up to a 12" joist. The clear span of the FTA may be increased with a corresponding increase in overall length.

CODES: See page 13 for Code Reference Key Chart.



FTA


Typical FTA Installation



LFTA

Model No.	Ga	Dimensions			Fasteners (Total)		Allowable Uplift Loads[1] (160)						Code Ref.
		W	Clear Span	L	Qty	Dia	Vertical Member Thickness 1½	2	2½	3	3½	LFTA[2]	
LFTA	16	2¼	17	38⅜	16-10d	—	—	—	—	—	—	1205	I17, L6, F16
FTA2	10	3	17	37½	4	⅝	1890	2515	3120	3385	3385	—	
FTA5	10	3½	17	45½	4	¾	2240	3000	3750	4400	4400	—	
FTA7	3	3½	17	56	6	⅞	3715	5020	6210	7600	7600	—	

1. Allowable loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. Reduce the allowable load for the LFTA according to the code when nails penetrate wood less than 1¾".
3. **NAILS:** 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.

T and L *Strap Ties*

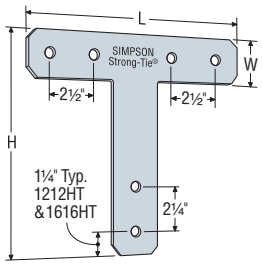
T and L Strap Ties are versatile utility straps. See Architectural Products Group for aesthetically pleasing options with black powder-coated paint.

FINISH: Galvanized. See Corrosion Information, page 14-15.

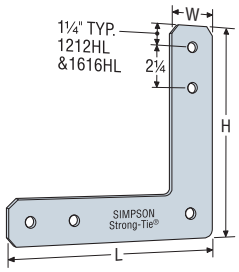
CODES: See page 13 for Code Listing Key Chart.

Model No.	Ga	Dimensions			Fasteners			Code Ref.
		L	H	W	Nails	Bolts Qty	Bolts Dia	
55L	16	4¾	4¾	1¼	5-10d	—	—	180
66L	14	6	6	1½	10-16d	3	⅜	
88L	14	8	8	2	12-16d	3	½	
1212L	14	12	12	2	14-16d	3	½	
66T	14	6	5	1½	8-16d	3	⅜	
128T	14	12	8	2	12-16d	3	½	
1212T	14	12	12	2	12-16d	3	½	

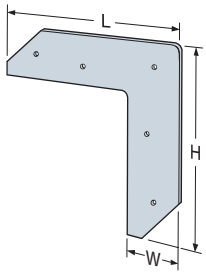
1. These connectors are not load-rated.
2. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.



1212HT



1212HL

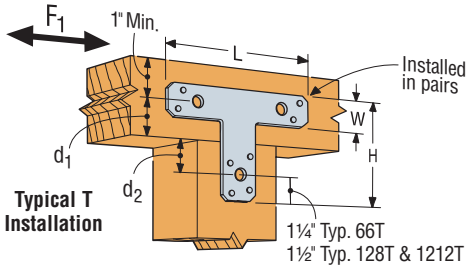


55L

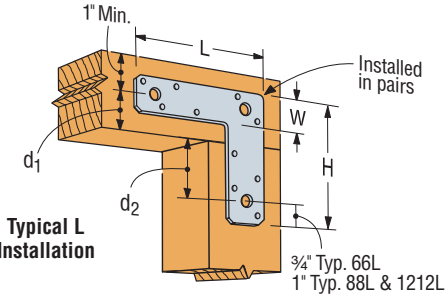
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Ga	Dimensions			Minimum Bolt End & Edge Distances		Bolts		Allowable Loads[1,2] Tension/Uplift (100/160)	Allowable Loads[1,2] F_1 (100/160)	Code Ref.
		W	H	L	d_1	d_2	Qty	Dia			
1212HL	7	2½	12	12	2½	4⅜	5	⅝	1535	565	170
1616HL	7	2½	16	16	2½	4⅜	5	⅝	1535	565	
1212HT	7	2½	12	12	2½	4⅜	6	⅝	2585	815	
1616HT	7	2½	16	16	2½	4⅜	6	⅝	2585	815	

1. 1212HL, 1616HL, 1212HT and 1616HT are to be installed in pairs with machine bolts in double shear. A single part with machine bolts in single shear is not load-rated.
2. Allowable loads are based on a minimum member thickness of 3½".
3. 1212HT, 1616HT loads assume a continuous beam.



Typical T Installation



Typical L Installation

PCT *Purlin Cross Ties*

Designed using a section that works in both tension and compression.

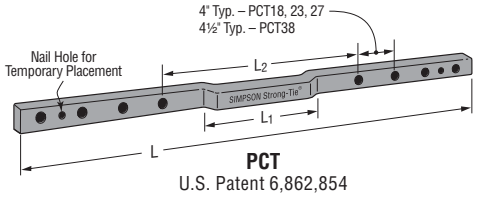
MATERIAL: 1½" square tube steel
ASTM A500 Grade B

FINISH: Simpson Strong-Tie® gray paint

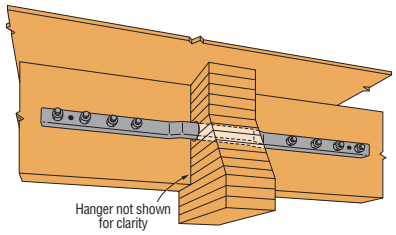
INSTALLATION: • Use all specified fasteners. See General Notes.
- PCT18 and 23 are sized to span a maximum hanger seat depth *("B" dimension)* of 4". PCT27 and 38 are sized to span a maximum hanger seat depth *("B" dimension)* of 6".
- Tube section helps with drilling alignment, through the purlin.
- Offset angle to allow drilling access through glulam.
- 2½" or 2⁹⁄₁₆" diameter hole required.
- Install in pairs.

OPTIONS: Contact Simpson Strong-Tie for other lengths.

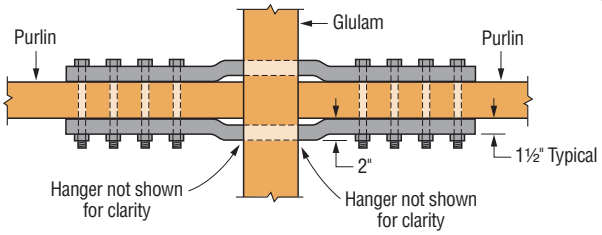
CODES: See page 13 for Code Reference Key Chart.



PCT
U.S. Patent 6,862,854



Typical PCT Installation



PCT Installed in Pairs
(Top View)

Model No.	Tube Thickness	Total Length L	L_1	L_2	No. and Size of Fasteners	Allowable Loads per Pair of PCTs							Code Ref.
						Steel Tension	Steel Compression	Capacity Based on Double Shear Application and Length of Bolt in Purlin - DF/SP (160)					
								3⅛	3½	5⅛	5½	6¾	
PCT18	⅛	44¾	14	17¾	8-⅝ MB	24665	19165	17235	19110	19110	19090	19050	I15, L7
PCT23	⅛	52¾	14	17¾	10-⅝ MB	24665	19165	21390	23645	23645	23620	23525	
PCT27	³⁄₁₆	66⅝	19½	23½	12-⅝ MB	39665	28665	24855	27705	28400	28430	28255	
PCT38	³⁄₁₆	71⅝	19½	23½	12-¾ MB	39665	26030	29105	33020	40485	40570	40190	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Install in pairs.
3. Minimum bolt length is (Purlin width + 3" (PCT) + 1" (nut)).
4. Bolt value assume minimum 10½" deep purlin.
5. Engineer of record is responsible for evaluating the glulam.

HCSTR *Hinge Connector Straps*

Use Hinge Connector Straps for retrofit applications to strap horizontal wood members together where a hinge connector interferes.

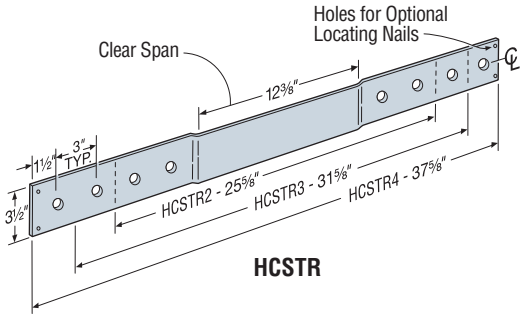
All bolt holes shall be ¹⁄₃₂" *(minimum)* and ¹⁄₁₆" *(maximum)* larger than the bolt diameter *(2005 NDS 11.1.2)*.

MATERIAL: HCSTR2, HCSTR3—7 gauge; HCSTR4—3 gauge

FINISH: HCSTR4—Simpson Strong-Tie® gray paint.
All others—Galvanized

OPTIONS:
- Contact Simpson Strong-Tie for longer lengths.
For use with Simpson Strong-Tie hinge connectors.

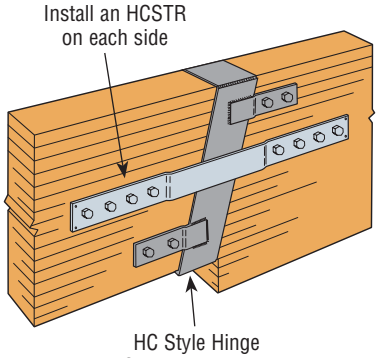
CODES: See page 13 for Code Reference Key Chart.



HCSTR

Model No.	Fasteners (Total)		Allowable Loads	Code Ref.
	Qty	Dia	(160)	
HCSTR2	4	¾	9725	170
HCSTR3	6	¾	14170	
HCSTR4	8	¾	18770	

1. Allowable loads are for straps used in pairs and include a 60% increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Allowable loads assume a carrying member of 5⅛" minimum thickness with bolts in double shear.
3. Designed for HC style hinge connectors; contact Simpson Strong-Tie for lengths for HCA and HC3A (only) style hinge connectors.



Typical HCSTR4 Installation

H/TSP *Seismic & 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. New additions to the line provide even more options.

- H10AR – The heavy-duty design of the H10A available with a 2" wide throat to accommodate rough lumber
- H10A-2 – The H10A design with a 3" throat for double 2x members
- H2ASS, H2.5ASS and H10ASS – Popular ties now available in stainless steel.

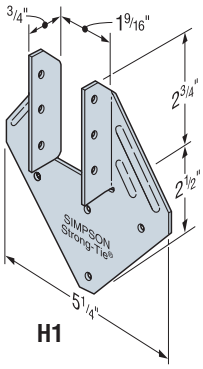
MATERIAL: See table.

FINISH: Galvanized. H7Z and H11Z—ZMAX® coating. Some models available in stainless steel or ZMAX; see Corrosion Information, page 14-15 or visit ***www.strongtie.com***.

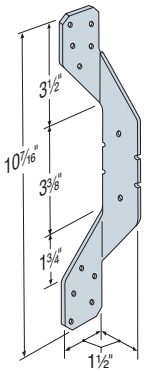
INSTALLATION: • Use all specified fasteners. See General Notes.

- H1 can be installed with flanges facing inward *(reverse of H1 installation drawing; number 1).*
- H2.5T, H3, H4, H5 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.

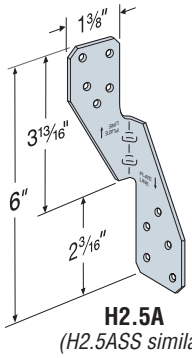
CODES: See page 13 for Code Reference Key Chart.



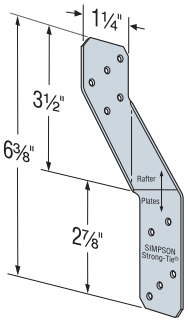
H1



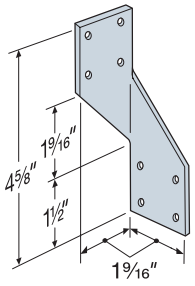
H2A
(H2ASS similar)



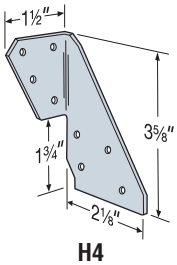
H2.5A
(H2.5ASS similar)



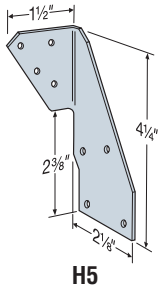
H2.5T



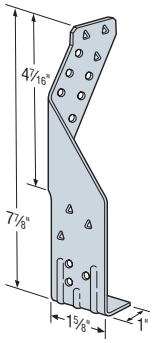
H3



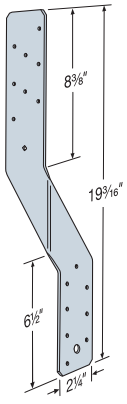
H4



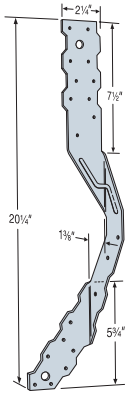
H5



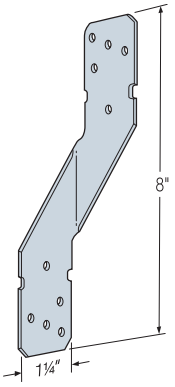
TSP



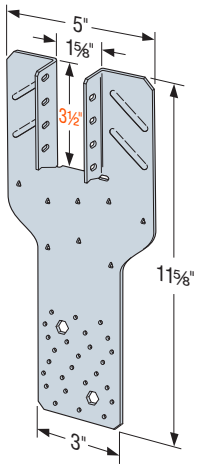
H6



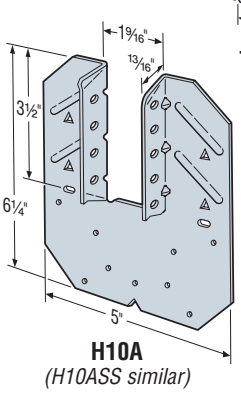
H7Z



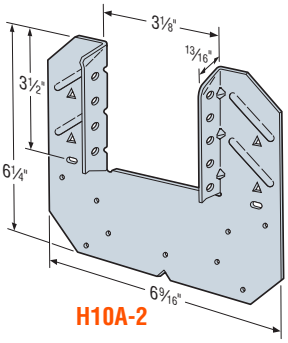
H8



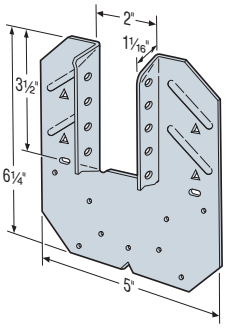
H10S



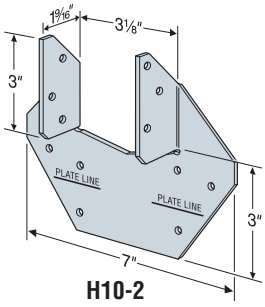
H10A
(H10ASS similar)



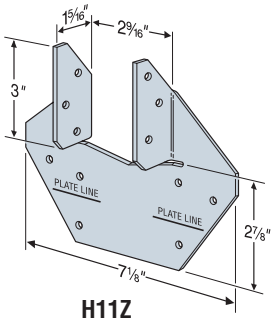
H10A-2



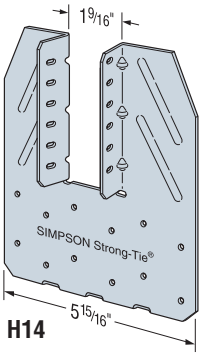
H10AR



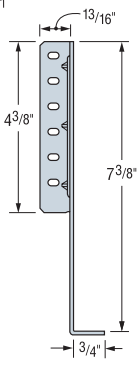
H10-2



H11Z



H14



H14 Profile

H/TSP *Seismic & Hurricane Ties*

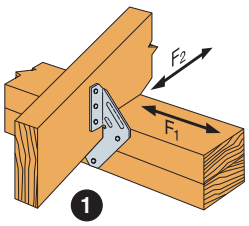
SIMPSON Strong-Tie®

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.

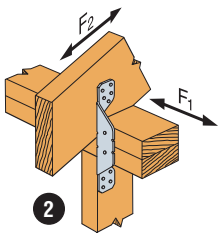
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Model No.	Ga	Fasteners			DF/SP Allowable Loads			Uplift with 8dx1½ Nails (160)	SPF/HF Allowable Loads			Uplift with 8dx1½ Nails (160)	Code Ref.
		To Rafters/ Truss	To Plates	To Studs	Uplift (160)	Lateral (160) F_1	Lateral (160) F_2		Uplift (160)	Lateral (160) F_1	Lateral (160) F_2		
H1	18	6-8dx1½	4-8d	—	585	485	165	455	400	415	140	370	I17, L6, F16
H2A	18	5-8dx1½	2-8dx1½	5-8dx1½	575	130	55	—	495	130	55	—	IP1, L18, F25
H2ASS	18	5-SS8D	2-SS8D	5-SS8D	400	130	55	400	345	130	55	345	170
H2.5A	18	5-8d	5-8d	—	600	110	110	575	535	110	110	495	I17, F16
H2.5ASS	18	5-SS8d	5-SS8d	—	440	75	70	365	380	75	70	310	170
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	
H6	16	—	8-8d	8-8d	950	—	—	—	820	—	—	—	I17, F16
H7Z	16	4-8d	2-8dx1½	8-8d	985	400	—	—	845	345	—	—	
H8	18	5-10dx1½	5-10dx1½	—	745	75	—	630	565	75	—	510	L10, F26
H10A Sloped	18	9-10dx1½	9-10dx1½	—	855	590	285	—	760	505	285	—	
H10A	18	9-10dx1½	9-10dx1½	—	1140[7]	590	285	—	1015	505	285	—	I17, L18, F25
H10ASS	18	9-SSN10	9-SSN10	—	970	565	170	—	835	485	170	—	170
H10AR	18	9-10dx1½	9-10dx1½	—	1050	490	285	—	905	420	285	—	
H10S[9,10]	18	8-8dx1½	8-8dx1½[10]	8-8d	1010	660	215	550	870	570	185	475	IP1, L18, F25
H10A-2	18	9-10dx1½	9-10dx1½	—	1245	815	260	—	1070	700	225	—	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[7]	515	265	—	1050	480	245	—	IP1, L18, F25
		[2] 12-8dx1½	15-8d	—	1350[7]	515	265	—	1050	480	245	—	
TSP	16	9-10dx1½	6-10dx1½	—	740	310	190	—	635	265	160	—	F26
		9-10dx1½	6-10d	—	890	310	190	—	765	265	160	—	

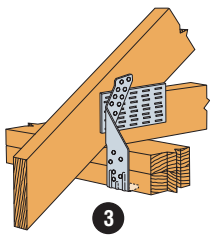
1. Loads have been increased for wind or earthquake loading with no further increase allowed: reduce where other loads govern.
2. Allowable loads are for one anchor. A minimum rafter thickness of 2½" must be used when framing anchors are used on each side of the joist and on the same side of the plate *(exeption: connectors installed such that nails on opposite side don't interfere)*.
3. Allowable DF/SP uplift load for stud to bottom plate installation *(see detail 15)* is 390 lbs. (H2.5A); 265 lbs. (H2.5ASS); 360 lbs. (H4) and 310 lbs. (H8). For SPF/HF values multiply these values by 0.86.
4. Allowable loads in the F_1 direction are not intended to replace diaphragm boundry 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 3½". Installation on the inside of the wall is acceptable *(see General Instructions for the Installer notes u on page 17)*. 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.
7. Southern Pine allowable uplift loads for H10A = 1340 lbs. and for the H14 = 1465 lbs.
8. Refer to Simpson Strong-Tie® technical bulletin T-HTIEBEARING for allowable bearing enhancement loads.
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. 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 ***www.strongtie.com/corrosion*** for updated information.
12. **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 22-23 for other nail sizes and information.
13. **SCREWS:** Strong-Drive® SD #9x1½" (model SD9112) = 0.131" dia. x 1½" long *(for the models marked with the orange flag only)*. Full table loads apply.

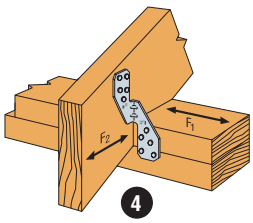


1 H1 Installation

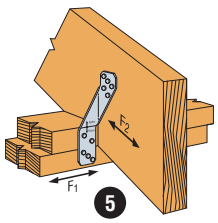


2 H2A Installation

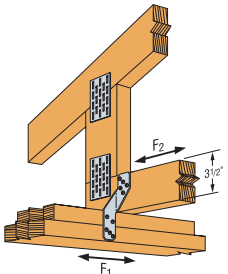

3 TSP Installation



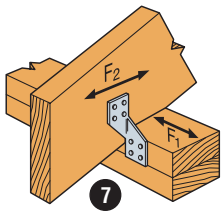
4 H2.5A Installation
(Nails into both top plates)



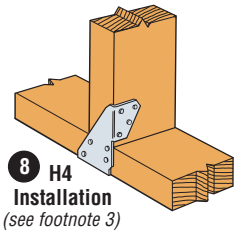
5 H2.5T Installation
(Nails into both top plates)

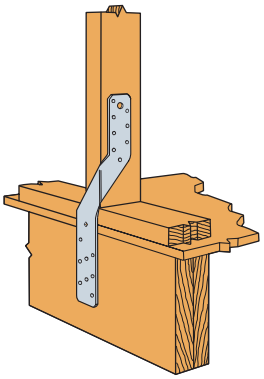


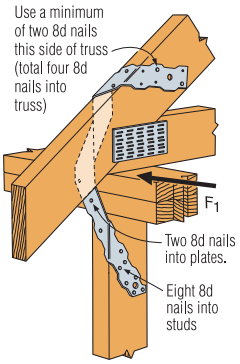
6 H2.5T Installation



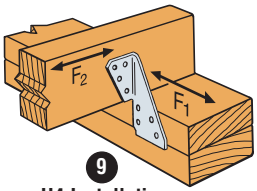
7 H3 Installation
(Nails into upper top plate)


8 H4 Installation
(see footnote 3)

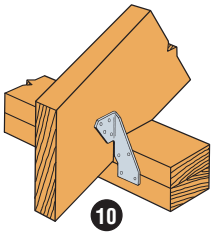

12 H6 Stud to Band Joist Installation

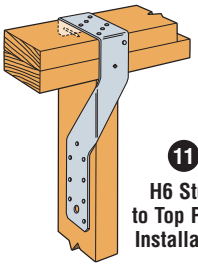


13 H7Z Installation

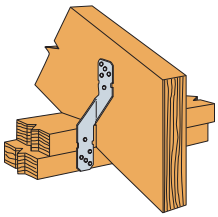


9 H4 Installation
(Nails into upper top plate)

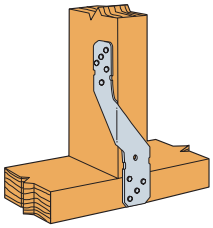

10 H5 Installation
(Nails into both top plates)


11 H6 Stud to Top Plate Installation

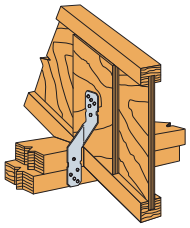
H/TSP *Seismic & Hurricane Ties*



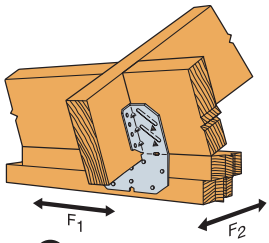
14 **H8 attaching rafter to double top plates**



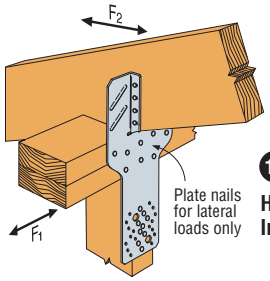
15 **H8 attaching stud to sill** *(4-8d into plate, 5-8d into stud, refer to footnote 3 for loads)*



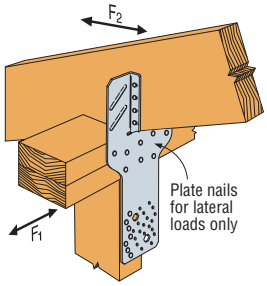
16 **H8 attaching I-joist to double top plates**



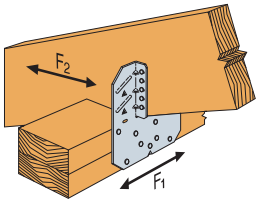
17 **H10A Field-Bent Installation**



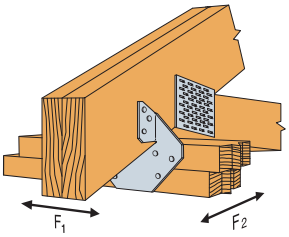
18 **H10S Installation**



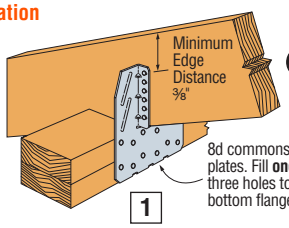
19 **H10S Installation with stud offset**



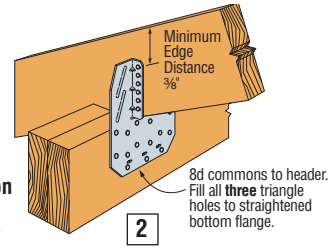
20 **H10A Installation**



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

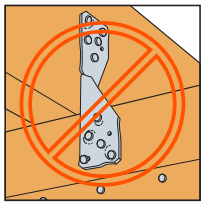


22 **H14 Installation to double top plates**



23 **H14 Installation to double 2x header**

AVOID A MISINSTALLATION



Do not make new holes or overdrive nails!

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.

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:

Design Uplift/Allowable Uplift + Design Lateral Parallel to Plate / Allowable Lateral Parallel to Plate + Design Lateral Perpendicular to Plate / Allowable Lateral Perpendicular to Plate < 1.0.

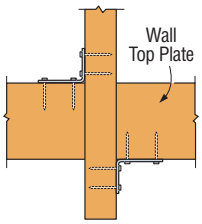
The three terms in the unity equation are due to the possible directions that exist to generate force on a connector. The number of terms that must be considered for simultaneous loading is at the sole discretion of the Designer and is dependent on their method of calculating wind forces and the utilization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

As an alternate, certain roof to wall connectors *(embedded truss anchors, pages 166 and 167, seismic and hurricane ties, pages 181-183, and twist straps, page 187* 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.

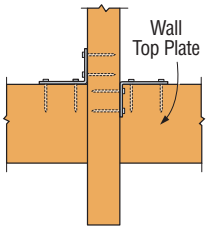
7. Select hurricane tie based on performance, application, installed cost and ease of installation.

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

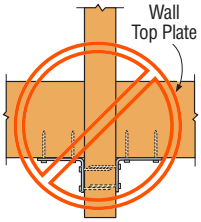
Both connectors shall be same model.



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.

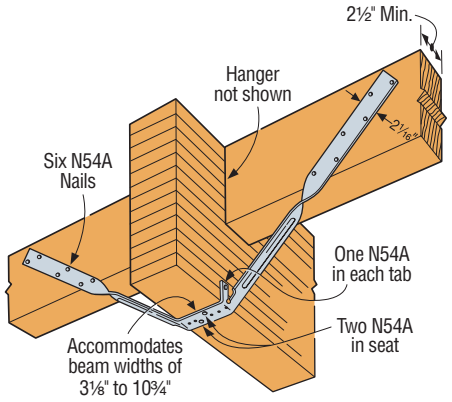
MATERIAL: 12 gauge **FINISH**: Galvanized

INSTALLATION: • Use specified fasteners. See General Notes.
• 16-N54A fasteners are included with the brace.

CODES: See page 13 for Code Reference Key Chart.

Model No.	H (Beam Depth)	L	Fasteners (Total)	Allowable Tension Loads[1]		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

SDWC *Structural Wood Screws*

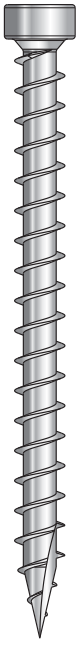
The new Strong-Drive® SDWC structural wood screw provides a stud-to-bottom plate or stud-to-top plate connection as well as fastening trusses and rafters to top plates. The fully threaded shank engages the entire length of the fastener providing that secure connection. The SDWC is tested in accordance with ICC-ES AC233 *(screw)* and AC13 *(wall assembly)* for uplift and lateral loads between wall plates and vertical wall framing.

MATERIAL: Carbon steel **FINISH**: SDWC15450—E-Coat™; SDWC15600—Clear Zinc

INSTALLATION: • See General Notes.

- See F-SDWC12, F-SDWCST2PL12 or visit ***www.strongtie.com***.
- Allowable loads in the F_1 direction are not intended to replace diaphragm boundry members or cross grain bending of the truss or rafter members.
- When cross-grain bending or cross-grain tension cannot be avoided in the members, mechanical reinforcement to resist such forces may be considered.

CODES: See page 13 for Code Reference Key Chart.



SDWC15600
(other models similar)

Roof-to-Wall Connections

Model No.	Minor Diameter (in.)	Length (in.)	Thread Length (in.)	Allowable Loads (lbs.) (160)[1,2,6]						Code Ref.
				DF/SP			SPF/HF			
				Uplift	F_1	F_2	Uplift	F_1	F_2	
SDWC15600	0.152	6	5¾	610	130	385	485	115	385	IP5, F14

1. Loads have been increased for wind or earthquake loading with no further increases allowed; reduce where other loads govern.
2. Allowable loads are for an SDWC installed per the 'Recommended' or 'Optional' installation instructions. The SDWC is to be installed through a double 2x top plate into a minimum 2x4 truss or rafter.
3. SDWC screws may be used in 2- or 3-ply rafters or trusses. The allowable uplift load for each screw shall be multiplied by 0.90, but may be limited by the capacity of the plate or the connection between the top plate to the framing below. SDWC screws in multi-ply assemblies must be spaced a minimum of 1½" o.c.
4. Screws are shown installed on the interior side of the wall. Installations on the exterior side of the wall are acceptable when the rafter or truss overhangs the top plates a minimum of 3½".
5. For Uplift Continuous Load Path, top plate to stud connectors such as the H2.5A, TSP or MTS12 must be located on the same side of the wall as the screw.
6. When the screw is loaded simultaneously in more than one direction, the allowable load must be evaluated using the following unity equation: (Design Uplift ÷ Allowable Uplift) + (Design F_1 ÷ Allowable F_1) + (Design F_2 ÷ Allowable F_2) ≤ 1.0.
7. Table loads do not apply to trusses with end-grain bearing.
8. Top plate, stud and top plate splice fastened per applicable Building Code.

Stud-to-Plate Connections

Model No.	No. of Screws Installed	Minor Diameter (in.)	Length (in.)	Thread Length (in.)	Plate Size	Allowable Loads (lbs.) (160)[1,2,6,7]				Code Ref.
						DF/SP		SPF/HF		
						Uplift	F_2	Uplift	F_2	
SDWC15450[3]	1	0.152	4½	4¼	2x	360	215	310	153	160
	2					690	390	595	280	
	3					1035	585	895	420	
SDWC15600[4]	1	0.152	6	5¾	2x	450	189	310	153	IP5, F14
	2					865	345	595	280	
	3					1295	515	895	420	
SDWC15600[5]	1	0.152	6	5¾	(2) 2x	590	177	510	152	IP5, F14
	2					1135	320	980	275	
	3					1700	485	1470	415	

1. Loads have been increased 60% for wind or earthquake loading with no further increases allowed; reduce where other loads govern.
2. Allowable loads are for SDWC installed per the installation instructions.
3. The SDWC15450 is to be installed through the face of 2x stud into a single 2x bottom plate over a concrete/masonry foundation.
4. The SDWC15600 is to be installed through the face of 2x stud into a single 2x bottom plate over a wood floor system.
5. The SDWC15600 is to be installed through the face of 2x stud into a double 2x top or bottom plate.
6. Double-top plates shall be fastened together as required by applicable Code.
7. When the screw is loaded simultaneously in more than one direction, the allowable load must be evaluated using the following unity equation: (Design Uplift ÷ Allowable Uplift) + (Design F_2 ÷ Allowable F_2) ≤ 1.0.

SDWC15450-KT and SDWC15600-KT contains:

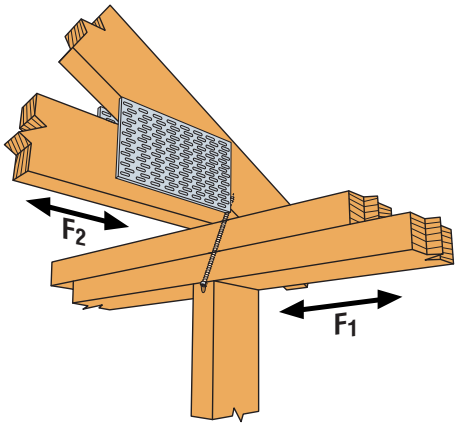
- (50) Strong-Drive® SDWC screws
- (1) Matched-tolerance driver bit *(Part no. BIT30T-RT1; also sold separately)*
- (1) Metal installation guide tool
  - SDWC-GUIDE *(for SDWC15600 only; also sold separately)*
  - or
  - SDWC-GUIDE275 *(for SDWC15450 only; also sold separately)*

SDWC15450B-KT and SDWC15600B-KT contains:

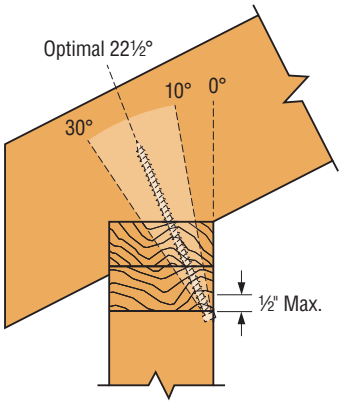
- (500) Strong-Drive® SDWC screws
- (2) Matched-tolerance driver bits *(Part no. BIT30T-RT1; also sold separately)*
- (2) Metal installation guide tools
  - SDWC-GUIDE *(for SDWC15600 only; also sold separately)*
  - or
  - SDWC-GUIDE275 *(for SDWC15450 only; also sold separately)*

SDWC *Structural Wood Screws*

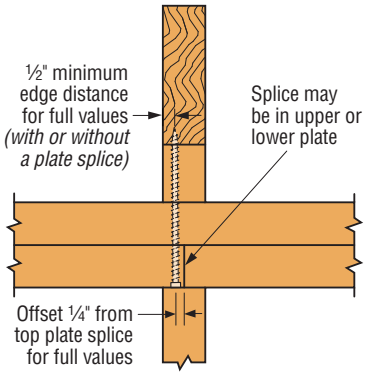
Typical Roof-to-Wall Connection



Typical SDWC Installation – Truss Aligned w/Stud
(Offset truss similar)

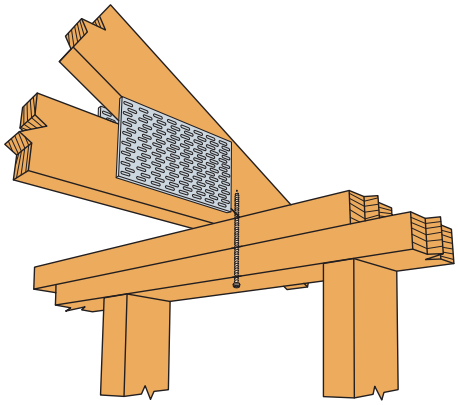


Installation Angle Limit

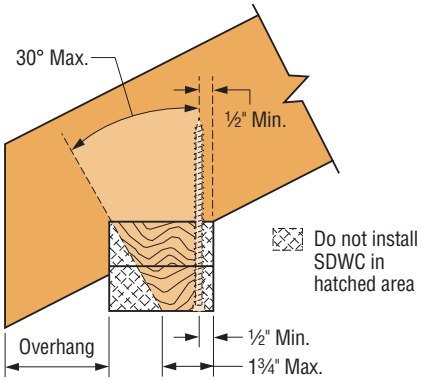


Min. Edge Distance for Top Plate Splice

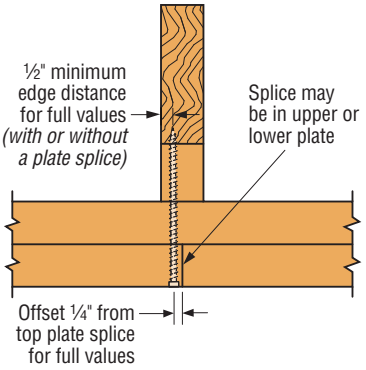
Optional Roof-to-Wall Connection



Optional SDWC Installation – Truss Offset from Stud

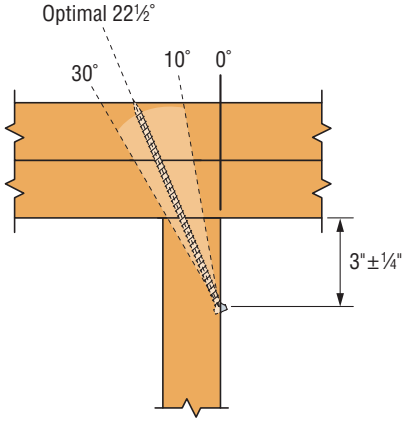


Allowable Installation Range
(Truss offset from stud only)

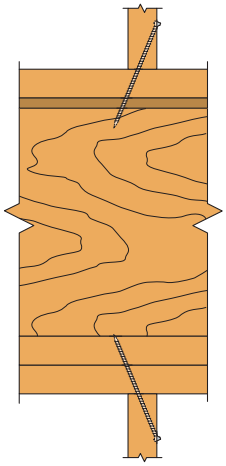


Min. Edge Distance for Top Plate Splice

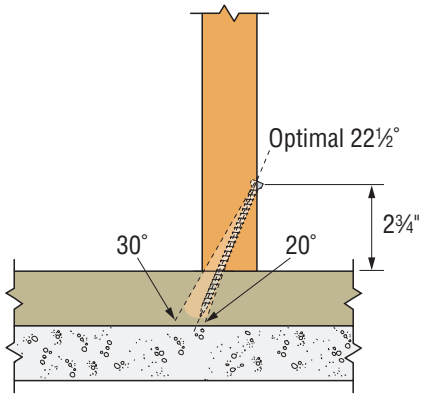
Stud-to-Plate Connections



Stud-to-Top Plate Connection
(This application requires SDWC15600)



Stud-to-Bottom Plate Connection Over Wood Floor
(SDWC15600 shown)



Stud-to-Bottom Plate Connection Over Concrete/Masonry Foundation
(This application requires SDWC15450)

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 13½" (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.

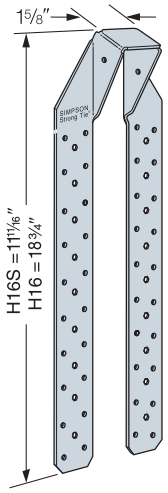
MATERIAL: See table

FINISH: Galvanized. See Corrosion Information, page 14-15.

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

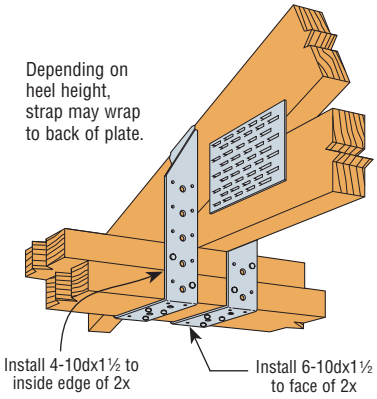
- HGA10KT: sold as a kit with (10) HGA10 connectors. SDS screws are included.
- HS24 requires slant nailing only when bottom chord of truss or rafter has no slope.

CODES: See page 13 for Code Reference Key Chart.



H16 and H16S

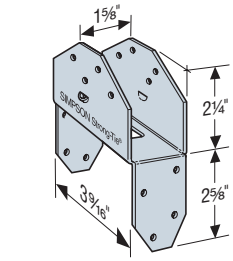
Presloped at 5/12. Truss/ Rafter Pitch of 3/12 to 7/12 is acceptable



H16 Installation

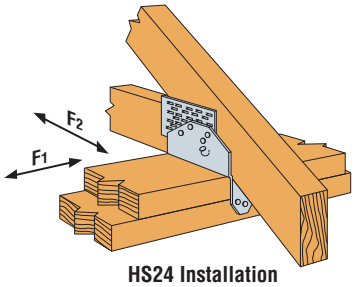
Model No.	Ga	Fasteners			DF/SP Allowable Loads[1]				SPF/HF Allowable Loads[1]				Code Ref.
		To Rafters/ Truss	To Plates	To Studs	Uplift	Lateral (160)			Uplift	Lateral (160)			
					(160)	F_1	F_2	F_3	(160)	F_1	F_2	F_3	
HGA10KT	14	4-SDS ¼"x1½"	4-SDS ¼"x3"	—	695	1165	940	780	500	840	675	495	F26
HS24	18	8-8dx1½ & 2-8d slant	8-8d	—	605[3]	645[3]	1025[3]	—	520[3]	555[3]	880[3]	—	I17, F16
H16	18	2-10dx1½	10-10dx1½	—	1470	—	—	—	1265	—	—	—	F26
H16S	18	2-10dx1½	10-10dx1½	—	1470	—	—	—	1265	—	—	—	
H16-2	18	2-10dx1½	10-10dx1½	—	1470	—	—	—	1265	—	—	—	
H16-2S	18	2-10dx1½	10-10dx1½	—	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_1), 640 lbs. (F_2). For SPF/HF loads multiply these values by 0.86.
4. For H16-2S, S = short.
5. Allowable loads in the F_1 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. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long, 8d = 0.131" dia. x 2½" long, 8dx1½ = 0.131" dia. x 1½" long. See page 22-23 for other nail sizes and information.

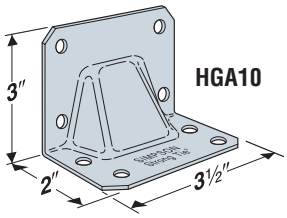


HS24

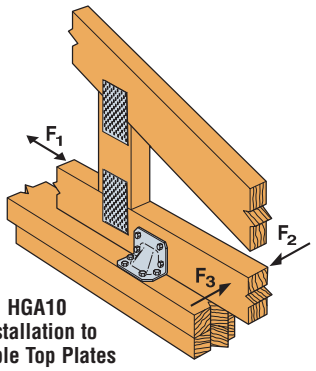
U.S. Patents 5,603,580



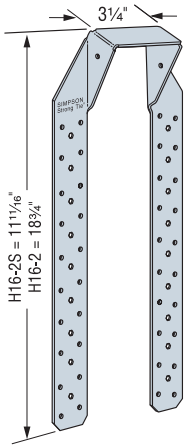
HS24 Installation



HGA10

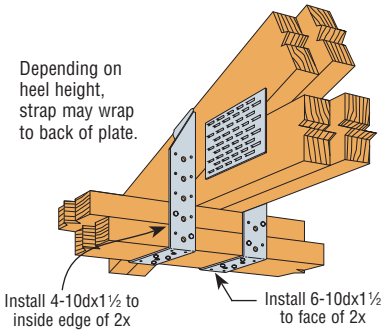


HGA10 Installation to Double Top Plates

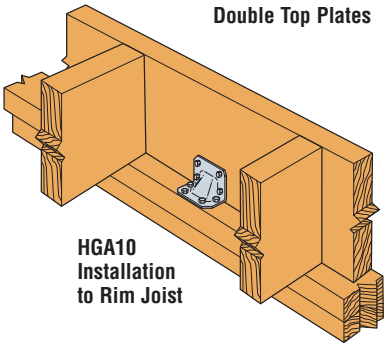


H16-2 and H16-2S

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



H16-2 Installation



HGA10 Installation to Rim Joist

LTS/MTS/HTS *Twist Straps*

SIMPSON Strong-Tie®

Twist straps provide a tension connection between two wood members. They resist uplift at the heel of a truss economically. The 3" bend section eliminates interference at the transition points between wood members.

MATERIAL: LTS—18 gauge; MTS—16 gauge; HTS—14 gauge

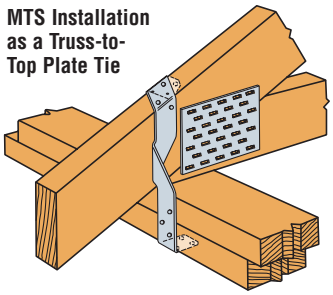
FINISH: Galvanized. Some products available in stainless steel and ZMAX® coating; see Corrosion Information, page 14-15.

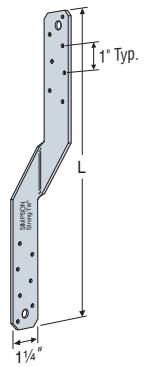
INSTALLATION:

- Use all specified fasteners. See General Notes.

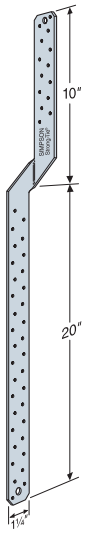
CODES: See page 13 for Code Reference Key Chart.

MTS Installation as a Truss-to-Top Plate Tie

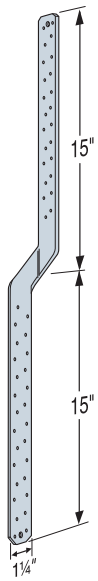




LTS12
(MTS and HTS similar)



MTS30
(HTS30 similar)



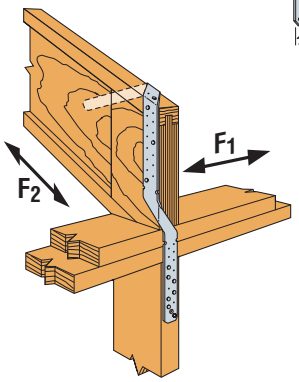
HTS30C
(MTS30C similar)

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.

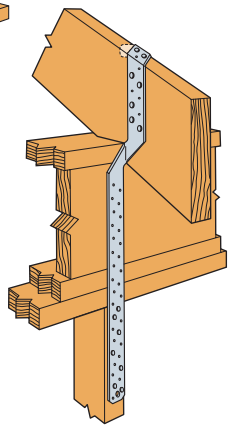
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Model No.	L	Fasteners		DF/SP Allowable Uplift Loads		SPF/HF Allowable Uplift Loads		Code Ref.
		10d	10dx1½	10d (160)	10dx1½ (160)	10d (160)	10dx1½ (160)	
LTS12	12	12-10d	12-10dx1½	775	720	665	620	I17, L6, F16
LTS16	16	12-10d	12-10dx1½	775	720	665	620	
LTS18	18	12-10d	12-10dx1½	775	720	665	620	
LTS20	20	12-10d	12-10dx1½	775	720	665	620	
MTS12	12	14-10d	14-10dx1½	1000	1000	860	860	
MTS16	16	14-10d	14-10dx1½	1000	1000	860	860	
MTS18	18	14-10d	14-10dx1½	1000	1000	860	860	
MTS20	20	14-10d	14-10dx1½	1000	1000	860	860	
MTS30	30	14-10d	14-10dx1½	1000	1000	860	860	
MTS24C	24	14-10d	14-10dx1½	1000	1000	860	860	F26
MTS30C	30	14-10d	14-10dx1½	1000	1000	860	860	
HTS16	16	16-10d	16-10dx1½	1260	1150	1085	990	I17, F16
HTS20	20	20-10d	24-10dx1½	1450	1450	1245	1245	
HTS24	24	20-10d	24-10dx1½	1450	1450	1245	1245	
HTS28	28	20-10d	24-10dx1½	1450	1450	1245	1245	
HTS30	30	20-10d	24-10dx1½	1450	1450	1245	1245	
HTS30C	30	20-10d	24-10dx1½	1450	1450	1245	1245	

1. Loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. LTS12 thru LTS20, MTS16 through MTS30, HTS24 through HTS30C *(except HTS30)* have additional nail holes.
3. Install half of the fasteners on each end of strap to achieve full loads.
4. All straps except the MTS30 and HTS30 have the twist in the center of the strap.
5. Twist straps do not have to be wrapped over the truss to achieve the load.
6. May be installed on the inside face of the stud.
7. Allowable lateral loads are F_1 = 75 lbs. and F_2 = 125 lbs. when the following installation requirements are met. The first 7 nail holes each side of the bend must be filled with 10dx1½ minimum nails. All additional fasteners may be installed in any remaining strap holes.
8. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



MTS30 Installation with I-joist Rafter



Typical MTS30 Installation

HH *Header Hangers*

For fast, accurate installation of door and window headers and other cross members. HH header hangers can speed up the job, strengthen the frame, and eliminate the need for trimmers.

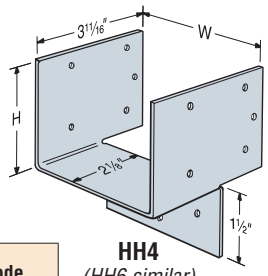
MATERIAL: 16 gauge

FINISH: Galvanized

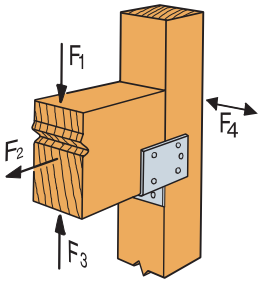
INSTALLATION: • Use all specified fasteners. See General Notes.

- Attachment to 2x studs will result in two round holes not being filled in the studs and load reductions as noted in table.

CODES: See page 13 for Code Reference Key Chart.



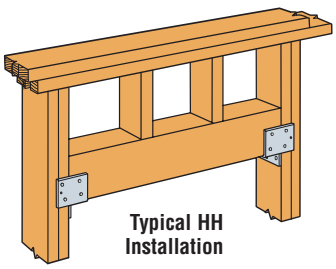
HH4
(HH6 similar)



HH Load Directions

Model No.	W	H	Min. Post Size	Fasteners		DF/SP Allowable Loads						Code Ref.
				Stud	Header	F_1			F_2	F_3	F_4	
						(100)	(115)	(125)	(160)			
HH4	3½	2 13/16	2x	7-10dx1½	4-10dx1½	855	965	1035	—	575	725	170
			Dbl 2x	7-16dx2½	4-16dx2½	1010	1140	1195	—	710	750	
			3x	9-16d	4-16d	1195	1195	1195	710	710	1085	I14, L5, F13
HH6	5½	5⅛	2x	10-10dx1½	6-10dx1½	1220	1380	1480	—	1065	1025	170
			Dbl 2x	10-16dx2½	6-16dx2½	1440	1595	1595	—	1065	1085	
			3x	12-16d	6-16d	1595	1595	1595	1065	1065	1085	I14, L5, F13

1. Loads have been increased with no further increase allowed; reduce where other loads govern.
2. For 3x posts, 16dx2½" nails may be substituted with no reduction in load.
3. For SPF/HF lumber use 0.86 x DF/SP allowable loads.
4. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long, 16dx2½ = 0.162" dia. x 2½" long, 16d = 0.162" dia. x 3½" long. See page 22-23 for other nail sizes and information.



Typical HH Installation

LGT/MGT/VGT/HGT *Girder Tiedowns*

The LGT, MGT, VGT and HGT are girder tiedowns for moderate to high load capacity applications. The LGT and VGT are also suitable for retrofit applications.

LGT connectors provide a low profile connection to the studs for easy installation of drywall. Simple to install and can be installed on the inside or outside of the wall. LGT connectors also provide exceptional bearing enhancement for heavy download applications. The LGT series has been extended to include the new LGT4-SDS3 for 4-ply girders.

The Variable Girder Tiedown (VGT) is a higher capacity alternative to the LGT and MGT for girder trusses. It attaches with Simpson Strong-Tie® Strong-Drive® screws (SDS) to the side of truss and features a predeflected crescent washer that allows it to accommodate top chord pitches up to 8/12. The VGT is also available with one flange concealed for attachment to trusses with no tail.

The HGT offers the highest uplift capacity for girders and can be installed on trusses and beams with top chord slopes up to 8/12.

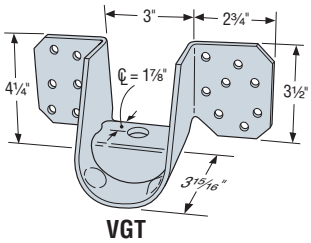
MATERIAL: HGT, VGT—7 gauge, LGT2—14 gauge, MGT, LGT3, LGT4—12 gauge.

FINISH: HGT—Simpson Strong-Tie® gray paint; LGT, MGT, VGT—Galvanized

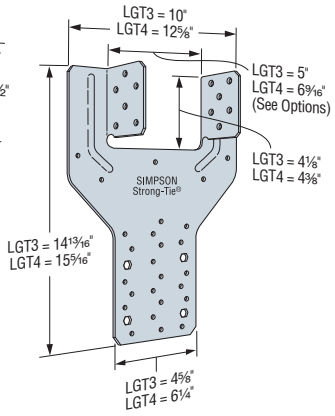
INSTALLATION:
- When the HGT-3 is used with a 2-ply girder or beam, shimming is required. Fasten to act as one unit.
- Before installing fasteners, ensure LGT3-SDS2.5 makes complete contact with bottom of truss.
- SDS screws included with LGT3, LGT4 and VGT Series.
- VGT—Can be installed on roof pitches up to 8/12 or on a bottom chord designed to transfer the load.
- VGT—Screw holes are configured to allow for double installation on a two-ply *(minimum)* truss.
- VGT—The product can be installed in a single application or in pairs to achieve a higher uplift capacity.
- VGT—When installed on trusses with no overhangs, specify VGTR/L.
- VGT—Install washer component *(provided)* so that top of washer is horizontal as well as parallel with top of wall top plate.
- LGT3-SDS2.5—The four large hexagon holes are intended for CMU and concrete applications.
- See pages 168-169 for masonry applications.

OPTIONS: LGT3 and LGT4 are available with reduced widths of W = 4¾" and W = 6⅝" – order as LGT3N-SDS2.5 and LGT4N-SDS3.

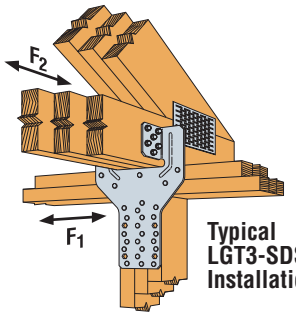
CODES: See page 13 for Code Reference Key Chart.



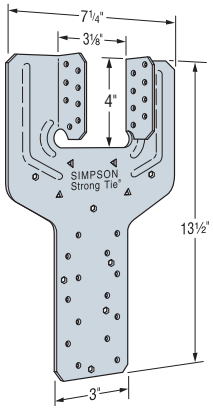
VGT
U.S. Patent Pending



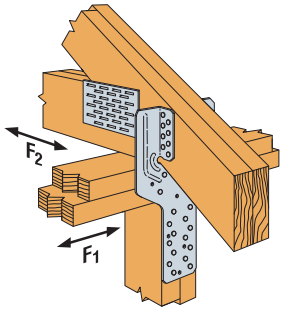
LGT3-SDS2.5
(LGT4-SDS3 similar)



Typical LGT3-SDS2.5 Installation

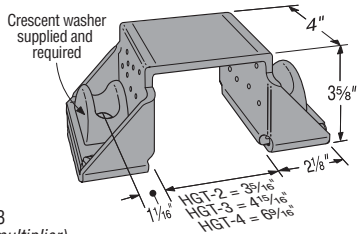


LGT2



Typical LGT2 Installation

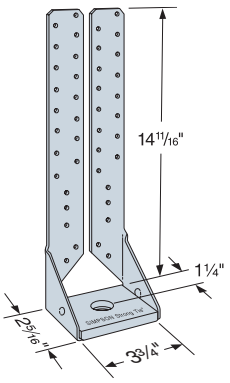
Model No.	Qty.	No. of Plies	O.C. Dim. Between Anchors	Fasteners		DF/SP Allowable Uplift Loads (160)	SPF/HF Allowable Uplift Loads (160)	Code Ref.
				Nails or Anchor Diameter	Girder			
LGT2	1	2 ply	—	14-16d Sinkers	16-16d Sinkers	2050	1785	F26
LGT3-SDS2.5	1	3 ply	—	26-16d Sinkers	12-SDS ¼"x2½"	3685	2655	
LGT4-SDS3	1	4 ply	—	30-16d Sinkers	16-SDS ¼"x3"	4060	2925[6]	
MGT	1	2 ply min.	—	1-⅝	22-10d	3965	3300	
VGT	1	2 ply min.	—	1-⅝	16-SDS ¼"x3"	4940	3555	
	2	2 ply min.	—	2-⅝	32-SDS ¼"x3"	7185	5175	
		3 ply min.	—	2-⅝	32-SDS ¼"x3"	8890	6400	
VGTR/L	1	2 ply min.	—	1-⅝	16-SDS ¼"x3"	2230	1605	
	2	2 ply min.	—	2-⅝	32-SDS ¼"x3"	5545	3990	
HGT-2	1	2 ply	5¾	2-⅝	16-10d	10980	6485	I17, IL15, F16
HGT-3	1	3 ply	7⅜	2-⅝	16-10d	10530	9035	
HGT-4	1	4 ply	9	2-⅝	16-10d	9250	9250	



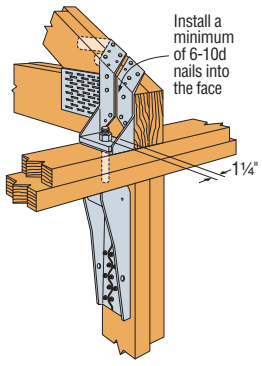
HGT-2
(HGT-3, HGT-4 similar)

1. Allowable loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. LGT2—F_1 load = 700 lbs.; F_2 load = 170 lbs. with installation of 4-16d sinkers optional nail holes.
3. LGT3—F_1 load = 795 lbs.; F_2 load = 410 lbs.
4. LGT4—F_1 load = 2000 lbs.; F_2 load = 675 lbs. with installation of 7-16d sinkers in optional nail holes.
5. LGT4—Uplift for DF/SP girder and SPF studs is 3860 lbs.
6. MGT can be installed with straps vertical for full table load provided all specified nails are installed to either a solid header or minimum double 2x6 web.
7. LGT connectors can provide bearing enhancement loads for truss download reactions. The DF/SP allowable load shall be 2060 lbs. for LGT2 and 4100 lbs. for LGT3 and LGT4 *(for SPF/HF values use a 0.68 multiplier)*. For more information refer to technical bulletin T-HTIEBEARING *(see page 230 for details)*.
8. Girder tiedowns installed on the outside of the wall require a 3½" overhang to achieve table loads.
9. Simpson Strong-Tie® Strong-Drive® screws are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Sections 7.5.3.4 and 8.9.2 are met *(pre-drilling required through the plate using a maximum of 5⁄32" bit)*.
10. **NAILS:** 16d Sinker = 0.148" dia. x 3¼" long, 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.

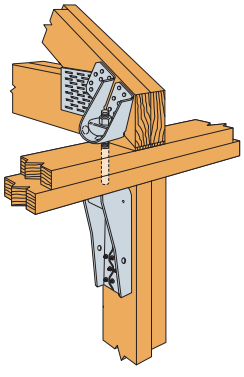
Install two LBP⅝" washers on top of each crescent washer *(total four ⅝" washers)* for wood installation. All washers and crescent washers are required. Crescent washers are supplied.



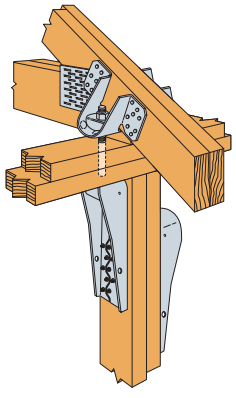
MGT



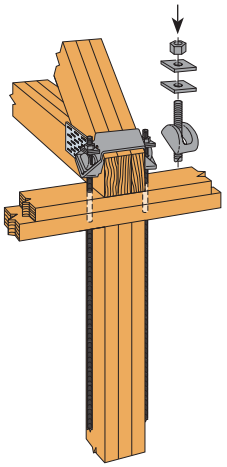
Typical MGT Installation with HDU4



Typical VGTR Single Installation with HDU2



Typical VGT Double Installation with HDU4's



Typical HGT-3 Installation with Full Height Threaded Rod

DSP/SSP/SP/SPH/RSP4/TSP *Stud Plate Ties*

SIMPSON Strong-Tie®

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 Stud Plate Tie series offers various solutions for connecting the stud to the top and bottom plates. All models can be used to make a connection to either the top or bottom plate, and several are suitable for double top plates and studs.

MATERIAL: DSP/SSP/SPH—18 gauge; TSP—16 gauge; all others—20 gauge
FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 14-15.
INSTALLATION: • Use all specified fasteners; see General Notes.
- TSP/DSP/SSP—sill plate installation-fill all round holes.
- TSP/DSP/SSP—top plate installation-fill all round and triangle holes
- SP1/SP2/SP3/SP5—one of the 10d common stud nails is driven at a 45° angle through the stud into the plate.

CODES: See page 13 for Code Reference Key Chart.

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.

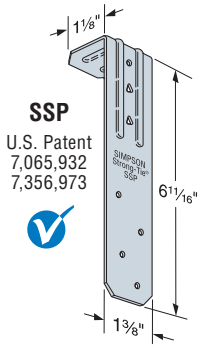
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

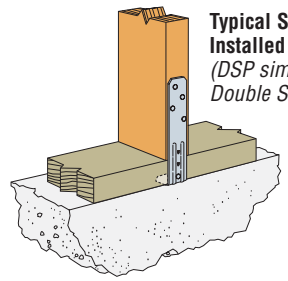
Model No.	Dim. W	Dim. L	Fasteners: Studs	Fasteners: Double Top Plate	Fasteners: Single Sill Plate	Allowable Uplift Loads (160): Double Top Plate DF/SP/SPF	Allowable Uplift Loads (160): Single Sill Plate DF/SP	Allowable Uplift Loads (160): Single Sill Plate SPF/HF	Code Ref.
SSP	1⅜	6¹¹⁄₁₆	4-10dx1½	3-10dx1½	—	350	—	—	I17, L18, F16
				—	1-10dx1½	—	420	325	
			4-10d	3-10d	—	435	—	—	
				—	1-10d	—	455	420	
DSP	2¾	6¹¹⁄₁₆	8-10dx1½	6-10dx1½	—	775	—	—	
				—	2-10dx1½	—	660	545	
			8-10d	6-10d	—	825	—	—	
				—	2-10d	—	825	600	
TSP	1½	7⅞	6-10dx1½	—	3-10dx1½	—	470[5]	425	F26
			9-10dx1½	6-10dx1½	—	755[4]	—	—	
				6-10d		1015[4]			

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed.
2. When cross-grain bending or cross-grain tension cannot be avoided, mechanical reinforcement to resist such forces should be considered.
3. Allowable loads for DSP installed to a rim joist are 660 lbs. (DF/SP), 545 lbs. (SPF/HF).
4. Noted values only apply to DF/SP members. For SPF values, multiply by 0.86.
5. Southern pine allowable uplift load is 585 lbs.
6. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

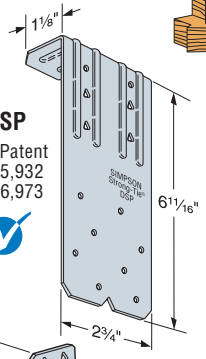
Model No.	Dim. W	Dim. L	Stud	Plate Width	Fasteners: Stud[1]	Fasteners: Plate	Allowable Uplift Loads: DF/SP Side[8] (160)	DF/SP Center[9] (160)	SPF/HF Side[8] (160)	SPF/HF Center[9] (160)	Code Ref.
SP1	3½	5¹⁄₁₆	2x	—	6-10d	4-10d	585	585	535	535	I17, F16
SP2	3½	6⅝	2x	—	6-10d	6-10d	1065	1065	605	605	
SP4	3⁹⁄₁₆	7¼	2x	4x	6-10dx1½	—	440	885	380	760	I17, F16
SP6	5⁹⁄₁₆	7¾	2x	6x	6-10dx1½	—	440	885	380	760	I17, F16
SP8	7⁵⁄₁₆	8⁵⁄₁₆	2x	8x	6-10dx1½	—	440	885	380	760	
SPH4 or	3⁹⁄₁₆	8¾	2x	4x	10-10dx1½	—	620	1240	530	1065	I17, F16
SPH4R	4¹⁄₁₆	8¼			12-10dx1½	—	680	1360	585	1170	170
SPH6 or	5⁹⁄₁₆	9¼	2x	6x	10-10dx1½	—	620	1240	530	1065	I17, F16
SPH6R	6¹⁄₁₆	8¾			12-10dx1½	—	680	1360	585	1170	170
SPH8	7⁵⁄₁₆	8⅜	2x	8x	10-10dx1½	—	620	1240	530	1065	I17, F16
			2x	8x	12-10dx1½	—	680	1360	585	1170	
RSP4(1)	2⅛	4½	2x	—	4-8dx1½	4-8dx1½	315	315	285	285	I17, L6, F16
RSP4(2)	2⅛	4½	2x	—	4-8dx1½	4-8dx1½	450	450	370	370	

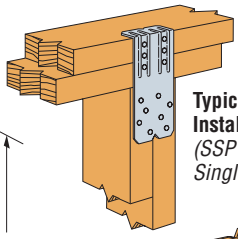
1. SP1/SP2–drive one stud nail at an angle through the stud into the plate to achieve the table load *(see illustration)*.
2. Allowable loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
3. RSP4–see Installation details (1) and (2) for reference.
4. RSP4 F_2 is 250 lbs. *(installation 1)* and 250 lbs. *(installation 2)*. F_1 load is 210 lbs. for both installations.
5. Maximum load for SPH in Southern Yellow Pine is 1490 lbs for center loading and 745 lbs for side loading.
6. When cross-grain bending or cross-grain tension cannot be avoided, mechanical reinforcement to resist such forces should be considered.
7. For retrofit application see technical bulletin T-STRAPS *(see page 232 for details)*.
8. Use Side *(eccentric)* load when uplift loads are applied to only one face of the top plate.
9. Use Center *(concentric)* loads when uplift loads are applied at the centerline of the top plate, or where equal loads are applied to both sides of the top plate. Center loads should also be used for stud to bottom plate loads.
10. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long, 8dx1½ = 0.131" dia. x 1½" long. See page 22-23 for other nail sizes and information.



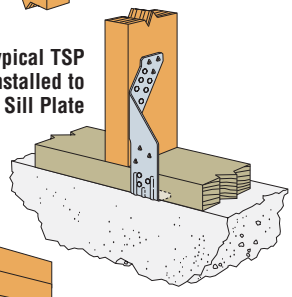


Typical SSP Installed to Sill Plate *(DSP similar for Double Stud)*

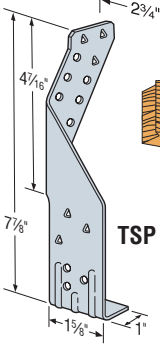


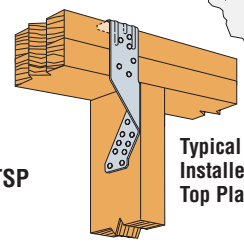


Typical DSP Installed to Top Plate *(SSP similar for Single Stud)*

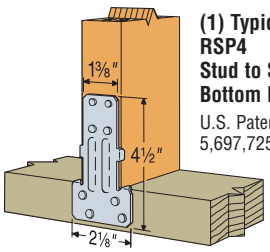


Typical TSP Installed to Sill Plate

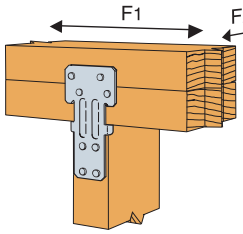




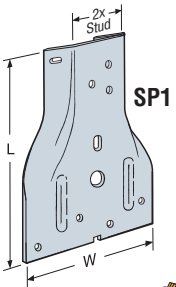
Typical TSP Installed to Top Plate

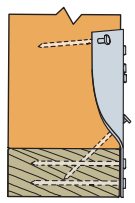


(1) Typical RSP4 Stud to Single Bottom Plate
U.S. Patent
5,697,725

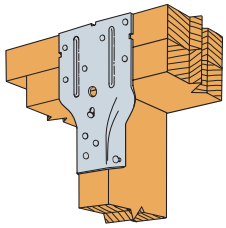


(2) Typical RSP4 Stud to Double Top Plate *(See footnote 4)*

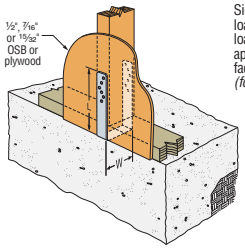




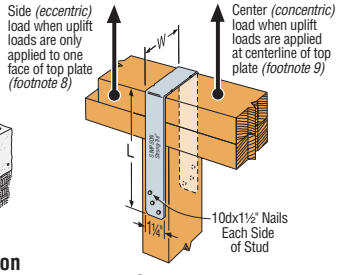
SP1 Nailing Profile



Typical SP2 Installation



Typical SPH4R installed on bottom of 2x stud wall
(Sill plate anchorage not shown)



Typical SP4 Installation
(SPH similar)

LTP4/LTP5/A34/A35 *Framing Angles & Plates*

The larger LTP5 spans subfloor at the top of the blocking or rim joist. The embossments enhance performance.

The LTP4 Lateral Tie Plate transfers shear forces for top plate-to-rim joist or blocking connections. Nail holes are spaced to prevent wood splitting for single and double top plate applications. May be installed over plywood sheathing.

The A35 anchor's exclusive bending slot allows instant, accurate field bends for all two- and three-way ties. Balanced, completely reversible design permits the A35 to secure a great variety of connections.

MATERIAL: LTP4/LTP5–20 gauge; all others–18 gauge

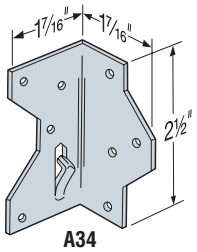
FINISH: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, page 14-15.

INSTALLATION: • Use all specified fasteners. See General Notes.
• A35–Bend one time only.

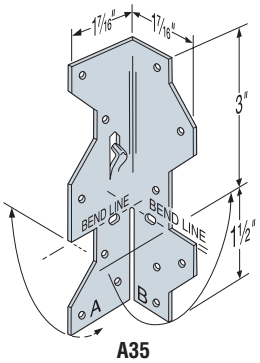
CODES: See page 13 for Code Reference Key Chart.

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.

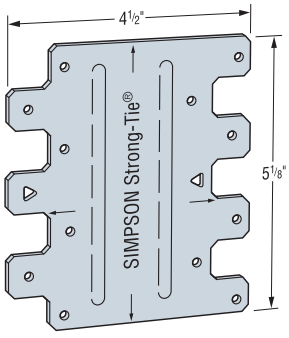
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.



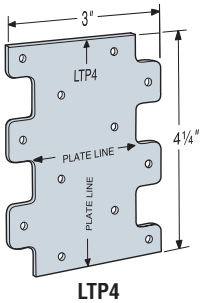
A34



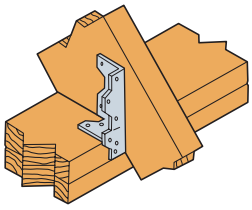
A35

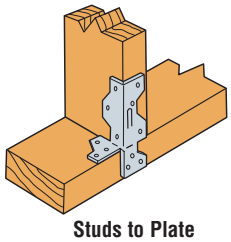


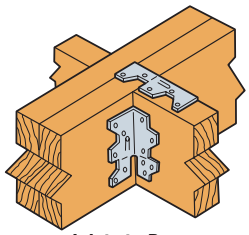
LTP5

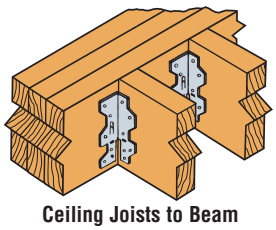


LTP4


Joists to Plate with A Leg Inside

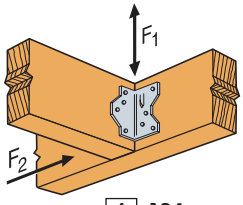

Studs to Plate with B Leg Outside


Joists to Beams

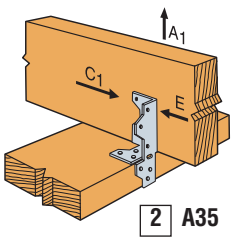

Ceiling Joists to Beam

Model No.	Type of Connection	Fasteners	Direction of Load	DF/SP Allowable Loads Floor (100)	DF/SP Roof (125)	DF/SP (160)	SPF/HF Allowable Loads Floor (100)	SPF/HF Roof (125)	SPF/HF (160)	Code Ref.
A34	1	8-8dx1½	F_1	395	485	515	340	415	445	IP1, L5, L18, F13
			F_2[6]	395	455	455	340	390	390	
A35	2	9-8dx1½	A_1, E	295	365	395	255	315	340	
			C_1	210	210	210	180	180	180	
	3	12-8dx1½	A_2	295	365	380	255	315	325	
			C_2	295	365	370	255	315	320	
			D	230	230	230	200	200	200	
	4	12-8dx1½	F_1	595	695	695	510	600	600	
			F_2[6]	595	670	670	510	575	575	
LTP4	5	12-8dx1½	G	515	645	670	445	555	575	I14, L5, F13
			H	515	645	670	445	555	575	
LTP5	6	12-8dx1½	G	585	620	620	505	535	535	IP1, L18, F25
			H	545	545	545	470	470	470	

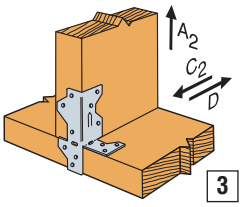
1. Allowable loads are for one anchor. When anchors are installed on each side of the joist, the minimum joist thickness is 3".
2. Some illustrations show connections that could cause cross-grain tension or bending of the wood during loading if not reinforced sufficiently. In this case, mechanical reinforcement should be considered.
3. LTP4 can be installed over ⅜" wood structural panel sheathing with 8dx1½ nails and achieve 0.72 of the listed load, or over ½" and achieve 0.64 of the listed load. 8d commons will achieve 100% load.
4. The LTP5 may be installed over wood structural panel sheathing up to ½" thick using 8dx1½ nails with no reduction in load.
5. Connectors are required on both sides to achieve F_2 loads in both directions.
6. **NAILS:** 8dx1½ = 0.131" dia. x 1½" long. See page 22-23 for other nail sizes and information.



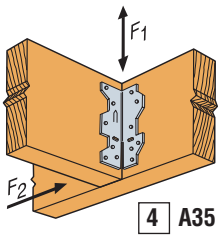
1 A34



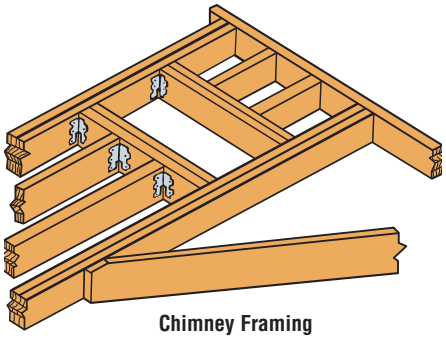
2 A35

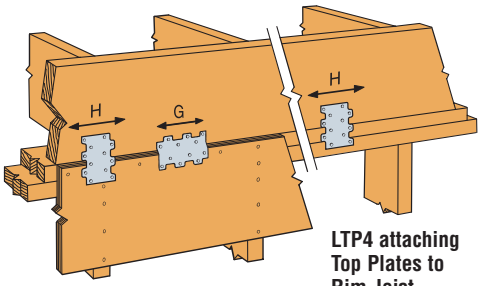


3 A35



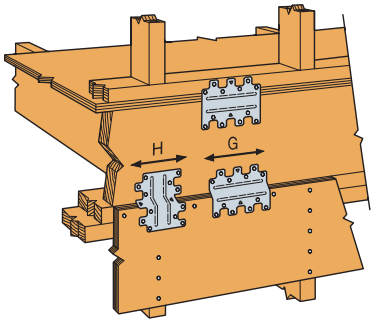
4 A35


Chimney Framing



5 LTP4 Installed over Wood Structural Panel Sheathing

LTP4 attaching Top Plates to Rim Joist



6 LTP5 Installed over Wood Structural Panel Sheathing

RBC *Roof Boundary Clip*

The RBC Roof Boundary Clip is designed to aid installation and transfer shear loads between the roof diaphragm and wall. The locator tabs make proper location of the clip easy. The RBC can be used on wood or masonry walls and will handle roof pitches from 0/12 to 12/12.

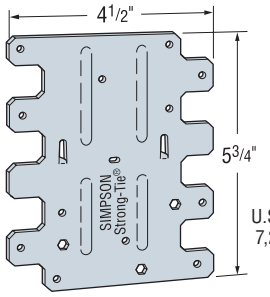
MATERIAL: 20 gauge **FINISH**: Galvanized

INSTALLATION: • Use all specified fasteners. See General Notes.
- Field bend to desired angle – one time only.
- See flier F-RBC for more information on installation and code requirements *(see page 229 for details)*.

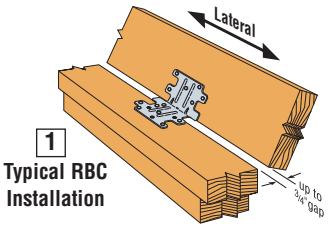
CODES: See page 13 for Code Reference Key Chart.

The RBC installed to blocking resists rotation and lateral displacement of rafter or truss.
Code references:
- IRC 2009/2012, R802.8 Lateral Support
- IBC 2009/2012, 2308.10.6 Blocking

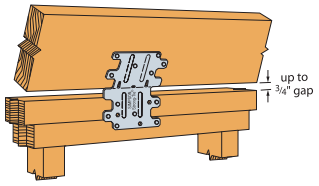
Blocking allows proper edge nailing of sheathing.
Code references:
- IRC 2009/2012, Table R602.3(1), footnote i
- IBC 2009/2012, 2305.1.4 Shear Panel Connections



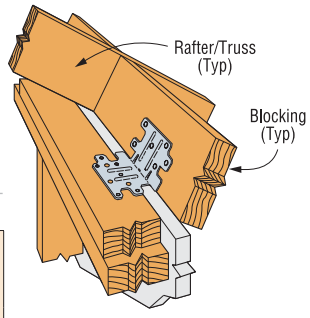
RBC
U.S. Patent 7,293,390



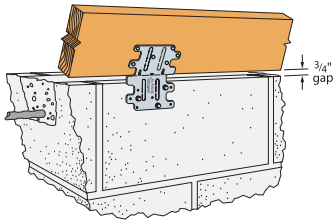
1 Typical RBC Installation



2 Typical RBC Installation



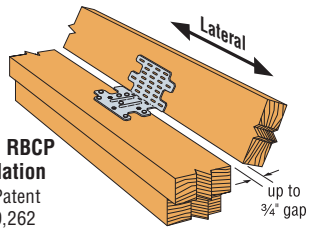
Typical RBC Installation Over 1" Foamboard[5]



3 Typical RBC Installation to CMU Block

Model No.	Type of Connection	Bending Angle	Fasteners		DF/SP Allowable Loads	SPF/HF Allowable Loads	Code Ref.
			To Wall	To Blocking	Lateral (160)	Lateral (160)	
RBC	1	45° to 90°	6-10dx1½	6-10dx1½	445	380	IP1, L18, F25
	2	< 30°	6-10dx1½	6-10dx1½	435	375	
		30° to 45°	6-10dx1½	6-10dx1½	480	415	
	3	0° to 45°	3-¼x2¼ Titen[4]	6-10dx1½	350	350	

1. Allowable loads are for one anchor attached to blocking minimum 1½" thick.
2. RBC can be installed with up to ¾" gap and achieve 100% of the listed load.
3. Allowable loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
4. When attaching to concrete use 3-¼x1¾" Titen® screws.
5. RBC installed over 1" foamboard has a load of 395 lbs. (160) in a parallel to wall (F_1) load direction for Douglas Fir. For SPF, the load is 340 lbs.
6. RBC may be installed over ½" structural sheathing using 10dx1½ nails with no load reduction.
7. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



Typical RBCP Installation
U.S. Patent 7,549,262

The RBC is available with prongs into one side (RBCP) for pre-attachment of the part to a block at the truss plant. Refer to technical bulletin T-RBCP for more information.

A *Angles*

Our line of angles provides a way to make a wide range of 90° connections.

MATERIAL: A21 and A23—18 ga.; all other A angles—12 ga.

FINISH: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, page 14-15.

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

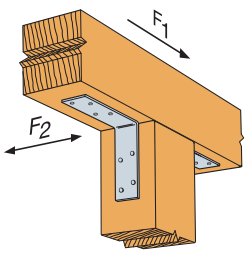
CODES: See page 13 for Code Reference Key Chart.

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.

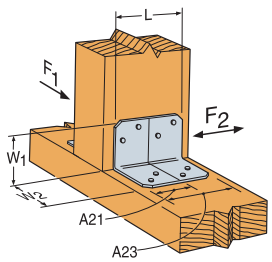
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Model No.	Dimensions			Fasteners				Allowable Loads DF/SP (160)		Code Ref.
	W_1	W_2	L	Base		Post		F_1	F_2	
				Bolts	Nails	Bolts	Nails			
A21	2	1½	1⅜	—	2-10dx1½	—	2-10dx1½	245	175	I14, L5, F13
A23	2	1½	2¾	—	4-10dx1½	—	4-10dx1½	585	565	
A33	3	3	1½	—	4-10d	—	4-10d	750	330	180
A44	4⁹⁄₁₆	4⅜	1½	—	4-10d	—	4-10d	750	295	
A66	5⅞	5⅞	1½	2-⅜	3-10d	2-⅜	3-10d	—	—	
A88	8	8	2	3-⅜	4-10d	3-⅜	4-10d	—	—	
A24	3⅞	2	2½	1-½	—	1-½	2-10d	—	—	
A311	11	3⅝	2	1-½	—	1-½	4-10d	—	—	

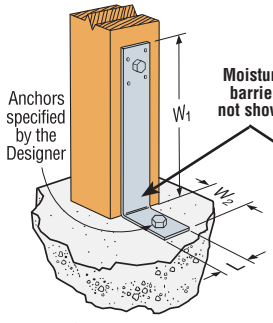
1. Allowable loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. For SPF/HF lumber use 0.86 of table loads.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long, 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.



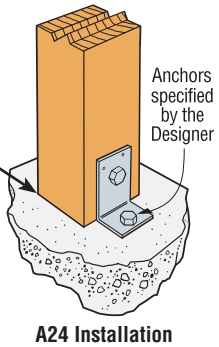
A44 Installation
(A33 similar)



A21/A23 Installation



A311 Installation



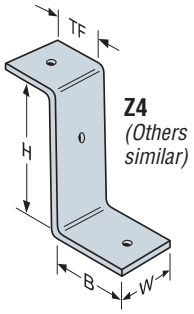
A24 Installation

SIMPSON Strong-Tie®

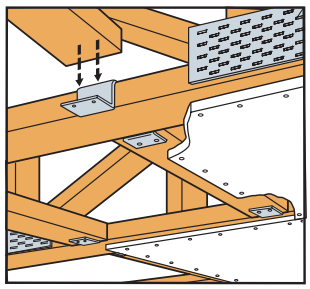
Z *Clips*

Z clips secure 2x4 flat blocking between joists or trusses to support sheathing.
MATERIAL: See table
INSTALLATION: • Use all specified fasteners; see General Notes.
• Z clips do not provide lateral stability. Do not walk on stiffeners or apply load until diaphragm is installed and nailed to stiffeners.
CODES: See page 13 for Code Reference Key Chart.

Model No.	Ga	Dimensions				Fasteners[1] (Total)	Allowable[2] Download (125)	Code Ref.
		W	H	B	TF			
Z2	20	2⁵⁄₁₆	1½	1⅜	1⅜	4-10dx1½	465	170
Z4	12	1½	3½	2⅛	1¾	2-16d	465	I14, L5, F13
Z28	28	2⁵⁄₁₆	1½	1⅜	1⅜	10dx1½[1]	—	170
Z38	28	2⁵⁄₁₆	2½	1⅜	1⅜	10dx1½[1]	—	
Z44	12	2½	3½	2	1⅜	4-16d	865	I14, L5, F13



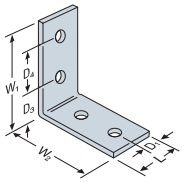
Z4 *(Others similar)*


Typical Z2 Installation

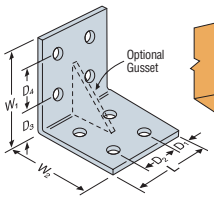
1. Z28 and Z38 do not have nail holes. Fastener quantity and type shall be per Designer.
2. Allowable loads have been increased 25% for roof loading (Z clips) with no further increase allowed; reduce where other loads govern.
3. Z4 loads apply with a nail into the top and a nail into the seat.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

HL *Heavy Angles and Gussets*

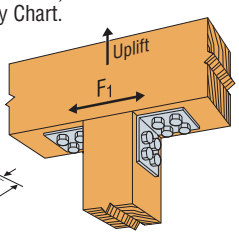
Versatile angle gussets and heavy angles promote standardization and construction economy, and are compatible with Simpson Strong-Tie® structural hardware.
FINISH: 7 ga Models–Galvanized; 3 ga Models–Simpson Strong-Tie® gray paint.
OPTIONS: Gussets may be added to HL models when L ≥ 5" *(specify G after model number, as in HL46G).*
CODES: See page 13 for Code Reference Key Chart.



HL53



HL55



Typical HL55 Installation

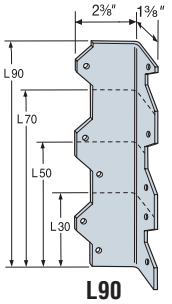
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Ga	Dimensions						Bolts (Total)		Allowable Loads		Code Ref.
		W1 &W2	L	D1	D2	D3	D4	Qty	Dia	Uplift	F1	
HL33	7	3¼	2½	1¼	—	2	—	2	½	910	1580	170
HL35	7	3¼	5	1¼	2½	2	—	4	½	910	1580	
HL37	7	3¼	7½	1¼	2½	2	—	6	½	910	1580	
HL53	7	5¾	2½	1¼	—	2	2½	4	½	910	1580	
HL55	7	5¾	5	1¼	2½	2	2½	8	½	910	1580	
HL57	7	5¾	7½	1¼	2½	2	2½	12	½	910	1580	
HL43	3	4¼	3	1½	—	2¾	—	2	¾	1555	1580	
HL46	3	4¼	6	1½	3	2¾	—	4	¾	1555	2025	
HL49	3	4¼	9	1½	3	2¾	—	6	¾	1555	2025	
HL73	3	7¼	3	1½	—	2¾	3	4	¾	1555	2025	
HL76	3	7¼	6	1½	3	2¾	3	8	¾	2115	3800	
HL79	3	7¼	9	1½	3	2¾	3	12	¾	2115	3800	

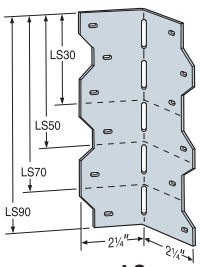
1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Use 0.85 times table load for Hem Fir.
3. Parts should be centered on the face of the member to which they are attached.
4. Wood members for the '3' and '5' series must have a minimum width and thickness of 3½" for table loads to apply.
5. Wood members for the '4' and '7' series must have a minimum width and thickness of 5⅛" for table loads to apply.
6. Parts must be used in pairs.
7. Lag bolts of equal diameter *(minimum 5" long)* may be substituted for machine bolts into beam with no reduction in load.

L/LS/GA *Reinforcing and Skewable Angles*

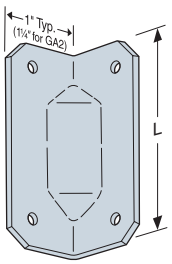
L–Staggered nail pattern reduces the possibility for splitting.
LS–Field-adjustable 0° to 135° angles.
The GA Gusset Angles' embossed bend section provides added strength.
MATERIAL: L–16 gauge; GA and LS–18 gauge
FINISH: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, page 14-15.
INSTALLATION:
• Use all specified fasteners; see General Notes.
• LS–field skewable; bend one time only.
• Joist must be constrained against rotation *(for example, with solid blocking)* when using a single LS per connection.
• Nail the L angle's wider leg into the joist to ensure table loads and allow correct nailing.
CODES: See page 13 for Code Reference Key Chart.



L90



LS

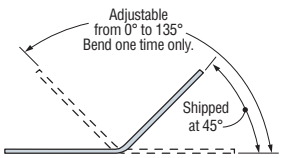


GA1

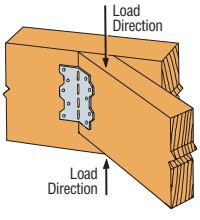
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Model No.	L	Fasteners	DF/SP Allowable Loads[1,2,3]				SPF/HF Allowable Loads				Code Ref.
			Floor (100)	Snow (115)	Roof (125)	(160)	Floor (100)	Snow (115)	Roof (125)	(160)	
GA1	2¾	4-10d	185	185	185	185	160	160	160	160	I14, F13
GA2	3¼	6-10d	335	385	415	450	290	335	335	335	
L30	3	4-10d	220	240	240	240	190	205	205	205	I14, L5, F13
L50	5	6-10d	335	385	420	445	290	335	360	385	
L70	7	8-10d	445	510	555	565	380	435	475	485	
L90	9	10-10d	555	640	695	740	480	550	600	640	
LS30	3⅜	6-10d	355	395	395	395	305	335	335	335	IP1, L5, L18, F13
LS50	4⅞	8-10d	475	540	585	730	410	465	505	630	
LS70	6⅜	10-10d	595	675	730	915	510	580	630	785	
LS90	7⅞	12-10d	715	810	875	1040	615	695	755	895	

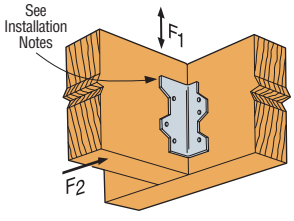
1. L angles–loads are for condition F_1 or F_2; LS angles–loads are for condition F_1 only.
2. GA1 and GA2 angles table loads are F_1 – loads for F_2 are 220 lbs. and 335 lbs. (100) and 280 lbs. and 415 lbs. (125), respectively.
3. Roof loads are 125% of floor loads unless limited by other criteria.
4. Connectors are required on both sides to achieve F_2 loads in both directions.
5. L angles may be installed with 10dx1½ nails and achieve full load.
6. LS angles may be installed with 10dx1½ nails at 0.81 x table load.
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



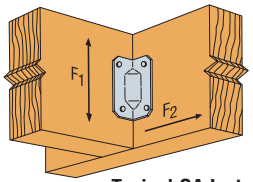
LS Top View



Typical LS70 Installation



Typical L50 Installation



Typical GA Installation

DTT2Z *Deck Post Connectors*

The DTT2Z is a safe, cost-effective way to attach deck-railing posts to the deck framing. Because the post is tied back into the deck joists, rather than to the rim joist alone, the connection is stronger than typical through-bolt installations and complies with IRC and IBC code requirements regarding handrail and guardrail post connections for decks. The DTT2Z also complies with the new IRC requirements for laterally tying the deck to the house. Additionally, the versatile DTT2Z is load rated as a holdown for light-duty shearwalls and braced wall panel applications. The DTT2Z fastens easily to a single 2x joist or stud using Simpson Strong-Tie® Strong-Drive® SDS screws *(included)* and accepts a ½" machine bolt or anchor bolt.

The new DTT2SS is made from stainless steel for applications in higher-exposure environments. Whether it's a deck guardrail post application or the lateral-load connection from the deck to the adjacent structure, the new stainless-steel DTT2SS is the best choice for seaside applications or those calling for more corrosive preservative-treated lumber formulations. It fastens to the framing members with stainless-steel Simpson Strong-Tie Strong-Drive SDS wood screws *(included)*.

The new DTT2Z-SDS2.5 is our standard DTT2Z packaged with 2½" Simpson Strong-Tie Strong-Drive SDS wood screws instead of the standard 1½" fasteners. These longer screws allow the DTT2Z to achieve a load capacity in excess of 2100 lbs. when used as a holdown on double studs in a shearwall application. The DTT2Z-SDS2.5 is also suitable in deck applications when double 2x members are used for deck joists or blocking.

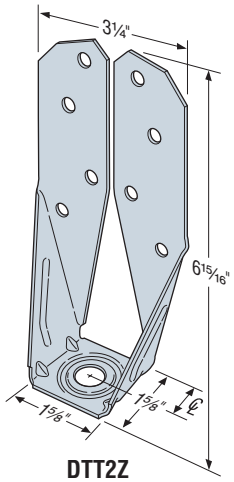
MATERIAL: DTT2Z/DTT2SS—14 gauge

FINISH: DTT2Z—ZMAX® coating; DTT2SS—Stainless steel; see Corrosion Information, page 14-15.

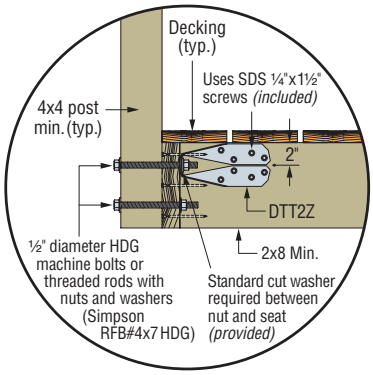
INSTALLATION: Use all specified fasteners. See General Notes.

- A standard cut washer *(refer to General Notes)* must be installed between the nut and the seat.
- Simpson Strong-Tie SDS screws install best with a low speed high torque drill with a ⅜" hex head driver.

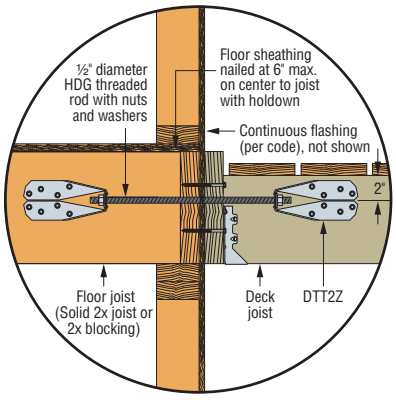
CODES: See page 13 for Code Reference Key Chart.



DTT2Z



DTT2Z installed as a lateral connector for a deck guardrail post.
For more information on guardrail post connections, see technical bulletin T-GRDRLPST.



Typical Deck-to-House Lateral Load Connection
For more information on lateral load connections, see technical bulletin T-DECKLATLOAD.

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.

Model No.	℄	Anchor Diameter	Fasteners	Minimum Wood Member Thickness	Allowable Tension Load				Code Ref.
					DF/SP		SPF/HF		
					(100)	(160)[1]	(100)	(160)[1]	
DTT2Z/DTT2SS	13/16	½	8-SDS ¼"x1½"	1½	1825	1825	1440	1800	I6, L8, F5
				3	2000	2145	1440	1835	
DTT2Z-SDS2.5	13/16	½	8-SDS ¼"x2½"	3	2145	2145	2105	2105	170

1. The allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed.
2. Load values are valid if the product is flush with the end of the framing member or installed away from the end.
3. The guardrail post illustration above addresses an outward force on the guardrail. An additional DTT2Z can be added at the lower bolt to address an inward force.

DPTZ *Deck Post Tie*

The DPTZ Deck Post Tie products are used to attach 2x4 (DPT5Z) or 4x4 (DPT7Z) vertical posts to the side of stringers, rims or other wood members.

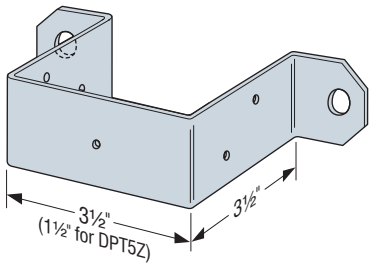
MATERIAL: 14 gauge

FINISH: ZMAX® coating; see Corrosion Information, page 14-15.

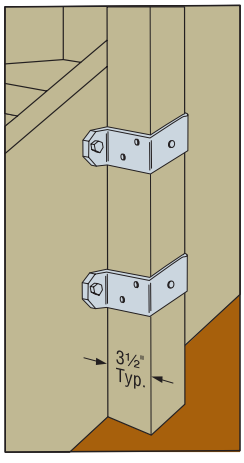
INSTALLATION:

- Use specified HDG fasteners. See General Notes.
- Install in pairs.
- Install with two ⅜" through bolts into side member and 5-10dx1½ to post for DPT5Z or 5-10d for DPT7Z.

These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.



DPT7Z
(DPT5Z similar)



Typical DPT7Z Stairway Installation
(DPT5Z similar)

SDWS/SDWH *Structural Wood Screws*

Simpson Strong-Tie has expanded the Strong-Drive® SDW wood screw product line with two new screws designed to provide an easy-to-install, high-strength alternative to through-bolting and traditional lag screws. The new SDWS and SDWH structural wood screws are ideal for the contractor and do-it-yourselfer alike.

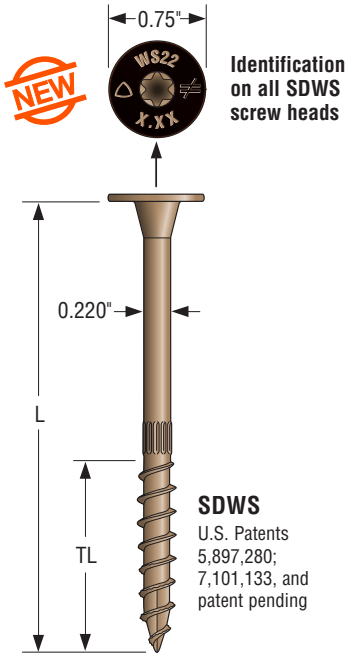
MATERIAL: Heat-treated carbon steel

FINISH: Double-barrier coating

INSTALLATION:

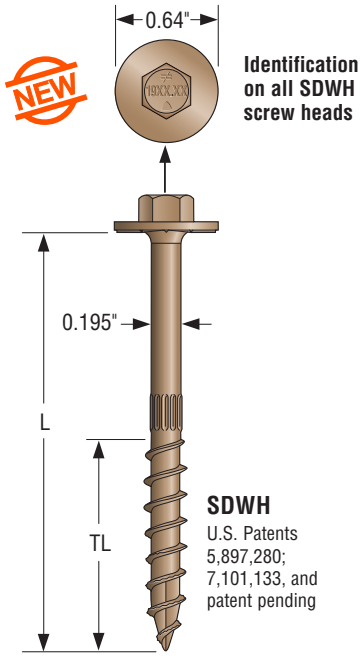
- See General Notes.
- SDWS screws install best with a low-speed ½" drill and a T-40 6-lobe bit. The matched bit included with the screws is recommended for best results.
- SDWH screws install best with a low-speed ½" drill and a 5⁄16" hex driver bit. The matched bit included with the screws is recommended for best results.
- Pre-drilling is typically not required. Where pre-drilling is necessary, use a 5⁄32" drill bit for SDWS and a ⅛" drill bit for SDWH.
- Screw heads that are countersunk flush to the wood surface are acceptable if the screw has not spun out.

CODES: See page 13 for Code Reference Key Chart.



Identification on all SDWS screw heads

SDWS
U.S. Patents 5,897,280; 7,101,133, and patent pending

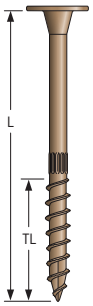


Identification on all SDWH screw heads

SDWH
U.S. Patents 5,897,280; 7,101,133, and patent pending

SDWS Screw Product Information

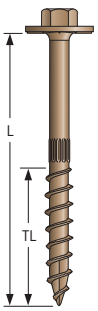
Size Dia.x L (in.)	Thread Length TL (in.)	Retail Pack[1]			Mini-Bulk Bucket[1]			Bulk[1]	
		Fasteners Per Pack	Packs Per Master Carton	Model No.	Fasteners Per Pack	Packs Per Master Carton	Model No.	Fasteners Per Pack	Model No.
0.220 x 3	1½	12	10	SDWS22300DB-RC12	50	6	SDWS22300DB-R50	950	SDWS22300DB
0.220 x 4	2⅜	12	10	SDWS22400DB-RC12	50	6	SDWS22400DB-R50	600	SDWS22400DB
0.220 x 5	2¾	12	10	SDWS22500DB-RC12	50	6	SDWS22500DB-R50	600	SDWS22500DB
0.220 x 6	2¾	12	10	SDWS22600DB-RC12	50	6	SDWS22600DB-R50	500	SDWS22600DB
0.220 x 8	2¾	12	10	SDWS22800DB-RC12	50	6	SDWS22800DB-R50	400	SDWS22800DB
0.220 x 10	2¾	12	10	SDWS221000DBRC12	50	6	SDWS221000DB-R50	250	SDWS221000DB



1. Retail and mini-bulk packs include one deep, 6-lobe, T-40 driver bit; bulk packs include two driver bits.

SDWH Screw Product Information

Size Dia.x L (in.)	Thread Length (TL) (in.)	Retail Pack[1]			Mini-Bulk[1]			Bulk[1]	
		Fasteners Per Pack	Packs Per Master Carton	Model No.	Fasteners Per Pack	Packs Per Master Carton	Model No.	Fasteners Per Pack	Model No.
0.195 x 3	1½	12	10	SDWH19300DB-RC12	50	6	SDWH19300DB-R50	1000	SDWH19300DB
0.195 x 4	2⅜	12	10	SDWH19400DB-RC12	50	6	SDWH19400DB-R50	800	SDWH19400DB
0.195 x 6	2¾	12	10	SDWH19600DB-RC12	50	6	SDWH19600DB-R50	600	SDWH19600DB
0.195 x 8	2¾	12	10	SDWH19800DB-RC12	50	6	SDWH19800DB-R50	500	SDWH19800DB
0.195 x 10	2¾	12	10	SDWH191000DBRC12	50	6	SDWH191000DB-R50	250	SDWH191000DB



1. Retail and mini-bulk packs include one deep, 5⁄16" hex driver bit; bulk packs include two driver bits.

SDWS Screw Shear, Douglas Fir-Larch and Southern Pine Lumber

Size Dia.x L (in.)	Model No.	Thread Length TL (in.)	DF/SP Allowable Loads Shear (100) Wood Side Member Thickness (in.)									Code Ref.
			1.5	2	2.5	3	3.5	4	4.5	6	8	
0.220 x 3	SDWS22300DB	1½	255	—	—	—	—	—	—	—	—	IP4, F32
0.220 x 4	SDWS22400DB	2⅜	405	405	305	—	—	—	—	—	—	
0.220 x 5	SDWS22500DB	2¾	405	405	360	360	325	—	—	—	—	
0.220 x 6	SDWS22600DB	2¾	405	405	405	405	365	365	355	—	—	
0.220 x 8	SDWS22800DB	2¾	405	405	405	405	395	395	395	395	—	
0.220 x 10	SDWS221000DB	2¾	405	405	405	405	395	395	395	395	395	

See footnotes on page 195.

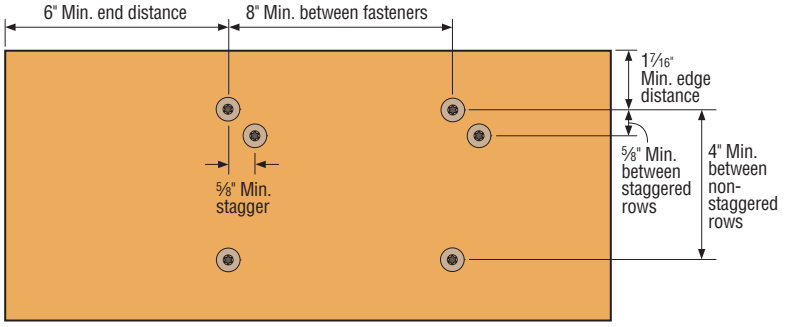
SDWS/SDWH *Structural Wood Screws*

SIMPSON Strong-Tie®

SDWS Screw Shear, Spruce Pine Fir and Hem Fir Lumber

Size Dia.x L (in.)	Model No.	Thread Length TL (in.)	SPF/HF Allowable Loads Shear (100) Wood Side Member Thickness (in.)									Code Ref.
			1.5	2	2.5	3	3.5	4	4.5	6	8	
0.220 x 3	SDWS22300DB	1½	185	—	—	—	—	—	—	—	—	IP4, F32
0.220 x 4	SDWS22400DB	2⅜	385	290	215	—	—	—	—	—	—	
0.220 x 5	SDWS22500DB	2¾	405	290	290	290	195	—	—	—	—	
0.220 x 6	SDWS22600DB	2¾	405	365	365	365	310	310	210	—	—	
0.220 x 8	SDWS22800DB	2¾	405	365	365	365	310	310	280	280	—	
0.220 x 10	SDWS221000DB	2¾	405	365	365	365	310	310	280	280	280	

1. All applications are based on full penetration into the main member. Full penetration is the screw length minus the side member thickness.
2. Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
3. Minimum fastener spacing requirements to achieve table loads: 6" end distance, 1⁷⁄₁₆" edge distance, ⅝" between staggered rows of fasteners, 4" between non-staggered rows of fasteners and 8" between fasteners in a row.
4. For in-service moisture content greater than 19%, use $C_M = 0.7$.



SDWS Spacing Requirements

SDWH Screw Shear, Douglas Fir-Larch and Southern Pine Lumber

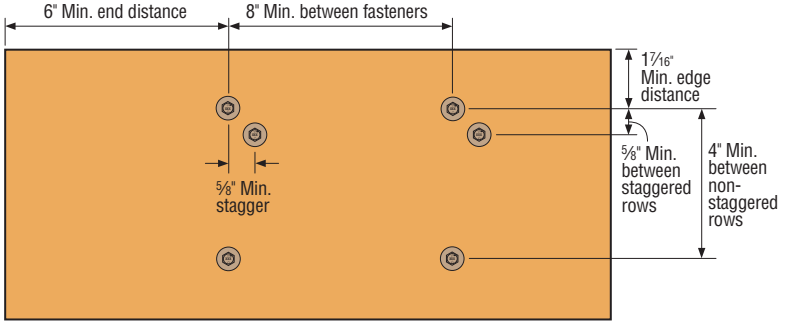
Size Dia.x L (in.)	Model No.	Thread Length TL (in.)	DF/SP Allowable Loads Shear (100) Wood Side Member Thickness (in.)									Code Ref.
			1.5	2	2.5	3	3.5	4	4.5	6	8	
0.195 x 3	SDWH19300DB	1½	285	—	—	—	—	—	—	—	—	IP4, F32
0.195 x 4	SDWH19400DB	2⅜	370	300	195	—	—	—	—	—	—	
0.195 x 6	SDWH19600DB	2¾	370	265	265	265	265	225	225	—	—	
0.195 x 8	SDWH19800DB	2¾	370	265	265	265	265	265	260	225	—	
0.195 x 10	SDWH191000DB	2¾	370	265	265	265	265	265	260	260	225	

See footnotes below.

SDWH Screw Shear, Spruce Pine Fir and Hem Fir Lumber

Size Dia.x L (in.)	Model No.	Thread Length TL (in.)	SPF/HF Allowable Loads Shear (100) Wood Side Member Thickness (in.)									Code Ref.
			1.5	2	2.5	3	3.5	4	4.5	6	8	
0.195 x 3	SDWH19300DB	1½	230	—	—	—	—	—	—	—	—	IP4, F32
0.195 x 4	SDWH19400DB	2⅜	330	235	195	—	—	—	—	—	—	
0.195 x 6	SDWH19600DB	2¾	350	265	265	265	265	215	180	—	—	
0.195 x 8	SDWH19800DB	2¾	350	265	265	265	265	265	215	215	—	
0.195 x 10	SDWH191000DB	2¾	350	265	265	265	265	265	250	250	215	

1. All applications are based on full penetration into the main member. Full penetration is the screw length minus the side member thickness.
2. Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
3. Minimum fastener spacing requirements to achieve table loads: 6" end distance, 1⁷⁄₁₆" edge distance, ⅝" between staggered rows of fasteners, 4" between non-staggered rows of fasteners and 8" between fasteners in a row.
4. For in-service moisture content greater than 19%, use $C_M = 0.7$.



SDWH Spacing Requirements

SDWS/SDWH *Structural Wood Screws*

SDWS – Douglas Fir-Larch, Southern Pine, Spruce Pine Fir and Hem Fir Lumber Allowable Withdrawal Loads

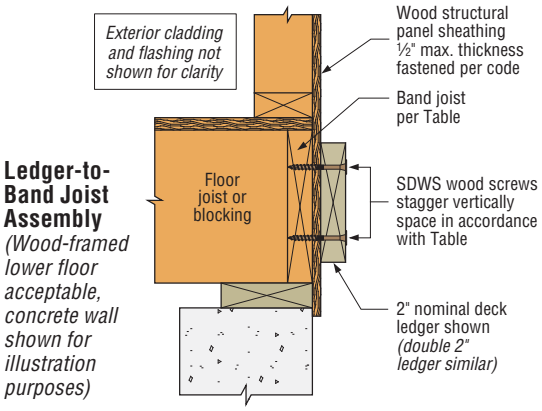
Model No.	Fastener Length, L (in.)	Thread Length, TL (in.)	Reference Withdrawal Design Value, W (lbs/inch)		Max. Reference Withdrawal Design Value, W_{Max} (lbs)		Code Ref.
			DF and SP Main Member	HF and SPF Main Member	DF and SP Main Member	HF and SPF Main Member	
SDWS22300DB	3	1½	164	151	245	225	IP4, F32
SDWS22400DB	4	2⅜	179	160	425	380	
SDWS22500DB	5	2¾	214	187	590	495	
SDWS22600DB	6	2¾	214	187	590	495	
SDWS22800DB	8	2¾	214	187	590	495	
SDWS221000DB	10	2¾	214	187	590	495	

1. The tabulated reference withdrawal design value, W, is in pounds per inch of the thread penetration into the side grain of the main member.
2. The tabulated reference withdrawal design value, W_{Max}, is in pounds where the entire thread length must penetrate into the side grain of the main member.
3. Tabulated reference withdrawal design values, W and W_{Max}, are shown at a C_D = 1.0. Loads may be increased for load duration per the building code up to a C_D = 1.6. Tabulated values must be multiplied by all applicable adjustment factors from the NDS as referenced in the IBC or IRC.
4. Embedded thread length is that portion held in the main member including the screw tip.
5. Values are based on the lesser of withdrawal from the main member or pull-through of a 1½" side member.
6. For in-service moisture content greater than 19%, use C_M = 0.7.

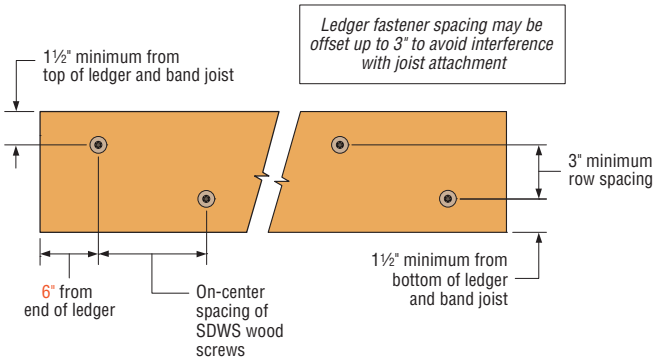
SDWS – 2009 and 2012 IRC Compliant Spacing for a Sawn Lumber Deck Ledger to Band Joist

Loading Condition	Nominal Ledger Size	Screw Model No.	Band Joist Material and Minimum Size	Maximum Deck Joist Span						
				Up to 6 ft.	Up to 8 ft.	Up to 10 ft.	Up to 12 ft.	Up to 14 ft.	Up to 16 ft.	Up to 18 ft.
				Maximum On-Center Spacing of Fasteners (in.)						
40 psf Live 10 psf Dead	2x	SDWS22400DB	1" OSB	14	10	8	7	6	5	5
			1" LVL							
			1⅛" OSB	16	12	10	8	7	6	5
			1 5/16" LVL							
			1¼" LSL							
			2x SP, DF – 2x SPF, HF	22	16	13	11	9	8	7
60 psf Live 10 psf Dead	2x	SDWS22400DB	1" OSB	10	7	6	5	4	4	3
			1" LVL							
			1⅛" OSB	12	9	7	6	5	4	4
			1 5/16" LVL							
			1¼" LSL							
			2x SP, DF – 2x SPF, HF	15	12	9	8	7	6	5
40 psf Live 10 psf Dead	2-2x	SDWS22500DB	1" OSB	15	12	9	8	7	6	5
			1" LVL							
			1⅛" OSB	16	12	10	8	7	6	5
			1 5/16" LVL							
			1¼" LSL							
			2x SP, DF – 2x SPF, HF	16	12	10	8	7	6	5
60 psf Live 10 psf Dead	2-2x	SDWS22500DB	1" OSB	11	8	7	6	5	4	4
			1" LVL							
			1⅛" OSB	12	9	7	6	5	4	4
			1 5/16" LVL							
			1¼" LSL							
			2x SP, DF – 2x SPF, HF	12	9	7	6	5	4	4

1. SDWS screw spacing values are equivalent to 2009 IRC Table R502.2.2.1. The table above also provides SDWS screw spacing for a wider range of materials commonly used for band joists, and an alternate loading condition as required by some jurisdictions.
2. Solid-sawn band joists shall be Spruce-Pine-Fir, Hem-Fir, Douglas Fir-Larch, or Southern Pine species. Ledger shall be Hem-Fir, Douglas Fir-Larch, or Southern Pine species.
3. Fastener spacings are based on the lesser of single fastener ICC-ES AC233 testing of the Strong-Drive® SDWS screw with a safety factor of 5.0 or ICC-ES AC13 ledger assembly testing with a factor of safety of 5.0. Spacing includes NDS wet service factor adjustment.
4. Multiple ledger plies shall be fastened together per code independent of the SDWS screws.
5. Screws shall be placed at least 1½" from the top or bottom of the ledger or band joist, 6" from the end of the ledger with 3" between rows and spaced per the table. See figure below.
6. Structural sheathing between the ledger and band shall be a maximum of ½" thick and fastened per code.



Ledger-to-Band Joist Assembly *(Wood-framed lower floor acceptable, concrete wall shown for illustration purposes)*



SDWS Screw Spacing Detail

SDWS/SDWH *Structural Wood Screws*

SDWH – Douglas Fir-Larch, Southern Pine, Spruce Pine Fir and Hem Fir Lumber Allowable Withdrawal Loads

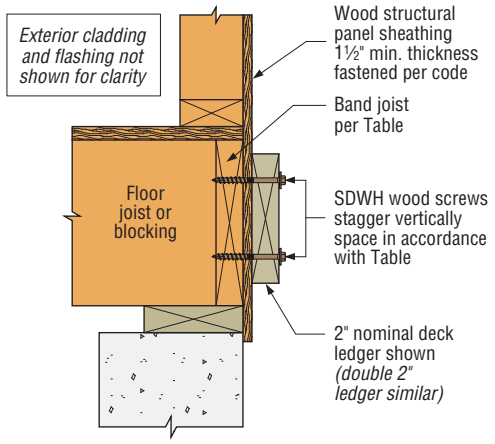
Model No.	Fastener Length, L (in.)	Thread Length, TL (in.)	Reference Withdrawal Design Value, W (lbs/inch)		Max. Reference Withdrawal Design Value, W_{Max} (lbs)		Code Ref.
			DF and SP Main Member	HF and SPF Main Member	DF and SP Main Member	HF and SPF Main Member	
SDWH19300DB	3	1½	177	120	265	180	IP4, F32
SDWH19400DB	4	2⅜	192	147	455	350	
SDWH19600DB	6	2¾	197	164	545	450	
SDWH19800DB	8	2¾	197	164	545	450	
SDWH191000DB	10	2¾	197	164	545	450	

1. The tabulated reference withdrawal design value, W, is in pounds per inch of the thread penetration into the side grain of the main member.
2. The tabulated reference withdrawal design value, W_{Max}, is in pounds where the entire thread length must penetrate into the side grain of the main member.
3. Tabulated reference withdrawal design values, W and W_{Max}, are shown at a C_D = 1.0. Loads may be increased for load duration per the building code up to a C_D = 1.6. Tabulated values must be multiplied by all applicable adjustment factors from the NDS as referenced in the IBC or IRC.
4. Embedded thread length is that portion held in the main member including the screw tip.
5. Values are based on the lesser of withdrawal from the main member or pull-through of a 1½" side member.
6. For in-service moisture content greater than 19%, use C_M = 0.7.

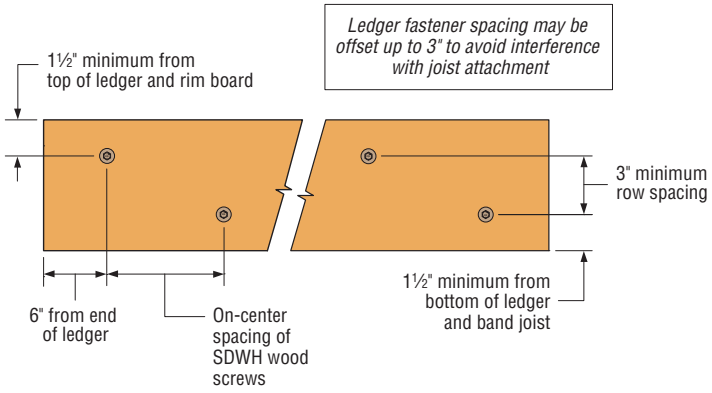
SDWH – 2009 and 2012 IRC Compliant Spacing for a Sawn Lumber Deck Ledger to Band Joist

Loading Condition	Nominal Ledger Size	Screw Model No.	Band Joist Material and Minimum Size	Maximum Deck Joist Span						
				Up to 6 ft.	Up to 8 ft.	Up to 10 ft.	Up to 12 ft.	Up to 14 ft.	Up to 16 ft.	Up to 18 ft.
				Maximum On-Center Spacing of Fasteners (in.)						
40 psf Live 10 psf Dead	2x	SDWH19400DB	1" OSB	13	9	8	6	5	5	4
			1" LVL							
			1⅛" OSB	18	13	11	9	8	7	6
			1⅝" LVL							
			1¼" LSL							
			2x SP, DFL – 2x SPF, HF	15	12	9	8	7	6	5
60 psf Live 10 psf Dead	2x	SDWH19400DB	1" OSB	9	7	5	5	4	3	3
			1" LVL							
			1⅛" OSB	13	10	8	6	5	5	4
			1⅝" LVL							
			1¼" LSL							
			2x SP, DFL – 2x SPF, HF	11	8	7	6	5	4	4

1. SDWH screw spacing values are equivalent to 2009 IRC Table R502.2.2.1. The table above also provides SDWH screw spacing for a wider range of materials commonly used for band joists, and an alternate loading condition as required by some jurisdictions.
2. Solid-sawn band joists shall be Spruce-Pine-Fir, Hem-Fir, Douglas Fir-Larch, or Southern Pine species. Ledger shall be Hem-Fir, Douglas Fir-Larch, or Southern Pine species.
3. Fastener spacings are based on the lesser of single fastener ICC-ES AC233 testing of the Strong-Drive® SDWH screw with a safety factor of 5.0 or ICC-ES AC13 ledger assembly testing with a factor of safety of 5.0. Spacing includes NDS wet service factor adjustment.
4. Screws shall be placed at least 1½" from the top or bottom of the ledger or band joist, 6" from the end of the ledger with 3" between rows and spaced per the table. See figure below.
5. Structural sheathing between the ledger and band shall be a maximum of ½" thick and fastened per code.



Ledger-to-Band Joist Assembly
(Wood-framed lower floor acceptable, concrete wall shown for illustration purposes)



SDWH Screw Spacing Detail

LSC *Adjustable Stringer Connector*

The LSC adjustable stair-stringer connector offers a versatile, concealed connection between the stair stringer and the carrying header or rim joist while replacing costly framing. Field slopeable to all common stair stringer pitches, the LSC connector is suitable for either solid or notched stringers.

Features:

- Replaces additional framing and toe-nailing
- Suitable for most installations on 2x10 or 2x12 header/rim joist
- May be installed flush with the top of the carrying member or lower on the face
- Interchangeable for left or right applications
- LSCZ features a ZMAX® coating for additional corrosion protection. Suitable for interior and some exterior applications. LSCSS is made from stainless steel for higher exposure environment. See ***www.strongtie.com/info*** for more information

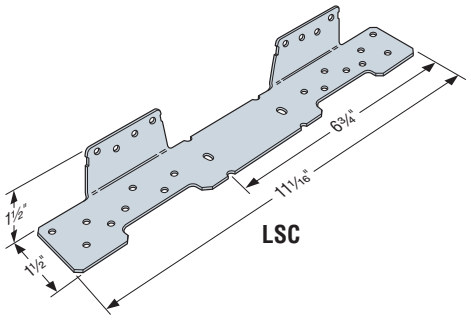
MATERIAL: 18 gauge

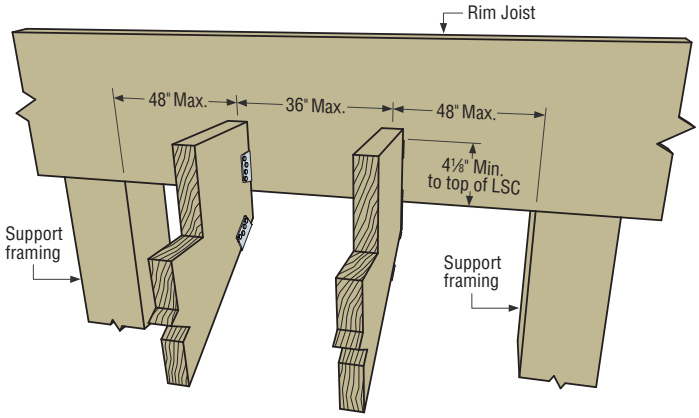
FINISH: LSCZ—ZMAX® coating; LSCSS—Stainless steel

INSTALLATION: • Use all specified fasteners, see table.

- Before fastening, position the stair stringer with the LSC on the carrying member to verify where the bend should be located.
- Tabs on the LSC must be positioned to the inside of the stairs.
- The fastener that is installed into the bottom edge of the stringer must go into the second-to-last hole.
- When installed on 1⅝" LVL or a 1¼" LSL stringer, additional items that will not affect the structural performance of the LSC, but should be considered, include the following:
  - LSC stringer flange will protrude ¼" from face of stringer. As such, it is recommended the LSC be installed with the tabs positioned to the outside of the stringer.
  - 1½" fasteners installed into 1¼" LSL stringer will protrude from the opposite side.

CODES: See page 13 for Code Reference Key Chart.





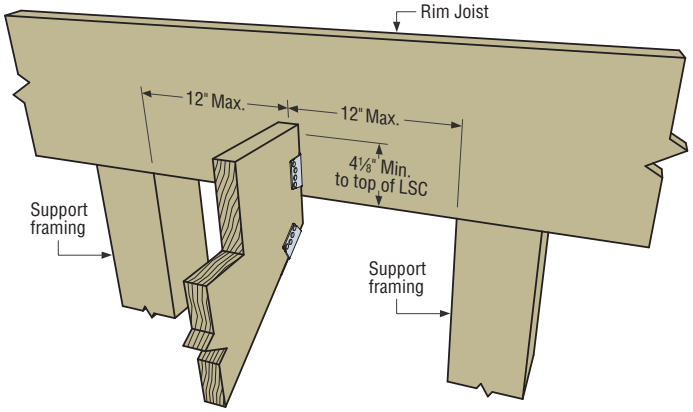
Standard LSC Installation

These products feature additional corrosion protection.

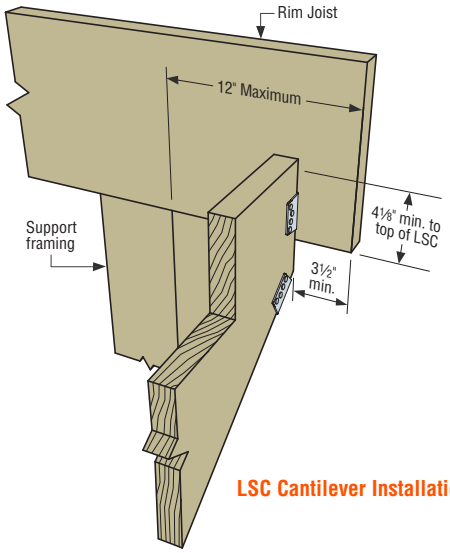
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Model No.	Rim Joist Installation	Fastener Schedule			DF/SP Allowable Loads		SPF/HF Allowable Loads		Code Ref.
		Rim Joist[2]	Stringer Wide Face	Stringer Narrow Face	Floor (100)	Snow (115)	Floor (100)	Snow (115)	
LSCZ LSCSS	Supported[4]	8-10dx1½"	8-10dx1½"	1-10dx1½"	950	1000	815	860	I18
	Supported	8-SD#9x1½"	8-SD#9x1½"	—	865	865	670	670	
	Standard	8-10dx1½"	8-10dx1½"	1-10dx1½"	755	755	650	650	
	Standard	8-SD#9x1½"	8-SD#9x1½"	1-SD#9x1½"	755	755	650	650	
	Cantilever	8-10dx1½"	8-10dx1½"	1-10dx1½"	520	520	445	445	
	Cantilever	8-SD#9x1½"	8-SD#9x1½"	—	545	545	445	445	

1. Stair stringer must be minimum 1⅝" LVL or minimum 1¼" LSL. Allowable loads for DF/SP species material shall apply.
2. When cross-grain tension forces cannot be avoided in the members, mechanical reinforcement to resist such forces may be considered.
3. A minimum distance of ¾" measured from the lowest rim-joist fastener to edge of rim joist is required.
4. Simpson Strong-Tie® SD #9x1½" screws may be substituted for 10dx1½" nails to achieve published nail values if the extra screw is installed in the narrow face of stringer.
5. **NAIL:** 10dx1½ = 0.148" dia. x 1½" long. Nails shall be hot-dip galvanized for LSCZ and stainless steel for LSCSS. See page 22-23 for other nail sizes and information.
6. **SCREWS (LSCZ only):** SD #9x1½" *(model SD9112)* = 0.131" dia. x 1½" long *(see page 27).*



Supported LSC Installation



LSC Cantilever Installation

SIMPSON Strong-Tie®

DJT14Z *Deck Joist Tie*

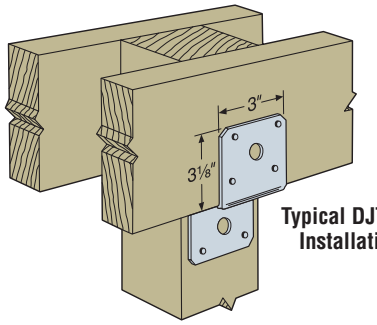
The DJT14Z Deck Joist Tie is designed to attach 2x deck joists to the side of 4x or larger support posts. The DJT14Z can be installed with either nails or bolts.

MATERIAL: 14 gauge

FINISH: ZMAX® coating; see Corrosion Information, page 14-15.

INSTALLATION: • Use specified HDG fasteners. See General Notes.
- Recommended: install on post first.
- Minimum 2x4 joist and 4x4 post.

CODES: See page 13 for Code Reference Key Chart.



Typical DJT14Z Installation

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 27 for more information.

Model No.	Fasteners			Allowable Loads				Code Ref.
	Nails	Bolts		Nails		Bolts		
		Qty	Dia	Floor (100)	Roof (125)	Floor (100)	Roof (125)	
DJT14Z	8-16d	2	⅝ MB	1160	1400	1220	1400	I18, F17

1. Loads are for one DJT14Z.
2. Roof loads are 125% of floor loads. Floor loads may be adjusted for other load durations according to the code, provided they do not exceed the roof loads.
3. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 22-23 for other nail sizes and information.

TA *Staircase Angles*

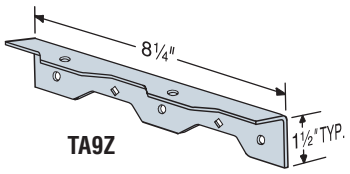
For use in structurally-sound staircase framing. The TA eliminates costly conventional notching.

MATERIAL: 12 gauge

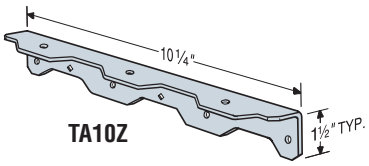
FINISH: TA9Z/TA10Z—ZMAX coating; TA9SS/TA10SS—stainless steel; see Corrosion Information, page 14-15.

ORDER: May be ordered as kits with model numbers TA9ZKT and TA10ZKT. Each kit includes two ZMAX TA's and Simpson Strong-Tie® SDS ¼"x1½" screws.

CODES: See page 13 for Code Reference Key Chart.



TA9Z

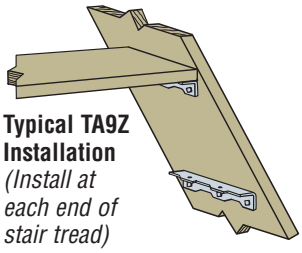


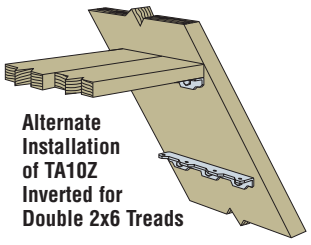
TA10Z

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.

Model No.	Fasteners		Allowable Downloads DF/SP (100)	Code Ref.
	Stringer	Tread		
TA9	3-SDS ¼"x1½"	2-SDS ¼"x1½"	750	170
TA10	3-SDS ¼"x1½"	4-SDS ¼"x1½"	750	
TA10	4-SDS ¼"x1½"	3-SDS ¼"x1½"	1000	

1. Loads may be adjusted for other load durations according to the code.
2. See page 26 for SDS screw information.


Typical TA9Z Installation *(Install at each end of stair tread)*


Alternate Installation of TA10Z Inverted for Double 2x6 Treads

ML24/ML26 *Angles*

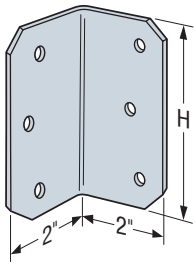
The ML angle combines strength and versatility through the use of Simpson Strong-Tie® Strong-Drive® SDS screws. Fastener holes are staggered to minimize wood splitting and opposing hole patterns allows for back to back installation without fastener interference.

MATERIAL: 12 gauge

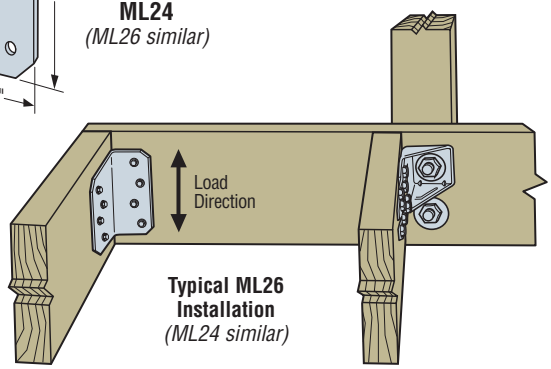
FINISH: ML24Z/ML26Z—ZMAX® coating; ML24SS/ML26SS—stainless steel; see Corrosion Information, page 14-15.

INSTALLATION: • Use all specified fasteners. See General Notes.
- Simpson Strong-Tie SDS ¼"x1½" are not provided with the angle.

CODES: See page 13 for Code Reference Key Chart.



ML24 *(ML26 similar)*



Typical ML26 Installation *(ML24 similar)*

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.

Model No.	H	Fasteners (Total)	DF/SP Allowable Loads				SPF/HF Allowable Loads				Code Ref.
			(100)	(115)	(125)	(160)	(100)	(115)	(125)	(160)	
ML24	4	6-SDS ¼"x1½"	515	515	515	515	440	440	440	440	F24
ML26	6	8-SDS ¼"x1½"	1000	1090	1090	1090	720	830	900	935	

PGT® *Pipe Grip Ties®*

Pipe Grip Ties attach wood fence rails to metal fence posts, eliminating rotted and failed wood posts. The PGT is suitable for standard applications as well as corners and splices.

The PGTIC2Z-R is an interior corner pipe grip tie.

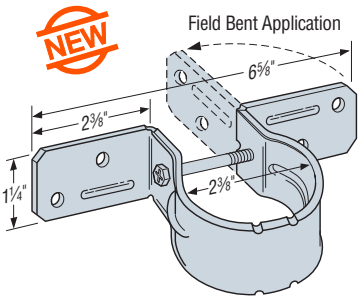
The PGT1.5Z-R is for 1½" pipe *(1⅞" outside diameter)*, and the PGT2Z-R for 2" pipe *(2⅜" outside diameter)*.

The PGT2A is for 2" pipe *(2⅜" outside diameter)*.

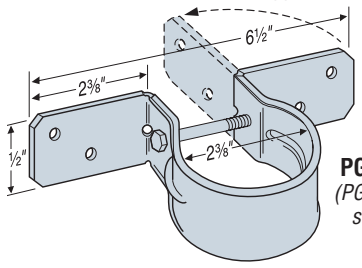
MATERIAL: 12 gauge

FINISH: ZMAX® coating, also available in G90.

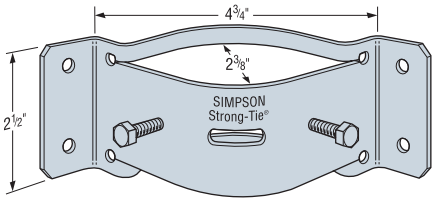
INSTALLATION:
- Use all specified fasteners. See General Notes.
- PGTIC2Z-R to Post – Install two set screws *(supplied)* with ⅜ socket in predrilled holes.
- PGTIC2Z-R to Rails – Use Simpson Strong-Tie® Strong-Drive® ¼"x1½" SDS wood screws *(not supplied)*.
- Install on vertical pipes, offsetting corners to allow for the correct rail alignment.
- Use 3 to 4 PGTs per pipe; line up to stringline.
- Fasten PGT with ¼" hex head bolt *(supplied)*.
- PGT attaches to rails with four Simpson Strong-Tie SDS ¼"x1½" HDG wood screws *(not supplied)*. See page 26 for SDS screw information.
- ¼" lag bolts may be used. Follow the code requirements for predrilling.
- Nail or screw fence boards to rails.
- Field bend PGT flanges to fit corner and angled conditions *(bend one time only)*.



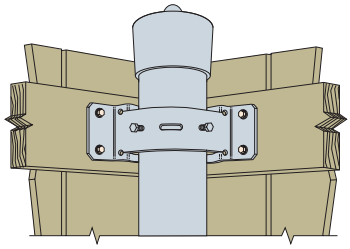
PGT2A



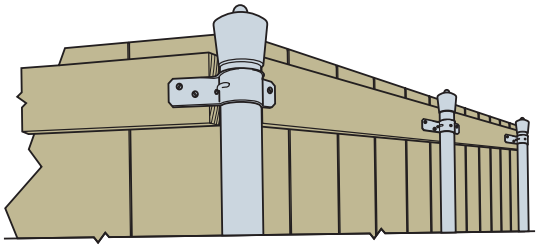
PGT2Z-R
(PGT1.5Z-R similar)



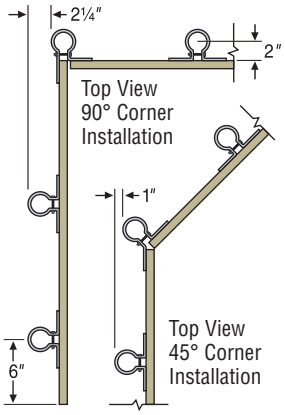
PGTIC2Z-R



Typical PGTIC2Z-R Fence Installation



Typical PGT2Z-R Fence Installation



Corner Installation Top View

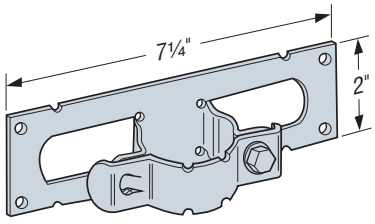
PGT2E *Pipe-Grip Tie*

Simpson Strong-Tie introduces the latest time-saving solution for building fences with 2" steel posts. The PGT2E pipe-grip tie features a unique two-piece design that installs quickly and provides a solid connection between fence stringer and post. Snap the attachment plate onto the post for easy positioning and secure the strap using one thread-tapping screw *(included)*.

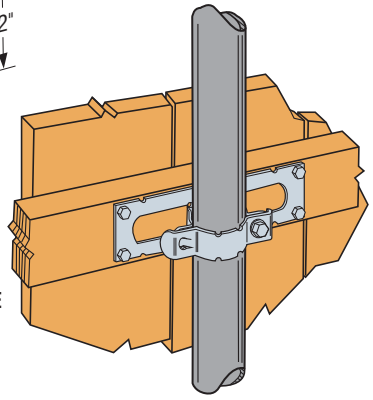
- Faster to install than other two-piece fence-post brackets
- Safer to use, eliminating protruding carriage bolts and sharp corners
- Unique locking tab for the strap means only one screw is needed to fasten

MATERIAL: 12 gauge **FINISH:** Galvanized

INSTALLATION:
- Fasten stringers using ¼" Simpson Strong-Tie® Strong-Drive® SDS wood screws or ¼" lag screws *(follow code requirements for pre-drilling)*.



PGT2E



Typical PGT2E Installation

FB/FBR *Fence Brackets*

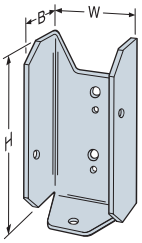
FB and FBR fence brackets make the connection between fence rails and posts simple and strong. Eliminates the need for toe nailing or screwing. Clean, versatile connections make planning and building fences, deck/porch railings and louvers easier and faster.

MATERIAL: See table

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 14-15.

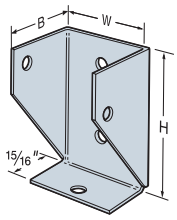
INSTALLATION: • Holes are sized for 8dx1½", 8d commons or SD9x1½" screws into the supporting member.
• FB24R is sized for 10dx1½" or SD10x1½" screws.
• FB26 is sized for SD10x1½" screws.

CODES: See page 13 for Code Reference Key Chart.



FB24
(FB24R Similar)

FB26



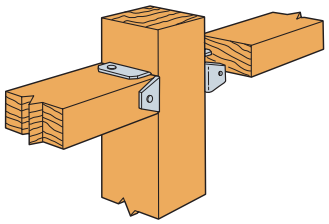
FBR24

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.

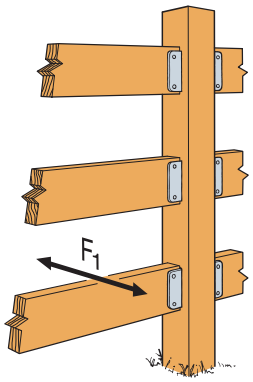
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

	Model No.	Ga	Member Size	Dimensions W	Dimensions H	Dimensions B	Code Ref.
	FB24	20	2x4	1⅜16	3⅜	¾	180
	FB24R	20	2x4 RGH	2	3⅜	¾	
	FBR24	18	2x4	1⅜16	2⅞16	1½	
	FB26	18	2x6	1⅜16	5	1½	

1. FB26 has an allowable load for F_1 of 365 lbs.
2. FBR24: R = rail *(not rough)*.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long, 8d = 0.131" dia. x 2½" long, 8dx1½ = 0.131" dia. x 1½" long. See page 22-23 for other nail sizes and information.



Typical FB24 Installation



Typical FB26 Fencing Installation

E-Z Base™/E-Z Mender™/E-Z Spike™ *Fence Products*

Replacing an entire fence can be an expensive and difficult task. Simpson Strong-Tie® offers a line of products designed to help make reinforcing fence posts easy and economical. The E-Z Base, E-Z Mender and E-Z Spike offer simple solutions for all types of fence post projects.

E-Z Spike *(Model No. FPBS44)*
- Allows easy installation of 4x4 wood posts without digging holes or pouring concrete.
- Can be used for a variety of applications where quick-to-install posts are needed.

E-Z Mender *(Model No. FPBM44E)*
- Allows easy repair of rotted or damaged 4x4 wood posts installed in concrete or dirt.
- Reinforces weakened wood posts without having to replace the post or the concrete.
- Sold individually. Use in pairs.

E-Z Base *(Model No. FPBB44)*
- Allows easy installation of 4x4 wood posts on existing concrete.

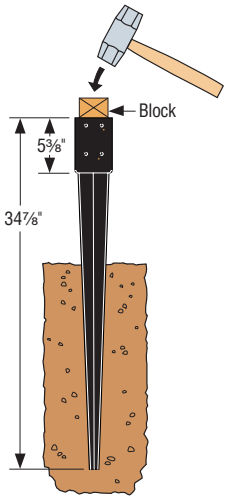
MATERIAL: 12 gauge

FINISH: Black powder-coat

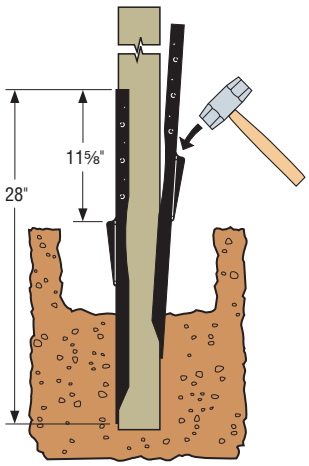
INSTALLATION:
- See flier F-EZFPP *(see page 228 for details)*.
- Attach post to E-Z Spike or E-Z Base with 8-¼" SDS screws or ¼" HDG lag screws and attach post to E-Z Mender using 6 HDG nails or screws per part.

NOTE: • Notwithstanding the terms of the Limited Warranty, Simpson Strong-Tie does not guarantee, represent or warrant that this product will perform under, or prevent or reduce damage caused by corrosion, any seismic, wind, atmospheric, or other load-producing event.

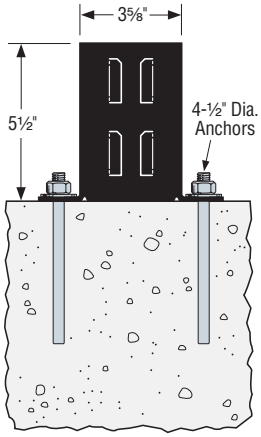
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.



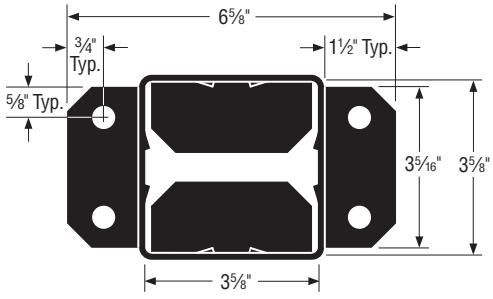
E-Z Spike™ (FPBS44)



E-Z Mender™ (FPBM44E)



E-Z Base™ (FPBB44)



E-Z Base™ (FPBB44) Top View

RR *Ridge Rafter Connector*

An interlock provides alignment control and correct nailing locations. For a rafter-to-face connector, flatten the top flange into the face plane. The RR may be used with rafters sloped up to 30°.

MATERIAL: 18 gauge **FINISH**: Galvanized

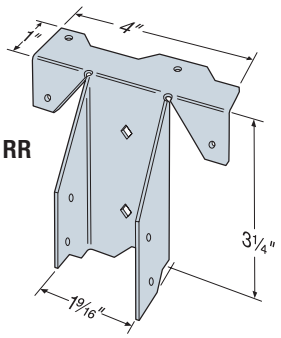
INSTALLATION: • Use all specified fasteners. See General Notes.

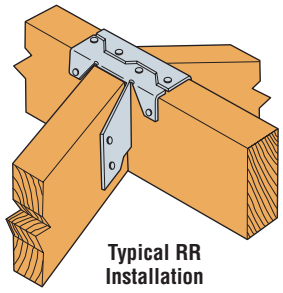
CODES: See page 13 for Code Reference Key Chart.

These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Model No.	Min. Rafter Size	Fasteners		Uplift (160)	Allowable Loads[1]		Code Ref.
		Header	Rafter		DF/SP		
					Floor (100)	Roof (125)	
RR	2x6	4-10dx1½	4-10dx1½	130	365	415	I10, L11, F9

1. Floor loads may be adjusted for other load durations according to the code, provided they do not exceed the table roof loads.
2. **NAILS:** 10dx1½ = 0.148" dia.x1½" long. See page 22-23 for other nail sizes and information.




Typical RR Installation

PSCL/PSCA *Panel Sheathing Clips*

Simpson Strong-Tie® Panel Sheathing Clips are used to brace unsupported sheathing edges. The PSCA is a new version of the PSCL with less material for a more cost effective solution. Model sizes include: PSCL⅜, PSCA⁷⁄₁₆, PSCL⁷⁄₁₆, PSCA¹⁵⁄₃₂, PSCL¹⁵⁄₃₂, PSCL½, PSCL⅝; PSCL¹⁹⁄₃₂, PSCL¾.

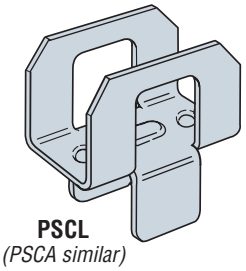
MATERIAL: 20 gauge **FINISH:** Galvanized

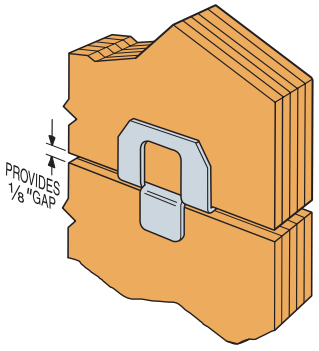
INSTALLATION: • Use the same size sheathing clip as the panel thickness.
• Maximum spans may be reduced for low slopes or high uniform loads, refer to manufacturer's installation instructions.

CODES: See page 13 for Code Reference Key Chart.

Span Rating	Panel Thickness	Maximum Roof Sheathing Span		No. of Clips Per Span	Code Ref.
		With Clip	Without Clip		
24/0	⅜	24	20	1	180
24/16	⁷⁄₁₆	24	24	1[2]	
32/16	¹⁵⁄₃₂, ½	32	28	1[2]	
40/20	⅝, ¹⁹⁄₃₂	40	32	1	
48/24	¾	48	36	2	

1. Span rating and Maximum Roof Sheathing Spans are for reference only, refer to IBC Table 2304.7 (3) for additional important information.
2. Maximum roof sheathing span with single PSCA is 24". For spans > 24" use two PSCA's.


PSCL
(PSCA similar)



Typical PSCL Installation

SBV/CF-R *Shelf Brackets/Concrete Form Angles*

Use the SBV for shelving, counter brackets, window ledge supports, at a very competitive price.

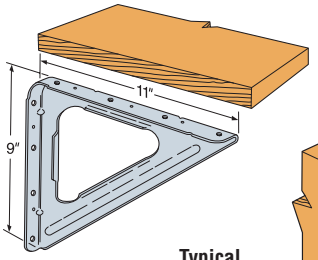
The CF-R is used where a moderate size shelf bracket and reinforcing angle is needed. When used for tilt-up perimeter forming, the nail hole placement ensures substantial re-use.

MATERIAL: 16 gauge **FINISH**: Galvanized

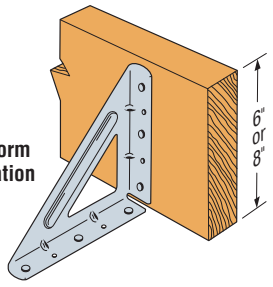
INSTALLATION: • Use all specified fasteners. See General Notes.
• SBV—Reversible for nominal 10" or 12" shelves of any thickness.
• CF-R *(Retail Pack)*—Recommended spacing is 36" for 2x's and 18" for 1x's. Use the 5" leg for 6" lumber and the 6" leg for 8" lumber. Holes are sized for ¼" fasteners or 10d commons.

CODES: See page 13 for Code Reference Key Chart.

Model No.	Fasteners	DF/SP Allowable Downloads (100)	Code Ref.
	Stud		
CF-R	3-SDS ¼"x2"	135	170
SBV	4-SDS ¼"x2"	145	



SBV



Typical CF-R Form Installation

DS *Drywall Stop*

Eliminates costly blocking at top plate, end walls, and corners. A typical residence will use several hundred of these inexpensive clips with a substantial savings in blocking and labor.

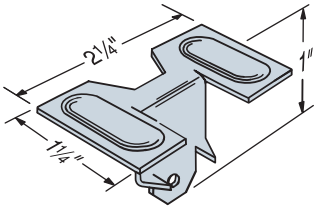
The installation prongs provide even more labor savings.

MATERIAL: 20 gauge

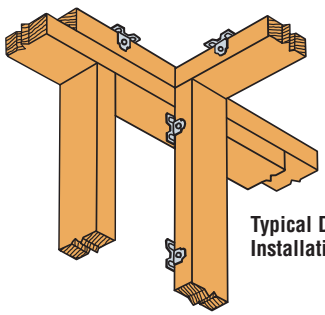
FINISH: Galvanized

INSTALLATION:
• 16" on center or less, using 8d commons.
• DS should not be used where gypsum board is used for structural loads.

CODES: ICC ESR-2614, Florida FL-10865.4



DS


Typical DS Installation

RTC/FWH *Rigid Tie™ Connectors*

The RTC series secures two wood members to a vertical post forming a 90° corner. The RTC42 and RTC44 are heavy-duty structural connectors. Based on loads of 40 lbs. per sq. ft., a 10'x10' deck can be built using 2x8 joists and 4 RTC42s. See the table for post and joist sizes.

RTB—a bracket for intersecting 2x members.
FWH—4 way connectors for 2x members with bendable flanges.
RTA—connects two 2x wood members at a 90° angle.
RTF—connects two members in a "pass-through" application.
RTR and RTU—a 2x member crosses another.

MATERIAL: RTC44—14 gauge; RTA2—16 gauge; RTR and RTB—20 gauge; all others—18 gauge
FINISH: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, page 14-15.
INSTALLATION:
- Use all specified fasteners. See General Notes.
- Install vertical members first, then attach horizontal members for easier alignment.
- Seat wood member in bracket with a C-clamp before securing to aid positioning and prevent skewing.
- Always follow manufacturer's instructions when using power tools and building equipment.

CODES: See page 13 for Code Reference Key Chart.

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.

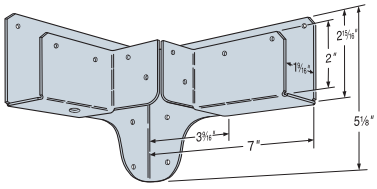
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Model No.	Post Size	Joist Size	Fasteners (Total)		Allowable Downloads[1]		Code Ref.
			Post	Joist	Floor (100)	Roof (125)	
FWH2	2x	2x	8-SD8x1.25	8-SD8x1.25	N/A	N/A	180
RTA12	1x	1x	4-SD8x1.25	4-SD8x1.25	N/A	N/A	
RTA2Z	2x	2x	4-SD8x1.25	4-SD8x1.25	N/A	N/A	
RTA4	4x	4x	7-SD8x1.25	5-SD8x1.25	N/A	N/A	
RTB22	2x	2x	4-SD8x1.25	4-SD8x1.25	N/A	N/A	
RTC22Z	2x	2x	5-SD8x1.25	6-SD8x1.25	N/A	N/A	
RTC24	2x4	2x	9-SD8x1.25	11-SD8x1.25	450	560	I18, F17
RTC42	4x4	2x	14-SD8x1.25	8-SD8x1.25	650	810	
	4x4	2x	14-16d	8-10dx1½	1730	2160	
RTC44	4x4	4x	14-16d Sinkers	15-16d Sinkers	1580	1980	
	4x4	4x	14-16d	15-16d	1875	2345	
RTF2Z	2x4	2x	4-SD8x1.25	8-SD8x1.25	N/A	N/A	180
RTT22	2x	2x	3-SD8x1.25	7-SD8x1.25	N/A	N/A	
RTR	2x	2x	2-SD8x1.25	4-SD8x1.25	N/A	N/A	
RTU2	2x	2x	2-SD8x1.25	4-SD8x1.25	N/A	N/A	

1. Allowable loads must be equally distributed on both joists.
2. Loads are for Doug Fir Larch.
3. **NAILS:** 16d = 0.162" dia. x 3½" long, 16d Sinker = 0.148" dia. x 3¼" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.

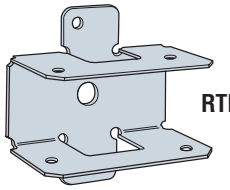
Most Rigid-Tie connectors require Simpson Strong-Tie® Strong-Drive® screws.

SD8x1.25

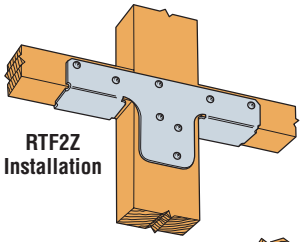


RTC42
(RTC22 and RTC24 similar)

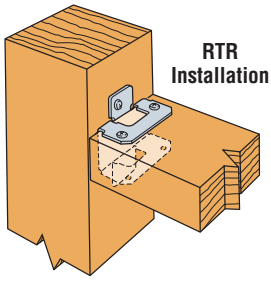
WARNING: Industry studies show that hardened fasteners can experience performance problems in wet and corrosive environments. Accordingly, use the SD8x1.25 screw in dry, interior, and non-corrosive environments only.



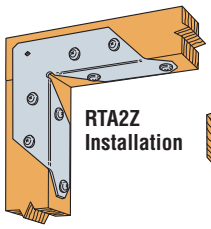
RTR



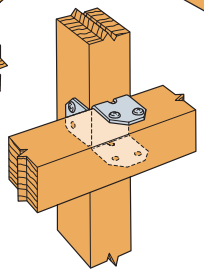
RTF2Z Installation



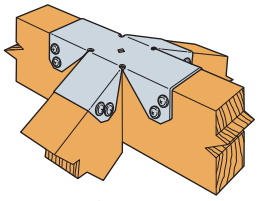
RTR Installation



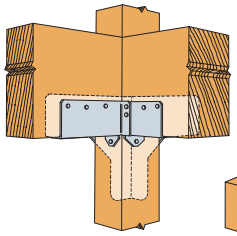
RTA2Z Installation



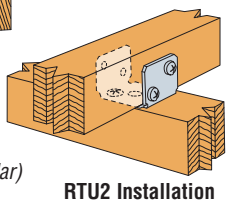
RTB22 Installation



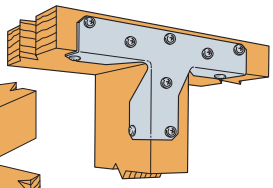
FWH2 Installation



RTC44 Installation
(RTC24 and RTC42 similar)



RTU2 Installation



RTT2 Installation

J/JP *Floor Beam Levelers*

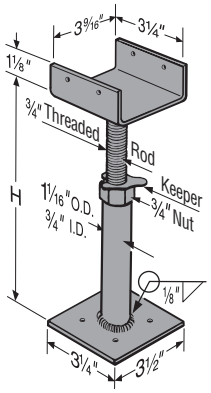
Jack piers and standard floor beam levelers offer unique leveling simplicity during and after construction.

MATERIAL: 12 gauge plates, ¾" threaded rod, 1 1/16" O.D. steel pipe
FINISH: None. Connectors installed in damp areas, or corrosive environments that are not exposed to rain or periodic washing, will deteriorate at a faster rate. Corrosion-resistant finishes and maintenance can improve the connector's service life.
INSTALLATION: • Use all specified fasteners. See General Notes.
- Holes are provided for installation with 4-10dx1½" nails.
- Do not use J/JPs for dynamic jacking of structures, such as houses.

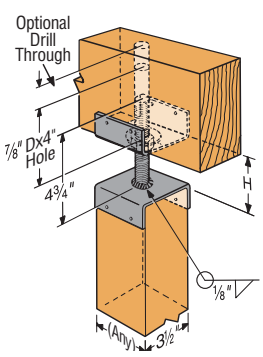
CODES: See page 13 for Code Reference Key Chart.

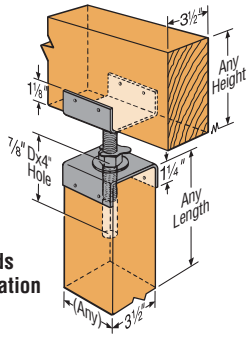
Model No.	Dimensions		Allowable Bearing Loads (100)	Code Ref.
	H (inches) (Min–Max)	Threaded Rod Length		
JP44	2-4	4¾	4440[1]	170
J57	5-7	4	4380	

1. Consider allowable loads for 4x4 post.
2. Loads may not be increased for short-term loading.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



J57 Floor Beam Leveler





Two Methods of JP44 Installation

NS/PSPNZ *Nail Stoppers*

Nail stoppers help prevent nails from piercing pipes and electrical lines. Installed over utilities that pass through framing members.

PSPN516Z and PSPN58Z protecting shield plate nail stoppers meet IRC, IBC and the International Plumbing Code. PSPN516Z meets structural and protection requirements with one strap.

MATERIAL: 16 gauge

FINISH: Galvanized, PSPN–ZMAX® coating, see Corrosion Information, page 14-15.

INSTALLATION: • PSPN516Z – 16d commons *(see footnote 2 below)*.
• Other models – 8d commons or prongs. For more information request flier F-REPRPROTECT *(see page 229 for details)*.

CODES: See page 13 for Code Reference Key Chart.

PSPN516Z (16 gauge ZMAX) at top plates
- International Residential Code® – 2009/2012 P2603.2.1 & R602.6.1
- International Building Code® – 2009/2012 2308.9.8
- International Plumbing Code – 2009 - 305.8 / 2012 - 305.6

PSPN516Z (16 gauge ZMAX) at bottom plate.
- International Building Code® – 2009/2012 2308.9.8
- International Plumbing Code – 2009 - 305.8 / 2012 - 305.6

PSPN58Z (16 gauge ZMAX) at top plates and bottom plate.
- International Plumbing Code – 2009 - 305.8 / 2012 - 305.6
- International Residential Code® – 2009/2012 P2603.2.1

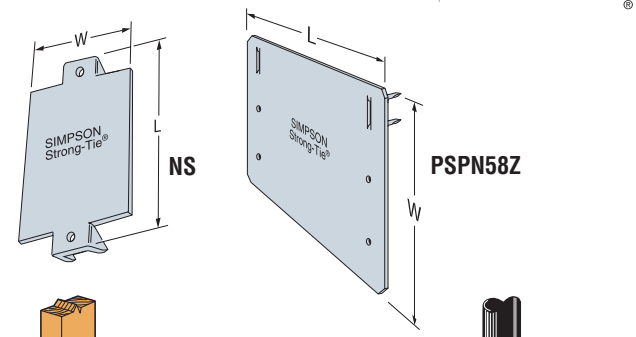
NS1 – Nail stops to protect supply lines from drywall nails or screws.
- International Residential Code® – 2009/2012 Table E3702.1
- National Electric Code – 2008/2011 300.4

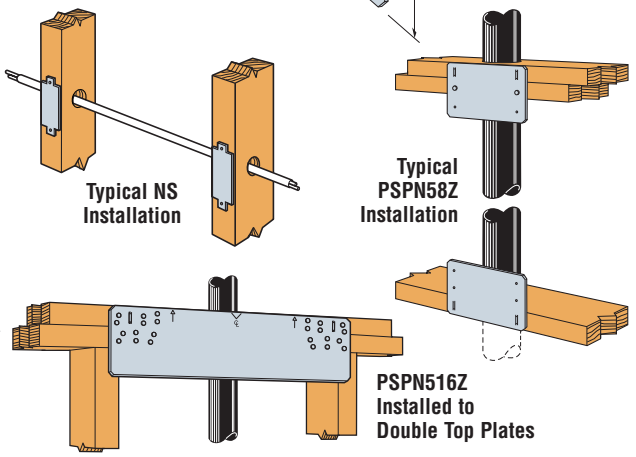
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

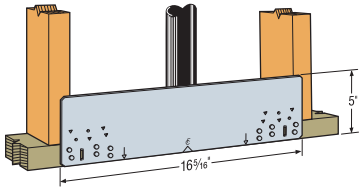
These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

Model No.	W	L	Code Ref.
NS1	1½	3	190
NS2	1½	6	
PSPN58Z	5	8	
PSPN516Z	5	16⁵⁄₁₆	

1. PSPN516Z—12-16d nails into sill plate achieves 1365 lbs. for DF/SP, and 1180 lbs. for SPF/HF. 24-16d nails into top plates achieves 1820 lbs. for DF/SP, and 1575 lbs. for SPF/HF.
2. To meet the prescriptive IRC requirement 16d box nails (0.135" dia. x 3½") may be used.
3. **NAILS:** 16d = 0.162" dia. x 3½" long, 8d = 0.131" dia. x 2½" long. See page 22-23 for other nail sizes and information.







PSPN516Z Installation to Sill Plate

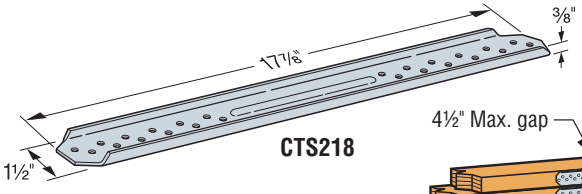
CTS218 *Compression and Tension Straps*

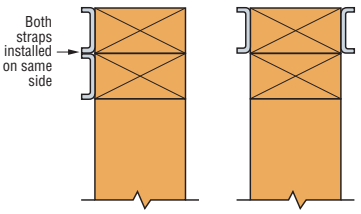
The CTS218 is designed to repair wood members such as top plates, studs and trusses and is our first strap that handles both tension and compression loads. The unique rolled edges of the strap allow it to span gaps as wide as 4½" and its 1½" width enables installation on the narrow face of 2x lumber.
- Tested specifically for top/bottom plate repair with various multi-strap configurations
- Meets the requirements of the IBC and IRC for repairing top plates that have been cut or notched to accommodate plumbing or HVAC ductwork

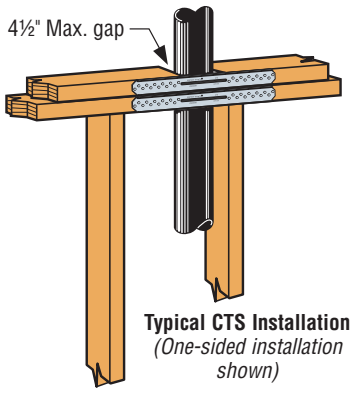
MATERIAL: 14 gauge **FINISH**: Galvanized

INSTALLATION: • Use all specified fasteners. See General Notes.
- **One-sided installations** – install one or two CTS straps on the same side of the member.
- **Two-sided installation** – install CTS straps on opposite sides of member. For three-part installations, install two parts on one side, one part on opposite side.

CODES: See page 13 for Code Reference Key Chart.
- International Building Code® – 2009/2012 2308.9.8







Typical CTS Installation *(One-sided installation shown)*

Model No.	Strap Qty.	Installation	Fasteners (Per Strap)	Allowable Loads DF/SP		Allowable Loads SPF/HF		Code Ref.
				Compression (160)	Tension (160)	Compression (160)	Tension (160)	
CTS218	1	One Sided	24 -10dx1½	1020	2270	880	1970	F24, I4, L3
	2	One Sided		2045	4540	1760	3940	
	2	Two Sided		2370	4540	2040	3940	
	3	Two Sided		3725	6810	3205	5910	
	4	Two Sided		4740	9080	4080	7880	
	1	One Sided	24 - SD#9x1½	1175	2480	1010	2150	
	2	One Sided		2350	4960	2020	4300	
	2	Two Sided		2735	4960	2350	4300	
	3	Two Sided		4130	7440	3550	6450	
	4	Two Sided		5470	9920	4700	8600	

These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.

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 4½".
4. **FASTENERS:** 10dx1½ = 0.148" dia. x 1½", SD #9x1½ = 0.131" dia. x 1½" long. See page 22-23 for other nail sizes and information.

RPS *Strap Ties*

The RPS meets IBC, IRC and City of Los Angeles code requirements for HVAC and pipes in walls.

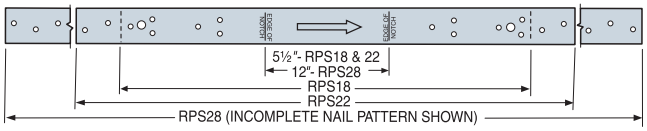
FINISH: Galvanized, some products available in ZMAX® coating. See Corrosion Information, page 14-15.

INSTALLATION: Use all specified fasteners. See General Notes.

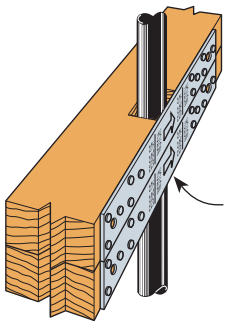
CODES: See page 13 for Code Reference Key Chart.

Use RPS22 or RPS28 (16 gauge) to reinforce top plate.
Use RPS18Z, RPS22Z or RPS28Z (16 gauge ZMAX) to reinforce sill plate.

- International Residential Code® – 2009/2012 R602.6.1
- International Building Code® – 2009/2012 2308.9.8



RPS



For installations on both sides of the plate, arrows should always point to the right.

Typical RPS Installation
(Only one strap may be necessary to meet IRC requirements)

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.

Model No.	Ga	Dimensions W	Dimensions L	Notch Width	Fasteners (Total) Nails	Allowable Tension Loads (DF/SP) (160)	Allowable Tension Loads (SPF/HF) (160)	Code Ref.
RPS18	16	1½	18⁵⁄₁₆	≤ 5½"	12-16d	1380	1190	I16, L9, F15
RPS22		1½	22⁵⁄₁₆	≤ 5½"	12-16d	1380	1190	
		1½	22⁵⁄₁₆		16-16d	1805	1585	
RPS28		1½	28⁵⁄₁₆	≤ 12"	12-16d	1380	1190	
		1½	28⁵⁄₁₆		16-16d	1805	1585	

1. Loads include a 60% load duration increase on the fasteners for wind or earthquake loading.
2. To meet the prescriptive IRC requirement 10dx1½ (0.148" dia. x 1½" long) may be used.
3. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 22-23 for other nail sizes and information.

HSS/SS *Stud Shoes*

Stud shoes reinforce studs notched in construction. They are NOT a total replacement of removed material. Installs over pipe up to 2⅜" outside diameter.

HSS2-3 is designed for triple 2x studs.

HSS stud shoes provide tension load capacity as well as increased compression loads. Flared flange provides greater strength.

MATERIAL: 16 gauge **FINISH**: Galvanized

INSTALLATION: Use all specified fasteners. See General Notes.

- HSS—Bend flanges at 90° angle during installation, then bend back and screw into position *(screws supplied)*.
- Bend flanges one cycle only.

CODES: See page 13 for Code Reference Key Chart.

HSS2-SDS1.5 (16 gauge) Heavy stud shoes to reinforce and protect single 2x studs where pipe is located. Uses 12 Simpson Strong-Tie® Strong-Drive® ¼"x1½" SDS screws *(included)*.

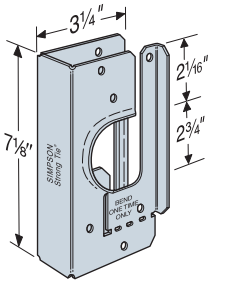
- International Residential Code® – 2009/2012 R602.6 & P2603.2.1
- International Building Code® – 2009/2012 2308.9.10 & 2308.9.11
- International Plumbing Code – 2009 - 305.8 / 2012 - 305.6

HSS2-3-SDS3 (16 gauge) Heavy stud shoe for triple 2x stud. Uses 12 Simpson Strong-Tie ¼"x3" SDS screws *(included)*.

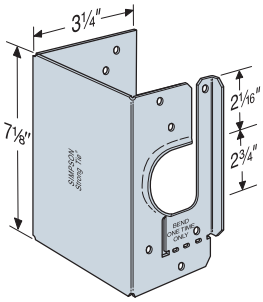
- International Residential Code® – 2009/2012 R602.6 and P2603.2.1
- International Building Code® – 2009/2012 2308.9.10 & 2308.9.11
- International Plumbing Code – 2009 - 305.8 / 2012 - 305.6

SS1.5 (16 gauge) stud shoes reinforce and protect plumbing in 2x.

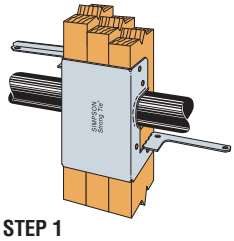
- International Residential Code® – 2009/2012 R602.6 and P2603.2.1
- International Building Code® – 2009/2012 2308.9.10 & 2308.9.11
- International Plumbing Code – 2009 - 305.8 / 2012 - 305.6



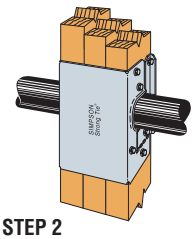
HSS
US Patent 6,176,057



HSS2-3



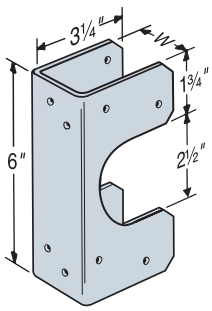
STEP 1
Install HSS *(HSS2-3 shown)* over stud with flanges bent at a 90° angle.



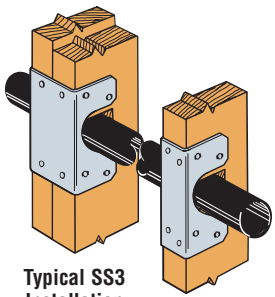
STEP 2
Bend HSS *(HSS2-3 shown)* flanges one time only. Screw into position.

Model No.	Stud Size	Fasteners	Allowable Loads[1] DF/SP Compression Floor (100)	Allowable Loads[1] DF/SP Compression Roof (125)	Allowable Loads[1] DF/SP Tension	Code Ref.
SS1.5	2x	12-10dx1½	500	500	—	I16, F15
SS2.5	3x	12-10dx1½	500	500	—	
SS3	2-2x	12-10d	665	785	—	
SS4.5	3-2x	14-10d	665	785	—	
HSS2-SDS1.5	2x	12-SDS ¼"x1½"	1200	1200	1000	
HSS2-2-SDS3	2-2x	12-SDS ¼"x3"	1200	1200	1000	
HSS2-3-SDS3	3-2x	12-SDS ¼"x3"	1000	1000	970	
HSS4-SDS3	4x	12-SDS ¼"x3"	1200	1200	1000	

1. Roof loads are 125% of floor loads unless limited by other criteria. Floor loads may be adjusted for other load durations according to the code, provided they do not exceed roof loads.
2. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 22-23 for other nail sizes and information.



SS



Typical SS3 Installation

Typical SS1.5 Installation

NCA/TB/LTB *Bridging*

NCA—Nailless installation eliminates callbacks for nail squeaks. Designed for secure grip before the drive-home blow, and deeper prong penetration. Precision-formed into a rigid "V" section.

TB—Tension-type bridging with maximum nailing flexibility. Use just two of the seven nail holes at each end.

LTB—Staggered nail pattern accommodates 2x8 and 2x10 joists. Use just two of the six nail holes at each end. LTB40 has rigid prongs that install easily into the joist, and embossments that allow crisp bends.

MATERIAL: LTB—22 gauge; NCA and TB—20 gauge *(except NCA2x12-16—18 gauge).*

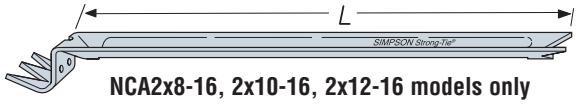
FINISH: Galvanized

INSTALLATION:
- Support floor joists with a depth-to-thickness ratio of six or more with bridging at intervals not exceeding 8'. If span is greater than 8', install on 2x8 or larger joists. If span is greater than 16', use more than one pair.
- Tension bridging works only in tension, so must be used in cross pairs.
- Install bridging tightly; loose installation may allow floor movement.
- NCA may be installed before or after sheathing, from the top or bottom. Simply locate the bend line approximately 1" from the joist edge.
- NCA has nail holes in one end for use if a prong is bent during installation. Fully seat nails if they are used; otherwise, they may lead to squeaks.
- TB requires two 10dx1½ fasteners per end.
- LTB requires two 6d commons per end.

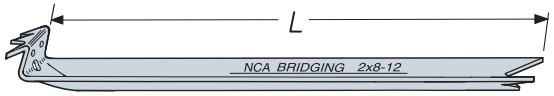
CODES: See page 13 for Code Reference Key Chart.

Code Reference: IRC 2003/2006, R502.7.1

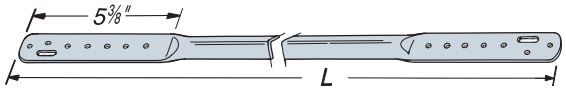
Space bridging to avoid contact noises.



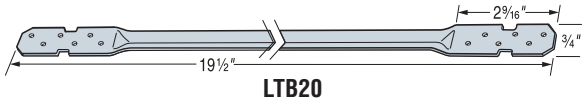
NCA2x8-16, 2x10-16, 2x12-16 models only



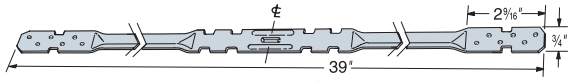
NCA



TB



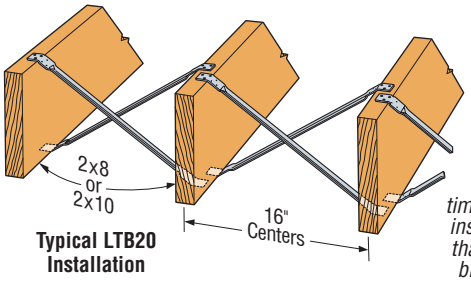
LTB20



LTB40

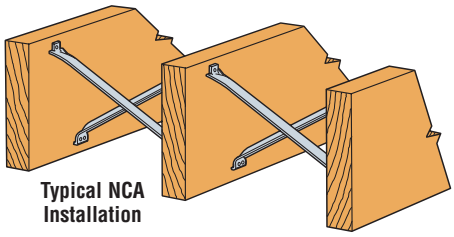
TENSION BRIDGING FOR I-JOISTS

Joist Height	Joist Spacing (inches)								
	12	16	19.2	24	30	32	36	42	48
9½	TB20	TB27	TB27	TB30	TB36	TB36	TB42	TB48	TB54
10	TB20	TB27	TB27	TB30	TB36	TB36	TB42	TB48	TB54
11⅞	TB20	TB27	TB27	TB30	TB36	TB36	TB42	TB48	TB54
12	TB20	TB27	TB27	TB30	TB36	TB36	TB42	TB48	TB54
14	TB27	TB27	TB27	TB36	TB36	TB42	TB42	TB48	TB54
16	TB27	TB27	TB30	TB36	TB42	TB42	TB42	TB48	TB54
18	TB27	TB30	TB30	TB36	TB42	TB42	TB48	TB54	TB56
20	TB30	TB30	TB36	TB36	TB42	TB42	TB48	TB54	TB56
22	TB30	TB36	TB36	TB36	TB42	TB42	TB48	TB54	TB56
24	TB36	TB36	TB36	TB42	TB42	TB48	TB48	TB54	TB56
26	TB36	TB36	TB36	TB42	TB48	TB48	TB48	TB54	TB60
28	TB36	TB36	TB42	TB42	TB48	TB48	TB54	TB54	TB60
30	TB36	TB42	TB42	TB42	TB48	TB48	TB54	TB56	TB60
32	TB42	TB42	TB42	TB42	TB48	TB48	TB54	TB56	TB60



Typical LTB20 Installation

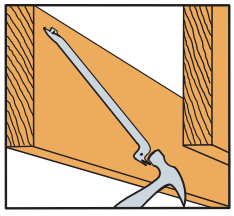
2 to 3 times faster installation than wood bridging.



Typical NCA Installation

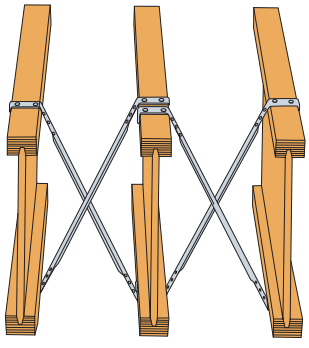
TENSION BRIDGING FOR SOLID SAWN LUMBER

Joist Size	Spacing (in.)	NCA		TB		LTB	Code Ref.
		Model No.	L	Model No.	L	Model No.	
2x10	12	NCA2x10-12	12½	TB20	20	—	
2x12	12	NCA2x12-12	13⅝	TB20	20	—	
2x14	12	NCA2x8-16	15¼	TB27	27	—	
2x16	12	NCA2x10-16	15¹³⁄₁₆	TB27	27	—	
2x8	16	NCA2x8-16	15¼	TB27	27	LTB20 or 40	
2x10	16	NCA2x10-16	15¹³⁄₁₆	TB27	27	LTB20 or 40	
2x12	16	NCA2x12-16	16⅞	TB27	27	—	
2x14	16	—	—	TB27	27	—	
2x16	16	—	—	TB27	27	—	
2x10	24	—	—	TB30	30	—	
2x12	24	—	—	TB36	36	—	
2x14	24	—	—	TB36	36	—	
2x16	24	—	—	TB36	36	—	



Install from below as shown, or from above. Drive upper end into joist approximately 1" from the top.

For all bridging avoid contact between steel members *(this may cause squeaks).*



Typical TB Installation

WB/WBC/TWB/RCWB *Wall Bracing*

Simpson Strong-Tie® Wall Bracing products offer effective options to resist racking during construction. Additionally the RCWB and WB/WBC can be used to fulfill the same code bracing requirements as a 1x4 let-in brace, but are cost effective and faster to install. Not designed to replace structural panel shearwall load-carrying component.

The WBC *(coiled WB)* multiple product dispenser pack weighs less than 40 pounds, making storage and transportation easy. WB106C—15 pieces per roll, WB126C—12 pieces per roll, WB143C—10 pieces per roll.

The RCWB features a rolled edge *(the TWB has two rolled edges)* for extra strength and safety.

MATERIAL: WB and WBC—16 gauge; TWB—22 gauge; RCWB—20 gauge

FINISH: Galvanized

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

WB and WBC: • Install in "X" pairs or in opposing "V" fashion.

• Use with 16" or 24" o.c. 2x4 (min.) studs.

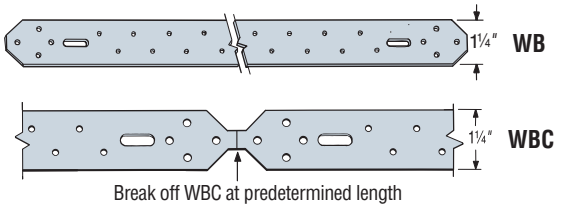
RCWB and TWB: • Use with 16" o.c. studs.

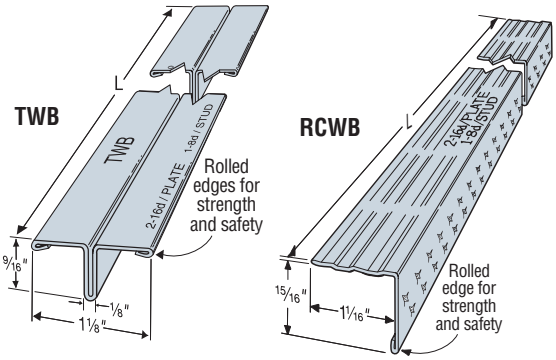
• Use minimum of 2x4 studs with TWB.

• Use minimum of 2x6 studs with RCWB *(2x4 min. for interior, non-bearing wall)*.

• Establish a run-line using the bracing as a straight edge. Single cut a saw kerf ⅝" deep (TWB) or 1⅛" deep (RCWB) along the run line. If the wall is pre-framed on the floor, place the part into the saw kerf, and put one nail into the top plate. Tilt the wall up and plumb before nailing off top plate, bottom plate and studs according to the nailing schedule.

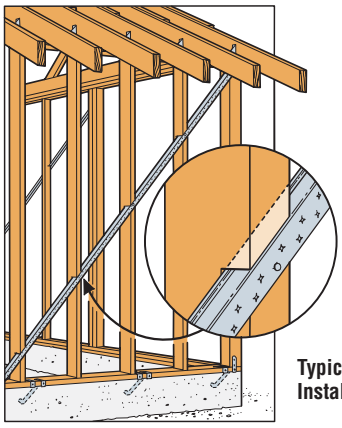
CODES: See page 13 for Code Reference Key Chart.



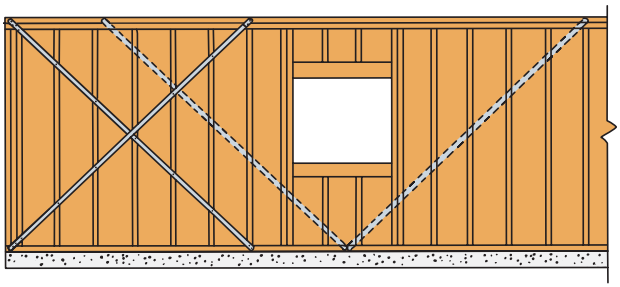


Model No.	L	Angle and Wall Height	Fasteners		Code Ref.
			Plates	Studs	
WB106	9'-5⅝"	8' @ 60	2-16d	1-8d	I16, L9, F15
WB106C	9'-6"	8' @ 60	2-16d	1-8d	
TWB10	9'-9"	8' @ 55	2-16d	1-8d	I16, L9, F15
RCWB12	11'-4"	8' @ 45	2-16d	1-8d	I16, F15
WB126	11'-4⅜"	8' @ 45	2-16d	1-8d	I16, L9, F15
WB126C	11'-4¾"	8' @ 45	2-16d	1-8d	
TWB12	11'-4"	8' @ 45	2-16d	1-8d	I16, L9, F15
RCWB12	11'-4"	9' @ 53	2-16d	1-8d	I16, F15
WB126	11'-4⅜"	9' @ 53	2-16d	1-8d	I16, L9, F15
WB126C	11'-4¾"	9' @ 53	2-16d	1-8d	
TWB12	11'-4"	9' @ 53	2-16d	1-8d	I16, L9, F15
WB143C	14'-3"	10' @ 45	2-16d	1-8d	
RCWB14	14'-2"	10' @ 45	2-16d	1-8d	
TWB14	14'-2"	10' @ 45	2-16d	1-8d	

1. **NAILS:** 16d = 0.162" dia. x 3½" long, 8d = 0.131" dia. x 2½" long. See page 22-23 for other nail sizes and information.



Typical RCWB Installation



WB or WBC Wall Bracing "X" and "V" Applications

IS *Insulation Supports*

The insulation supports are cut from carbon steel, spring wire for optimum flexibility and strength. Mitered tips dig into the wood, securing itself and insulation when installed between joists.

MATERIAL: 14 gauge **FINISH**: None

INSTALLATION: • Install between joists. IS16 for 16" o.c. spacing; IS24 for 24" o.c. spacing. Follow insulation manufacturer's installation instructions.

• Wear safety glasses, gloves and other appropriate safety equipment.

CODES: See page 13 for Code Reference Key Chart.

Model	Diameter	Length (in.)	Joist Spacing	Code Ref.
IS16	0.08	15½	16" o.c.	180
IS24	0.08	23½	24" o.c.	

IS16
(IS24 similar)

Typical IS Installation

ICFVL *Ledger Connector System*

The ICFVL Ledger Connector System is engineered to solve the challenges of mounting wood or steel ledgers to insulated concrete form (ICF) walls. The ICFVL is designed to provide both vertical and lateral, in-plane performance. There are many benefits over traditional anchor bolting, including better on center spacing in most cases, faster installation and no protrusions.

The embedded legs of the ICFVL are embossed for additional stiffness and the hole allows for concrete to flow through and around the connector. The exposed flange on the face of the ICF provides a structural surface for mounting either a wood or steel ledger.

MATERIAL: ICFVL—14 gauge; ICFVL-CW and ICFVL-W—16 gauge

FINISH: Galvanized

INSTALLATION: ICFVL in ICF

- For use with a minimum 4" thick core.
- Snap a chalk line for the bottom of the ledger.
- Mark required on center spacing.
- Use ICFVL to mark kerfs locations.
- Cut kerfs as marked.
- Insert ICFVL flush to the face of the ICF.
- Pour concrete.

Wood Ledger Attachment – ICFVL-W or -CW

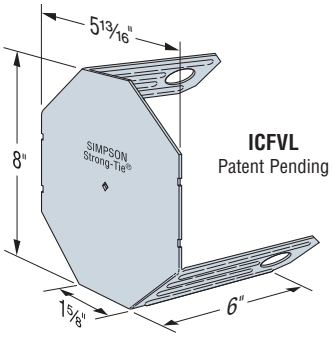
- Slip appropriate ledger connector underneath the ledger.
- Install the eight ICF-D3.62 screws partially into the ledger.
- Position the ledger level to the chalk line and drive the screws through the wood and into the ICFVL.

Steel Ledger Attachment

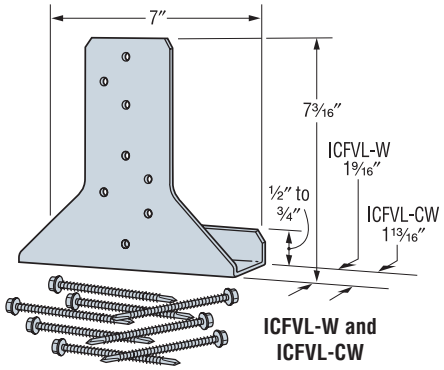
- Position the ledger level to the chalk line and against the ICFVL.
- Attach with four ¼-14x¾", #3 drill point screws *(not provided)*.
- All screws should be located at least ½" from the edge of the ICFVL.
- Space screws evenly.

CODES: See page 13 for Code Reference Key Chart.

WARNING: Industry studies show that hardened fasteners can experience performance problems in wet environments. Accordingly, use this product in dry environments only.



ICFVL
Patent Pending



ICFVL-W and ICFVL-CW

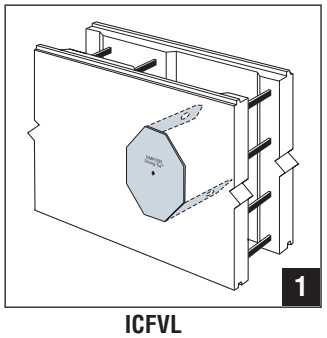
Ledger Type	Fasteners	Allowable Loads (lbs)	
		Download (100/115/125)	Lateral F_1 (160)
Wood	8-ICF-D3.62	1940	1905
Steel	4-¼x¾[3]	1660	1525

1. Fasteners for wood ledger (ICF-D3.62) are provided with the part and fasteners for steel ledger are not provided.
2. Loads apply to ICF foam thicknesses of 2¾" or less.
3. Alternately, #14 x ¾" fastener may be used.
4. Tabulated loads may not be increased.
5. Concrete f'c = 2500 psi minimum.
6. When combining download and lateral loads, Designer shall evaluate as follows: Design Download/Allowable Download + Design Lateral Load/Allowable Lateral Load ≤ 1.
7. The ICFVL must be installed no closer than 4" below the top of the wall to achieve the allowable loads shown. For installations where the ICFVL is installed less than 4" from the top of the wall *(including flush applications)* multiply the allowable loads by 0.94.

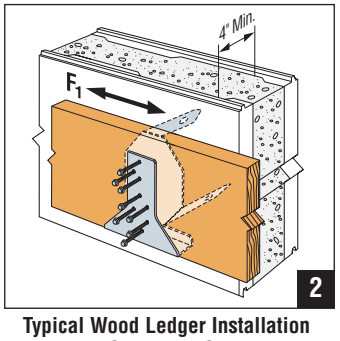
These tables address vertical load applications only.

Ledger Type	Connector Type	ICFVL SPACING TO REPLACE ANCHOR BOLTS (in)[1,2,3]																Code Ref.
		½" Dia. Anchors at				⅝"Dia. Anchors at				(2)-⅝" Dia. Anchors at				¾" Dia. Anchors at				
		12" o.c.	24" o.c.	36" o.c.	48" o.c.	12" o.c.	24" o.c.	36" o.c.	48" o.c.	12" o.c.	24" o.c.	36" o.c.	48" o.c.	12" o.c.	24" o.c.	36" o.c.	48" o.c.	
WOOD LEDGERS																		
DF/SP/SPF	ICFVL w/ ICFVL-W	48	48	48	48	48	48	48	48	24	48	48	48	42	48	48	48	170
LVL	ICFVL w/ ICFVL-CW	48	48	48	48	48	48	48	48	24	48	48	48	42	48	48	48	
STEEL LEDGERS																		
68 mils (0.068")	ICFVL	11	22	33	44	9	18	27	36	—	—	—	—	—	—	—	—	170
54 mils (0.054")	ICFVL	15	30	45	48	12	24	36	48	—	—	—	—	—	—	—	—	

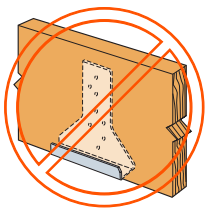
1. The Designer may specify different spacing based on the load requirements.
2. Spacings are based on perpendicular to grain capacity of bolt in wood ledger compared to tested value of ICFVL. Additional connectors required for out-of-plane loads.
3. See flier F-ICFVL for additional connection details.
4. For steel ledgers, the 68 mil ledger spacing is closer than the 54 mil ledger because the calculated load of a bolt is higher in a thicker piece of steel.
5. Steel ledger values are based on steel. F_U = 60 ksi.
6. Maximum ICF foam thickness is 2¾".



ICFVL

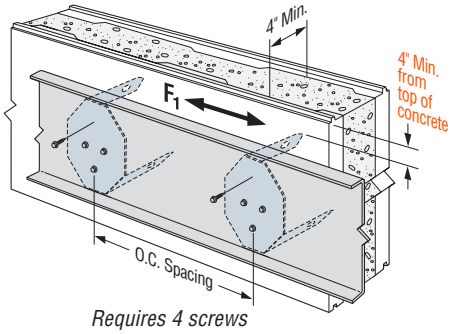


Typical Wood Ledger Installation with ICFVL and ICFVL-W



MISINSTALLATION!

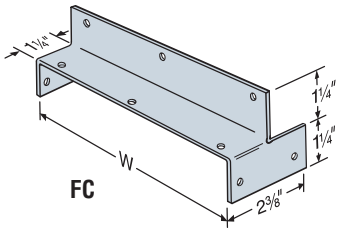
Typical Steel Ledger Installation with ICFVL
(minimum 16 ga steel ledger)



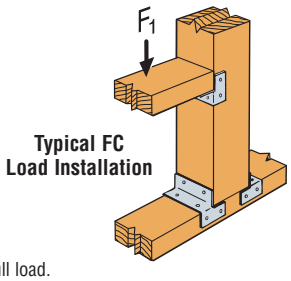
Requires 4 screws at each location. Table provides on center spacing.

FC *Framing Clips*

For fast, accurate framing. Three-dimensional nailing pattern results in high-strength joint values. Ideal for fence construction.
MATERIAL: 16 gauge **FINISH**: Galvanized
INSTALLATION: Use all specified fasteners. See General Notes.
CODES: See page 13 for Code Reference Key Chart.



FC



Typical FC Load Installation

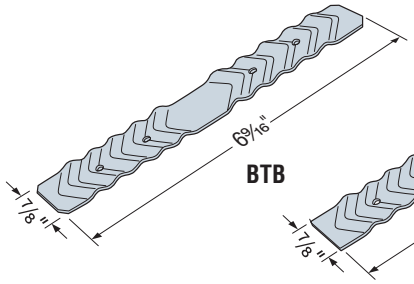
Model No.	W	Fasteners	Allowable F_1 Loads (100)	Code Ref.
FC4	3⁹⁄₁₆	8-16d	800	I14, L5, F13
FC6	5½	10-16d	920	

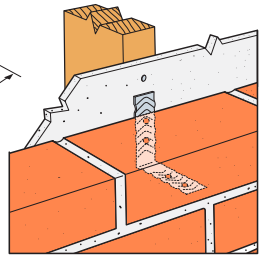
1. Loads may not be increased for short-term loading.
2. A 2½" minimum lumber thickness is required to achieve the full load.
3. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 22-23 for other nail sizes and information.

BT *Brick Ties*

Brick Ties provide a connection between the wood structure and brick façade.
MATERIAL: 22 gauge
FINISH: Galvanized, available in Type 304 stainless steel *(order as BTBSS).*
INSTALLATION:
- Holes sized for 10d commons. See code for spacing requirements.

CODES: IRC 2009/2012, R703.7.4
TO ORDER: BT-R100 = retail pack of 100
BTB = bulk carton of 500

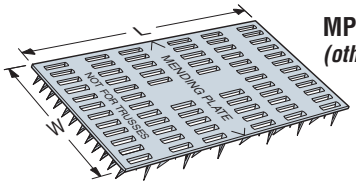



Typical BT Installation

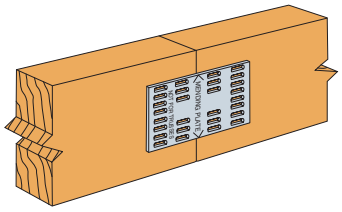
MP *Mending Plates*

Versatile and easy-to-use mending plates for wood-to-wood connections. No nails or notching of wood required. For non-structural applications only; not for truss applications.
MATERIAL: 20 gauge **FINISH:** Galvanized
INSTALLATION:
- Place plate over two pieces of aligned wood with arrows aligned at joint.
- Hammer the plate to embed the prongs.

CODES: See page 13 for Code Reference Key Chart.



MP36
(other sizes similar)


Typical MP Installation

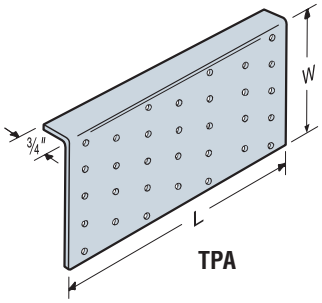
Model No.	Dimensions W	Dimensions L	Code Ref.
MP14	1	4	180
MP24	2	4	
MP36	3	6	

1. Connectors are not load rated.

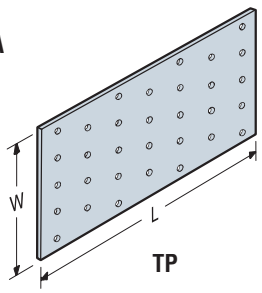
TP/TPA *Tie Plates*

TPs are nail-on tie plates. TPAs are flanged for added support.
MATERIAL: 20 gauge **FINISH:** Galvanized
INSTALLATION: • Holes are sized for 8d common or 8dx1½" nails.
CODES: See page 13 for Code Reference Key Chart.

These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 27 for more information.



TPA



TP

Model No.	Dimensions W	Dimensions L	Number of Nail Holes	Code Ref.
TP15	1¹³⁄₁₆	5	13	180
TPA37	3½	7	32	
TPA39	3½	9	41	
TP35	3⅛	5	23	
TP37	3⅛	7	32	
TP39	3⅛	9	41	
TP311	3⅛	11	50	
TP45	4⅛	5	30	
TP47	4⅛	7	42	
TP49	4⅛	9	54	
TP411	4⅛	11	66	
TP57	5¾	7	60	
TPA57	5	7	49	

1. Connectors are not load rated.

ARCHITECTURAL PRODUCTS GROUP

The **Architectural Products Group** consists of aesthetically pleasing, pre-finished connectors and innovative concealed joist ties designed for exposed wood applications. These connectors provide structural performance and, at the same time, add a unique appearance feature to a project. Refer to Simpson Strong-Tie® C-APG catalog.

- **ARCHITECTURAL FINISHES**
  Eliminate time consuming prep work and costly field painting. Available finishes include textured flat black powder-coat, gray paint and hot-dip galvanized coating.
- **AVAILABILITY**
  Select products are in stock and readily available. Contact Simpson Strong-Tie for product availability and lead times for non-stocked items.
- **PRE-ENGINEERED AND TESTED**
  Load-rated products are verified to perform to design loads, unlike custom designed and fabricated connectors.
- **QUALITY ASSURANCE**
  No-Equal quality-controlled manufacturing ensures product consistency and high quality.

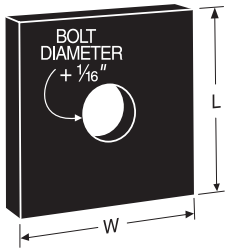
Products shown in this section come with textured flat black powder-coat unless otherwise noted. Most are also available with a galvanized coating or gray primer. Contact Simpson Strong-Tie for availability.

www.strongtie.com/apg

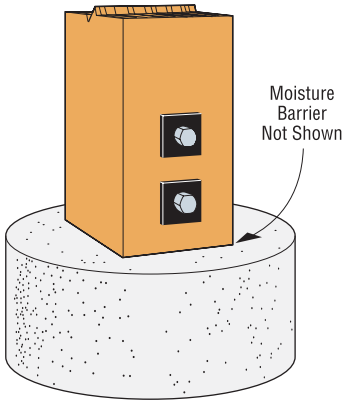
BP – BEARING PLATES

Bearing Plates give greater bearing surface than standard cut washers, and help distribute the load at these critical connections.
MATERIAL: See table
FINISH: Textured flat black powder-coat
INSTALLATION: See General Notes.
CODES: See page 13 for Code Reference Key Chart.

Model No.	Thickness	Dimensions		Bolt Dia.	Code Ref.
		W	L		
BP½PC	3/16	2	2	½	190
BP⅝-2PC	3/16	2	2	⅝	
BP⅝PC	¼	2½	2½	⅝	
BP¾PC	5/16	2¾	2¾	¾	
BP⅞PC	5/16	3	3	⅞	
BP1PC	⅜	3½	3½	1	



BP

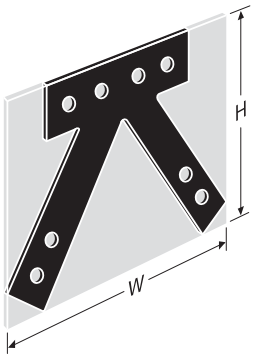


Typical BP Installation

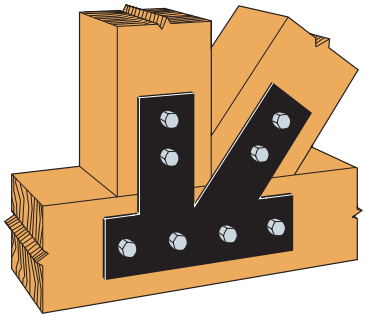
SPECIAL ORDER PLATES

Simpson Strong-Tie can make a variety of flat and bent steel shapes, which include gusset plates for heavy timber trusses, custom ornamental shapes and retaining plates.
MATERIAL: 3 gauge maximum
FINISH: Galvanized, textured powder-coated flat black, Simpson Strong-Tie® gray paint, stainless steel. Contact Simpson Strong-Tie for availability.
TO OBTAIN A QUOTE:

- Supply a CAD drawing in .dxf format complete with plate dimensions, hole diameter and locations, steel thickness, desired finish *(Simpson Strong-Tie Gray Paint, Black Powder-Coat, HDG or raw steel)*.
- Total plate shape and size up to maximum dimensions of 48"x48" *(approx. 1/16" tolerance)*.
- Simpson Strong-Tie does not provide product engineering or load values for Special Order Plates.
- Contact Simpson Strong-Tie for pricing information.
- Refer to General Notes, note g on page 16 for additional information.



"W" and "H" indicate the envelope size of the steel shape.



Typical Installation
(Plate shown has black powder-coat)

CONCEALED JOIST TIES

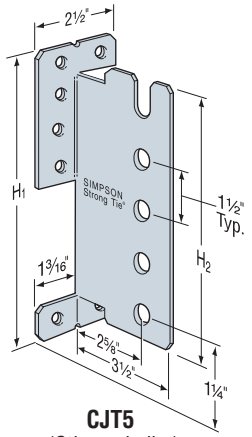
The CJT is a concealed connector. It can be installed three ways: with no routing of header/post or beam; a routed header/post, or a routed beam.

MATERIAL: 12 gauge **FINISH:** Galvanized

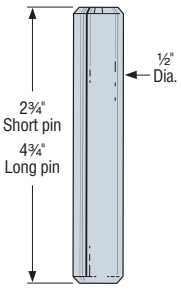
INSTALLATION: • Use all specified fasteners. See General Notes.
- The CJT Pack is supplied with all pins and screws required. Screws require a hex head driver.
- Router end of beam for screw heads for flush installation.
- The carried member may be sloped to 45° with full table loads.
- To provide maximum beam width for use with short pins, center in beam.
- To order: specify short (e.g. CJT3S) or long pins (e.g. CJT3L) *(see footnote #1 below)*.

OPTIONS: See technical bulletin T-CJT *(see page 230 for details)*.

CODES: See page 13 for Code Reference Key Chart.



CJT5
(Others similar)

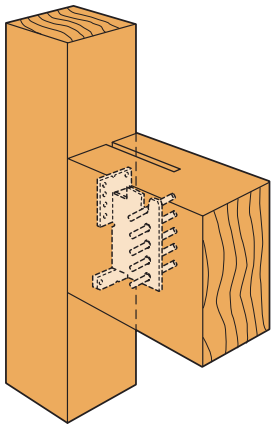


Chamfered Steel Pin
(Galvanized)

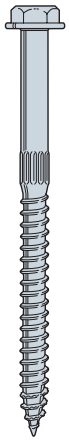
WARNING: This connector requires special attention to ensure correct installation. The beam must be installed perpendicular to the support member. The connection's components may be damaged if the beam is rotated from its opposite end during or after installation. Damaged components may not be noticeable and may reduce the connector's load carrying capacity.

Model No.	Min. Joist Size	Dimensions		Fasteners		Allowable Loads				Code Ref.
		H_1	H_2	SDS	Pins (2¾" or 4¾")[2]	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	
DOUGLAS FIR										
CJT3	4x6	5⁹⁄₁₆	4⁷⁄₁₆	6	3	985	1050	1050	1050	I18, F17
	4x8	5⁹⁄₁₆	4⁷⁄₁₆	6	3	1655	1050	1050	1050	
CJT4	4x10	7	5¹⁵⁄₁₆	8	4	2460	2440	2805	2815	
CJT5	4x12	8⁹⁄₁₆	7⁷⁄₁₆	10	5	3255	3005	3455	3755	
CJT6	4x12	10	8¹⁵⁄₁₆	12	6	4005	3535	3990	3990	
GLULAM BEAM										
CJT3	3⅛x7½	5⁹⁄₁₆	4⁷⁄₁₆	6	3	1655	1240	1240	1240	I18, F17
CJT4	3⅛x9	7	5¹⁵⁄₁₆	8	4	2460	2440	2805	2900	
CJT5	3⅛x10½	8⁹⁄₁₆	7⁷⁄₁₆	10	5	3255	3005	3455	3755	
CJT6	3⅛x12	10	8¹⁵⁄₁₆	12	6	4005	3535	4065	4420	
PSL										
CJT3	3½x9½	5⁹⁄₁₆	4⁷⁄₁₆	6	3	1655	1840	2115	2160	I18, F17
CJT4	3½x9½	7	5¹⁵⁄₁₆	8	4	2460	2145	2145	2145	
CJT5	3½x9½	8⁹⁄₁₆	7⁷⁄₁₆	10	5	3255	3005	3455	3755	
CJT6	3½x11⅞	10	8¹⁵⁄₁₆	12	6	4005	3535	4065	4420	

1. Center pin in beam. Short pin (2¾") for use with 3⅛ GLB, 4x sawn lumber or 3½" wide PSL. Long pin (4¾") for use with 5⅛ GLB, 6x sawn lumber or greater widths.
2. See technical bulletin T-CJT for additional load information with long pins *(see page 230 for details)*.



Typical CJT Installation
(Note that pins should be centered within beam)



SDS ¼"x3"
U.S. Patent 6,109,850 5,897,280

ORNAMENTAL – JOIST HANGER

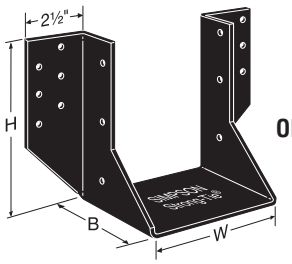
The OHU Ornamental Joist Hangers are heavy duty, load-rated joist hangers that are attached with Simpson Strong-Tie® Strong-Drive® ¼"x3" double-barrier coating SDS wood screws *(supplied with product)*.

MATERIAL: 12 gauge

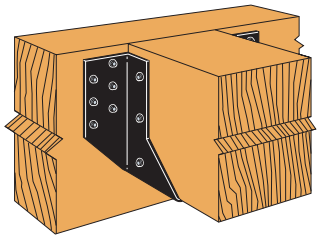
FINISH: Textured powder-coated flat black paint.

OPTIONS: No modifications.

CODES: See page 13 for Code Reference Key Chart.



OHU



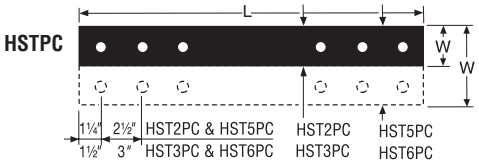
Typical OHU Installation

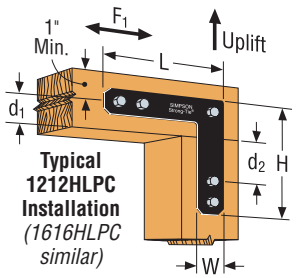
Model No.	Joist Size	Ga	Dimensions			No. of SDS ¼"x3" Wood Screws		DF/SP				SPF/HF				Code Ref.
			W	H	B	Face	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	
OHU46-SDS3	4x6	12	3⁹⁄₁₆	5	4	6	4	1930	2520	2900	3150	1390	1800	2070	2250	170
OHU48-SDS3	4x8	12	3⁹⁄₁₆	6¾	4	8	6	2765	3360	3865	4200	1990	2400	2760	3000	
OHU410-SDS3	4x10	12	3⁹⁄₁₆	8¾	4	12	6	2765	5040	5795	6300	1990	3600	4140	4500	
OHU412-SDS3	4x12	12	3⁹⁄₁₆	10¾	4	12	8	3565	5040	5795	6300	2570	3600	4140	4500	
OHU414-SDS3	4x14	12	3⁹⁄₁₆	12¾	4	14	10	3565	5880	6760	7350	2570	4200	4830	5250	
OHU66-SDS3	6x6	12	5½	5	4	6	4	1930	2520	2900	3150	1390	1800	2070	2250	
OHU68-SDS3	6x8	12	5½	7	4	12	6	2765	5040	5795	5955	1990	3600	4140	4290	
OHU610-SDS3	6x10	12	5½	9	4	14	6	2765	5880	6760	6885	1990	4200	4830	4960	
OHU612-SDS3	6x12	12	5½	11	4	16	8	3565	6720	7730	7815	2570	4800	5520	5630	
OHU614-SDS3	6x14	12	5½	13	4	18	10	3565	7560	8695	8745	2570	5400	6210	6300	

1. Allowable uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.

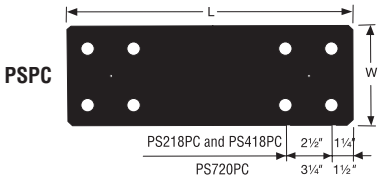
CLASSIC COLLECTION

MATERIAL: As noted in tables
FINISH: Textured powder-coated flat black paint
INSTALLATION: • Use all specified fasteners.
See General Notes.
CODES: See page 13 for Code Reference Key Chart.





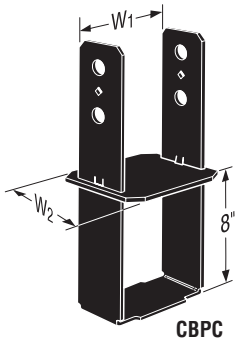
Typical 1212HLPC Installation *(1616HLPC similar)*



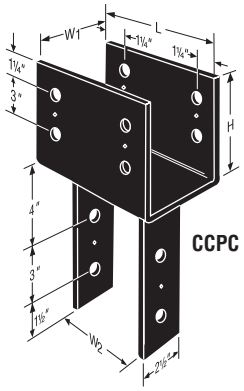
STRAP TIES

Model No.	Ga	Dimensions		Bolts		Allowable Tension Loads[1,2]	Code Ref.
		W	L	Qty	Dia	(160)	
HST2PC	7	2½	21¼	6	⅝	5220	I4, L3, F2
HST5PC	7	5	21¼	12	⅝	10650	
HST3PC	3	3	25½	6	¾	7625	
HST6PC	3	6	25½	12	¾	15360	
PS218PC	7	2	18	4	¾	4990	180
PS418PC	7	4	18	4	¾	5030	
PS720PC	7	6¾	20	8	½	4685	

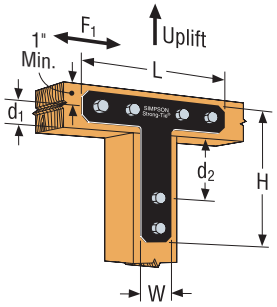
1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Allowable loads are based on parallel-to-grain loading and a minimum member thickness of 3½" with machine bolts in single shear. Straps must be centered about splice joint and bolt edge distances must meet NDS minimum requirements.
3. Designer must determine allowable loads when combining bolts parallel and perpendicular to grain.



CBPC



CCPC



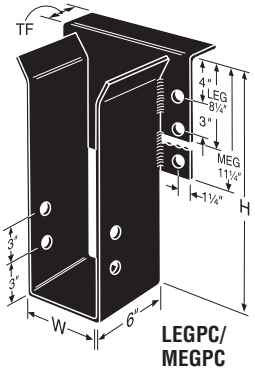
Typical 1212HTPC Installation *(1616HTPC similar)*

BEAM TO COLUMN TIES

Model No.	Ga	Dimensions			Minimum Bolt End & Edge Distances		Bolts		Allowable Loads[1,2]		Code Ref.
									Tension/Uplift	F_1	
		W	H	L	d_1	d_2	Qty	Dia	(100/160)	(100/160)	
1212HLPC	7	2½	12	12	2½	4⅜	5	⅝	1535	565	170
1616HLPC	7	2½	16	16	2½	4⅜	5	⅝	1535	565	
1212HTPC	7	2½	12	12	2½	4⅜	6	⅝	2585	815	
1616HTPC	7	2½	16	16	2½	4⅜	6	⅝	2585	815	

1. 1212HL, 1616HL, 1212HT and 1616HT are to be installed in pairs with machine bolts in double shear. A single part with machine bolts in single shear is not load-rated.
2. Allowable loads are based on a minimum member thickness of 3½".
3. 1212HT, 1616HT loads assume a continuous beam.

MEGPC without Top Flange



LEGPC/ MEGPC

COLUMN BASES

Model No.	Ga	Dimensions		Bolts		Allowable Tension Loads	Code Ref.
		W_1	W_2	Qty	Dia	(160)	
CB44PC	7	3⁹⁄₁₆	3½	2	⅝	4200	IL8
CB46PC	7	3⁹⁄₁₆	5½	2	⅝	4200	
CB48PC	7	3⁹⁄₁₆	7½	2	⅝	4200	
CB66PC	7	5½	5½	2	⅝	4200	
CB68PC	7	5½	7½	2	⅝	4200	
CB88PC	3	7½	7½	2	¾	6650	
CB810PC	3	7½	9½	2	¾	6650	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. See page 60 for glulam beam sizes. Add PC to the model, i.e. CB5-6PC.
3. Minimum side cover for full loads is 3" for CB's.
4. Install with bottom of base flush with concrete.
5. Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.

COLUMN CAPS

Model No.	Ga	Dimensions				Bolts				Allowable Loads		Code Ref.
						Beam		Post		Uplift	Down	
		W_1	W_2	L	H	Qty	Dia	Qty	Dia	(160)	(100)	
CC44PC	7	3⅝	3⅝	7	4	2	⅝	2	⅝	1465	15310	I12, L4, F11
CC46PC	7	3⅝	5½	11	6½	4	⅝	2	⅝	2800	24060	
CC66PC	7	5½	5½	11	6½	4	⅝	2	⅝	4040	30250	
CC68PC	7	5½	7½	11	6½	4	⅝	2	⅝	4040	37810	
CC88PC	3	7½	7½	13	8	4	¾	2	¾	7440	54600	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Post sides are assumed to lie in the same vertical plane as the beam sides.
3. Downloads are determined using F'c perpendicular equal to 625 psi on seat area; reduce where end bearing value of post, L/R of post, or other criteria are limiting.
4. See pages 64 for glulam beam sizes and end conditions. Add PC to the model, i.e. CC3¼-4PC.
5. Column caps for end conditions available to order, add an "E" to the start of the model number. See page 64 for load values.

BEAM HANGERS

MATERIAL:
Top flange–7 ga,
Stirrups–7 ga.

Model No.	Dimensions			Bolts				Allowable Loads						Code Ref.
	W	Min. H	TF	Header		Joist		Without Top Flange		No Triangle Theory		Triangle Theory		
				Qty	Dia	Qty	Dia	(100)	(125)	(100)	(125)	(100)	(125)	
LEG3PC	3¼	9	2½	4	¾	2	¾	3465	4330	12675	13215	11865	12730	I19, L14, F18
LEG5PC	5¼	9	2½	4	¾	2	¾	3465	4330	16290	16290	11865	12730	
MEG5PC	5¼	9	2½	6	¾	2	¾	5170	6460	19710	19710	13570	14865	
LEG7PC	6⅞	9	2½	4	¾	2	¾	3465	4330	16290	16290	11865	12730	
MEG7PC	6⅞	9	2½	6	¾	2	¾	5170	6460	19710	19710	13570	14865	

1. Allowable loads assume a 5½" carrying member.
2. Specify desired height, minimum height listed in the table.
3. Glulam widths listed in table. To specify other widths add an X to the name and specify.
4. See Glulam Connectors section of this catalog for additional information on these products.
5. Refer to page 94 footnote #4 For triangle theory explanation.

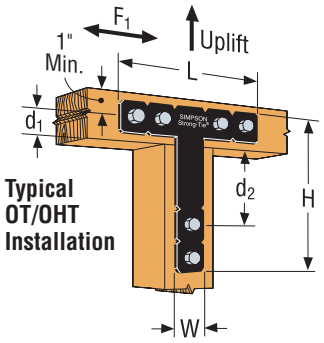
RUSTIC COLLECTION

MATERIAL: As noted in tables
FINISH: Textured powder-coated flat black paint
INSTALLATION: • Use all specified fasteners. See General Notes.
CODES: See page 13 for Code Reference Key Chart.

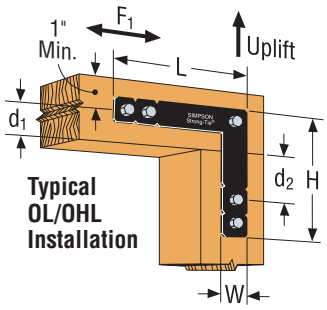
STRAP TIES

Model No.	Ga	Dimensions		Bolts		Allowable Loads[1,2]	Code Ref.
		W	L	Qty	Dia	Tension/Uplift (160)	
OS	12	2	12	4	½	1565	170
OHS	7	2½	12	4	⅝	2015	
OHS135	7	6	13½	4	¾	5045	
OHS195	7	6	19½	8	¾	10085	

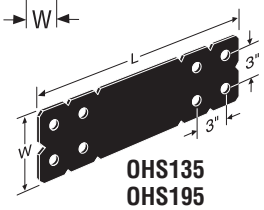
1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Allowable loads are based on parallel-to-grain loading and a minimum member thickness of 3½" with machine bolts in single shear. Straps must be centered about splice joint and bolt edge distances must meet NDS minimum requirements.
3. Designer must determine allowable loads when combining bolts parallel and perpendicular to grain.



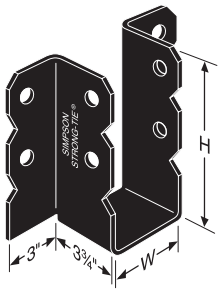
Typical OT/OHT Installation



Typical OL/OHL Installation



OHS135
OHS195

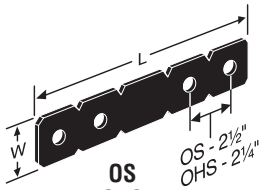


OU (7 ga)

BEAM TO COLUMN TIES

Model No.	Ga	Dimensions			Minimum Bolt End & Edge Distances		Bolts		Allowable Loads[1,2,3]		Code Ref.
									Tension/Uplift	F1	
		W	H	L	d_1	d_2	Qty	Dia	(100/160)	(100/160)	
OL	12	2	12	12	2	3½	5	½	1435	565	170
OHL	7	2½	12	12	2½	4⅜	5	⅝	1535	565	
OT	12	2	12	12	2	3½	6	½	2585	815	
OHT	7	2½	12	12	2½	4⅜	6	⅝	2585	815	

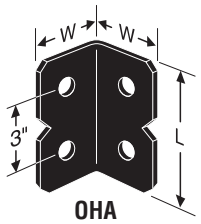
1. OL, OHL, OT and OHT must be installed in pairs with machine bolts in double shear. A single part with machine bolts in single shear is not load-rated.
2. Allowable loads are based on a minimum member thickness of 3½".
3. OT, OHT loads assume a continuous beam.



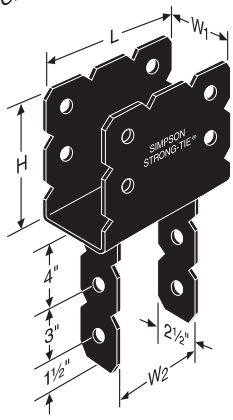
OS
OHS

HEAVY ANGLES

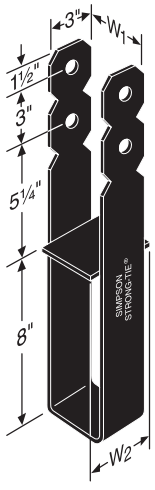
Model No.	Ga	Dimensions		Bolts		Code Ref.
		W	L	Qty	Dia	
OHA33	7	3⅛	3	2	¾	180
OHA36	7	3⅛	6	4	¾	



OHA



OCC (3 ga)



OCB (3 ga)

COLUMN BASES

Model No.	Ga	Dimensions		Bolts		Allowable Uplift Loads	Code Ref.
		W_1	W_2	Qty	Dia	(160)	
OCB44	3	3⁹⁄₁₆	3½	2	⅝	4200	170
OCB46	3	3⁹⁄₁₆	5½	2	⅝	4200	
OCB48	3	3⁹⁄₁₆	7½	2	⅝	4200	
OCB66	3	5½	5½	2	⅝	4200	
OCB68	3	5½	7½	2	⅝	4200	
OCB88	3	7½	7½	2	¾	6650	
OCB810	3	7½	9½	2	¾	6650	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Minimum side cover for full loads is 3" for CB's.
3. Install with bottom of base flush with concrete.
4. Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.

COLUMN CAPS

Model No.	Ga	Dimensions				Bolts				Allowable Loads		Code Ref.
						Beam		Post		Uplift	Down	
		W_1	W_2	L	H	Qty	Dia	Qty	Dia	(160)	(100)	
OCC44	3	3⅜	3⅜	9	4½	2	⅝	2	⅝	1465	15310	170
OCC46	3	3⅜	5½	12	7½	4	⅝	2	⅝	2800	24060	
OCC66	3	5½	5½	12	7½	4	⅝	2	⅝	4040	30250	
OCC68	3	5½	7½	12	7½	4	⅝	2	⅝	4040	37810	
OCC88	3	7½	7½	15	7½	4	¾	2	¾	7440	54600	

1. Allowable uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Downloads are determined by nominal sawn beam allowable bearing at 625 psi on seat area; reduce where shear value of beam, end bearing value of post, L/R of post, or other criteria are limiting.
3. Post sides are assumed to lie in the same vertical plane as the beam sides.
4. For end conditions specify OECC.

JOIST HANGERS

Model No.	Ga	Dimensions		Bolts		Allowable Loads[1,2]			Code Ref.
		W	H	Header	Joist	Uplift (160)	Floor (100)	Roof[2] (125)	
OU46	7	3⁹⁄₁₆	5	2-¾	1-¾	685	1270	1590	170
OU48	7	3⁹⁄₁₆	7	4-¾	2-¾	1365	2545	3175	
OU410	7	3⁹⁄₁₆	9	4-¾	2-¾	1365	2545	3175	
OU412	7	3⁹⁄₁₆	11	6-¾	3-¾	2050	3815	4765	
OU414	7	3⁹⁄₁₆	13	6-¾	3-¾	2050	3815	4765	
OU68	7	5½	7	4-¾	2-¾	1365	2545	3175	
OU610	7	5½	9	4-¾	2-¾	1365	2545	3175	
OU612	7	5½	11	6-¾	3-¾	2050	3815	4765	
OU614	7	5½	13	6-¾	3-¾	2050	3815	4765	
OU810	7	7½	9	4-¾	2-¾	1365	2545	3175	
OU812	7	7½	11	6-¾	3-¾	2050	3815	4765	
OU814	7	7½	13	6-¾	3-¾	2050	3815	4765	

1. Load values allowed assume a carrying member of not less than 3½".
2. Roof loads are 125% of floor loads unless a limited by other criteria. Floor loads may be adjusted for other load durations according to the code provided they do not exceed those in the roof column.
3. Additional glulam beam widths are available. Add an "X" to the name and specify width, i.e. OU68X, W = 5.25.
4. Skew and slope options not available.

STANDOFF BASES

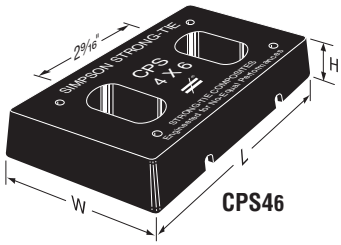
The **PBV** is a hidden standoff post base. Two different sizes fit a variety of posts shapes.
MATERIAL: 14 gauge galvanized steel
FINISH: Textured powder-coated flat black paint or galvanized
ORDER: For powder-coated flat black, order PBV6PC or PBV10PC. For galvanized coating, order PBV6 or PBV10. For kit containing Simpson Strong-Tie® Strong-Drive® screws (SDS), RFB bolt, SET 1.7 adhesive, and powder-coated PBV, order PBV6KT or PBV10KT.

The **CPS** is a Composite Plastic Standoff designed for increased concrete surface area.
MATERIAL: Engineered composite plastic
INSTALLATION: PBV and CPS

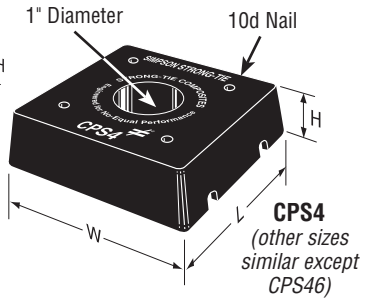
Post:
- Drill a ¾" diameter hole, 10" into the center of the post.
- Clean out dust. Fill hole halfway with Simpson Strong-Tie® SET Epoxy-Tie® adhesive.
- Insert all-thread rod and allow epoxy to set and cure.
- Secure standoff to post using four 10d nails except PBV which uses four Simpson Strong-Tie SDS screws.

Concrete:
- Drill a ¾" diameter hole per anchor design *(see footnote 2 below)*.
- Clean out dust. Fill hole halfway with Simpson Strong-Tie SET Epoxy-Tie adhesive. Insert post subassembly into hole and allow epoxy to set and cure.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.

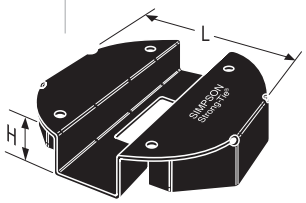
CODES: See page 13 for Code Reference Key Chart.



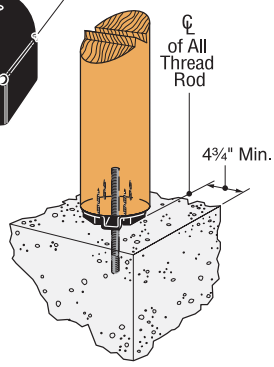
CPS46



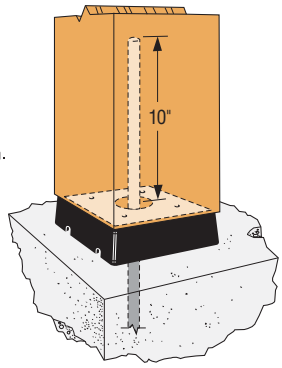
CPS4
(other sizes similar except CPS46)



PBVPC



Typical PBV6PC Installation



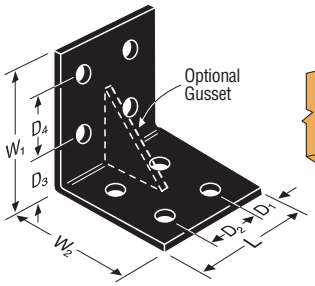
Typical CPS4 Installation

Model No.	Post or Column Size	Dimensions			Fasteners		Allowable Loads		Code Ref.
		L	W	H	Post	Anchor Bolt	Uplift	Down[3]	
CPS4	4x4	3¼	3¼	1	4-10d	⅝"	4490	5195	170
CPS46	4x6	5 5/16	3 5/16	1	4-10d	2-⅝"	4490	5865	
CPS5	5x5	4⅛	4⅛	1	4-10d	⅝"	4490	5865	
CPS6	6x6	5 5/16	5 5/16	1	4-10d	⅝"	4490	7745	
CPS7	8x8	7¼	7¼	1¼	4-10d	⅝"	4490	8315	
PBV6PC	6" Dia	5¼	—	1	4-SDS¼x3	⅝"	3800	9250	F1
PBV10PC	10" Dia	9 3/16	—	1	4-SDS¼x3	⅝"	3800	19225	

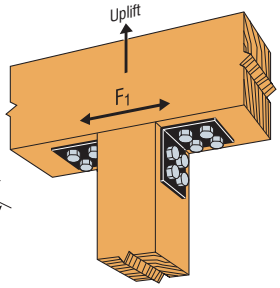
1. Allowable uplift load capacities are for solid sawn posts with specific gravity of 0.36 minimum except the PBV, which is based on round "Viga" *(Ponderosa Pine)* wood posts.
2. All allowable uplift loads are based on a lowest ultimate load from testing divided by a reduction factor of 4. Concrete anchorage to be designed by others, refer to Simpson Strong-Tie® *Anchoring and Fastening Systems for Concrete and Masonry* catalog *(form C-SAS, see page 228 for details)*. Allowable uplift capacities shall not exceed those shown in the table.
3. Download capacities are calculated based on the standoff bearing area and a concrete strength of 2500 psi except the PBV, which is based on the wood bearing strength *(700 psi for Ponderosa Pine)*.
4. Allowable loads may not be increased for short term loading.
5. **NAILS:** 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.

HL – HEAVY ANGLES & GUSSETS

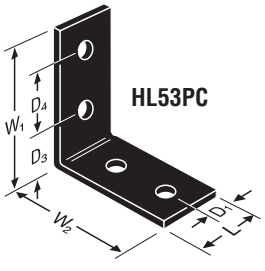
Versatile angle gussets and heavy angles promote standardization and construction economy, and are compatible with Simpson Strong-Tie® structural hardware.
FINISH: Textured powder-coated flat black paint, Simpson Strong-Tie® gray paint and also available galvanized
TO ORDER: All products with PC suffix are textured powder-coated flat black paint. 7 gauge products without the PC suffix are galvanized. 3 gauge products without the PC suffix are Simpson Strong-Tie gray paint.
OPTIONS: Gussets may be added to HL models when L ≥ 5". Specify G after numbers in model number as in HL46GPC.
CODES: See page 13 for Code Reference Key Chart.



HL55PC



Typical HL55PC Installation



HL53PC

Model No.	Ga	Dimensions						Bolts (Total)		Allowable Loads		Code Ref.
		W1 & W2	L	D1	D2	D3	D4	Qty	Dia	Uplift	F1	
HL33PC	7	3¼	2½	1¼	—	2	—	2	½	910	1580	170
HL35PC	7	3¼	5	1¼	2½	2	—	4	½	910	1580	
HL37PC	7	3¼	7½	1¼	2½	2	—	6	½	910	1580	
HL53PC	7	5¾	2½	1¼	—	2	2½	4	½	910	1580	
HL55PC	7	5¾	5	1¼	2½	2	2½	8	½	910	1580	
HL57PC	7	5¾	7½	1¼	2½	2	2½	12	½	910	1580	
HL43PC	3	4¼	3	1½	—	2¾	—	2	¾	1555	1580	
HL46PC	3	4¼	6	1½	3	2¾	—	4	¾	1555	2025	
HL49PC	3	4¼	9	1½	3	2¾	—	6	¾	1555	2025	
HL73PC	3	7¼	3	1½	—	2¾	3	4	¾	1555	2025	
HL76PC	3	7¼	6	1½	3	2¾	3	8	¾	2115	3800	
HL79PC	3	7¼	9	1½	3	2¾	3	12	¾	2115	3800	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Use 0.85 times table load for Hem Fir.
3. Parts should be centered on the face of the member to which they are attached.
4. Wood members for the '3' and '5' series must have a minimum width and thickness of 3½" for table loads to apply.
5. Wood members for the '4' and '7' series must have a minimum width and thickness of 5⅛" for table loads to apply.
6. Parts must be used in pairs. Lag bolts of equal diameter *(minimum 5" long)* may be substituted for machine bolts into beam with no reduction in load.

HANGER OPTIONS GENERAL NOTES

HANGER MODIFICATION OPTIONS AND APPLICATIONS

The Hanger Options Matrix for Face Mount and Top Flange Hangers on pages 216-217 shows hanger modifications and special applications *(uplift, nailers and weldability)* that are available for each model series. Modifications may not be available for all models in the series, and some combinations of hanger options are not available. Many hanger modifications result in load reductions. For all modifications, refer to the listed hanger option pages for additional information regarding the availability of each modification, associated load reductions, and installation requirements. For more information regarding the applications, refer to the individual product pages throughout the catalog.

HANGER OPTIONS GENERAL NOTES

This information applies only to the hangers manufactured by Simpson Strong-Tie and installed per our instructions. Some combinations of these options on a single hanger have not been evaluated. In some cases, combinations of these options cannot be manufactured. A qualified Designer must always evaluate each connection, including header and joist limitations, before specifying the product.

Testing is performed using a standardized hanger test method. The joist in the test setup may include the minimum amount of structural stability where appropriate. For example, the sloped down hanger tests are assembled with a joist cut on the lower end to lie flush with a wood member attached with three 8d common toenails. Header and other attached structural members are assumed fixed in actual installations. Horizontal loads induced by sloped joists must be resisted by other members in the structural system.

MATERIAL: Gauge may vary from that specified depending on the manufacturing process used. U, HU, HUTF, W and B hangers normally have single-piece stirrups; occasionally, the seat may be welded. Hanger configurations, height and fastener schedules may vary from the tables depending on the joist size, skew and slope.

FINISH: See specific hanger tables. Welded specials: Simpson Strong-Tie® gray paint.
Specials that are not galvanized before fabrication can be hot-dip galvanized after fabrication; specify HDG.

CODES: Modified hangers, due to their numerous variations, are not on code reports.

LOADS: For multiple modifications on the same connector, use the single multiplier factor that yields the lowest design loads.

TO ORDER: Use the abbreviations below to order specials. The example shows a W410 hanger and illustrates most available options; most special hangers have only a few of these features. For assistance, contact Simpson Strong-Tie.

INSTALLATION:

- Fastener quantities may be increased beyond the amount specified in the standard hanger table.
- Fill all holes with the table-specified fastener types.
- Some skewed hangers require bevel cut joists; refer to the specific notes provided for each product.

W410 X SLD30 SKL20 TFDL20 TFO20 OSR

- **W410** — Base Model
- **X** — X = Modification
- **SLD30** — Seat Sloped Down (30°) *(SLU = Seat Up)*
- **SKL20** — Skewed Left (20°) *(SKR = Skewed Right)*
- **TFDL20** — Top Flange Down Left (20°) *(TFDR = Top Flange Down Right)*
- **TFO20** — Top Flange Open (20°) *(TFC = Top Flange Closed)*
- **OSR** — Offset Top Flange Right *(OSL = Offset Top Flange Left)*

The new Joist Hanger Selector software enables you the most optimum product for your project. The software takes into consideration all the characteristics seen in this catalog. Visit ***www.strongtie.com/software***.

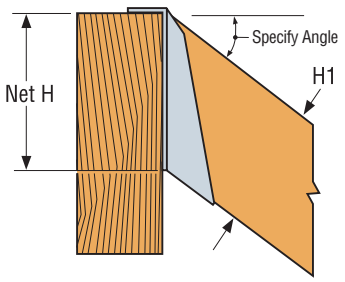
HEIGHT FOR SLOPED HANGERS

Height 1 (H1) is the joist height before the slope cut has been made.

Net Height (Net H) is the joist height after the slope cut has been made.

Provide **H1** when ordering a connector. Connectors are made assuming dry lumber is being used in continuously dry conditions.

Simpson Strong-Tie will calculate the **Net H** dimension based on the mathematical formula of H1/cos angle.



FACE-MOUNT HANGER OPTION MATRIX

BASE MODEL SERIES	HANGER MODIFICATION OPTIONS						APPLICATIONS	HANGER OPTION PAGE(S)
	SKEWED SEAT							
	ALLOWABLE SKEW 	SQUARE CUT JOIST ALLOWED 	SLOPED SEAT 	SKEWED & SLOPED SEAT 	CONCEALED FLANGE(S) 	ALTERNATE WIDTHS	UPLIFT WELDABILITY  	
FACE MOUNT HANGERS								
HGU	≤ 45°	7" Wide			O	●	U	224
HGUM	≤ 45°	7" Wide			●	●	U	224
HGUQ							U	—
HGUS	≤ 45°	O					U	219
HHGU					●	●	U	224
HHUS	≤ 45°		≤ 45°	●			U	219
HSUL/HSUR	45° Std.	●			O		U	—
HSULC/HSURC	45° Std.	●			Std.		U	—
HTU	≤ 67½°	●					U	219
HU	≤ 67½°	●	≤ 45°	●	O	O	U, W	218
HUC	≤ 45°	●	≤ 45°		Std.		U, W	218
HUCQ					Std.		U	—
HUSC					Std.		U	—
IUS							U	—
LGU	≤ 45°	●			●	●	U	224
LGUM	≤ 45°	●					U	224
LSU/LSSU	Field skewable and slopeable to 45° available for some models						U	—
LTHJA							U	—
LTHMA							U	—
LU							U	—
LUC					Std.		U	—
LUS							U	—
MGU	≤ 45°	●			O	●	U	224
MIU							U	—
MUS							U	—
SUL/SUR	45° Std.	●					U	—
SULC/SURC	45° Std.	●			Std.		U	—
THGB/THGBH/ THGBV/THGBHV	≤ 45°	7" Wide					U	220
THGQH	45°	●					U	220
THJA							U	—
THJU						●	U	219
U	≤ 67½°	●	≤ 45°	●			U	218

1. Refer to the specific product pages for uplift, nailer, and weld information.
2. Refer to the listed pages for each model series for restrictions, required load reductions, and additional information regarding the hanger modifications.

● = Available for all models O = Available for some models **Std.** = Available with standard model *(no modification required)*

TOP-FLANGE HANGER OPTION MATRIX

SIMPSON Strong-Tie®

BASE MODEL SERIES	HANGER MODIFICATION OPTIONS: SKEWED SEAT – ALLOWABLE SKEW	SKEWED SEAT – SQUARE CUT JOIST ALLOWED	SLOPED SEAT	SKEWED & SLOPED SEAT	CONCEALED FLANGE(S)	ALTERNATE WIDTHS	SLOPED TOP FLANGE	OPEN TOP FLANGE	CLOSED TOP FLANGE	OFFSET TOP FLANGE	SADDLE HANGER	RIDGE HANGER	APPLICATIONS: UPLIFT NAILERS WELDABILITY	HANGER OPTION PAGE(S)
	 Skewable	 Butt Cut	 Slopeable	 Slopeable & Skewable	 Concealed		 Sloped Top Flange	 Open Top Flange	 Closed Top Flange	 Offset Top Flange	 Saddle Hanger	 Ridge Hanger	 Uplift  Nailer  Weldable	
TOP FLANGE HANGERS														
B	≤ 45°		≤ 45°	●		●	●	●	●		●		U, N, W	221
BA													U, N, W	—
EG	≤ 45°		≤ 45°										—	223
EGQ	≤ 45°		≤ 45°										U	223
GB			≤ 45°								●		U, W	221
GH	≤ 45°										●		—	218
GLS	≤ 50°		≤ 45°	●			●			●	●		U, W	220
GLT	≤ 50°		≤ 45°	●			●			●			U, W	220
GLTV	≤ 50°		≤ 45°	●			●			●			U, N, W	220
HB	≤ 45°		≤ 45°	●		●	●	●	●		●		U, N, W	221
HGB			≤ 45°								●		U	221
HGLS	≤ 50°		≤ 45°				●			●	●		U, W	220
HGLT	≤ 50°		≤ 45°				●			●			U, W	220
HGLTV	≤ 50°		≤ 45°				●			●			U, W	220
HHB			≤ 45°			●					●		U, W	221
HIT													U, N	—
HUCTF			≤ 45°		Std.								U	223
HUSCTF					Std.								—	—
HUTF/HUITF	≤ 45°	●	≤ 45°	○	○								U	223
HW/HWI	≤ 84°	○	≤ 45°	●			●	●		●	●	○	N, W	222
HWU	≤ 45°		≤ 45°	○									U, N, W	222
ITS													U, N	—
LB													U, N, W	—
LBV	≤ 45°		≤ 45°	●		●	●	●	●		●		U, N, W	221
LEG	≤ 45°	●	≤ 45°							●			—	223
MBHA	45°	●											—	224
MEG	≤ 45°	7" Wide	≤ 45°							●			—	223
MIT													U, N	—
MSC	20°-45° ○	●	≤ 45°	●		○							—	—
MSCPT	25°-45°	●				○							U	—
PF													U	—
THA					○								U, N	—
THAC					Std.								U, N	—
THAI													N	—
THAR/L	45° Std.	●											U, N	—
THASR/L	22°-75° Field Skewable	●											U	—
W/WI	≤ 84°	○	≤ 45°	●			●	●	●	●	●	○	N, W	222
WM/WMI	≤ 45°		≤ 45°	●						●			—	218
WNP/WP/WPI	≤ 84°	○	≤ 45°	●			●	●	●	●	●	○	N, W	222
WPU/WNPU	≤ 45° ○		≤ 45°	○									U, N, W	222

See foonotes on page 216.

● = Available for all models ○ = Available for some models **Std.** = Available with standard model *(no modification required)*

HANGER OPTIONS

U/HU

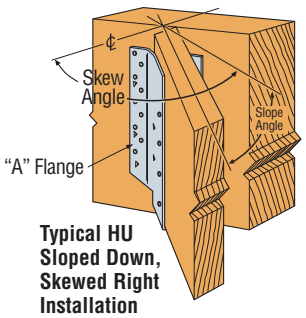
See Hanger Options General Notes.
Not all slope and skew combinations are available.

SLOPED, SKEWED, AND SLOPED/SKEWED

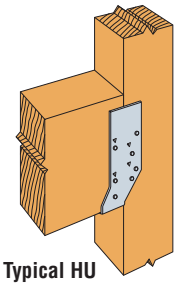
- For low-cost, code-reported 45° skews, see SUR/SUL and HSUR/HSUL. See also LSU/LSSU connectors.
- These options only apply to wood-to-wood connections.
- U/HU may be skewed to a maximum of 45° and sloped to a maximum of 45°. Hangers 5½" or less in width may be skewed to 67½°. Hangers skewed 51°- 67½° require a square cut.
- For all options, uplift loads are 0.75 of table loads.
- For skewed hangers 3⁹⁄₁₆" and less in width, the allowable download is 100% of the table load. For skewed hangers over 3⁹⁄₁₆" in width the allowable download is 80% of the table load. For slope only, the allowable download is 100% of the table load.
- For combined slopes and skews, the maximum allowable download is 0.80 of the table load.
- Skewed hangers may have joist nails only on one side.

STRAIGHT OR CONCEALED FLANGE

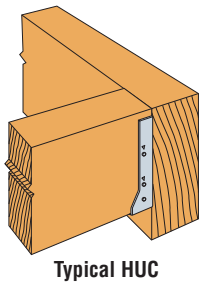
- HU is available with the A flanges straight at 100% of the table loads if W ≥ 3½".
- If W < 3", use N10 nails at 0.64 of the table load.
- If W ≥ 3", use 10d nails at 0.84 of the table load.
- HU is available with A flanges concealed, provided the W dimension is 2⁵⁄₁₆" or greater, at 100% of the table load. Specify HUC.
- HU is available with one flange concealed when the W dimension is less than 2⁵⁄₁₆" at 100% of the table load.
- For skewed only HUC hangers, the flange on the acute side can be concealed at 100% of the table load. See table for skew limitations.
- For sloped only hangers, flanges can be concealed at 100% of the table load.
- For sloped and skewed hangers, the flange on the acute side can be concealed at 0.80 of the table load. Contact Simpson Strong-Tie for skew limitations.
- When nailing into the carrying member's end grain, the allowable load is 0.67 of the table load.
- For welding see technical bulletin T-HUHUC-W *(see page 231 for details).*



Typical HU Sloped Down, Skewed Right Installation



Typical HU Installation Manufactured with Flanges Straight

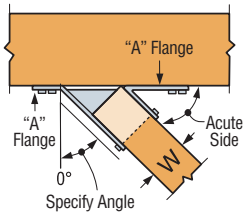


Typical HUC Installed on a Beam

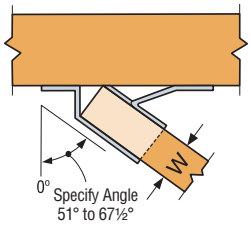
Maximum Skew Degree for Skewed HUC Hangers

Hanger Width (in.)	Maximum Skew (degree)
2⁵⁄₁₆	26
2⅜	26
2⁹⁄₁₆	29
2¾	29
3⅛	37
3¼	38
3⁵⁄₁₆	39
3⁹⁄₁₆	42
4⅛	42
4³²⁄₃₂	42

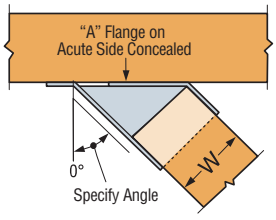
1. Widths greater than 4³²⁄₃₂" maximum skew is 45°.



Top View U Hanger Skewed Right < 51° *(Square Cut)*



Top View U Hanger Skewed Right ≥ 51° *(Square Cut)*



Top View HUC Concealed Hanger Skewed Right *(Square Cut)*

WM/WMI/WMU

See Hanger Options General Notes.

INSTALLATION: • Bevel-cut the joist for skewed hangers *(see illustration).*

HANGER HEIGHT

- For hanger heights exceeding the joist height, the allowable load is 0.50 of the table load.

SLOPED AND/OR SKEWED SEAT

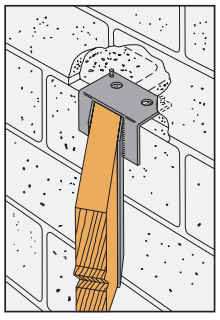
- WM/WMI may be skewed and/or sloped to 45° maximum.
- The allowable load is 100% of the table load.

OFFSET TOP FLANGE

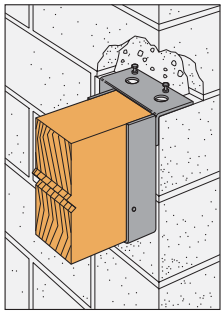
- The top flange may be offset left or right for placement at the end of a header. The allowable load is 0.50 of the table roof load.

UPLIFT *(WMU Only)*

- No modifications on WMU.



Typical WM Sloped Down, Skewed Right Block Wall Installation



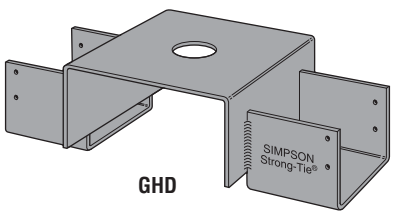
Typical WM Top Flange Offset Left

GH Girder Hanger

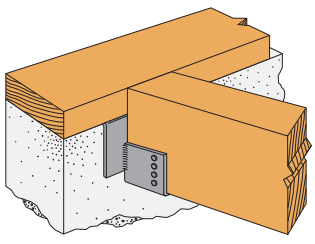
See Hanger Options General Notes.

SKEWED SEAT

- GH hangers may be skewed to a maximum of 45°; bevel cut required.
- The allowable loads are 100% of the table load.
- Specify GHD for saddle-style hangers. GHD may not be skewed.



GHD



Typical GH Installation Skewed Right

HANGER OPTIONS

HTU

See Hanger Options General Notes.

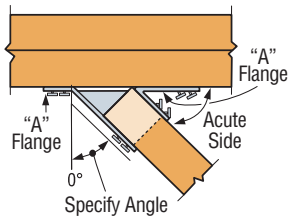
SKEWED SEAT

- Skewable up to 67½°.
- Available in single and 2-ply size.
- No bevel cut required.

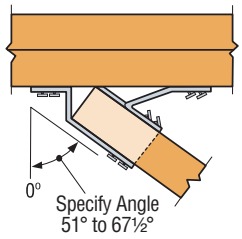
Allowable Loads for Skewed HTU Hangers

Model No.	Skew Angle (Degree)	Fasteners		DFL/SP Allowable Loads[1,2]		HF/SPF Allowable Loads[1,2]	
		Carrying Member	Carried Member	Uplift (133/160)	Download (100/115/125)	Uplift (133/160)	Download (100/115/125)
HTU26	< 51	20-16d	14-10dx1½	1315	2945	1130	2530
	51-67½	20-16d	12-10dx1½	970	2595	835	2230
HTU28	< 51	26-16d	20-10dx1½	2015	3060	1730	2630
	51-67½	26-16d	17-10dx1½	1485	2815	1280	2420
HTU210	< 51	32-16d	26-10dx1½	2715	3175	2335	2730
	51-67½	32-16d	22-10dx1½	2005	3040	1725	2615
HTU26-2	< 51	20-16d	14-10d	1335	2555	1145	2200
	51-67½	20-16d	12-10d	1110	2700	955	2320
HTU28-2	< 51	26-16d	20-10d	2470	3890	2120	3345
	51-67½	26-16d	17-10d	1710	3775	1470	3245
HTU210-2	< 51	32-16d	26-10d	3600	4935	3100	4245
	51-67½	32-16d	22-10d	2255	4790	1940	4120

1. Uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. Allowable downloads may not be increased.
3. Maximum hanger gap between end of joist *(truss)* and face of carrying member is ⅛".
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long, 10d = 0.148" dia. x 3" long. See page 22-23 for other nail sizes and information.



Top View HTU Hanger Skewed Right < 51°



Top View HTU Hanger Skewed Right ≥ 51°

HGUS/HHUS

See Hanger Options General Notes.

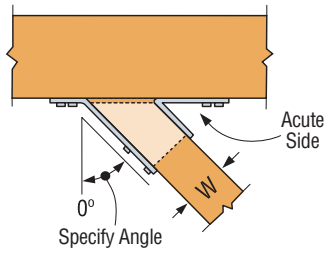
HHUS – SLOPED AND/OR SKEWED SEAT

- HHUS hangers can be skewed to a maximum of 45° and/or sloped to a maximum of 45°.
- For skew only, maximum allowable download is 0.85 of the table load.
- For sloped only or sloped and skewed hangers, the maximum allowable download is 0.65 of the table load.
- Uplift loads for sloped/skewed conditions are 0.72 of the table load, not to exceed 2475 lbs.
- The joist must be bevel-cut to allow for double shear nailing.

HGUS – SKEWED SEAT

- HGUS hangers can be skewed only to a maximum of 45°. Allowable loads are:

HGUS Seat Width	Joist	Down Load	Uplift
W < 2"	bevel or square cut	0.62 of table load	0.46 of table load
2" < W < 6"	bevel cut	0.67 of table load	0.41 of table load
2" < W < 6"	square cut	0.46 of table load	0.41 of table load
W > 6"	bevel cut	0.40 of table load	0.41 of table load



Top View HHUS Hanger Skewed Right
(joist must be bevel cut)
All joist nails installed on the outside angle *(non-acute side).*

THJU

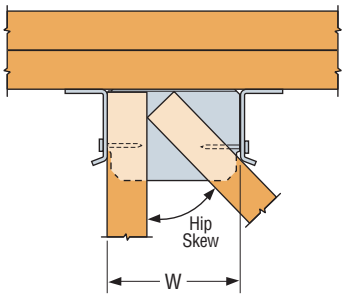
See Hanger Options General Notes.

HANGER WIDTHS

- THJU is available in intermediate seat widths between 5⅛" *(THJU26 width)* and 8⅛" *(THJU26-W width).*
- Allowable download and uplift for all intermediate widths is 100% of the THJU26-W table loads.
- For double hip installation, divide the total allowable load by 2 to determine the allowable load for each hip.
- Order as THJU26X and specify width; see table for reference.

THJU Intermediate Width Options

Carried Member Combination	Hip Skew	Width (W)
2-Ply Hip and Single-Ply Jack	45-degree	6⅜
Single-Ply Hip and 2-Ply Jack	45-degree	6¾
Double (Terminal) Hip	45-degree	7⅜
2-Ply Hip and 2-Ply Jack	45-degree	Use THJU26-W
Single-Ply Hip and Single-Ply Jack	44°- 46°	Use THJU26
	47°- 49°	5½
	50°- 52°	5¾
	53°- 55°	6
	56°- 57°	6⅜
	58°- 59°	6⅝
	60°- 61°	7
	62°- 63°	7⅜
	64°- 65°	Use THJU26-W



THJU Top View Installation

HANGER OPTIONS

THGQH

See Hanger Options General Notes.

SKEWED SEAT

- THGQH may be skewed 45° for the models shown. Carried members may be bevel cut.
- For Hem-Fir or Spruce-Pine-Fir members, multiply tabulated allowable loads for the skewed THGQH by 0.86. Connector must be installed centered on girder vertical webs.

Model #	Max. B.C. Depth (in.)	Min. Vertical Web Size	Fasteners		DF/SP Allowable Loads	
			Face	Joist	Uplift (160)	Down (100/115/125)
THGQH2 SK45	17	2x6	18-SDS ¼"x3"	18-SDS ¼"x3"	4570	6090
		2x8	28-SDS ¼"x3"			9470
THGQH3 SK45	14	2x8	30-SDS ¼"x4½"	18-SDS ¼"x4½"	3875	10270
		2x10	36-SDS ¼"x4½"			12480
THGQH4 SK45	13	2x8	34-SDS ¼"x6"	18-SDS ¼"x6"	3180	11890
		2x10	40-SDS ¼"x6"			13990

THGB/THGBH/THGBV/THGBHV

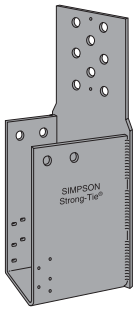
See Hanger Options General Notes.

SKEWED SEAT

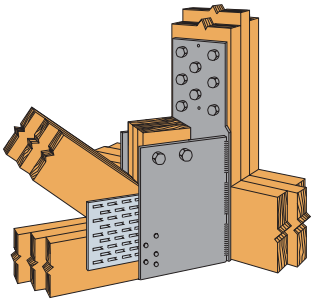
- THGB/THGBH/THGBV/THGBHV hangers can be skewed to a maximum of 45°.
- The maximum allowable down load and uplift load for skew is 0.87 of the table load.

DROPPED BUCKET

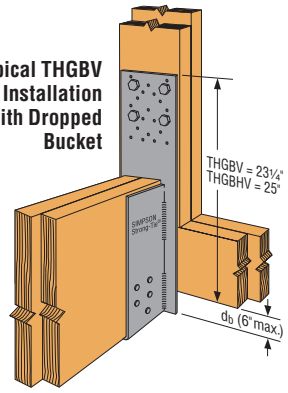
- THGBV/THGBHV backplates can be extended to allow for up to a 6" dropped bucket.
- Allowable loads are 100% of the table loads.
- Order as "X" version, specify the total backplate height, BK_PLT, equal to the hanger height (H) plus the dropped bucket amount (db). Ex: a THGBV3.62/9 with a 4" dropped bucket would have a total backplate height of 27¼".



THGBH3
(Skewed Left)



Typical THGBH Installation Skewed Left



Typical THGBV Installation with Dropped Bucket

GLT/HGLT/GLS/HGLS/GLTV/HGLTV

See Hanger Options General Notes.

INSTALLATION: • Bevel-cut the carried beam for skewed hangers.

HANGER HEIGHT

- For hangers exceeding the joist height by ½", allowable load is 50% of the table roof load.

SLOPED AND/OR SKEWED SEAT

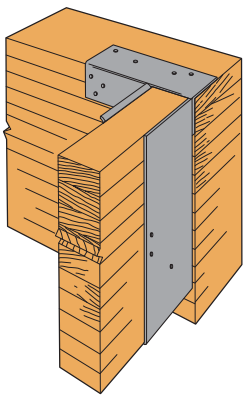
- GLT/GLTV/HGLT/HGLTV and GLS/HGLS series may be skewed to a maximum of 50° or sloped to a maximum of 45°.
- For skews greater than 15°, multiply the table uplift load by 0.50.
- For sloped only, the maximum allowable load is 6500 lbs. for the GLT/GLS/GLTV, 9165 lbs. for the HGLT/HGLS/HGLTV.
- For skewed only, the maximum allowable load is 6550 lbs. for the GLT/GLS/GLTV, 7980 lbs. for the HGLT/HGLS/HGLTV. The deflection at full loading may reach ¼".
- Sloped and skewed GLT/GLS/GLTV configurations have a maximum allowable load of 5500 lbs. Sloped and skewed combinations are not allowed for the HGLT/HGLS/HGLTV.
- Sloped and/or skewed seat hangers may not be installed in non-backed nailer/header installations.

SLOPED TOP FLANGE

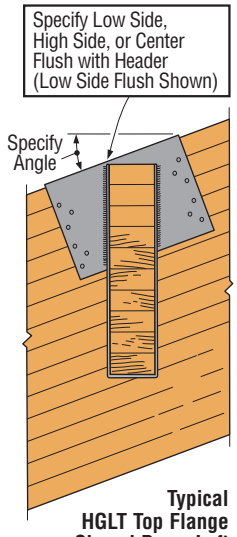
- A top flange may be sloped down left or down right to 30° with or without a sloped and/or skewed seat *(see illustration)*. Reduce allowable table loads using straight-line interpolation *(see page 222)*.

OFFSET TOP FLANGE

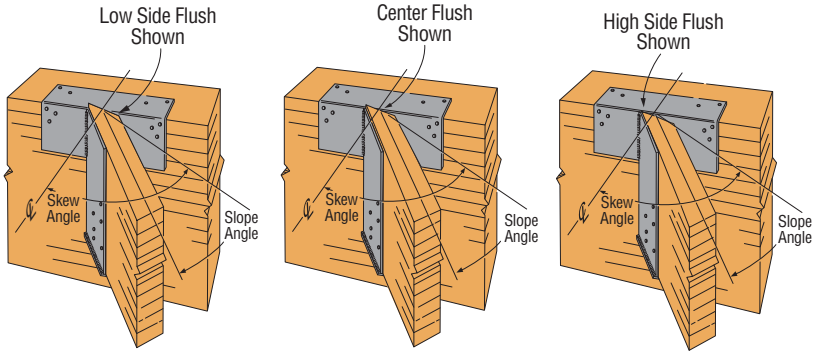
- The top flange may be offset left or right for placement at the end of a header. Minimum seat width 3¼". The maximum allowable load is 0.50 of the table roof load for the GLT/GLS/GLTV, and 0.45 for the HGLT/HGLS/HGLTV.
- For skewed and offset top flange hangers, the maximum allowable load is 3500 lbs.
- No uplift load.



Typical GLT Top Flange Offset Left
(HGLT similar)



Typical HGLT Top Flange Sloped Down Left with Low Side Flush



Typical GLT Sloped Down, Skewed Right
When ordering, specify Low Side Flush, Center Flush or High Side Flush

HANGER OPTIONS

B/LBV/HB/HHB/GB/HGB

See Hanger Options General Notes.

MATERIAL:

- Gauge may vary from that specified depending on the manufacturing process used. Hanger configurations, height and fastener schedules may vary from the tables depending on the joist size, skew and slope.

CODES:

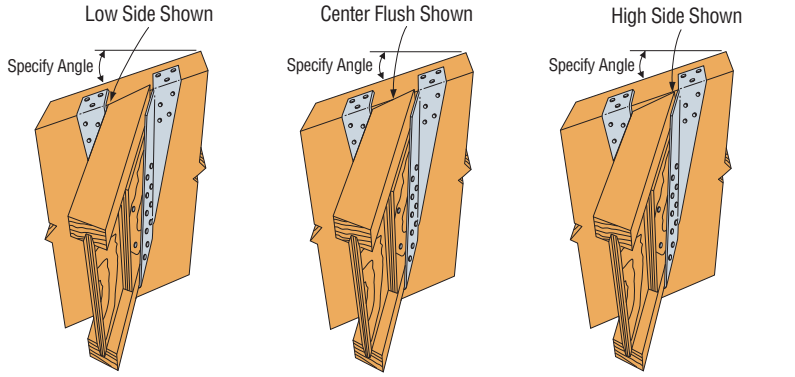
- Modified hangers, due to their numerous variations, are not in code reports.

LOADS:

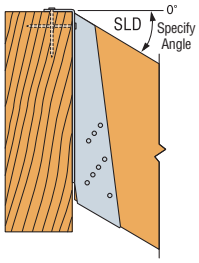
- For multiple modifications on the same connector, use the single multiplier factor that yields the lowest design loads.

INSTALLATION:

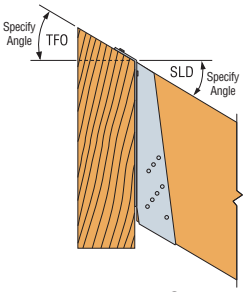
- Fastener quantities will typically increase beyond the amount specified in the standard hanger tables.
- Web stiffeners are required for I-joists.
- Fill all holes with the table-specified fastener types.
- Bevel cut the carried member for skewed applications.



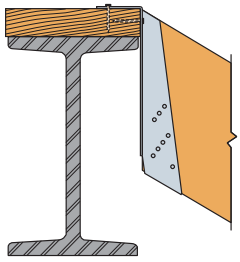
B Hanger Sloped Down and Skewed Left with Sloped Top Flange Installation
When ordering, specify Low Side Flush, Center Flush or High Side Flush



Typical LBV Sloped Down Installation with Full Backing



Typical LBV Sloped Down with Top Flange Open

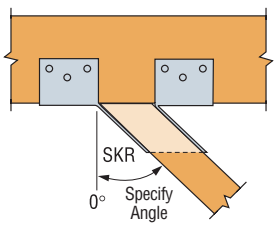


Typical LBV Sloped Down on Nailer Non-Backed

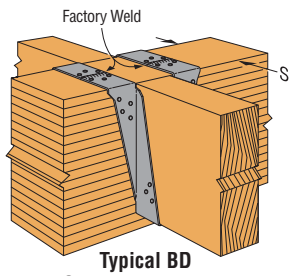
Reduction Factors for Allowable Loads for Modified Hangers[1]

Hanger Series	Condition		Carried Member Modifications							Support Member Modifications[5]	
			Sloped Down	Sloped Up	Skewed Only	Sloped Down & Skewed		Sloped Up & Skewed		Top Flange Down	Top Flange Open/Closed
	Angle Limit		45	45	45	45		45		35	30
LBV	Minimum Height		6	6	6	9¼	14	9¼	14	11¼	9¼
	All Widths	Download	1.00	0.91	1.00	0.90	1.00	0.91	0.91	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
B	Minimum Height		6	6	6	9¼	14	9¼	14	14[4]	9¼
	Less than 2½" Wide[2]	Download	0.82	0.66	0.95	0.54	0.82	0.64	0.64	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	1.00	0.90	1.00	0.90	1.00	1.00	1.00
	2½" and Wider[3]	Download	0.80	0.95	1.00	0.70	1.00	0.80	0.80	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HB	Minimum Height		8	8	8	11¼	14	11¼	14	14[4]	11¼
	Less than 2½" Wide[2]	Download	0.84	0.70	1.00	0.47	0.84	0.62	0.69	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	0.71	0.71	0.71	0.71	0.71	1.00	1.00
	2½" and Wider[3]	Download	0.87	0.70	0.96	0.59	0.87	0.70	0.70	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HHB GB HGB	Minimum Height		9¼	—	—	—	—	—	—	—	—
	All Widths	Download	0.70	—	—	—	—	—	—	—	—
		Uplift	1.00	—	—	—	—	—	—	—	—

1. Use this table to calculate allowable loads for modified hangers. Apply the reduction factor to the appropriate allowable load for the header condition including headers.
2. B and HB hangers less than 2½" wide are assumed to use 10dx1½ joist nails.
3. B and HB hangers 2½" or wider are assumed to use 16dx2½ or 16d common nails in the joist.
4. For B and HB hangers with TF Down that are less than 5⅜" in width, minimum hanger height is 11¼ inches.
5. These hangers may deflect an additional 1/32" at design load.
6. For HB hangers on nailers, 100% of allowable nailer uplift value may be used. *(See nailer table)*
7. For hangers with slope and skew less than 14" use 1150 lbs. for B hangers and 1430 lbs. for HB hangers.
8. In the table the term "x" refers to the angle of the modification.
9. For top flange closed option, install upper nails slightly angled downward to avoid interference with top flange.



Top View B Hanger Skewed Right



Typical BD Saddle Installation

SADDLE HANGER

Saddle hangers are made to order; add "D" to model *(e.g. BD412)*; specify S *(for saddle)* dimension. They may be used for most conditions except at end wall locations and are preferred for nailer applications. Minimum S dimension *(saddle width)* is 3 9/16". Minimum supporting member width is 3½". Minimum nailer thickness apply *(see page 78 and 110)*. Saddle hangers achieve catalog load listed. Saddle hangers on stud walls do not achieve catalog loads.

HANGER OPTIONS

W/WNP/WNPU/WP/WPU/HW/HWU

See Hanger Options General Notes.
Models that have an "I" in the model number (e.g., HWI) have the same properties and modifications as the standard models without the "I" in the name (e.g., HW).

INSTALLATION: • Some models are available in Type A *(Bevel Cut)* and Type B *(Square Cut)* styles; all models are available in Type B style. Contact Simpson Strong-Tie when ordering.
- Bevel-cut the joist for skewed Type A hangers *(see illustration)*. Butt-cut the joist for Type B hangers.
- Hangers with a skew greater than 15° may have all the joist nails on the outside angle.
- Skewed HWs have face nails and require a minimum header depth of 3½".

HANGER HEIGHT
- Minimum height may increase significantly with modification. Check availability when ordering.
- For hanger heights exceeding the joist height by more than ½", the allowable load is 0.50 of the table load.

SLOPED AND/OR SKEWED SEAT
- Non-skewed hangers can carry the design load when the seat slope is within ¼:12 of the joist slope. Designer must check that wood bearing is not limiting.
- W/WNP/WP/HW series may be skewed to a maximum of 84° and/or sloped to a maximum of 45°.
- For slope only, skew only, or slope and skew combinations, the allowable load is 100% of the table load.
- Sloped seat hangers are assumed backed. For non-backed installations, specify "non-backed", which adds more joist fasteners low on the joist flange.

UPLIFT LOADS (WPU, WNPU, HWU only)
- Uplift loads not available on W, WNP, WP, HW hangers. See page 218 for WMU.
- Hangers can be sloped to 45° and/or skewed 45° at 100% of the uplift load.
- Skew option is only on hangers with "W" 3⁹⁄₁₆" or less.
- Specify the slope up or down in degrees from the horizontal plane and/or the skew right or left in degrees from the perpendicular vertical plane. Specify whether low side, high side or center of joist will be flush with the top of the header *(see illustration)*.
- Uplift loads are not available for open/closed TF, TF sloped, and offset options.

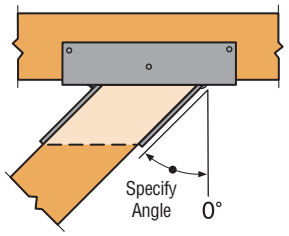
SLOPED TOP FLANGE
- A top flange may be ordered sloped down left or down right to 35° with or without a sloped and/or skewed seat *(see illustration)*. Reduce allowable table loads using straight-line interpolation
  Example: For a top flange sloped down 30°, reduce load to [(90-30)/90] x table load.

OFFSET TOP FLANGE
- The top flange may be offset left or right for placement at the end of a header *(see illustration)*. The allowable load is 0.50 of the table load.
- For skewed and offset top flange hangers, the maximum allowable load is 0.50 of the table load or 2000 lbs., whichever is lower.
- For type B hangers skewed and top flange offset in the opposite direction, hangers 3½" and less wide have allowable load of 25% of the table load or 1335 lbs. whichever is lower, and for hangers wider than 3½", the allowable load is 30% of the table load or 1620 lbs. whichever is lower.

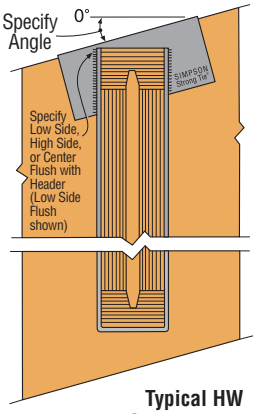
OPEN/CLOSED TOP FLANGE
- The top flange may be opened more or closed less than the standard 90° *(see illustration)* to a maximum of 30°, except the HW which cannot be closed. W and WI hangers must use 10dx1½" nails for closed application. Reduce allowable loads using straight-line interpolation *(see sloped top flange)*.

SADDLE HANGER
- To order, add D to model and specify S dimension *(see illustration)*.
- Saddle hangers achieve catalog load listed. Saddle hangers on stud walls do not achieve catalog loads.
- Recommended S dimension is 1⁄16" oversized for carrying members 2½" wide and less or ⅛" oversized for greater than 2½" wide.

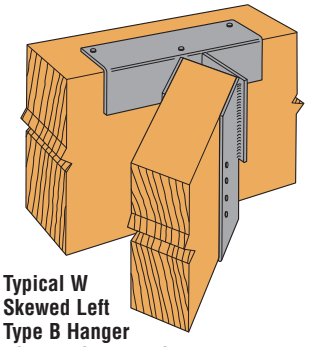
RIDGE HANGER *(not available for uplift models)*
- Top flange may be sloped to a maximum of 35° to accommodate a ridge *(see illustration)*. Specify angle of the slope. Reduce allowable load using straight-line interpolation. See Open/Closed example.



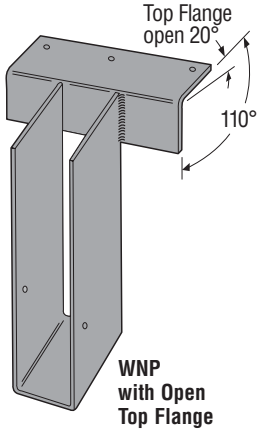
Typical W Top View Skewed Left Type A Hanger
(Bevel Cut Joist Shown)



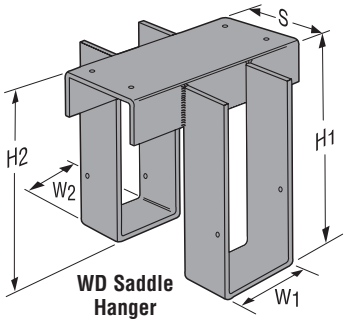
Typical HW Top Flange Sloped Down Left with Low Side Flush



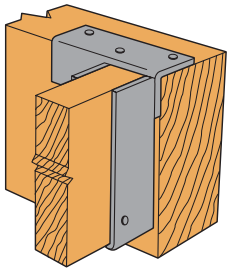
Typical W Skewed Left Type B Hanger
(Square Cut Joist Shown)



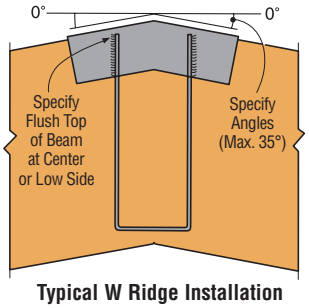
WNP with Open Top Flange



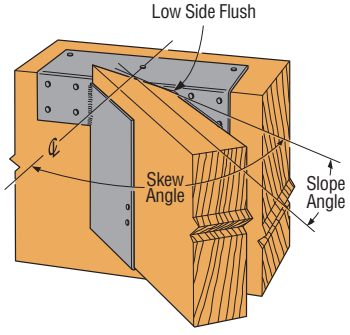
WD Saddle Hanger

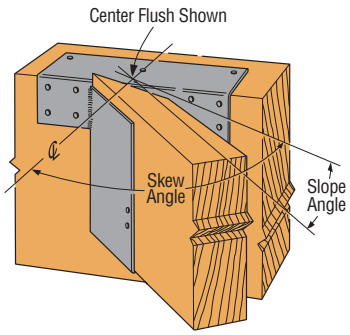


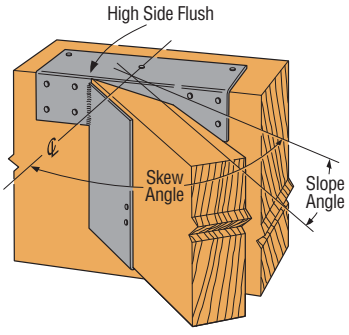
Typical W Top Flange Offset Left



Typical W Ridge Installation







Typical HW Sloped Down, Skewed Right with Type A Hanger *(Joist end must be bevel cut)*
When ordering, specify Low Side Flush, Center Flush or High Side Flush

HANGER OPTIONS

LEG/MEG/EG

See Hanger Options General Notes.

SKEWED SEAT — TOP FLANGE MODELS ONLY

- The LEG/MEG/EG series can be skewed up to 45°. The maximum allowable load is 10,000 lbs. for LEG and MEG, 14,250 lbs. for EG.

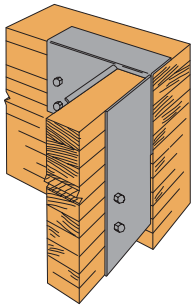
SLOPED SEAT — TOP FLANGE MODELS ONLY

- The LEG/MEG/EG series can be sloped up to 45°. The maximum allowable load is 9665 lbs.; see illustration.

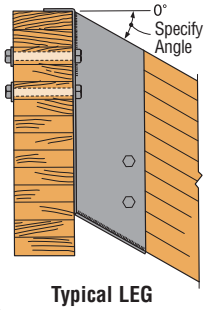
NO SLOPED AND SKEWED COMBO AVAILABLE.

OFFSET TOP FLANGE

- The LEG/MEG (only) top flange may be offset left or right for placement at the end of a header *(see illustration)*. The maximum allowable load is 5665 lbs. *(Min. H = 11" for MEG, 9" for LEG)*
- No skews allowed on offset hangers.



Typical LEG/MEG Top Flange Offset Left



Typical LEG Sloped Down Installation *(MEG/EG similar)*

EGQ

See Hanger Options General Notes.

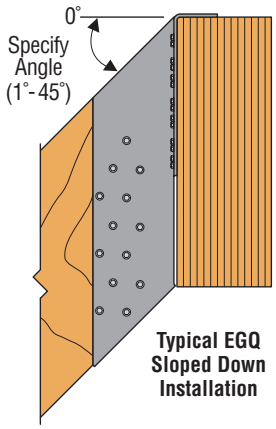
SKEWED SEAT

- The EGQ can be skewed a maximum of 45°.
- The maximum allowable download when skewed is 16,300 lbs.
- The maximum allowable uplift when skewed is 5770 lbs.
- Joist must be bevel cut for skewed seat installation.

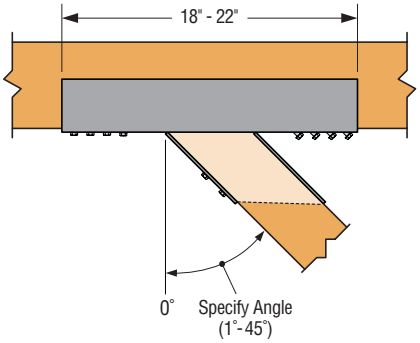
SLOPED SEAT

- The EGQ can be sloped up or down a maximum of 45°.
- The maximum allowable download when sloped is 15360 lbs.
- The allowable uplift when sloped is 100% of the table load.
- Sloped seat installation requires an additional 14 joist screws *(supplied with the connector)*.

NO SLOPED AND SKEWED COMBO AVAILABLE.



Typical EGQ Sloped Down Installation



Top View EGQ Skewed Right

HUTF/HUITF

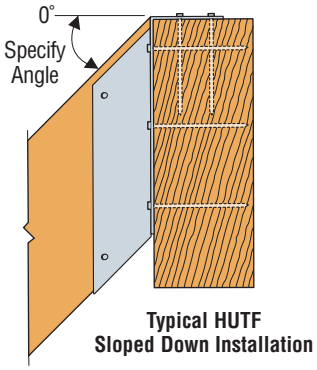
See Hanger Options General Notes.

SLOPED AND/OR SKEWED SEAT

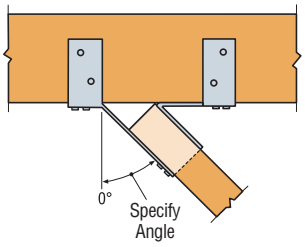
- HUTF can be skewed to a maximum of 45° or sloped to a maximum of 45°. HUTF can be skewed and sloped down only, provided W ≥ 2⅜". Hangers with a skew greater than 15° may have all the joist nailing on the outside angle. No skew with slope up options available.
- For the skewed-only HU34TF, HU24-2TF and HU44TF, the allowable loads are 0.50 of the table load. For the skewed-only HU43TF, the allowable loads are 0.45 of the table load. All other models have a maximum allowable load of 0.60 of the table loads.
- For skews greater than 15°, uplift loads are 0.75 of the table loads.
- For sloped and skewed combinations, the allowable loads are 0.70 of the table loads.
- For sloped down only hangers, allowable load is 0.78 of the table load.

CONCEALED FLANGE

- HUTF is available with one A flange concealed at 0.85 of the catalog table load. HUTF is also available with both flanges concealed provided the W dimension is 2⁹⁄₁₆" or greater, at 0.85 of the table load. Specify HUCTF for both flanges concealed. No skew options available.



Typical HUTF Sloped Down Installation



Top View HUTF Hanger Skewed Right

HANGER OPTIONS

LGU/MGU/HGU/HHGU/LGUM/HGUM

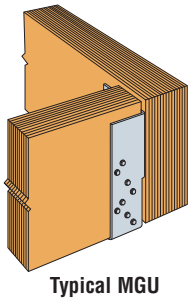
See Hanger Options General Notes.

CONCEALED FLANGE

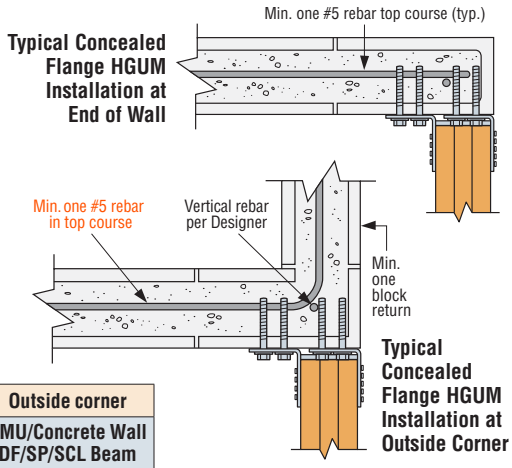
- LGU, MGU, HGU, HHGU and HGUM hangers are available with one flange concealed. Specify flange to conceal.
- Allowable Loads for one flange-concealed option:

LGU	1.00 of published load
MGU	0.88 of published load
HGU	0.75 of published load
HHGU	0.75 of published load
HGUM	see table below

- MGU with W 4" or less and HGU with W 4$^{11}/_{16}$" or less, flanges cannot be concealed.



Typical MGU Installation with Right Flange Concealed



Typical Concealed Flange HGUM Installation at End of Wall

Typical Concealed Flange HGUM Installation at Outside Corner

Concealed Flange – Allowable Loads with One Flange Concealed

Model No.	W (in)	H (in)	Fasteners		End of Wall				Outside corner	
			CMU/ Concrete	Joist	CMU Wall DF/SP/SCL Beam		Concrete Wall DF/SP/SCL Beam		CMU/Concrete Wall DF/SP/SCL Beam	
			Titen HD® Anchors	SDS Screws	Uplift (160)	Download	Uplift (160)	Download	Uplift (160)	Download
HGUM	5¼ to 9	11 to 30	8-⅝"x5"	24-¼"x2½"	1285	5750	3150	7025	3150	7555

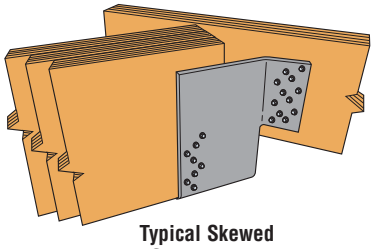
SKEWED

- LGU, MGU, HGU, LGUM and HGUM hangers are available skewed up to 45°.
- Apply the following reduction factors to published loads:

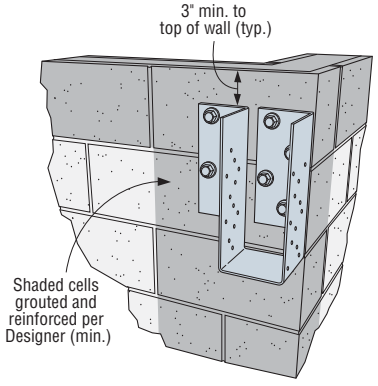
Reduction Factors for Skewed LGU, MGU, HGU

Model	Beam Cut	Download	Uplift
LGU	Square Cut	0.90	0.60
	Bevel Cut	0.90	0.60
MGU/HGU less than 6" wide	Square Cut	0.75	0.65
	Bevel Cut	0.80	0.65
MGU/HGU 6" and wider	Square Cut < 7" Wide	0.75	0.55
	Bevel Cut	0.80	0.55

- For LGUM and HGUM see table below.
- Concealed flanges are not available with skewed models.



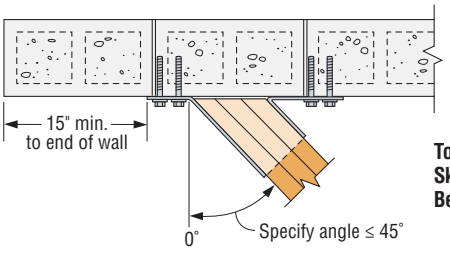
Typical Skewed MGU Installation



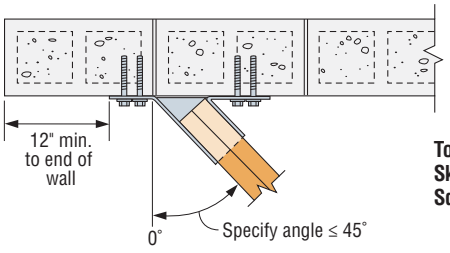
Typical Concealed Flange HGUM Installation at Outside Corner

LGUM/HGUM Allowable Loads for Skewed (L/R) Applications

Model No.	Fasteners		Allowable Loads CMU/Concrete (DFL, SP, LVL, PSL, LSL)	
	CMU/Concrete	Joist		
	Titen HD® Anchors	SDS Screws	Uplift (160)	Download (100/115/125)
LGUM26-2X	4-⅜"x4"	4-¼"x2½"	565	1965
LGUM26-3X				
LGUM26-4X				
LGUM46X				
LGUM28-2X	6-⅜"x4"	6-¼"x2½"	1085	3080
LGUM28-3X				
LGUM28-4X				
LGUM48X				
LGUM210-2X	8-⅜"x4"	8-¼"x2½"	1605	4190
LGUM210-3X				
LGUM210-4X				
LGUM410X				
HGUM5.25X	8-⅝"x5"	8-¼"x2½"	1430	6455
HGUM5.50X				
HGUM7.00X	8-⅝"x5"	8-¼"x2½"	1440	5820
HGUM7.25X				
HGUM9.00X	8-⅝"x5"	8-¼"x2½"	1445	5185



Top View HGUM Skewed Right Bevel Cut



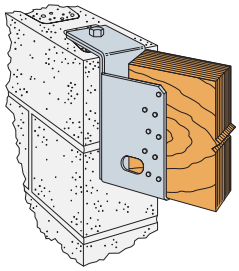
Top View LGUM Skewed Right Square Cut

MBHA

See Hanger Options General Notes.

SKEWED SEAT

- Seat can be skewed at 45° only. The maximum allowable download is 3495 lbs. and 1585 lbs. uplift for Height 7¼". For all other models, use the table listed download and uplift of 2390 lbs.
- Order MBHAR for skew right and MBHAL for skew left.



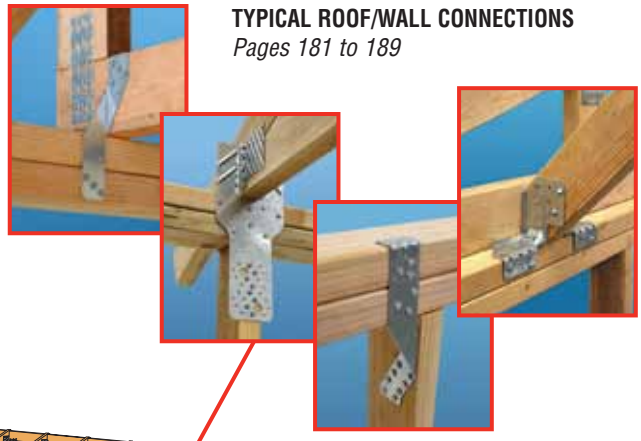
Typical MBHA Skewed Right Installation

CONTINUOUS LOAD TRANSFER PATH

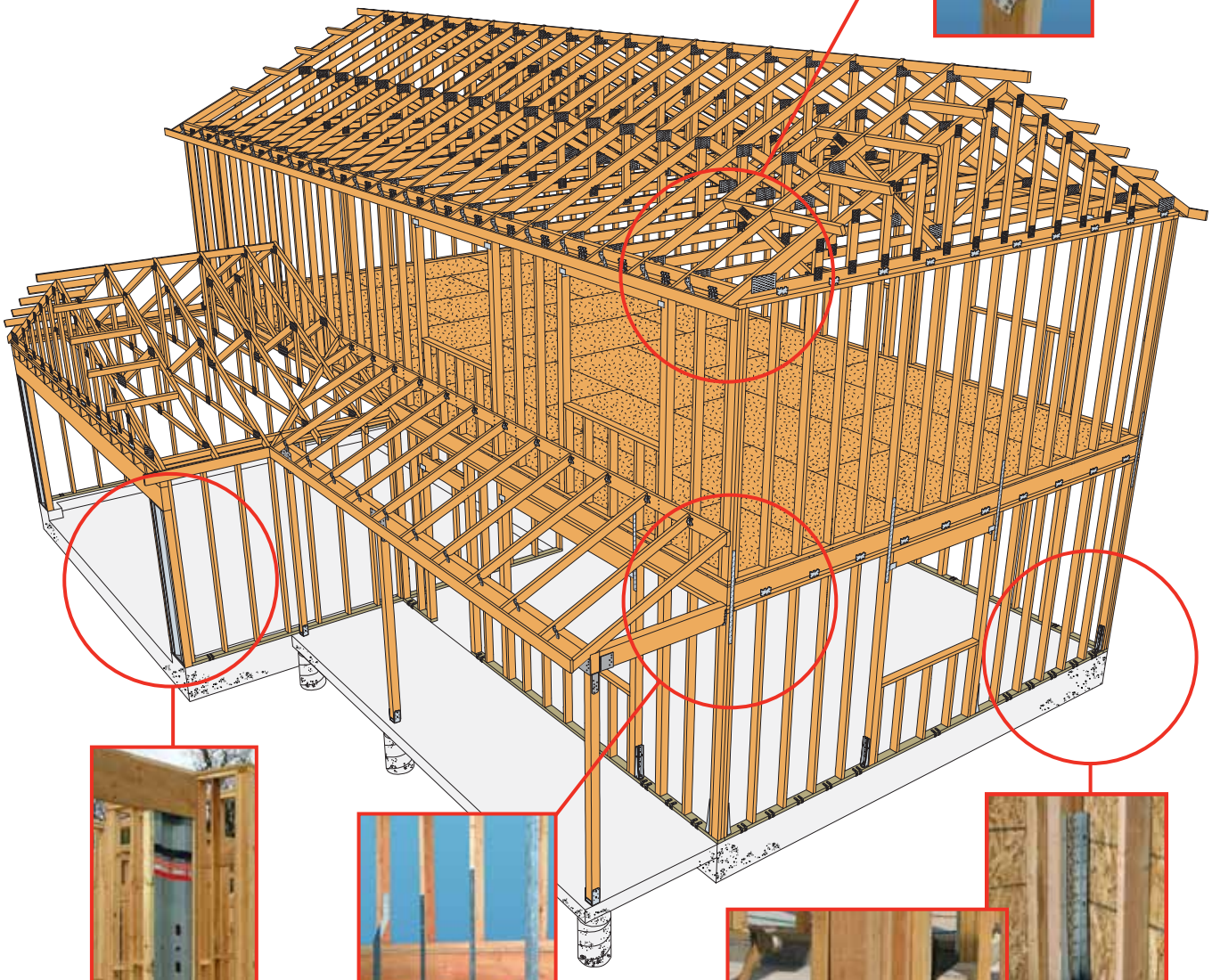
This drawing shows the connection points for a continuous load transfer path from the rafters to the foundation of a two-story house.

Building with a continuous load path is an essential part of creating a structure better able to withstand the forces of mother nature.

This drawing is for illustrative purposes only and should not be considered an engineered system. Refer to the page numbers for the full range of Simpson Strong-Tie® connectors. Consult a qualified Designer to ensure that correct connector quantities and installation methods are used to achieve the full design load values.



TYPICAL ROOF/WALL CONNECTIONS
Pages 181 to 189



LATERAL SYSTEMS
Pages 66 to 68

TYPICAL FLOOR-TO-FLOOR CONNECTIONS
Pages 46 to 50, 171 to 179

TYPICAL FOUNDATION CONNECTIONS
Pages 29 to 54

POST CAPACITIES

SIMPSON Strong-Tie®

Post Allowable Compression Loads for Douglas Fir Larch

Framing	Lumber		Perp to Grain, $P_{c\perp}$ (lbs)	Compression Capacity Parallel to Grain, P_c (lbs) (100)					Compression Capacity Parallel to Grain, P_c (lbs) (160)				
				Nominal Top Plate Height (ft)					Nominal Top Plate Height (ft)				
	Size	Grade		8	9	10	11	12	8	9	10	11	12
4-Inch Wall	2x4	#2	3280	3170	2580	2120	1765	1490	3345	2680	2180	1805	1520
	3x4	#2	5470	5285	4305	3535	2945	2485	5570	4470	3635	3010	2530
	2-2x4	#2	6565	6340	5165	4240	3535	2985	6685	5365	4360	3610	3040
	4x4	#2	7655	7395	6025	4945	4120	3480	7800	6260	5090	4215	3545
	3-2x4	#2	9845	9510	7745	6360	5300	4475	10030	8045	6545	5420	4555
	4x6	#2	12030	11540	9420	7745	6460	5460	12215	9810	7980	6610	5560
	4x8	#2	15860	15090	12345	10165	8485	7175	16035	12890	10500	8700	7320
	4x10	#2	20235	19080	15650	12910	10790	9130	20365	16395	13360	11080	9325
6-Inch Wall	2x6	#2	5155	8970	7975	6965	6050	5260	11030	9280	7780	6570	5600
	3x6	#2	8595	14945	13290	11610	10085	8765	18385	15465	12965	10950	9335
	2-2x6	#2	10315	17935	15950	13935	12105	10515	22060	18560	15560	13140	11200
	4x6	#2	12030	20925	18605	16255	14120	12270	25735	21650	18155	15330	13070
	3-2x6	#2	15470	26905	23925	20900	18155	15775	33090	27840	23340	19715	16800
	6x6	#1	18905	25260	23560	21565	19480	17435	34255	30165	26140	22575	19535
	6x8	#1	25780	34450	32125	29410	26560	23775	46715	41130	35650	30785	26640

Post Allowable Compression Loads for Southern Pine

Framing	Lumber		Perp to Grain, $P_{c\perp}$ (lbs)	Compression Capacity Parallel to Grain, P_c (lbs) (100)					Compression Capacity Parallel to Grain, P_c (lbs) (160)				
				Nominal Top Plate Height (ft)					Nominal Top Plate Height (ft)				
	Size	Grade		8	9	10	11	12	8	9	10	11	12
4-Inch Wall	2x4	#2	2965	2955	2445	2035	1710	1455	3225	2600	2125	1770	1495
	3x4	#2	4945	4925	4070	3390	2850	2420	5380	4330	3545	2950	2490
	2-2x4	#2	5935	5910	4885	4065	3420	2905	6455	5195	4255	3540	2985
	4x4	#2	6920	6895	570	4745	3990	3390	7530	6060	4965	4130	3485
	3-2x4	#2	8900	8865	7330	6100	5130	4360	9680	7795	6380	5310	4480
	4x6	#2	10875	11680	9435	7745	6455	5450	12290	9785	7960	6590	5545
	4x8	#2	14335	15320	12395	10185	8490	7175	16155	12875	10475	8680	7300
	4x10	#2	18290	19445	15760	12960	10810	9140	20560	16395	13350	11060	9310
6-Inch Wall	2x6	#2	4660	9345	8190	7095	6130	5305	11280	9375	7825	6595	5610
	3x6	#2	7770	15570	13650	11830	10215	8840	18800	15620	13045	10990	9350
	2-2x6	#2	9325	18685	16380	14195	12260	10610	22560	18745	15655	13185	11220
	4x6	#2	10875	21800	19110	16560	14300	12375	26325	21870	18260	15385	13090
	3-2x6	#2	13985	28030	24570	21290	18385	15910	33845	28120	23480	19780	16830
	6x6	#1	17090	21495	20270	18835	17260	15655	30025	26820	23595	20610	17975
	6x8	#1	23305	29315	27640	25680	23540	21345	40940	36575	32180	28105	24515

Post Allowable Compression Loads for Spruce Pine Fir

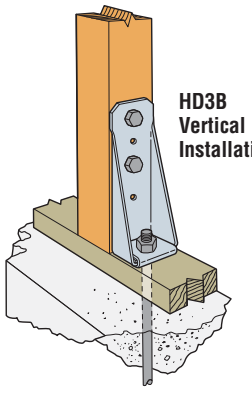
Framing	Lumber		Perp to Grain, $P_{c\perp}$ (lbs)	Compression Capacity Parallel to Grain, P_c (lbs) (100)					Compression Capacity Parallel to Grain, P_c (lbs) (160)				
				Nominal Top Plate Height (ft)					Nominal Top Plate Height (ft)				
	Size	Grade		8	9	10	11	12	8	9	10	11	12
4-Inch Wall	2x4	#1/#2	2230	2775	2250	1850	1540	1305	2930	2340	1905	1575	1325
	3x4	#1/#2	3720	4625	3745	3080	2570	2170	4885	3895	3175	2630	2210
	2-2x4	#1/#2	4465	5545	4495	3695	3085	2605	5865	4675	3805	3155	2655
	4x4	#1/#2	5205	6470	5245	4310	3595	3040	6840	5455	4440	3680	3095
	3-2x4	#1/#2	6695	8320	6745	5545	4625	3910	8795	7015	5710	4730	3980
	4-2x4	#1/#2	8925	11095	8990	7395	6165	5215	11730	9355	7615	6310	5310
6-Inch Wall	2x6	#1/#2	3505	7745	6885	6035	5255	4575	9600	8055	6770	5725	4885
	3x6	#1/#2	5845	12905	11475	10060	8760	7625	16000	13425	11280	9545	8145
	2-2x6	#1/#2	7015	15485	13770	12070	10515	9150	19200	16110	13540	11450	9770
	3-2x6	#1/#2	8180	18065	16070	14085	12265	10675	22395	18795	15795	13360	11400
	4-2x6	#1/#2	10520	23230	20660	18110	15770	13730	28795	24165	20305	17180	14660

Post Allowable Compression Loads for Hem Fir

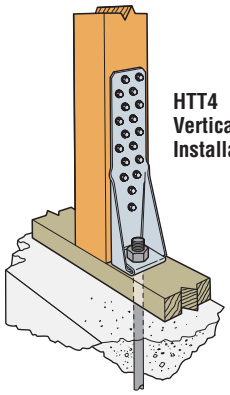
Framing	Lumber		Perp to Grain, $P_{c\perp}$ (lbs)	Compression Capacity Parallel to Grain, P_c (lbs) (100)					Compression Capacity Parallel to Grain, P_c (lbs) (160)				
				Nominal Top Plate Height (ft)					Nominal Top Plate Height (ft)				
	Size	Grade		8	9	10	11	12	8	9	10	11	12
4-Inch Wall	2x4	#2	2125	2630	2115	1730	1435	1210	2745	2180	1770	1465	1230
	3x4	#2	3545	4385	3525	2880	2395	2020	4570	3630	2950	2440	2050
	2-2x4	#2	4255	5260	4230	3460	2875	2425	5485	4355	3540	2925	2460
	4x4	#2	4960	6140	4935	4035	3355	2830	6400	5085	4125	3415	2870
	3-2x4	#2	6380	7890	6340	5185	4310	3635	8230	6535	5305	4390	3690
	4-2x4	#2	8505	10525	8455	6915	5750	4850	10970	8715	7075	5855	4920
6-Inch Wall	2x6	#2	3340	7950	6880	5905	5065	4365	9385	7735	6425	5395	4580
	3x6	#2	5570	13250	11470	9840	8440	7270	15640	12890	10710	8995	7635
	2-2x6	#2	6685	15900	13765	11810	10130	8725	18765	15470	12850	10790	9165
	3-2x6	#2	7795	18550	16055	13780	11820	10180	21895	18045	14995	12590	10690
	4-2x6	#2	10025	23855	20645	17715	15195	13090	28150	23205	19275	16185	13745

See footnotes on page 227.

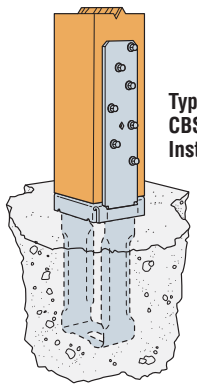
POST CAPACITIES



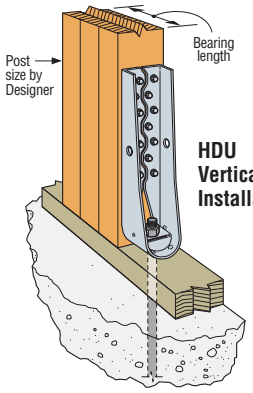
HD3B Vertical Installation



HTT4 Vertical Installation



Typical CBSQ-SDS2 Installation



HDU Vertical Installation

Post Tension Loads for Douglas Fir Larch

Framing	Lumber		Allowable Tension P_t, (lbs.) (160) Bolt Diameter (in.)				
	Size	Grade	0	½	⅝	⅞	1
4-Inch Wall	2x4	#2	7245	6080	5820	5305	5045
	3x4	#2	12075	10135	9705	8840	8410
	2-2x4	#2	14490	12160	11645	10610	10090
	4x4	#2	16905	14190	13585	12375	11775
	3-2x4	#2	21735	18240	17465	15915	15135
	4x6	#2	23025	19325	18500	16855	16035
	4x8	#2	28015	23510	22510	20510	19510
	4x10	#2	32765	27500	26330	23990	22815
6-Inch Wall	2x6	#2	9865	8860	8635	8185	7960
	3x6	#2	16445	14765	14390	13640	13270
	2-2x6	#2	19735	17715	17265	16370	15920
	4x6	#2	23025	20670	20145	19100	18575
	3-2x6	#2	29600	26575	25900	24555	23885
	6x6	#1	39930	35845	34940	33125	32215
	6x8	#1	54450	48880	47645	45170	43930

Post Tension Loads for Southern Pine

Framing	Lumber		Allowable Tension P_t, (lbs.) (160) Bolt Diameter (in.)				
	Size	Grade	0	½	⅝	⅞	1
4-Inch Wall	2x4	#2	5460	4585	4390	4000	3805
	3x4	#2	9100	7640	7315	6665	6340
	2-2x4	#2	10920	9165	8775	7995	7605
	4x4	#2	12740	10695	10240	9330	8875
	3-2x4	#2	16380	13750	13165	11995	11410
	4x6	#2	22330	18740	17945	16350	15550
	4x8	#2	26390	22150	21205	19320	18380
	4x10	#2	29785	25000	23935	21805	20745
6-Inch Wall	2x6	#2	9570	8590	8375	7940	7720
	3x6	#2	15950	14320	13955	13230	12870
	2-2x6	#2	19140	17185	16750	15880	15445
	4x6	#2	22330	20045	19540	18525	18015
	3-2x6	#2	28710	25775	25120	23815	23165
	6x6	#1	43560	39105	38115	36135	35145
	6x8	#1	59400	53325	51975	49275	47925

Post Tension Loads for Spruce Pine Fir

Framing	Lumber		Allowable Tension P_t, (lbs.) (160) Bolt Diameter (in.)				
	Size	Grade	0	½	⅝	⅞	1
4-Inch Wall	2x4	#1/#2	5670	4760	4555	4150	3950
	3x4	#1/#2	9450	7930	7595	6920	6580
	2-2x4	#1/#2	11340	9520	9115	8305	7900
	4x4	#1/#2	13230	11105	10630	9685	9215
	3-2x4	#1/#2	17010	14275	13670	12455	11845
	4-2x4	#1/#2	22680	19035	18225	16605	15795
6-Inch Wall	2x6	#1/#2	7720	6930	6755	6405	6230
	3x6	#1/#2	12870	11555	11260	10675	10385
	2-2x6	#1/#2	15445	13865	13515	12810	12460
	3-2x6	#1/#2	18020	16175	15765	14945	14535
	4-2x6	#1/#2	23165	20795	20270	19215	18690

Post Tension Loads for Hem Fir

Framing	Lumber		Allowable Tension P_t, (lbs.) (160) Bolt Diameter (in.)				
	Size	Grade	0	½	⅝	⅞	1
4-Inch Wall	2x4	#2	6615	5550	5315	4845	4605
	3x4	#2	11025	9255	8860	8070	7680
	2-2x4	#2	13230	11105	10630	9685	9215
	4x4	#2	15435	12955	12405	11300	10750
	3-2x4	#2	19845	16655	15945	14530	13820
	4-2x4	#2	26460	22210	21265	19375	18430
6-Inch Wall	2x6	#2	9010	8090	7885	7475	7270
	3x6	#2	15015	13480	13140	12455	12115
	2-2x6	#2	18020	16175	15765	14945	14535
	3-2x6	#2	21020	18870	18395	17440	16960
	4-2x6	#2	27025	24265	23650	22420	21805

1. The allowable (ASD) capacities are based on the 2012 *National Design Specification for Wood Construction* (NDS) including the March 2012 Addendum, for lumber with a moisture content of 19% or less.
2. Compression parallel to grain loads are based on an effective post height, le, equal to the nominal height plus 1⅛" *(due to the most common pre-cut stud lengths)* minus 4½" *(thickness of 3-2x plates)*. L/d ratio is based on d = 3½" for 4-inch wall and d = 5½" for 6-inch wall.
3. Shaded values are limited by the Perpendicular to Grain bearing allowable load, $P_{c\perp}$, when posts bear on wood sill plates. Where posts and sill plates are different species, Designer shall limit allowable load to the lower of the post capacity or the perpendicular to grain capacity for each species used.
4. Perpendicular to grain allowable loads do not include the NDS Bearing Area Factor, C_b. For posts whose bearing area is not closer than 3" from the end of a sill plate, the $P_{c\perp}$ values may be multiplied by C_b.

l_b (in.)	1.5	2.5	3	3.5	4.5	5.5	≥6
C_b	1.25	1.15	1.13	1.11	1.08	1.07	1

l_b = Bearing Length *(post thickness)*
C_b = Bearing Area Factor per NDS 3.10.4

5. Allowable tension loads are based on net section assuming hole size equal to bolt diameter plus 1/16" with the hole drilled on the 3½" face of post for a 4-inch wall and on the 5½" face of post for a 6-inch wall. Tension loads have been increased for wind or seismic loading with no further increase allowed. Reduce where other loads govern.
6. Values do not consider combined axial and out-of-plane bending.

LITERATURE REFERENCE

Simpson Strong-Tie maintains an extensive library of literature, providing information on a wide variety of subjects ranging from specific product lines and alternate product installations to industry issues and specifier guides.

On the following pages is a list of many of our most popular literature items, many of which are referenced in this catalog. You can access the complete library by visiting ***www.strongtie.com*** or you can call 800-999-5099 and have publications mailed to you.

Connectors for Cold-Formed Steel Construction Catalog (C-CFS)

Fastening Sytems Catalog (C-FS)

High-Wind Resistant Construction Catalog (C-HW)

Anchoring and Fastening Systems for Concrete and Masonry Catalog (C-SAS)

Strong Frame® Moment Frames Catalog (C-SF)

Strong-Wall® Shearwalls Catalog (C-SW)

Connectors for Cold-Formed Steel Curtain-Wall Construction (F-CFSCWC)

Compression Tension Strap (F-CTS218)

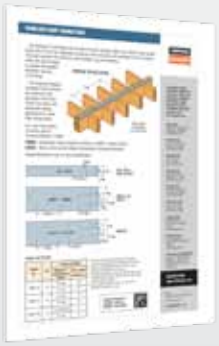
Deck Framing Connection Guide (F-DECKCODE)

E-Z Fence Post Products (F-EZFPP)

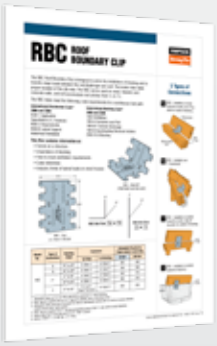
Additional Connection Details for Connectors Used with Insulated Concrete Forms (F-ICFVL)

LRU Rafter Hanger (F-LRU)

LITERATURE REFERENCE



Panelized Roof Connectors
(F-PANELROOF)



Application and Specification Information for the Roof Boundary Clip
(F-RBC)

Code Compliant Repair and Protection Guide for the Installation of Utilities in Wood Frame Construction (F-REPRPROTECT)

RTUD Ratcheting Take-Up Device
(F-RTUD)

RUZ and NRUZ Retrofit Hangers for Panelized Roof Construction
(F-RUZNRUZ)

Titen HD® Anchors for Mudsill Applications
(F-SAS-THDVCIP)

SDWC Strong-Drive® Structural Wood Screw for Truss and Rafter Connections
(F-SDWC)

SDWC Strong-Drive Structural Wood Screw for Stud-to-Plate Connections
(F-SDWCST2PL)

SDWF Structural Wood Screw for Floor-to-Floor Connections
(F-SDWFTUW)

Strong-Drive Structural Wood Screws for Interior and Exterior Fastening Applications
(F-SDWSSDWH)

Stainless-Steel Connectors
(F-SSCONNECTOR)

LIU and LBI Stainless-Steel Joist Hangers
(F-SSLIULBI)

Strong-Wall® Shearwall Anchorage Solutions
(F-SWALLANCHOR)

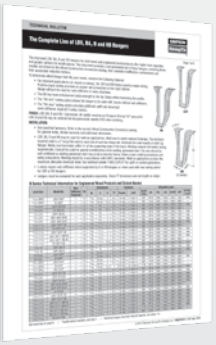
THGB/THGBH/THGW Hangers in LVL Widths
(F-THGBV)

Wood Truss Restraint and Bracing Guide
(F-TSBRTBD22)

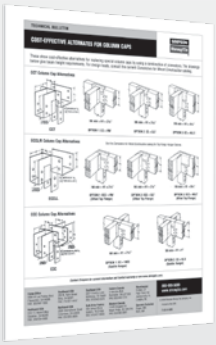
Field Guide for Proper Installation Various of Simpson Strong-Tie® Connectors (S-INSTALL)

LITERATURE REFERENCE

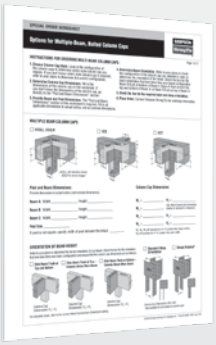
Designing Wind Uplift Rod Tie-Down Systems (T-AC391)



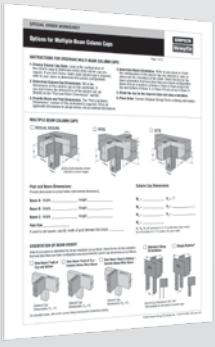
The Complete Line of LBV, BA, B and HB Hangers (T-BSERIES)



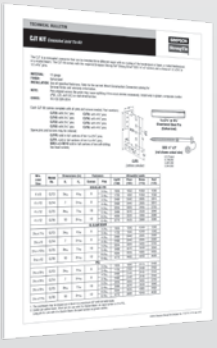
Cost-Effective Alternates to Column Caps (T-CC-2)



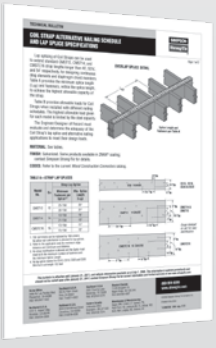
Worksheet for Ordering Custom Multiple Beam Column Caps (T-CCLTC-WS)



Worksheet for Ordering Custom Multiple Beam Column Caps (T-CCQLTC-WS)

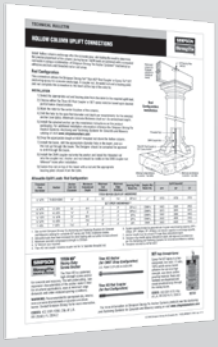


Concealed Joist Tie Kit (T-CJT)

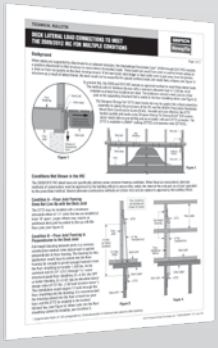


Coil Strap Alternative Nailing Schedule and Lap Splice Spacing (T-CMST)

Connection Solutions for Cantilevered Floors (T-CNTLVRDFLR)



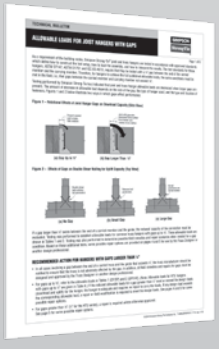
Hollow Column Uplift Connections (T-COLUMN)



Deck Lateral Load Connections to Meet the 2009/2012 IRC for Multiple Conditions (T-DECKLATLOAD)

Connectors for Florida Hurricane Mitigation Retrofit When Re-Roofing (T-FLCODE)

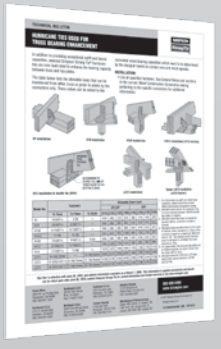
Code-Compliant Guardrail Post Connections (T-GRDRLPST)



Allowable Loads for Hangers with Gaps (T-HANGERGAPS)

City of Los Angeles RR Values for Connectors in Shear Walls and Wall Anchorage Assemblies (T-HDLA)

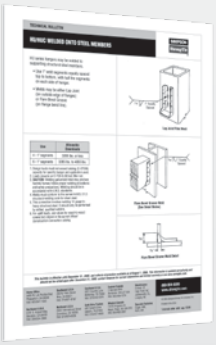
HF24N and HF26N Panelized Roof Hangers (T-HFHANGER)



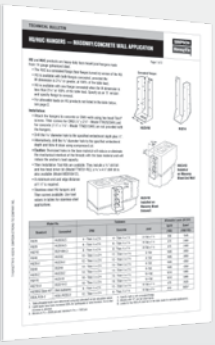
Allowable Bearing Enhancement Loads for Selected Hurricane Ties (T-HTIEBEARING)

LITERATURE REFERENCE

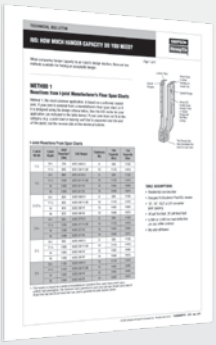
Building Roof-to-Wall Continuous Load Path Connections (T-HTIECONPATH)



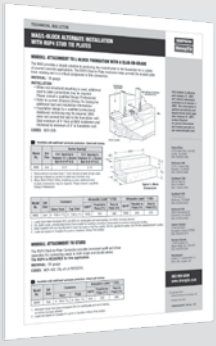
HU and HUC Hangers Welded to Steel Members (T-HUHUC-W)



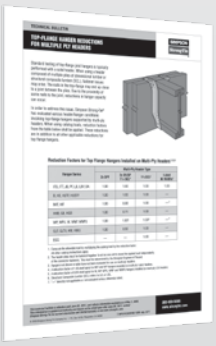
HU and HUC Allowable Loads with Titen® Screws in Masonry (T-HUHUCTTN)



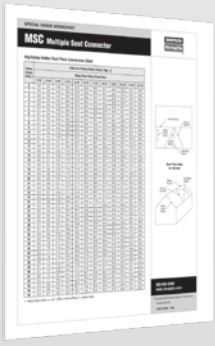
IUS Hangers – How Much Hanger Capacity Do You Need? (T-IUSCOMP)



MAS/L-Block Alternative Installation with RSP4 Stud Tie Plates (T-MASLBLOCK)

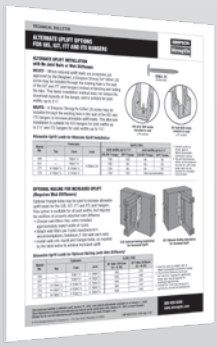


Top-Flange Hanger Reductions for Multiple Ply Headers (T-MPLYHEADER)



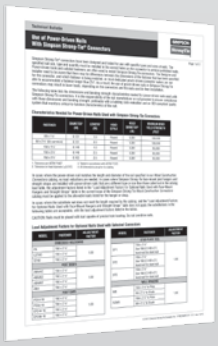
Multiple Seat Connector (MSC) Special Order Worksheet (T-MSC-WS)

Uplift Design Loads for Top Flange Hangers Installed on Nailers or I-beams (T-NAILERUPLFT)

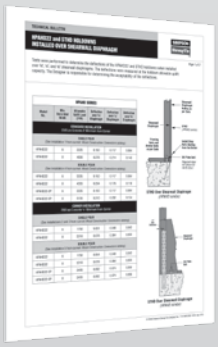


Alternate Uplift Options for IUS, IUT and ITT Hangers (T-OPTUPLIFT)

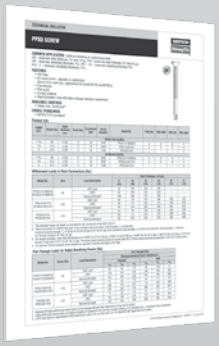
PA Foundation Straps for Uplift Resistance (T-PAUPLIFT)



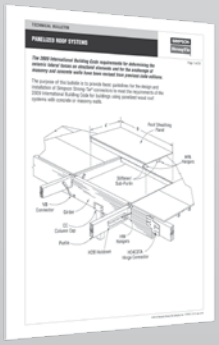
Use of Power-Driven Nails with Simpson Strong-Tie® Connectors (T-PNEUMATIC)



HPAHD22 and STHD Holdowns Installed over Shearwall Diaphragm (T-PLYWOOD)



PPSD Screw (T-PPSD)

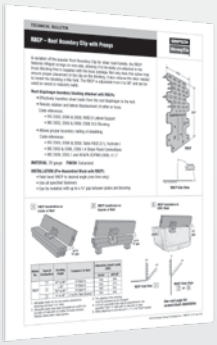


Panelized Roof Systems (T-PRS)

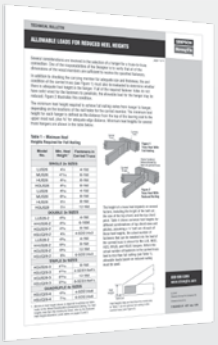
Using a Membrane Barrier with Preservative-Treated Wood for Additional Corrosion Protection (T-PTBARRIER)

Corrosion Issues Related to the Use of New Chemicals in Preservative-Treated Wood (T-PTWOOD)

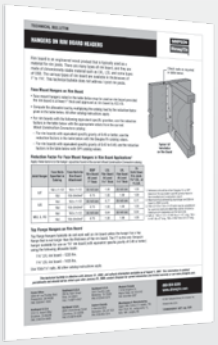
LITERATURE REFERENCE



RBCP Pre-Attached to Truss Blocking (T-RBCP)



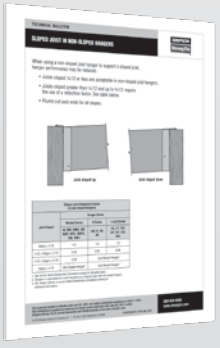
Allowable Loads for Reduced Truss Heel Heights (T-REDHEEL)



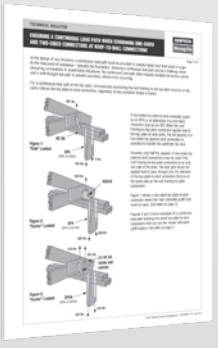
Joist Hangers on Rim Board Headers (T-RIMBDHGR)

Connectors Installed on SCL Columns (T-SCLCOLUMN)

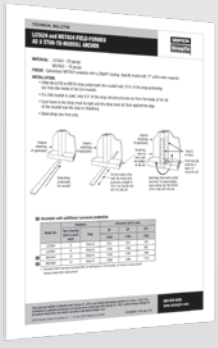
All-Floors-Tied-Off Systems vs. Skipped-Floor Systems for Multi-Story Structures (T-SKIPFLOORS)



The Effects on Load Values Caused by Installing a Sloped Joist into a Non-Sloped Hanger (T-SLOPEJST)



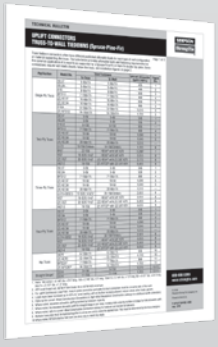
Ensuring a Continuous Load Path When Combining One-Sided and Two-Sided Connectors at Roof-To-Wall Connections (T-SPCONN)



LSTA24 and MSTA24 Field Formed as a Stud to Mudsill Anchor (T-STRAPS)

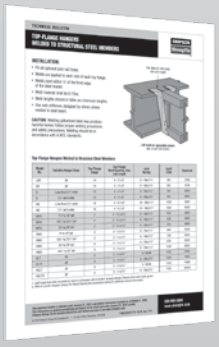
Strong-Wall® Shearwalls Prescriptive Design Guide (T-SWPDG)

Strengthening Dwellings in Tornado-Prone Areas (T-TORNADO)



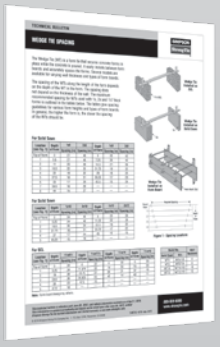
Uplift Connectors – Truss to Wall Tiedowns (T-UPLIFTSPF)

Connector Solutions to Meet the Wall-Bracing Requirements of the 2009 International Residential Code® (T-WALLBRACE)



Top Flange Hanger Welded to Structural Steel Members (T-WELDUPLFT)

Detailing Requirements for Sheathing Designed to Resist Combined Shear and Uplift from Wind (T-WLSHEATH)



Wedge Tie Spacing (T-WT)

NOTES

NOTES

Every day we work hard to earn your business, blending the talents of our people with the quality of our products and services to exceed your expectations. This is our pledge to you.

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INTERNATIONAL FACILITIES
Please visit our website for address and
contact information for our European facilities.

This catalog reflects changes in the allowable loads and configurations of some Simpson Strong-Tie Company Inc. products. ***This catalog is effective until December 31, 2014,*** *and supersedes all information in all earlier publications, including catalogs, brochures, fliers, technical bulletins, etc. Use this edition as a current printed reference. Information on allowable loads and configurations is updated annually.*

We post our catalogs on www.strongtie.com. Please visit our site, and sign up for any information updates. *Allowable loads in this catalog are for the described specific applications of properly installed products. Product modifications, improper loading or installation procedures, or deviations from recommended applications will affect connector allowable load-carrying capacities.*

Power Tools:

Mobile Apps
Online Calculators
Software

Simpson Strong-Tie offers convenient ways to get information fast. Download selector software for connectors, anchors and lateral systems to help you find the right product for your job. Access a variety of online calculators, estimators, design applications and drawing details. And our literature library app puts our most popular catalogs in the palm of your hand.

To see our growing line of free software, web and mobile applications, call (800) 999-5099 or visit **www.strongtie.com/software**.

SIMPSON
Strong-Tie®

C-2013 Effective 1/1/2013 Expires 12/31/2014

SIMPSON Strong-Tie®

2014 ADDENDUM

WOOD CONSTRUCTION CONNECTORS

C-2013

F-C2013ADD

(800) 999-5099

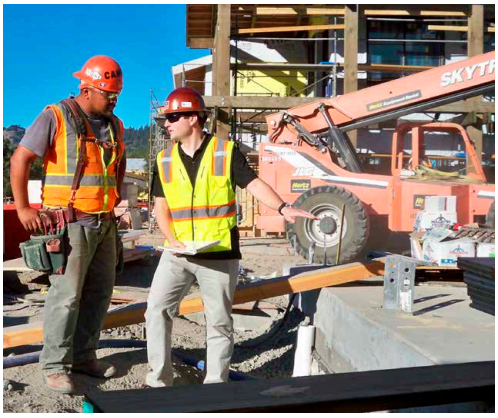
www.strongtie.com

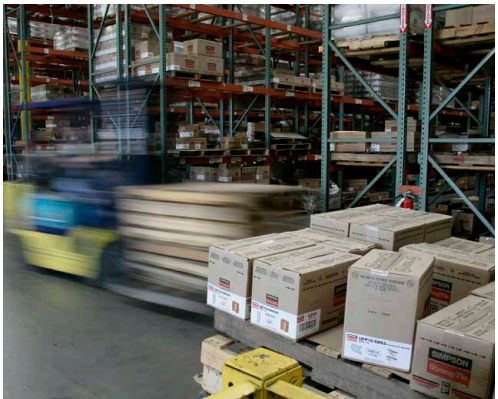
It All Starts With Connectors

Spend five minutes on a jobsite and you will understand that building a residential or commercial structure is a complicated task. Beyond the complexities of managing the people and their costs, contractors and designers must account for the conditions of the site – from seismic conditions below to the wind above.

You need partners you can trust – partners who go beyond just supplying materials. Starting with our connector business six decades ago, Simpson Strong-Tie has always believed in creating strong partnerships. These relationships were forged in trust from always conducting the most comprehensive testing, providing unmatched customer support and delivering the highest quality products in the industry.

The 2014 Addendum to the 2013 Simpson Strong-Tie® *Wood Construction Connectors* catalog features our latest product additions and innovations designed to make structures stronger and easier to build. Additionally, we encourage you to learn more about our other solutions, including lateral systems and infrastructure repair and software, by visiting ***www.strongtie.com***.





Introduction

For more than 50 years, Simpson Strong-Tie has focused on creating structural products that help people build safer and stronger homes and buildings. A leader in structural systems research and technology, Simpson Strong-Tie is one of the largest suppliers of structural building products in the world. The Simpson Strong-Tie commitment to product development, engineering, testing and training is evident in the consistent quality and delivery of its products and services. Simpson Strong-Tie® product lines include:

- Structural connectors for wood and cold-formed-steel construction
- Strong-Wall® prefabricated shearwalls
- Strong Frame® moment frames
- Rod systems for multi-story buildings
- Fastening systems including Quik Drive® auto-feed screw driving systems
- Simpson Strong-Tie® anchors and fasteners for concrete and masonry

For more information, visit the company's Web site at ***www.strongtie.com***.

The Simpson Strong-Tie Company Inc. "No Equal" pledge includes:

- Quality products value-engineered for the lowest installed cost at the highest rated performance levels
- Most thoroughly tested and evaluated products in the industry
- Strategically located manufacturing and warehouse facilities
- National code agency listings
- Largest number of patented connectors in the industry
- European locations with an international sales team
- In-house R&D and tool and die professionals
- In-house product testing and quality control engineers
- Member of AITC, ASTM, ASCE, AWPA, ACI, AISC, CSI, ICFA, NBMDA, NLBMDA, SETMA, STAFDA, SREA, NFBA, WTCA and local engineering groups.

The Simpson Strong-Tie Quality Policy

We help people build safer structures economically. We do this by designing, engineering and manufacturing "No Equal" structural connectors and other related products that meet or exceed our customers' needs and expectations. Everyone is responsible for product quality and is committed to ensuring the effectiveness of the Quality Management System.

Karen Colonias
Chief Executive Officer

Terry Kingsfather
President

Getting Fast Technical Support

When you call for engineering technical support, we can help you quickly if you have the following information at hand. This will help us to serve you promptly and efficiently.

- Which Simpson Strong-Tie® catalog are you using? *(See the front cover for the catalog number)*
- Which Simpson Strong-Tie product are you using?
- What is your design code and building jurisdiction?
- Is your structure residential or commercial?
- What is your application?
- What is your load requirement?

We Are ISO 9001-2008 Registered

Simpson Strong-Tie is an ISO 9001-2008 registered company. ISO 9001-2008 is an internationally-recognized quality assurance system which lets our domestic and international customers know that they can count on the consistent quality of Simpson Strong-Tie® products and services.

Table of Contents

Important Information and General Notes

Welcome to the 2014 Addendum to Our 2013 *Wood Construction Connectors* Catalog

Since the 2013 Wood Construction Connectors catalog is effective for two years, this addendum is intended to highlight new products and testing for 2014. It is also a good idea to visit ***www.strongtie.com*** occasionally to get updated on mid-year developments that are not included here.

There is important information pertaining to the specification and installation of Simpson Strong-Tie® products that is included in the front section of the C-2013 catalog. Please see that catalog for the following:

- Corrosion information
- Important information and general notes
- Warnings about improper installation
- General instructions for the Installer
- General instructions for the Designer
- Limited warranty and terms and conditions of sale

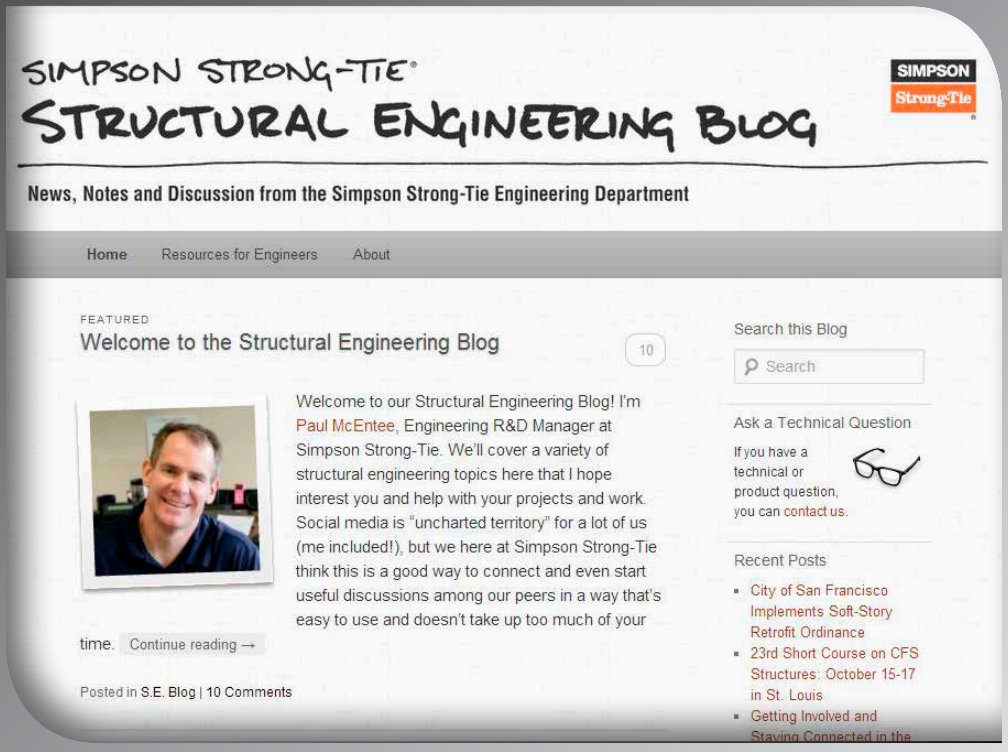
See www.strongtie.com for Important Updates to the 2013 *Wood Construction Connectors* Catalog

Since the 2013 *Wood Construction Connectors* catalog is effective for two years, we want to make sure that our customers are still up to date. Therefore, a list of corrections is now available at ***www.strongtie.com/corrections***. This list will be continually updated if new questions and issues arise.

JOIN THE DISCUSSION!

Award-Winning Simpson Strong-Tie® Structural Engineering Blog

http://seblog.strongtie.com



Designed to provide the structural engineering community with resources and a forum for relevant discussions, the Structural Engineering (SE) Blog received the Platinum Award for Best Corporate Blog in Hanley Wood's first annual Brand Builder Awards in 2013.

Subscribe to the blog for weekly updates on:

- Trends in design and materials
- Code updates
- Sneak peeks into Simpson Strong-Tie R&D and testing
- What's going on in the industry

Written by engineers, for engineers. Go to http://seblog.strongtie.com to subscribe, comment and join the discussion.

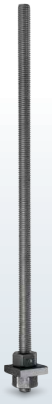
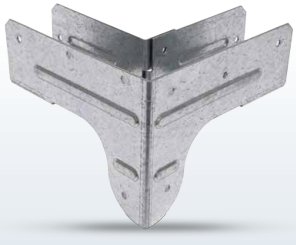
Discontinued Products

Products That Will be Discontinued or Replaced in 2014

Simpson Strong-Tie is dedicated to continuously expanding our line of structural connectors with innovative new products that address the changing needs of our customers. As new connectors are introduced that improve upon older designs, it becomes necessary to discontinue the old versions in the name of efficiency and product-line simplicity.

The table below lists products that are no longer included in the *Wood Construction Connectors* catalog as well as the products recommended to replace them. While technical information for discontinued products will be maintained on our website for a number of months, Simpson Strong-Tie asks that our customers begin to substitute the replacement products shown below in their designs and inventories. While it is hard to say when they will no longer be available from our distribution partners, production of some of these connectors ended in late 2013 and others will be phased out of production in 2014.

For the most current information on discontinued products visit ***www.strongtie.com/discontinued***. If you have questions about any of the products shown below, please call (800) 999-5099 for assistance.

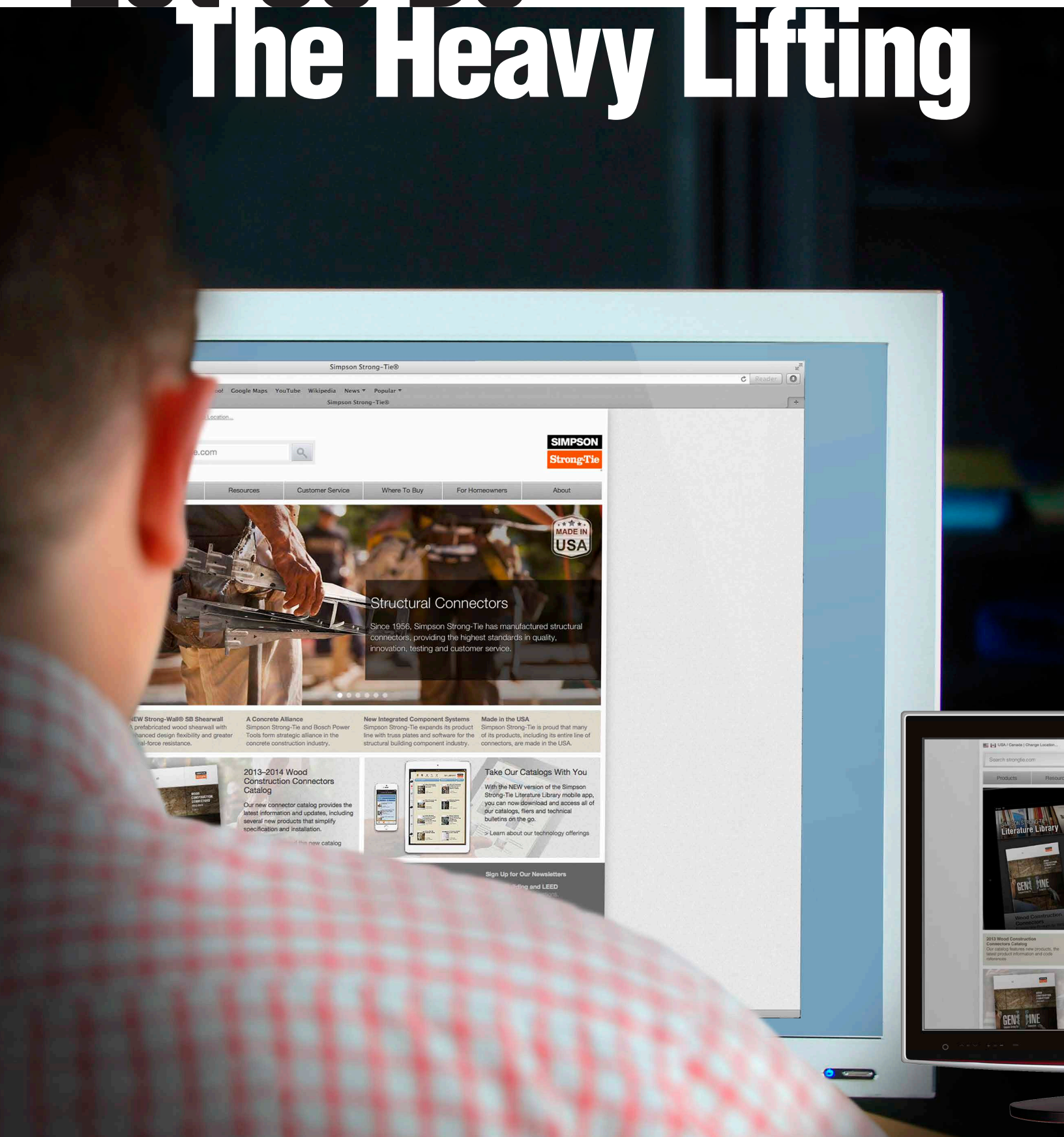
DISCONTINUED PRODUCT		REPLACEMENT PRODUCT	
Mudsill Anchors			
 **MA6** *(MA4 similar)*	MA4 MA6 *(No longer available)*	MASA MAB	 **MASA**  **MAB**
Anchor Bolts			
 **SWAB⅞x18**	SWAB⅞ x 18 SWAB⅞ x 24 SWAB⅞ x 30 SWAB⅞ x 36 *(No longer available)*	PAB7-18 PAB7-24 PAB7-30 PAB7-36	 **PAB**
Rigid Tie™			
 **RTC24** *(RTC24Z similar)*	RTC24 RTC24Z *(Avail. until June 14)*	RTC2Z	 **RTC2Z**

Discontinued Products

SIMPSON Strong-Tie®

DISCONTINUED PRODUCT		REPLACEMENT PRODUCT	
Wall Bracing			
 **CWB**	CWB *(Limited availability)*	RCWB WB WBC	 **WBC**  **WB**  **RCWB**
Fence Bracket			
 **FB24**	FB24 *(Limited availability)*	FB24Z	 **FB24Z**
Post Frame Hanger			
 **PFA**	PFA *(Limited availability)*	PFB	 **PFB**
Purlin Anchor			
 **PATM25**	PATM25 *(No longer available)*	N/A	N/A

Let Us Do The Heavy Lifting



Simpson Strong-Tie Apps Designed to Help You Do Your Job Faster and Easier

At Simpson Strong-Tie, we believe the principles for introducing new software are no different from designing a new connector. We leverage the latest technology to help Specifiers and builders create safer, stronger structures in less time than ever before. Our unmatched variety of product selector and calculator apps help you find the best product, information and resources needed to do the job right the first time. And it's all free!

Get Simpson Strong-Tie Knowledge on Your Mobile Device

Need to find out how many Simpson Strong-Tie® adhesive cartridges you require for a job? Perhaps you're looking for some literature to learn more about a new product? Simpson Strong-Tie now delivers exciting mobile apps to your iPhone™, iPad™ or Android™ mobile device. Simply download and easily access information about our most popular products and even find the closest Simpson Strong-Tie dealer to purchase them. Visit www.strongtie.com/software to learn more about our mobile apps.

Match Your Anchor with the Right Connector

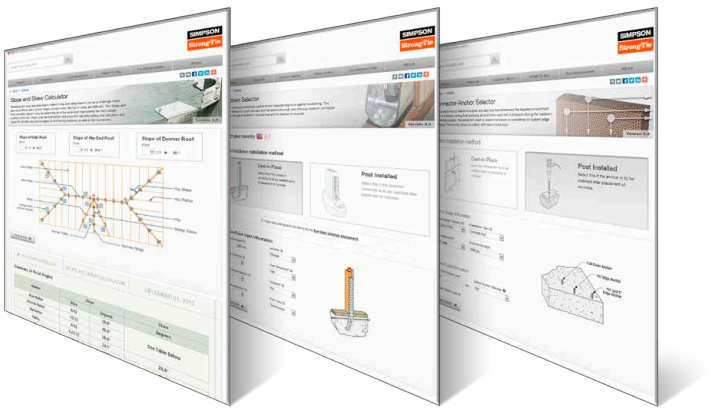
Our Connector-Anchor selector connector helps discern the required embedment depth of our anchoring products when used with a Simpson Strong-Tie holdown or post base product.

Selecting the Right Holdown

The Holdown Selector is a quick and easy tool that selects the most cost-effective holdown connector based on the type of installation, demand load and wood species.

Here's Just Some of Many Other Software Solutions Designed to Help You Save Time

- Adhesive Cartridge Estimator
- AHEP Design Calculator
- Anchor Designer Software
- Code Report Finder
- Coil Strap Calculator
- Connector-Anchor Selector
- Dealer Locator
- Rod Elongation Calculator
- Slope & Skew Calculator
- Steel Deck Diaphragm Calculator
- Strong Frame® Moment Frame Selector
- Strong-Wall® Selector
- Wall-Bracing-Length Calculator
- Wood Shrinkage Calculator



PPBZ Porch Post Base

The PPBZ porch post base is designed to be installed once and will support permanent porch framing throughout all stages of construction. This design eliminates the need for temporary support of the porch roof structure and provides full access to installers/inspectors. Install the PPBZ to the cured grade beam with two Simpson Strong-Tie® Titen® screws just prior to rough framing. Designed to withstand vertical construction loads prior to embedment in concrete, the PPBZ will support most framed porches and overhangs. Finally, the concrete contractor is able to complete their last phase of the porch slab without the interference of temporary support. Depending upon the slab thickness, either a 4" or 6" slab of concrete is poured up to the bottom of the 1" standoff.

FEATURES:

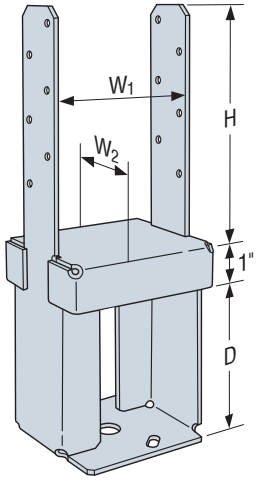
- Stiffened embedded side stirrups provide temporary vertical download support without being embedded into concrete
- 1" stand-off reduces the potential for decay at post or column ends
- Two available sizes provide both 4" and 6" slab thicknesses
- Pre-pour installation eliminates temporary support
- No disruption in scheduling
- Eliminates additional move-ins by trades and certain inspection call backs

MATERIAL: See table

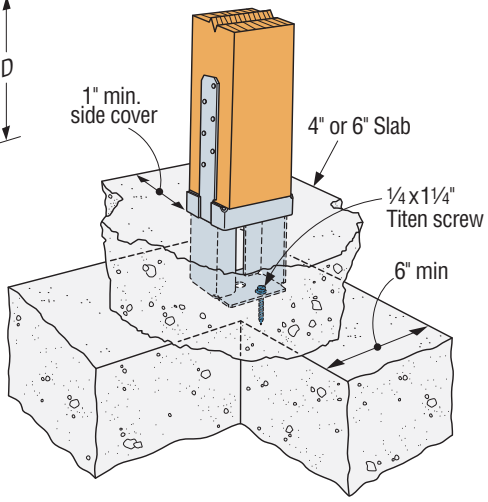
FINISH: ZMAX® coating

INSTALLATION:

- Use all specified fasteners.



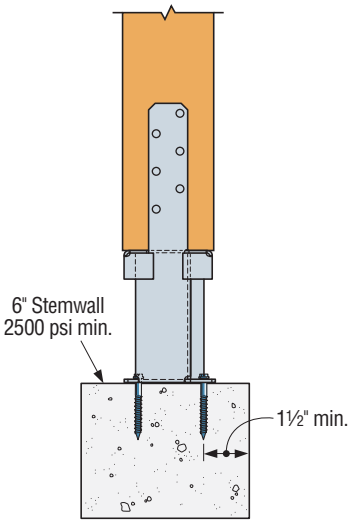
PPB44-4Z
(PPB44-6 similar)



Typical PPB44-4Z Installation

Model No.	Nominal Post Size	Material		Dimensions (in.)				Fasteners		Allowable Loads (DF/SP/SPF/HF)				
										Prior to Pour		Embedded into Concrete		
		Base (Ga)	Strap (Ga x Width)	W_1	W_2	D[6]	H	Foundation	Post	Uplift (160)	Down (100)	Uplift (160)		Down (100)
												Non Cracked	Cracked	
PPB44-4Z	4x4	12	12 ga x 1½	3⅝	3⁵⁄₁₆	4	5¾	2-¼x1¼ Titen	12-10d	220	4720	1480	1035	7830
PPB44-6Z	4x4	12	12 ga x 1½	3⅝	3⁵⁄₁₆	6	5¾	2-¼x1¼ Titen	12-10d	220	4295	2105	2105	10505

1. Uplift loads have been increased for wind or earthquake with no further increase allowed; reduce where other loads govern.
2. Uplift loads are for wind and Seismic Design Category A&B. For seismic loads in SDC C-F, multiply "embedded into concrete" loads by 0.75.
3. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect fastener installation into the wide face.
4. Downloads shall be reduced where limited by the capacity of the post.
5. Minimum concrete strength, f'_c = 2500 psi.
6. For slab thickness not shown between 4"– 6", use PPB44X and specify slab thickness (D). Allowable loads may be interpolated.



Typical PPB44-4Z Installation
(Before slab is poured)

BA Top Flange Hanger

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.

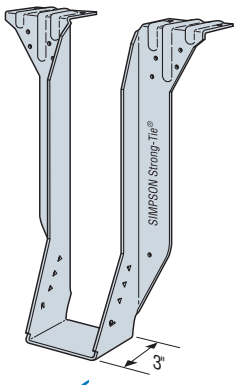
Simpson Strong-Tie has added several new sizes to our popular BA hanger. The BA hanger is designed to carry loads up to 4,500 lbs. for high-capacity I-joists or moderately loaded Structural Composite Lumber. Joists that are 1¾", 2½" and 3½" wide now have standard EWP sizes available from 9½" through 16" tall. A new hanger is available for 1¾ x 7¼. When hanger modifications such as slope or skew configurations are not needed, the BA is the value-engineered alternative to the LBV and B series hangers.

MATERIAL: 14 gauge

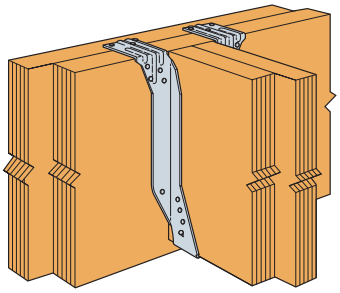
FINISH: Galvanized

INSTALLATION:

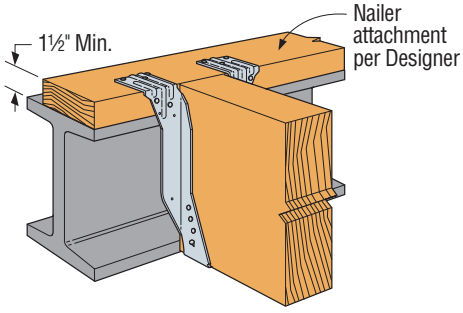
- Use all specified fasteners. See tables.
- Web stiffeners required for I-joists with MAX nailing



BA
U.S. Patent 7,334,372



BA Installed LVL to LVL Max Nailing



Typical BA Installation on Wood Nailer

Actual Joist Size (in.)	Model No.	Dimensions (in.)	
		Width	Height
NEW 1¾ x 7¼	BA1.81/7.25	1 13/16	7¼
NEW 1¾ x 9½	BA1.81/9.5	1 13/16	9½
1¾ x 11⅞	BA1.81/11.88	1 13/16	11⅞
NEW 1¾ x 14	BA1.81/14	1 13/16	14
NEW 2½ x 9½	BA2.56/9.5	2 9/16	9½
2½ x 11⅞	BA2.56/11.88	2 9/16	11⅞
2½ x 14	BA2.56/14	2 9/16	14
2½ x 16	BA2.56/16	2 9/16	16
NEW 3½ x 9½	BA3.56/9.5	3 9/16	9½
3½ x 11⅞	BA3.56/11.88	3 9/16	11⅞
3½ x 14	BA3.56/14	3 9/16	14
3½ x 16	BA3.56/16	3 9/16	16

BA with Various Header Applications

Model	Fasteners			Allowable Loads Header Type					
	Top	Face	Joist	Uplift (160)	LVL[5]	PSL	LSL	DF/SP	SPF/HF
BA MIN nailing	6 - 10d	10 - 10d	2 -10dx1½	265	3230	3630	4005	3080	2425
	6 - 16d	10 - 16d	2 -10dx1½	265	4015	3705	4005	3435	2665
BA MAX nailing	6 - 10d	10 - 10d	8 -10dx1½	1170	3555	3630	4120	3625	2465
	6 - 16d	10 - 16d	8 -10dx1½	1170	4715	4320	4500	3800	2665

1. This table assumes joist with F_{c1} = 750 psi.
2. Uplift loads are based on DF/SP lumber and have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern. For SPF/HF used 0.86 × DF/SP uplift load.
3. Loads may not be increased for short term loading.
4. LVL (laminated veneer lumber), LSL (laminated strand lumber), and Parallam® PSL (parallel strand lumber). Parallam® is a registered trademark of Weyerhaeuser.
5. Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from SPF or similar less dense veneers, use the values found in the SPF/HF column.

Nailer Table

Model No.	Nailer	Top Flange Nailing	Uplift [2] (160)	Allowable Loads	
				DF/SP	SPF/HF
BA	2x	10-10dx1x1½	265	2220	1755
	2-2x	14-10d	265	2695	2235
	3x	14-16dx2½	265	3230	--
	4x	14-16d	265	3230	--

PFB/PFDB Post Frame Hangers

The PF series hangers have been redesigned to accommodate collated nails (0.148x1½) as well as the 10d common nail (0.148x3). The PFB and PFDB have dome-shaped joist nail holes that guide nails into the proper installation angle. The redesign also features a folded seat that raises the 2x joist very slightly above the seat radius to enable a tighter connection to the back of the hanger.

FEATURES:

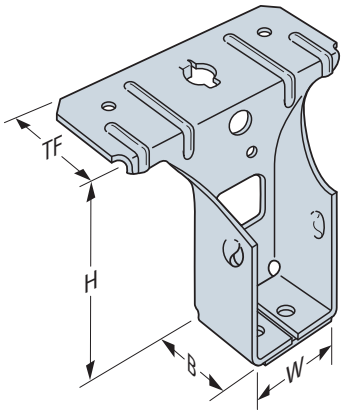
- New installation prongs make setting the hanger quick and easy
- New sizes are available for 2x8 joists

MATERIAL: 20 gauge

FINISH: Galvanized

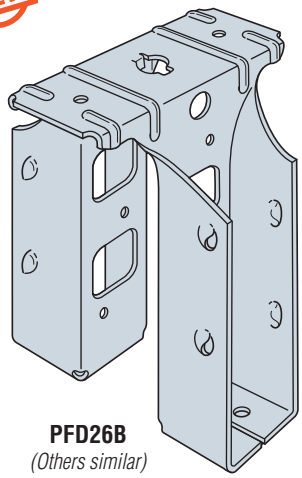
INSTALLATION:

- Use all specified fasteners. See General Notes.
- 10d common purlin nails must be driven at an angle through the purlin into the header. Combine with top nails to achieve table loads.
- 10dx1½ purlin nails must be driven at an angle into the purlin but do not penetrate into the header. Combine with back face fasteners and top nails to achieve table loads.



PF24B
(Others similar)

NEW



PFD26B
(Others similar)

Model No.	Dimensions (in.)				Fasteners			DF/SP Allowable Loads					SPF/HF Allowable Loads				
	W	H	B	TF	Top	Face	Joist	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)
PF24B	1 9/16	3 3/8	1 1/4	1 1/2	2-10dx1½	2-10dx1½	2-10dx1½	345	965	965	965	965	295	785	785	785	785
					2-10d	—	2-10d	375	1005	1005	1005	1005	290	680	680	680	680
PFD24B	1 9/16	3 3/8	1 1/4	1 9/16	2-10dx1½	2-10dx1½	2-10dx1½	290	985	985	985	985	230	830	830	830	830
					2-10d	—	2-10d	305	1115	1150	1170	1200	210	830	860	880	945
PFDS24B	1 9/16	3 3/8	1 1/4	3 3/16	4-10dx1½	2-10dx1½	2-10dx1½	290	985	985	985	985	230	830	830	830	830
					4-10d	—	2-10d	305	1115	1150	1170	1200	210	830	860	880	945
PF26B	1 9/16	5 3/8	1 1/4	1 1/2	2-10dx1½	3-10dx1½	4-10dx1½	545	1235	1235	1235	1235	470	1005	1005	1005	1005
					2-10d	—	4-10d	625	1200	1200	1200	1200	480	810	810	810	810
PFD26B	1 9/16	5 3/8	1 1/4	1 9/16	2-10dx1½	3-10dx1½	4-10dx1½	525	1235	1235	1235	1235	420	1030	1040	1040	1040
					2-10d	—	4-10d	670	1345	1350	1350	1350	465	1030	1090	1125	1255
PFDS26B	1 9/16	5 3/8	1 1/4	3 3/16	4-10dx1½	3-10dx1½	4-10dx1½	525	1235	1235	1235	1235	420	1030	1040	1040	1040
					4-10d	—	4-10d	670	1345	1350	1350	1350	465	1030	1090	1125	1255
PFDL26B	1 9/16	5 1/4	1 1/4	1 13/16	2-10dx1½	3-10dx1½	4-10dx1½	525	1235	1235	1235	1235	420	1030	1040	1040	1040
					2-10d	—	4-10d	670	1345	1350	1350	1350	465	1030	1090	1125	1255
PF28B	1 9/16	7 1/8	1 1/4	1 1/2	2-10dx1½	4-10dx1½	6-10dx1½	675	1335	1335	1335	1335	580	1085	1085	1085	1085
					2-10d	—	6-10d	850	1580	1650	1650	1650	655	1115	1115	1115	1115
PFD28B	1 9/16	7 1/8	1 1/4	1 9/16	2-10dx1½	4-10dx1½	6-10dx1½	810	1370	1370	1370	1370	680	1160	1160	1160	1160
					2-10d	—	6-10d	1050	1580	1680	1745	1975	730	1230	1315	1370	1570
PFDS28B	1 9/16	7 1/8	1 1/4	3 3/16	4-10dx1½	4-10dx1½	6-10dx1½	895	1370	1370	1370	1370	730	1160	1160	1160	1160
					4-10d	—	6-10d	1050	1580	1680	1745	1975	730	1230	1315	1370	1570
PFDL28B	1 9/16	7	1 1/4	1 13/16	2-10dx1½	4-10dx1½	6-10dx1½	810	1370	1370	1370	1370	680	1160	1160	1160	1160
					2-10d	—	6-10d	1050	1580	1680	1745	1970	730	1230	1315	1370	1570

1. Uplift loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. NAILS: 10d = 0.148" dia. x 3" long; 10dx1½ = 0.148" dia. x 1½" long. See *Wood Construction Connectors* catalog for other nail sizes and information.

KBS1Z Knee-Brace Stabilizer

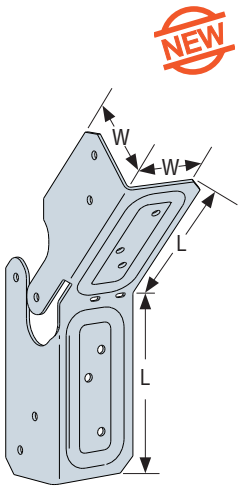
The KBS1Z knee-brace stabilizer makes a structural connection between knee bracing and columns or beams to help stabilize free-standing structures, and comply with many prescriptive deck bracing requirements such as AWC's DCA6 *Prescriptive Residential Wood Deck Construction Guide*. Factory-formed at a 45˚ angle and easily installed with nails, the KBS1Z braces 2x, 4x and 6x in line post-to-beam configurations. Check with your local building department for deck bracing requirements.

MATERIAL: 16 gauge

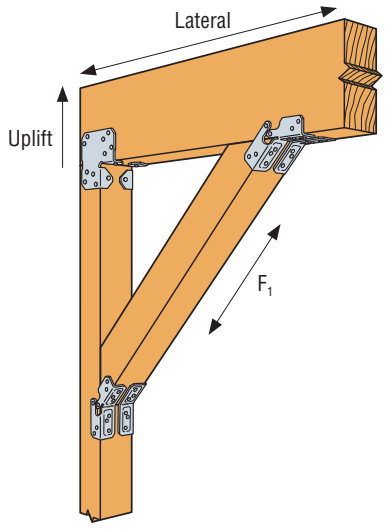
FINISH: ZMAX® coating

INSTALLATION:

- Use all specified fasteners.
- For installations at an angle other than 45°, bend KBS1Z along slots to desired angle. Bend one time only.
- Knee Brace:
  - Cut braces at desired angle
  - Bend KBS1Z to desired angle if required
  - Install fasteners to secure in place
  - For equal-width members, install (2) KBS1Z on each end of brace (see connection type 1)
  - For 2x knee brace, install single KBS1Z on each end of brace (see connection type 2)
- Beam-to-Post: Install in pairs. See illustrations for quantity and configuration



KBS1Z



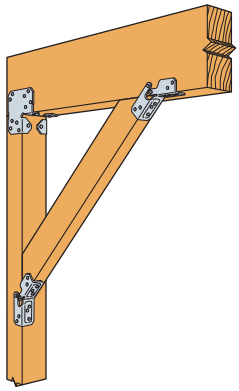
1 **Post-to-Knee Brace Connection**
(Same member width)

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.

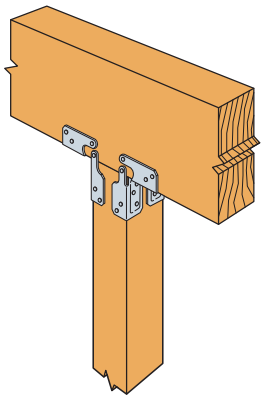
This product is approved for installation with the Strong-Drive® SD Structural Connector screw. See page 27 of the Wood Construction Connectors *catalog or visit* ***www.strongtie.com*** *for more information.*

Model	Dimensions (in.)		Type of Connection	Connectors per Joint	Fasteners Each Connector[1]	Direction of Load	Allowable Loads[2] (160) In-Service Moisture Content			
	W	L					≤ 19%		> 19%	
							DF/SP	SPF/HF	DF/SP	SPF/HF
KBS1Z	1½	3	1	2	12-8d	F_1 Brace angle = 45°	1175	1010	1055	860
						F_1 Brace angle = 30° or 60°[3]	835	720	835	720
			2	1	12-8dx1½	F_1 Brace angle = 45°	630	540	470	385
						F_1 Brace angle = 30° or 60°[3]	510	440	395	330
			3	4	12-8d	Uplift	1160	1000	1160	1000
						Lateral	1725	1480	1725	1480
			4	2	12-8d	Uplift	540	465	540	465
						Lateral	485	420	430	370
				4		Uplift	900	775	900	775
						Lateral	1270	1095	1270	1095

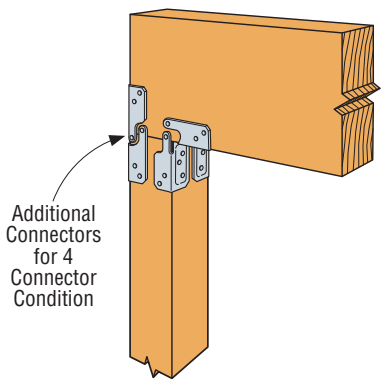
1. SD9x1½ screws may be substituted for the specified fasteners with no load reduction.
2. Allowable loads have been increased for wind or earthquake with no further increase allowed; reduce where other loads govern.
3. For braces installed at intermediate angles, allowable loads may be interpolated between loads listed for brace angle = 45° and brace angle = 30° or 60°.



2 **Post-to-2x Knee Brace Connection**



3 **(Continuous) Beam-to-Post**



4 **End Beam-to-Post**

DU/DHU/DHUTF Drywall Hanger

The new DU/DHU face-mount and the DHUTF top-mount hangers are designed to carry joist floor loads to a wood stud wall through two layers of ⅝" gypsum board (drywall). These hangers install after the drywall is in place. The hangers come in sizes that accommodate most joists used in multi-family construction including I-joists and trusses.

MATERIAL: DU-14 gauge; DHU and DHUTF-12 gauge

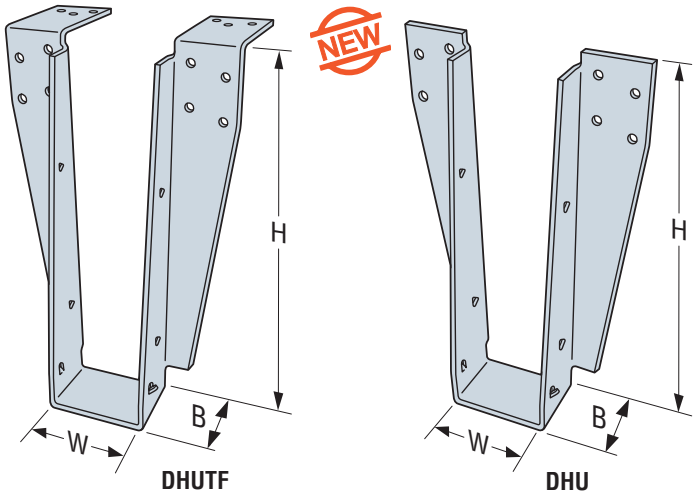
FINISH: Galvanized

INSTALLATION:

- Drywall is installed first.
- DU and DHU are mounted with top of hanger flush with top of wall and tight to the drywall.
- Wall top plates must be retrained to prevent rotation. Use an SSP stud plate tie connector at the back of each stud or provide equivalent restraint by another method as determined by Designer.
- Upper plate splices must occur at a stud location.

OPTION:

- The DHU may be ordered with one flange concealed for widths at least 2½" wide; specify which flange when ordering. Use 74% of the table loads.



DHUTF
(*Patent Pending*)

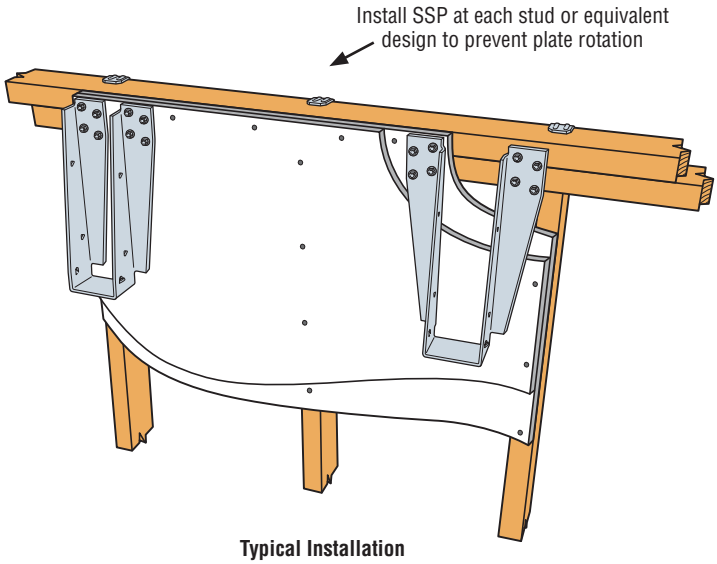
DHU
(DU similar)
(*Patent Pending*)

Fastener Table

Model	Gauge	B	Fasteners		
			Joist	Face	Top
DU	14	2	(2) 10d x 1 ½"	(4) SDS ¼" x 3.5"	-
DHU	12	2.5	(2) 10d x 1 ½"	(8) SDS ¼" x 3.5"	-
DHUTF	12	2.5	(2) 10d x 1 ½"	(8) SDS ¼" x 3.5"	(6) 10d x 1 ½"

Allowable Loads

Model	Condition [1]	DF/SP Allowable Loads (lbs.)		SPF/HF Allowable Loads (lbs.)	
		Uplift (160)[3,4]	Down (100) [2]	Uplift (160)[3,4]	Down (100) [2]
DU	Over (1) layer ⅝" drywall	95	1110	170	880
	Over (2) layers ⅝" drywall	95	1110	170	880
	Two-sided over (2) layers ⅝" drywall (minimum 2x6 wall)	95	1075	170	880
	Over (1) layer ⅝" structural sheathing and (2) layers ⅝" drywall	95	1110	170	880
DHU DHUTF	Over (1) layer ⅝" drywall	95	1250	170	1050
	Over (2) layers ⅝" drywall	95	1590[5]	170	1395[5]
	Two-sided over (2) layers ⅝" drywall (minimum 2x6 wall)	95	1200	170	1005
	Over (1) layer ⅝" structural sheathing and (2) layers ⅝" drywall	95	1975	170	1660

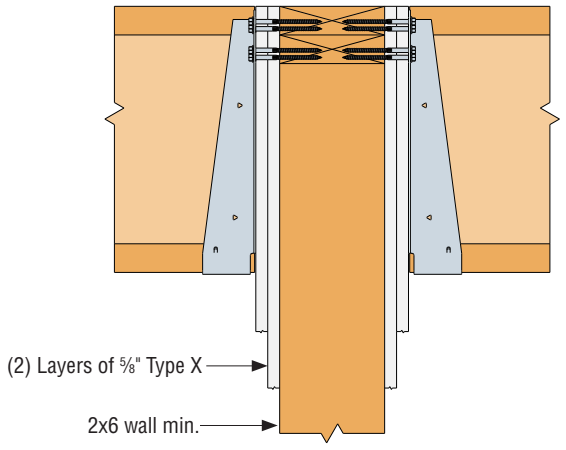


Typical Installation
Showing DHU with Concealed Flange Option (at left)
and a DHU Standard Installation

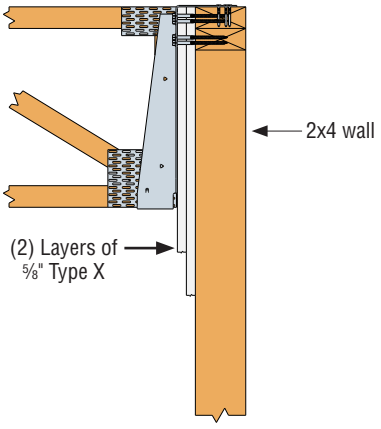
1. Loads assume ⅝" type X drywall attached per IBC. Wall assembly must consist of minimum two 2x4 plate members with studs spaced not more than 16" o.c. For alternate solutions to mounting over single layer of drywall, refer to the technical bulletin T-C-TFWALL13 at www.strongtie.com
2. Hangers spaced closer than 16" o.c. shall reduce capacity proportionately.
3. Triangle nail holes may be filled with (4) additional 10d x 1½" to achieve an Allowable Uplift Load of 750 lbs.
4. DF carried members with minimum 1½" x 2½" solid sawn chord dimension may increase Allowable Uplift Load to 170 lbs.
5. Allowable downloads may be increased to 1885 for DF/SP and 1585 for SPF/HF using the DHU3.56/24 or DHUTF3.56/24 models.

DU/DHU/DHUTF Drywall Hanger

Joist Size	Face Mount		Top Flange	Dimensions (in.)	
	DU Models	DHU Models	DHUTF Models	W	H
2x10	DU210	DHU210	DHU210TF	1 9/16	9 1/8
2x12	DU212	DHU212	DHU212TF	1 9/16	11 1/8
1 3/4 x 9 1/2	DU1.81/9.5	DHU1.81/9.5	DHU1.81/9.5TF	1 13/16	9 7/16
1 3/4 x 11 7/8	DU1.81/11.88	DHU1.81/11.88	DHU1.81/11.88TF	1 13/16	11 13/16
1 3/4 x 14	DU1.81/14	DHU1.81/14	DHU1.81/14TF	1 13/16	13 15/16
1 3/4 x 16	DU1.81/16	DHU1.81/16	DHU1.81/16TF	1 13/16	15 15/16
2 x 9 1/2	DU2.1/9.5	DHU2.1/9.5	DHU2.1/9.5TF	2 1/8	9 7/16
2 x 1 7/8	DU2.1/11.88	DHU2.1/11.88	DHU2.1/11.88TF	2 1/8	11 13/16
2 x 14	DU2.1/14	DHU2.1/14	DHU2.1/14TF	2 1/8	13 15/16
2 x 16	DU2.1/16	DHU2.1/16	DHU2.1/16TF	2 1/8	15 15/16
2 1/16 x 9 1/2	DU2.1/9.5	DHU2.1/9.5	DHU2.1/9.5TF	2 1/8	9 7/16
2 1/16 x 11 7/8	DU2.1/11.88	DHU2.1/11.88	DHU2.1/11.88TF	2 1/8	11 13/16
2 1/16 x 14	DU2.1/14	DHU2.1/14	DHU2.1/14TF	2 1/8	13 15/16
2 1/16 x 16	DU2.1/16	DHU2.1/16	DHU2.1/16TF	2 1/8	15 15/16
2 5/16 x 9 1/2	DU2.37/9.5	DHU2.37/9.5	DHU2.37/9.5TF	2 3/8	9 7/16
2 5/16 x 11 7/8	DU2.37/11.88	DHU2.37/11.88	DHU2.37/11.88TF	2 3/8	11 13/16
2 5/16 x 14	DU2.37/14	DHU2.37/14	DHU2.37/14TF	2 3/8	13 15/16
2 5/16 x 16	DU2.37/16	DHU2.37/16	DHU2.37/16TF	2 3/8	15 15/16
2 5/16 x 18	—	DHU2.37/18	DHU2.37/18TF	2 3/8	17 15/16
2 5/16 x 20	—	DHU2.37/20	DHU2.37/20TF	2 3/8	19 15/16
2 1/2 x 9 1/2	—	DHU2.56/9.5	DHU2.56/9.5TF	2 9/16	9 7/16
2 1/2 x 11 7/8	—	DHU2.56/11.88	DHU2.56/11.88TF	2 9/16	11 13/16
2 1/2 x 14	—	DHU2.56/14	DHU2.56/14TF	2 9/16	13 15/16
2 1/2 x 16	—	DHU2.56/16	DHU2.56/16TF	2 9/16	15 15/16
2 1/2 x 18	—	DHU2.56/18	DHU2.56/18TF	2 9/16	17 15/16
2 1/2 x 20	—	DHU2.56/20	DHU2.56/20TF	2 9/16	19 15/16
3 1/2 x 9 1/2	—	DHU3.56/9.5	DHU3.56/9.5TF	3 9/16	9 7/16
3 1/2 x 11 7/8	—	DHU3.56/11.88	DHU3.56/11.88TF	3 9/16	11 13/16
3 1/2 x 14	—	DHU3.56/14	DHU3.56/14TF	3 9/16	13 15/16
3 1/2 x 16	—	DHU3.56/16	DHU3.56/16TF	3 9/16	15 15/16
3 1/2 x 18	—	DHU3.56/18	DHU3.56/18TF	3 9/16	17 15/16
3 1/2 x 20	—	DHU3.56/20	DHU3.56/20TF	3 9/16	19 15/16
3 1/2 x 22	—	DHU3.56/22	DHU3.56/22TF	3 9/16	21 15/16
3 1/2 x 24	—	DHU3.56/24	DHU3.56/24TF	3 9/16	23 15/16



Two-Sided Installation Over (2) Layers of Drywall



Typical Installation over (2) Layers of Drywall

HTSQ Twist Strap

The new HTSQ twist straps provide a tension connection between two wood members and are designed to resist uplift for decks, boardwalks and beams economically. The HTSQ is quicker, easier and more economical to install when compared to bolted straps. HTSQ provides a strong connection with fewer fasteners than nailed HTS straps when incorporating Simpson Strong-Tie® Strong-Drive® SDS screws. SDS screws with a double-barrier coating finish are included with HTSQ straps in a ZMAX coating. For stainless-steel HTSQ straps, stainless-steel SDS screws are provided.

FEATURES:

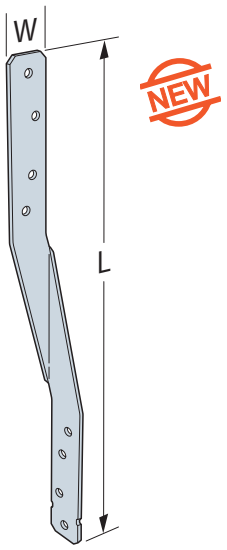
- Quicker and more consistent installation than bolts
- Better fastener withdrawal resistance than nails
- Corrosion resistance finish options

MATERIAL: 14 gauge

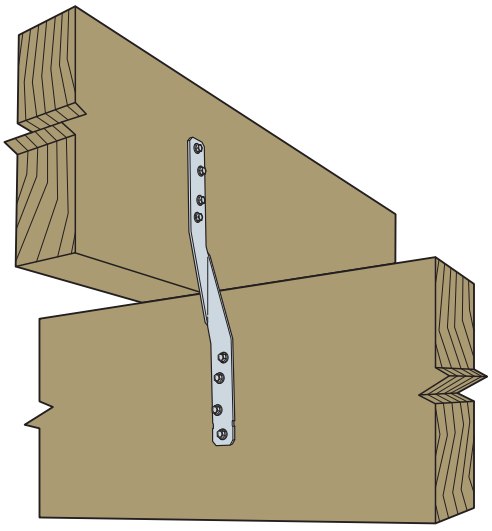
FINISH: ZMAX® coating or stainless steel.

INSTALLATION:

- Use all specified fasteners.



HTSQ16Z
(Others similar)

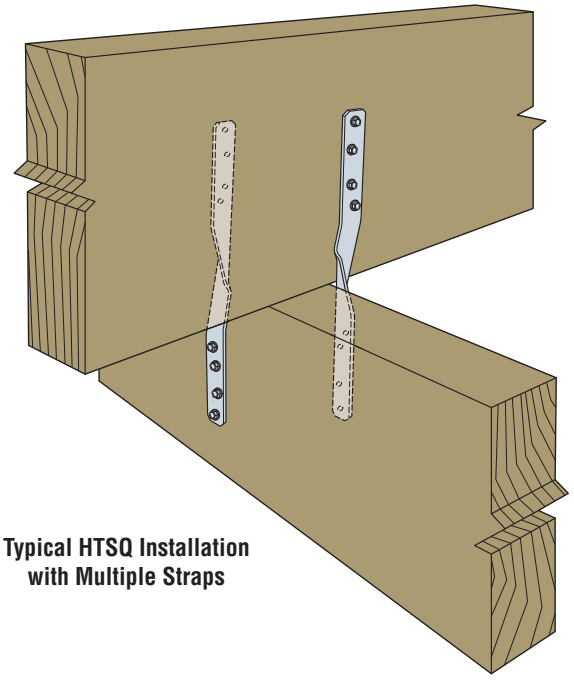


Typical HTSQ16Z Installation

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.

Model No.	Dimensions (in.)		Fasteners	Allowable Uplift Loads			
				DF/SP		SPF/HF	
	(W)	(L)		(100)	(160)	(100)	(160)
HTSQ16Z-SDS or HTSQ16SS-SDS	1¼	16	8-SDS ¼"x1½"	1000	1145	720	800
HTSQ20Z-SDS or HTSQ20SS-SDS	1¼	20					

1. Uplift (160) loads have been increased for wind or earthquake loading with no further increase allowed.
2. Tabulated loads are for a single connector. Multiple connectors may be used when the fasteners do not interfere.
3. Install four fasteners in each member to achieve full loads. HTSQ20 has (2) extra holes per side to allow for installation flexibility



Typical HTSQ Installation with Multiple Straps

RTC2Z Rigid Tie™ Connector

The new RTC2Z Rigid Tie™ corner connector connects a 2x2, 2x3 or 2x4 vertical member to two 2x3 or greater horizontal members, forming a 90° corner. This latest version requires 40% fewer fasteners *(can be installed with nails or screws)*, than the RTC24, which saves both time and money. For reduced reveal in dry, interior and non-corrosive environments, use Simpson Strong-Tie® SD #8x1 ¼ wafer-head screws. Since the RTC2Z is ZMAX® coated, the connector can be used in most exterior conditions when installed with Strong-Drive® SD structural-connector screws. The SD structural-connector screws also yield higher allowable loads.

FEATURES:

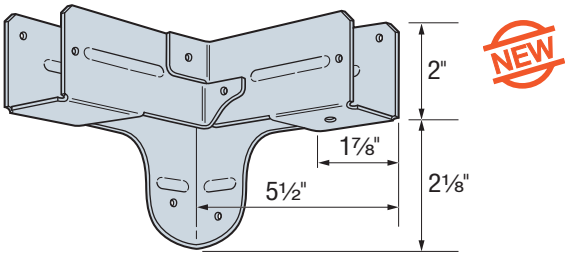
- Quickly and accurately align framing members
- Facilitate a multitude of do-it-yourself projects *(visit **www.diydoneright.com** for more information)*
- ZMAX coating for extra corrosion resistance

MATERIAL: 18 gauge

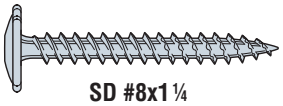
FINISH: ZMAX coating

INSTALLATION:

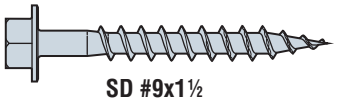
- Use all specified fasteners *(see table)*. See General Notes.
- Install on vertical members first, then attach horizontal member
- Seat wood members in connector with a clamp before installing fasteners to aid positioning



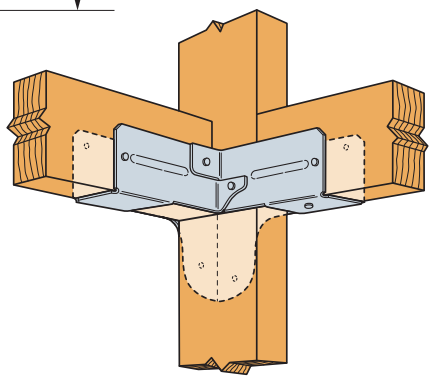
RTC2Z



SD #8x1¼



SD #9x1½



Typical RTC2Z Installation

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.

Model No.	Post Size	Joist Size	Fasteners (Total)		Allowable Downloads	
			Post	Joist	Floor (100)	Roof (125)
RTC2Z	2x4	2x	6-SD #8x1¼	6-SD #8x1¼	300	300
			6-SD #9x1½	6-SD #9x1½	710	875
					1025	1260

1. Allowable loads must be equally distributed on both joists.
2. Loads are for Doug Fir Larch.
3. SCREWS: SD#9x1½ = 0.131" dia. x 1½" long, SD#8x1.25 = 0.110" dia. x 1¼". See page 26 of 2013 *Wood Construction Connectors* catalog.

New Resource for DIYers

From a sturdy workbench or simple garage shelving to a custom home for Fido, the new Simpson Strong-Tie® DIY website features the project ideas, plans and product lists do-it-yourselfers need to tackle their next home improvement project. The website also includes useful information about how to use Simpson Strong-Tie connectors to repair fences and rejuvenate weak and wobbly household favorites.
Visit **www.diydoneright.com** and get building today!

Strong-Wall® SB Shearwall

Trimmable Shearwalls for Narrow Wall Spaces

Simpson Strong-Tie introduces the Strong-Wall® SB, a prefabricated wood shearwall that provides enhanced design flexibility and greater lateral-force resistance for a broad range of applications. In areas susceptible to seismic activity or high winds, the Strong-Wall SB shearwall provides structural support comparable to steel shearwalls in narrow panel widths. The design flexibility of the Strong-Wall SB panels enables them to be used in multi-story structures at garage portals and other large openings.

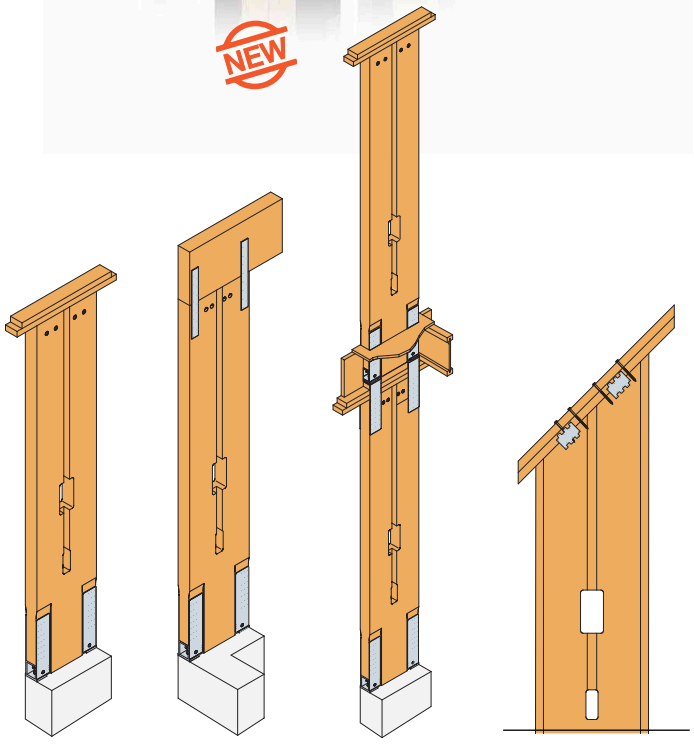
FEATURES:

- Field trimmable for custom applications and rake walls
- Code Listed – ICC-ES ESR-2652 and City of L.A. RR25730
- Provides easy-to-use fastening surfaces and drill zones

Strong-Wall® SB Shearwall Product Data

Model No.	W (in.)	H (in.)	Total Wall Weight (lbs.)
SWSB12x7	12	78	100
SWSB18x7	18	78	145
SWSB12x7.5	12	85½	110
SWSB18x7.5	18	85½	155
SWSB12x8	12	93¼	115
SWSB18x8	18	93¼	165
SWSB24x8	24	93¼	220
SWSB12x9	12	105¼	125
SWSB18x9	18	105¼	180
SWSB24x9	24	105¼	240
SWSB12x10	12	117¼	135
SWSB18x10	18	117¼	200
SWSB24x10	24	117¼	265
SWSB12x11	12	129¼	150
SWSB18x11	18	129¼	215
SWSB24x11	24	129¼	290
SWSB12x12	12	141¼	160
SWSB18x12	18	141¼	235
SWSB24x12	24	141¼	315
SWSB18x13	18	153¼	250
SWSB24x13	24	153¼	340
SWSB18x20	18	240	385
SWSB24x20	24	240	515

1. For heights not listed, order the next tallest panel and trim to fit. Minimum trimmed height for all panels is 74½".
2. All panels come with two pre-attached holdowns, two slotted hex nuts, two flat washers, Strong-Drive® SDS ¼" x 6¾" screws *(quantities based on panel width)* and installation instructions.
3. All panels are 3½" thick.



Standard Applications | **Portal Applications** | **Two-Story Stacked Applications** | **Rake-Wall Applications**

Anchor Kits (sold separately)

Required for all panels, except the top panels in two-story stacked applications.

Anchor Kit Specifications

Strong-Wall SB Model No.	Anchor Kit Model No.	Contents
SWSB12	SWSB-AK12	(1) Anchor Reinforcement Template (2) Bolt Collar (2) Plate Washer (6) Heavy Hex Nuts Installation Instructions
SWSB18	SWSB-AK18	
SWSB24	SWSB-AK24	

1. Flat anchor reinforcement templates are available in 12", 18" and 24" lengths for CMU and adhesive anchor applications.
2. Order high-strength threaded rod separately. Length is determined by Specifier.

For more information, download the *Strong-Wall® SB Shearwall* catalog at ***www.strongtie.com***.

Every day we work hard to earn your business, blending the talents of our people with the quality of our products and services to exceed your expectations. This is our pledge to you.

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This catalog addendum contains new Simpson Strong-Tie® products. **This catalog addendum is effective until December 31, 2014**. Use this edition as a current printed reference. Information on allowable loads and configurations is updated annually.

We post our literature on *www.strongtie.com*. Please visit our site and sign up for any information updates. Allowable loads in this addendum are for the described specific applications of properly installed products. Product modifications, improper loading or installation procedures, or deviations from recommended applications will affect connector allowable load-carrying capacities.

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