SIMPSON
Strong-Tie
®

WOOD CONSTRUCTION **CONNECTORS**

Canadian Limit States Design

C-C-CAN2015

GENUINE
Simpson Strong-Tie® Connectors

(800) 999-5099
www.strongtie.com

Our Commitment

For nearly 60 years, Simpson Strong-Tie has steadfastly served the needs of its customers. During that time, our commitment to leading the construction industry in research and development, product testing and customer service has never wavered.

Today, that promise continues to be delivered worldwide – from our manufacturing facilities to the jobsite. Our commitment to maintaining the highest standards of quality and service can be seen when we help educate engineers on applications and specifications, or when we answer questions from contractors or building officials or help train them on a proper installation. We're there to ensure our dealers get their questions answered and to help their customers receive the best service possible.

You can expect Simpson Strong-Tie to be there to assist you. For our more than 2,000 employees, it's not about doing business, it's about our commitment to your success.

WWW.TRICONTRUSS.CA

ALPHABETICAL INDEX

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

SUBJECT INDEX

BETTER BUILDING THROUGH EDUCATION

Simpson Strong-Tie is committed to training customers on the proper specification, installation and inspection of structural system solutions.

As part of this commitment, our regional training centres offer a selection of seminars for engineers, architects, dealers, contractors and inspectors. These dedicated training facilities offer opportunities for classroom instruction as well as chances for hands-on installation of Simpson Strong-Tie® products. Participants can earn professional development hours (PDH) through our registration with CSI, SEA, ICC, BIA, AIBO, ACIA and AIBD.

Simpson Strong-Tie is now a provider of IACET CEUs. We offer continuing education units to workshop participants that meet requirements.

To locate the Simpson Strong-Tie training centre nearest you and to obtain a schedule of seminars, call (800) 999-5099 or visit ***www.strongtie.com.***

INTRODUCTION

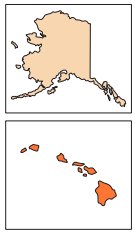
For nearly 60 years, Simpson Strong-Tie has focused on creating structural products that help people build safer and stronger homes and buildings. A leader in structural systems research and technology, Simpson Strong-Tie is one of the largest suppliers of structural building products in the world. The 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:

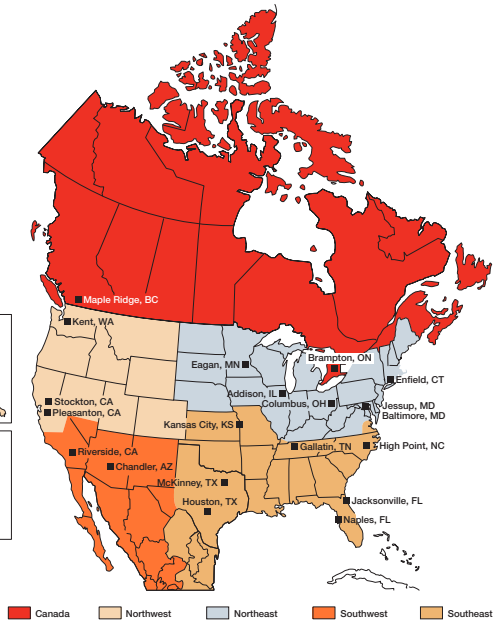
- Structural connectors for wood and cold-formed-steel construction
- Strong-Wall® prefabricated shearwalls
- Strong Frame® moment frames
- Anchor Tiedown Systems (ATS) for multi-storey buildings
- Simpson Strong-Tie® anchors and fasteners for concrete and masonry
- Simpson Strong-Tie Fastening Systems
- Connectors for Cold-Formed Steel Curtainwalls

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 WWTA, OWTFA, QWTFA, AWTFA, WRLA, LBMAO, ABSDA, TPIC, PEO.





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

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 catalogue are you using? *(See the front cover for the catalogue 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.

USA and CANADA 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 2015

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 centre common jack.

See page 164 for more information.

HTHGQ Truss Girder Hanger

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

See page 168 for more information.

HHSUQ Heavy Severe-Skew Truss and SCL 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 range 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 146 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 96 for more information.

NEW PRODUCTS FOR 2015

Strong-Drive® 33° SCNR Ring-Shank Connector Nails

Simpson Strong-Tie® Strong-Drive® 33° SCNR Ring-Shank Connector Nails are designed to provide installers a pneumatically-driven alternative to bulk 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.

PPBZ Porch Base

The new PPBZ porch base now offers a simplified, one-time installation designed to support permanent porch framing throughout all stages of construction. This design eliminates the need for temporary vertical support and streamlines the subcontractor scheduling process while still providing adequate safety to enable full access for installers/inspectors.

See page 60 for more information.

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.

See page 150 for more information.

CPTZ Concealed Post Tie

This new concealed 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 dowels *(supplied)*. The standoff also reduces the potential for decay at post or column ends.

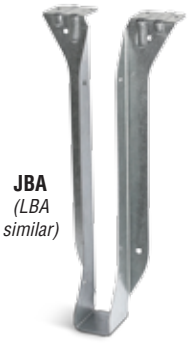
See page 59 for more information.

NEW PRODUCTS FOR 2015

PCZ/EPCZ Post Caps

The new PCZ/EPCZ post caps enable one size to accommodate several post sizes. With post and header flanges now in-line, one PCZ or EPCZ model can accommodate several 4x or 6x post sizes for a variety of lighter-duty applications, including patio covers, trellises and interior framing.

See page 67 for more information.



JBA
(LBA similar)

JBA and LBA Top-Flange Hangers

The next-generation version of the JB and LB top-flange hangers, respectively, the JBA and LBA provide higher loads to accommodate 2x10, 2x12 and 2x14 members. New nail locations allow for use with nailers. The 14 gauge LBA may be welded to steel headers.

See page 85 for more information.

DISCONTINUED PRODUCTS

Products that will be discontinued or replaced in 2015

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.

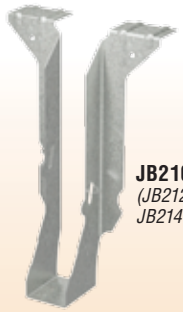
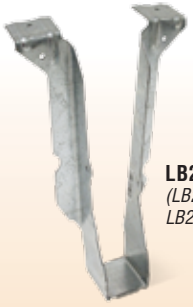
The table below lists products that are no longer included in the *Wood Construction Connectors* catalogue as well as the products recommended to replace them. While technical information for discontinued products will be maintained on our website for a number of months, Simpson Strong-Tie asks that 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 2014 and others will be phased out of production in 2015.

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-C-CAN-2015 Page #)*	
MUDSILL ANCHORS			
 **MA6** *(MA4 similar)*	MA4 MA6 *(No longer available)*	MASA MAB *(pages 44, 46)*	 **MASA**  **MAB**
ANCHOR BOLTS			
 **SWAB⅞x18**	SWAB⅞x18 SWAB⅞x24 SWAB⅞x30 SWAB⅞x36 *(No longer available)*	PAB7-18 PAB7-24 PAB7-30 PAB7-36 *(page 43)*	 **PAB**
RIGID TIE™			
 **RTC24** *(RTC24Z similar)*	RTC24 RTC24Z *(Avail. until 06/14/2015)*	RTC2Z *(page 216)*	 **RTC2Z**

DISCONTINUED PRODUCTS

SIMPSON Strong-Tie®

DISCONTINUED PRODUCT		REPLACEMENT PRODUCT *(C-C-CAN-2015 Page #)*	
HANGERS			
 **JB210** *(JB212 and JB214 similar)*	JB210 *(Limited availability)*	JB210A *(page 85)*	 **JB214A** *(JB210A and JB212A similar)*
	JB212 *(Limited availability)*	JB212A *(page 85)*	
	JB214 *(Limited availability)*	JB214A *(page 85)*	
 **LB210** *(LB212 and LB214 similar)*	LB210 *(Limited availability)*	LB210A *(page 85)*	 **LB214A** *(LB210A and LB212A similar)*
	LB212 *(Limited availability)*	LB212A *(page 85)*	
	LB214 *(Limited availability)*	LB214A *(page 85)*	
 **ITS2.56/11.25** *(Others similar)*	ITS1.56/9.5 ITS1.56/11.88	LT159 LT151188 *(page 118)*	 **LT159** *(LT151188 similar)*  **LBV2.56/9.25** *(Others similar)*
	ITS2.56/9.25 *(Available until 12/31/2015)*	LBV2.56/9.25 *(page 122)*	
 **IUS2.56/9.25**	ITS2.56/11.25 *(No availability)*	LBV2.56/11.25 *(page 122)*	
 **HIT 35 Series**	ITS3.56/9.25/11.25 *(Available until 12/31/2015)*	LBV3.56/9.25/11.25 *(page 122)*	 **LF259**  **MIT 35 Series**
	IUS2.56/9.25 *(No availability)*	LF259 *(page 107)*	
	HIT 35 Series *(No availability)*	MIT 35 Series *(page 118)*	
TWIST STRAP			
 **MTS28C**  **HTS28**	MTS28C *(Available until 12/31/2015)*	MTS24C, ... 30C *(page 186)*	 **MTS24C** *(Others similar)*  **HTS30** *(Others similar)*
	HTS28 *(Limited availability)*	HTS24, ... 30 *(page 186)*	

DISCONTINUED PRODUCTS

SIMPSON Strong-Tie®

DISCONTINUED PRODUCT		REPLACEMENT PRODUCT *(C-C-CAN-2015 Page #)*
POST CAPS / BASES		
 **ABE Series**	ABE Series	ABW Series *(page 57)*
	AC4R, AC6R *(Limited availability)*	AC4RZ, AC6RZ *(page 66)*
	PBS44R, 66R *(Limited availability)*	CB44R, 66R *(page 63)*
 **AC4R** *(AC6R similar)*	PC44, 44-16; 46, 46-16; 48, 48-16 *(Available until 12/31/2015)*	PC4Z *(page 67)*
	PC44R, 44R-16; 46R, 46R-16 *(Available until 12/31/2015)*	PC4RZ *(page 67)*
	PC64, 64-16; 66, 66-16; 68 *(Available until 12/31/2015)*	PC6Z *(page 67)*
 **PBS44R** *(PBS66R similar)*	PC64R, 64R-16; 66R, 66R-16 *(Available until 12/31/2015)*	PC6RZ *(page 67)*
	PC84, 86, 88 *(Available until 12/31/2015)*	PC8Z *(page 67)*
	PC88R *(Available until 12/31/2015)*	PC8RZ *(page 67)*
 **PC66-16** *(Others similar)*	EPC44,44-16; 46. 46-16; 48, 48-16 *(Available until 12/31/2015)*	EPC4Z *(page 67)*
	EPC44R, 44R-16; 46R, 46R-16 *(Available until 12/31/2015)*	EPC4RZ *(page 67)*
	EPC64, 64-16; 66, 66-16; 68 *(Available until 12/31/2015)*	EPC6Z *(page 67)*
 **EPC66-16** *(Others similar)*	EPC64R, 64R-16; 66R, 66R-16 *(Available until 12/31/2015)*	EPC6RZ *(page 67)*
	EPC84, 86, 88 *(Available until 12/31/2015)*	EPC8Z *(page 67)*
	EPC88R *(Available until 12/31/2015)*	EPC8RZ *(page 67)*
PLATED TRUSS CONNECTORS		
 **TBE4Z** *(TBE6Z similar)*	TBE4Z	TBE4 *(page 176)*
	TBE6Z	TBE6 *(page 176)*


ABW Series


AC4RZ *(AC6RZ similar)*


CB66R *(CB44R similar)*


PC4Z *(Others similar)*


EPC6Z *(Others similar)*


TBE4 *(TBE6 similar)*

HOW TO USE THIS CATALOGUE

- **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 catalogue are indicated in red.

HOW WE DETERMINE FACTORED RESISTANCES

Factored resistances in this catalogue 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.

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 factored resistances in this catalogue is not done on connection systems in buildings. Testing is conducted under the supervision of an independent laboratory.

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

VALUE ENGINEERED

This icon indicates a product that is preferable to similar connectors because of a) easier installation, b) higher capacities, 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 pages 14-17 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 Connector screw. See page 24 for more information.

CATALOGUE DEFINITION:

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

Factored Resistances: The maximum resistance 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.

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

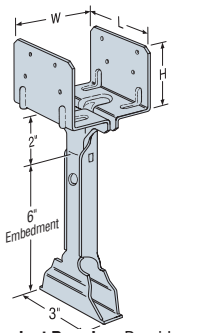
Nails: This shows the fastener quantity and type required to achieve the table values.

Uplift Lateral Down

Load Duration: Assumed duration factor used to determine the factored resistance.

Model No.	W (in)	L (in)	H (in)	Nails	Factored Resistance D.Fir-L Uplift (K_D=1.15)	F_1 (K_D=1.15)	F_2 (K_D=1.15)	Down (K_D=1.00)
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
EPB44A	3⁹⁄₁₆	3	2⅜	8-16d	1965	1340	1530	4370
					8.74	5.96	6.81	19.44

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



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

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

All installations should be designed only in accordance with the factored resistances values set forth in this catalogue.

CORROSION INFORMATION

Understanding the Corrosion Issue

Many environments and materials can cause corrosion including ocean salt air, fire-retardants, fumes, fertilizers, preservative-treated wood, de-icing salts, dissimilar metals and more. Metal connectors, fasteners and anchors could corrode and lose load-carrying capacity when installed in corrosive environments or when installed in contact with corrosive materials.

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

It is common to see some corrosion in outdoor applications. Even stainless steel can corrode. The presence of some corrosion does not mean that load capacity has been affected or that failure is imminent. If significant corrosion is apparent or suspected, then the wood, fasteners and connectors should be inspected by a qualified engineer or qualified inspector. Replacement of affected components may be appropriate.

Some wood-preservative chemicals and fire retardant chemicals and retentions pose increased corrosion potential and are more corrosive to steel connectors and fasteners than others. Testing by Simpson Strong-Tie has shown that ACQ-Type D is more corrosive than Copper Azole Type C, Micronized Copper Azole, and CCA-C. At the same time, others have shown that the inorganic boron treatment chemicals, specifically SBX-DOT, is less corrosive than CCA-C.

Due to the many different chemical treatment formulations, chemical retention levels, moisture conditions and regional formulation variants, selection of fasteners 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 (***www.strongtie.com/info***) and also by reviewing information, literature and evaluation reports published by others.

Corrosion Information

Treatment Use Categories and Exposure Conditions

The American Wood Protection Association (AWPA) and the Canadian Standards Association (CSA) identify several Use Category designations (UC) for wood treatment chemicals that are based on protection of the wood material; the Use Categories are based on service conditions and environments and agents of deterioration. At the same time, the building codes require specific corrosion resistance for fasteners that are in contact with chemically treated wood, and the corrosion resistance is independent of the service environments and treatments that are the basis of the AWPA and CSA Use Categories. From the building code perspective, fastener corrosion resistance is provided by hot-dip galvanization applied following ASTM A153, Class D or a corrosion resistant base metal, such as stainless steel, silicon bronze or copper regardless of exposure.

The International Code Council – Evaluation Service (ICC-ES) implemented AC257 as a method to evaluate alternate corrosion resistance mechanisms for fasteners used in wood construction where hot-dip galvanization (ASTM A153, Class D) is used as the benchmark performance. Under AC257, fastener corrosion resistance is qualified for one or more of four exposure conditions with no salt exposure: (1) treated wood in dry-service; (2) clean wood in a salt air dry-service environment; (3) treated wood in a wet-service condition; with no salt exposure; and (4) general use with no limitations.

The Use Category system (UCS) employed in the CAN/CSA O80 Series of Standards is based on the UCS developed by AWPA, with minor differences that account for treated wood production and use patterns in Canada. Some of the categories listed by AWPA are not included in CAN/CSA O80 due to regional use and/or other factors.

Use Category System (UCS)	
CAN/CSA O80.1	**AWPA U1-13**
UC1	UC1
UC2	UC2
UC3.1	UC3A
UC3.2	UC3B
UC4.1	UC4A
UC4.2	UC4B
UC5A	UC5A
UCF.1	UCFA

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
Electrocoating (E-Coat™)	Electrocoating utilizes electrical current to deposit the coating material on the fastener. After application, the coating is cured in an oven. Electrocoating provides a minimum amount of corrosion protection and is recommended for dry, non-corrosive applications only.	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
HOT DIP HDG GALVANIZED	Products are hot-dip galvanized after fabrication (14 ga. and thicker). The coating weight increases with material thickness. The minimum average coating weight is 2.0 oz./ft^2 *(per ASTM A123 total both sides)*. These products require hot-dip galvanized fasteners *(fasteners which meet the specifications of ASTM A153)*. Anchor bolts are hot-dip galvanized per ASTM F2329.	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	Simpson Strong-Tie Strong-Drive® SD Connector screw is 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	Simpson Strong-Tie Strong-Drive SDS Heavy-Duty Connector screw is manufactured with two different finishes that together provide a level of corrosion protection that equals that provided by the previous HDG coating.	Medium
SS300 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/Severe

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

CORROSION INFORMATION

Simpson Strong-Tie General Recommendations

Simpson Strong-Tie has evaluated the AWPA Use Categories (AWPA U1-13) and the ICC-ES, AC257 Exposure Conditions and developed from that evaluation a set of Corrosion Resistance Recommendations. These recommendations address the coating systems and materials used by Simpson Strong-Tie for connector and fastener products.

Dry-service *(or damp-service)* environments lead to wood moisture contents less than or equal to 19%. The corrosion potential, even in chemically treated wood, is reduced in these conditions. These conditions are typical of AWPA UC1 and UC2 for wood treatment and AC257 Exposure Condition 1. See the Corrosion Resistance Classification Table for the Simpson Strong-Tie assessment of corrosion needs in these conditions. The AC257 Exposure Condition 2 reflects the presence of air-borne salt in a dry-service environment and corrosion hazard to exposed metal surfaces; it does not include effects of treatment chemicals.

Outdoor environments are generally more corrosive to steel either because the moisture exposure is elevated *(greater than 19%)* and/or the treatment chemical retention level is higher than for interior service. The AWPA classifies exterior above ground treatments as Use Categories UC3 (A and B) depending on moisture run-off; and for ground-contact levels of protection, it has Use Categories UC4 (A-C). ICC-ES considers the exterior exposure to be limited by the type of chemicals and retention level of the chemicals in the qualification testing and whether the exposure includes salt exposure. In general, The AC257 Exposure Condition 3 includes AWPA Use Categories UC1 *(interior dry)* to UC4A *(exterior ground contact, general use)*.

Types 316/305/304 stainless steel, copper, silicon bronze and hot-dip galvanized (Class-C) are the most effective protection against corrosion risk, where Type 316 is the best choice for salt marine and chloride containing environments regardless of treatment chemicals or wood species. If you choose to use hot-dip galvanized (Class-D), mechanically galvanized (C3, N2000, or Class 55), double-barrier or Quik Guard coated fasteners on outdoor projects *(e.g., a deck)*, you should periodically inspect the fasteners or have a professional inspection performed, and regular maintenance is a good practice. See the Corrosion Resistance Classifications Table for the Simpson Strong-Tie assessment of the corrosion resistance associated with materials and coatings and an appropriate level of corrosion resistance for various environments.

Due to the many variables involved, Simpson Strong-Tie cannot provide estimates of service life of connectors and fasteners. We suggest that all users and specifiers obtain recommendations on corrosion from the treated wood supplier or for the type of wood used. As long as Simpson Strong-Tie recommendations are followed, Simpson Strong-Tie stands behind its product performance and our standard warranty applies (page 21).

Simpson Strong-Tie does not recommend painting stainless steel fasteners or hardware. The reason behind this recommendation is that sometimes painting can facilitate corrosion. Stainless steel is “stainless” because it forms a protective chromium oxide film on the surface by passive oxidation with air. The paint film on the stainless steel surface may be imperfect or it can be injured during service, and in either case the metal may be exposed. Microscopic-sized film imperfections and scratches facilitate collection of dirt and water that can be stagnant and degrade or block the passive formation of the protective chromium oxide film. When this happens, crevice corrosion can initiate. Crevice corrosion eventually becomes visible as a brown stain or as red rust. This is the reason that painting usually does not improve corrosion resistance of stainless steel.

Guidelines for Selecting Corrosion-Resistant Connectors and Fasteners

Evaluate the Application

Consider the importance of the connection.

Evaluate the Exposure

Consider these moisture and treatment chemical exposure conditions:

- Dry service: Generally INTERIOR applications and includes wall and ceiling cavities, raised floor applications in enclosed buildings that have been designed to prevent condensation and exposure to other sources of moisture. Prolonged exposure during construction should also be considered, as this may constitute a Wet Service or Elevated Service Condition.
- Wet Service: Generally EXTERIOR construction in conditions other than Elevated Service. These include Exterior Protected and Exposed and General Use Ground Contact as described by the AWPA UC4A.
- Elevated Service: Includes fumes, fertilizers, soil, some preservative-treated wood (AWPA UC4B and UC4C), industrial zones, acid rain and other corrosive elements.
- Uncertain: Unknown exposure, materials, or treatment chemicals.
- Ocean/Water Front: Marine environments that include airborne chlorides and some splash. Environments with de-icing salts are included.
- Treatment Chemicals: See AWPA Use Category Designations. The preservative-treated wood supplier should provide all of the pertinent information about the wood being used. The information should include Use Category Designation, wood species group, wood treatment chemical, and chemical retention. See appropriate evaluation reports for corrosion effects of treatment chemicals and fastener corrosion resistance recommendations.

Use the Simpson Strong-Tie® Corrosion Classification Table

If the treatment chemical information is incomplete, Simpson Strong-Tie recommends the use of a 300 series stainless steel product. Also if the treatment chemical is not shown in the Corrosion Classification Table, then Simpson Strong-Tie has not evaluated it and cannot make any recommendations other than the use of coatings and materials in the Severe category. Manufacturers may independently provide test results of other product information; Simpson Strong-Tie expresses no opinion regarding such information.

CORROSION INFORMATION

CORROSION RESISTANCE RECOMMENDATIONS			
Low	**Medium**	**High**	**Severe**
FASTENERS			
Phosphate (gray, black), Clear (bright) zinc (ASTM F1941), Heavy electro-galvanized (ASTM A641-Class 1), Yellow zinc (ASTM F1941), Electrocoat (E-coat), Type 410 stainless steel	Mechanically galvanized (AS 3566.2-C3, N2000, ASTM B695-Class 55), Quik Guard® coating, Hot-dip galvanized (ASTM A153-Class D), Double-barrier coating, Type 410 stainless steel with protective top coat	Type 304 stainless steel, Type 305 stainless steel	Type 316 stainless steel, Hot-dip galvanized (ASTM A153-Class C), Silicon bronze, Copper
CONNECTORS			
Simpson Strong-Tie® gray paint Powder coating Standard G90 zinc coating	ZMAX® (G185) Hot-dip galvanized (ASTM A153 - Class D)	Type 316L stainless steel	Type 316L stainless steel

CORROSION RESISTANCE CLASSIFICATIONS							
Environment	**Material To Be Fastened**						
	Untreated Wood or Other Material	**Preservative-Treated Wood**					**FRT Wood**
		SBX-DOT Zinc Borate	**Chemical Retention ≤ AWPA, UC4A**	**Chemical Retention > AWPA, UC4A**	**ACZA**	**Other or Uncertain**	
Dry Service	Low	Low	Low	High	High	High	Med
Wet Service	Med	N/A	Med	High	High	High	High
Elevated Service	High	N/A	Severe	Severe	High	Severe	N/A
Uncertain	High	High	High	Severe	High	Severe	High
Ocean/Water Front	Severe	N/A	Severe	Severe	Severe	Severe	N/A

1. These are general guidelines that may not consider all application criteria. Refer to product specific information for additional guidance.
2. Type 316/305/304 stainless steel products are recommended where preservative-treated wood used in ground contact has a chemical retention level equal to or greater than those for AWPA UC4A: CA-C, 0.1 pcf; CA-B, 0.21 pcf; micronized CA, 0.20 pcf; ACQ-Type D (or C), 0.40 pcf.
3. Testing by Simpson Strong-Tie following ICC-ES AC257 showed that mechanical galvanization (ASTM B695, Class 55), Quik Guard coating, and Double Barrier coating will provide corrosion resistance equivalent to hot-dip galvanization (ASTM A153, Class D) in contact with chemically treated wood in dry service and wet service exposures (AWPA UC1-UC4A, ICC-ES AC257 Exposure Conditions 1 and 3) and will perform adequately subject to regular maintenance and periodic inspection.
4. Mechanical galvanizations C3 and N2000 should not be used in conditions that would be more corrosive than AWPA UC3A (exterior, above ground, rapid water run off).
5. If uncertain about Use Category, treatment chemical, or environment, use Types 316/305/304 stainless steel, silicon bronze or copper.
6. Some treated wood may have excess surface chemicals making it potentially more corrosive than lower retentions. If this condition is suspected, use Type 316/305/304 stainless steel, silicon bronze, or copper fasteners.
7. Type 316 stainless steel, silicon bronze, and copper fasteners are the best recommendation for ocean salt-air and other chloride-containing environments. Hot-dip galvanized fasteners with at least ASTM A153, Class C protection can also be an alternate for some applications in environments with ocean air and/or elevated wood moisture content.

Dry Service (Interior)

Wet Service (Exterior)

Ocean/Water Front

IMPORTANT INFORMATION & GENERAL NOTES

CODES

Simpson Strong-Tie® connectors are recognized by most code agencies. Agencies that recognize some or all of our products include CCMC, ICC-ES; the City of Los Angeles, California; State of Florida; and IAPMO Evaluation Service.

The factored resistances shown in this catalogue comply with the National Building Code of Canada (NBC 2010 and NBC 2015).

Department of State Architecture, State of California: The DSA of California is no longer issuing Product Acceptance Reports on wood to wood connections – joist hangers. AC25-2, a new acceptance criteria drafted by the DSA, specifically states, companies with current ICBO code reports and/or third party witnessed testing will be recognized as acceptable structural connections for DSA specified projects. Further to AC25-2, the DSA is requiring that those companies who are supplying the aforementioned products to State specified projects be ISO9001 certified.

Call Simpson Strong-Tie or visit the code agencies' web sites for the current evaluation reports if recognition or approval is to be based on the report. Specific reductions and restrictions may be required by other code agencies.

CCMC—Canadian Construction Materials Centre: Nos. CCMC 12862-R, 12863-R.

International Code Council:

NER—209, 393, 413, 432, 443, 499, 694.

ER—1211, 4935, 5313, 5349, 5357, 5655, 5672, 5708, 5709, 5952.

ESR—1622, 1866, 2105, 2203, 2236, 2330, 2549, 2551, 2552, 2553, 2554, 2555, 2604, 2605, 2606, 2607, 2608, 2611, 2613, 2614, 2615, 2616, 2877, 2920, 3046.

City of Los Angeles, CA—Nos. RR 25711, RR 25712, RR 25713, RR 25714, RR 25716, RR 25718, RR 25719, RR 25720, RR 25725, RR 25726, RR 25800, RR 25801, RR 25802, RR 25803, RR 25804, RR 25806, RR 25807, RR 25814, RR 25818, RR 25827, RR 25828, RR 25851

State of Florida—FL9589, 10441, 10444, 10446, 10447, 10456, 10531, 10655, 10667, 10849, 10852, 10856, 10854, 10860, 10861, 10864, 10865, 10866, 11166, 11169, 11468, 11470, 11473, 11478, 11496, 12708, 13326, 13628, 13904, 13975, 14101.

IAPMO Evaluation Service:

ER—112, 130, 143, 192

TERMS & CONDITIONS OF SALE

PRODUCT USE

Products in this catalogue 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 installation procedures should only be made by a qualified Designer. The performance of such modified products or altered installation procedures is the sole responsibility of the Designer.

INDEMNITY

Customers or Designers modifying products or installation procedures, or designing non-catalogue 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-catalogue or modified products.

NON-CATALOGUE AND MODIFIED PRODUCTS

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

Non-catalogue products designed by the customer 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-catalogue products. Simpson Strong-Tie provides no warranty, express or implied, on non-catalogue products.

F.O.B. Shipping Point unless otherwise specified.

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) 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.

IMPORTANT INFORMATION & GENERAL NOTES

FACTORED RESISTANCE DETERMINATION METHOD

The factored resistance is the maximum factored static load that can be imposed on a connection. Factored resistances in this catalogue are determined using calculations and/or one or more of the following methods: static load tests in wood assemblies; static load tests in steel jigs; static load tests of products embedded in concrete or masonry. Some tests include only portions of a product such as purlin anchor tests, where only the embedded hook is tested, not the nailed or bolted section of the strap, which is calculated.

Testing to determine factored resistances in this catalogue is not done on connection systems in buildings. Testing is conducted under the supervision of an independent laboratory. Some factored resistances are determined using calculations without testing. Tested and calculated factored resistances are determined in accordance with the appropriate material design standards, including CSA 086-14, CSA S16-14, CSA S136-12 and CSA A23.3-14.

For detailed information regarding how Simpson Strong-Tie tests specific products, contact your Simpson Strong-Tie representative or the company.

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, coating, and weldability. Contact Simpson Strong-Tie for steel information on specific products.

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

d. Unless otherwise noted, bolts and nails cannot be combined. 8d (0.131x2½"), 10d (0.148x3") and 16d (0.162x3½") specify common nails that meet the requirement of CSA B111. When a shorter nail is specified, it will be noted *(for example 8dx1½")*. Refer to page 22 for more nail info.

e. Unless otherwise noted, factored resistances are for Douglas Fir-Larch under continuously dry conditions (K_S=1.00). Factored resistances for other species or conditions must be adjusted according to CSA O86-14.

The following material properties were used to generate the resistances in this catalogue in accordance with CSA O86-14. For LVL and other engineered wood products verify with the manufacturer that their material properties meet or exceed the values shown in the table below.

Species	ϕ F_{cp}	Specific Gravity
Douglas Fir-Larch (D.Fir-L)	812 psi (5.60 MPa)	0.49
Spruce-Pine-Fir (S-P-F)	615 psi (4.24 MPa)	0.42
Hem-Fir (HF)	533 psi (3.68 MPa)	0.46
D.Fir-L Glulam	812 psi (5.60 MPa)	0.49
Spruce-Pine Glulam	672 psi (4.64 MPa)	0.44
LVL	1092 psi (7.53 MPa)	0.50
Parallam® PSL	1092 psi (7.53 MPa)	0.50
LSL (E=1.3x10^6)	992 psi (6.84 MPa)	0.50
LSL (E>1.5x10^6)	1092 psi (7.53 MPa)	0.50

f. Simpson Strong-Tie Company Inc. will manufacture non-catalogue 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 gauge (0.179"), and 3 gauge (0.239"), respectively. The minimum yield and tensile strengths are 33 ksi and 52 ksi, respectively.

g. All references to bolts or machine bolts (MBs) are for structural quality through bolts equal to or better than American Society of Testing and Materials ASTM Standard A307, Grade A or Society of Automotive Engineers standard SAEJ429, Grade 2. RFB is A307, Grade C; SSTB is ASTM A36.

h. 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.

i. A fastener that splits the wood will not take the factored 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 0.75 of the nail diameter. Use a 5⁄32" bit for Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws and a 3⁄32" bit for Strong-Drive SD9/SD10 Connector screws.

j. 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 catalogue, 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.

k. 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.

l. 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.

m. Do Not Overload. Do not exceed catalogue factored resistances, which would jeopardize the connection.

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

o. Hanger Options – some combinations of 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 tabulated factored resistance for the non-modified hanger, and adjust as indicated. Gauge may vary from that specified depending on the manufacturing process used. U and W hangers normally have single stirrups; occasionally, the seat may be welded. B, GLT, HGLT, HW, LBV, W and WNP hangers for sloped seat installations are assumed backed. To order a custom non-backed hanger, contact the Simpson Strong-Tie.

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 catalogue 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 tendancy to crack when welded. Cracked steel will not carry load and must be replaced.

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. Some products require SAE narrow washers (N) to fit in a tight space and are noted accordingly.

IMPORTANT INFORMATION & GENERAL NOTES

GENERAL INSTRUCTIONS FOR THE DESIGNER

a. Factored resistances for hangers are determined by a static load test resulting in not more than a ⅛" (3mm) deflection of the joist relative to the header.

b. Factored resistances for more than one direction for a single connection cannot be added together. A factored load which can be divided into components in the directions given must be evaluated as follows:

Factored Uplift/Factored Uplift Resistance + Factored Parallel to Plate / Factored Parallel to Plate Resistance + Factored Perpendicular to Plate / Factored Perpendicular to Plate Resistance < 1.0.

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

c. Factored resistances are based on CSA O86-14 unless otherwise specified.

d. Load Duration Factor, K_D as specified by CSA O86-14 is as follows:

Standard term (K_D = 1.00) – applies to all roof and floor factored resistances and is designated as "Normal" in tables.

Short term (K_D = 1.15) – applies to all wind and seismic factored resistances. Other factored resistance values, based on load durations or special conditions, may govern in certain geographic areas and may be used where applicable, up to the maximum tabulated factored resistance. Load duration increases are only applied if the factor of safety can be maintained.

e. Wood shear is not considered in the factored resistances given; reduce factored resistances when wood shear is limiting.

f. 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 factored resistances based on reliable published testing data or calculations. The Engineer/ Designer of Record should evaluate and give written approval for substitution prior to installation."

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

h. Some catalogue illustrations show connections that could cause tension stresses perpendicular to grain or bending of the wood during loading if not sufficiently reinforced. In this case, mechanical reinforcement should be considered.

i. Simpson Strong-Tie recommends that hanger height be at least 60% of joist height for stability.

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

k. 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.

l. Holdown and Tension Tie capacities are based on installations with an anchor rod length of 6" from the concrete to top of holdown seat. These products may be raised to any height with consideration of the increased deflection due to additional rod elongation. For cases where the anchor rod 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 rod offset of 1½". See "General Instructions for the Installer" *(page 21 note q)*.

m. Throughout the catalogue 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.

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 catalogue. Incorrect fastener quantity, size, placement, type, material, or coating may cause the connection to fail. Prior to using a particular fastener, please consult the Fastener Guide in this catalogue.
- 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.
- 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.

b. Fill all fastener holes as specified in the installation instructions for that product. Refer to Simpson Strong-Tie Fastener Guide for the requirements of the various shaped fastener holes.

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 catalogue.

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

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" (1 mm) and no more than a maximum of 1/16" (2 mm) larger than the bolt diameter (per 12.4.1.2 CSA 086-14).

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 CSA W59. 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 ⅛" (3 mm) per ASTM D1761 and ASTM D7147 test standards.

IMPORTANT INFORMATION & GENERAL NOTES

GENERAL INSTRUCTIONS FOR THE INSTALLER (cont.)

p. 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.

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 centreline *(as defined on pages 49 to 56 to maximum of 18")*. 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". Raised holdown height is measured from the top of concrete to the top of the holdown bearing plate.

r. Strong-Drive® Screws are permitted to be installed through metal truss plates as approved by the Truss Designer *(pre-drilling required through the plate using a maximum of a 5⁄32" bit)*.

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 catalogue 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 catalogue.

w. When bolts are used, standard cut washers must be placed between the wood and the nut or the wood and the head when there is no steel between. (see 12.2.2.4 – CSA O86-14)

LIMITED WARRANTY

Simpson Strong-Tie Company Inc. warrants catalogue 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 catalogue 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 catalogue, or to non-catalogue 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 catalogue. Properly-installed Simpson Strong-Tie products will perform in accordance with the specifications set forth in the applicable Simpson Strong-Tie catalogue. Additional performance limitations for specific products may be listed on the applicable catalogue 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 catalogue 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.

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°

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.

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°

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

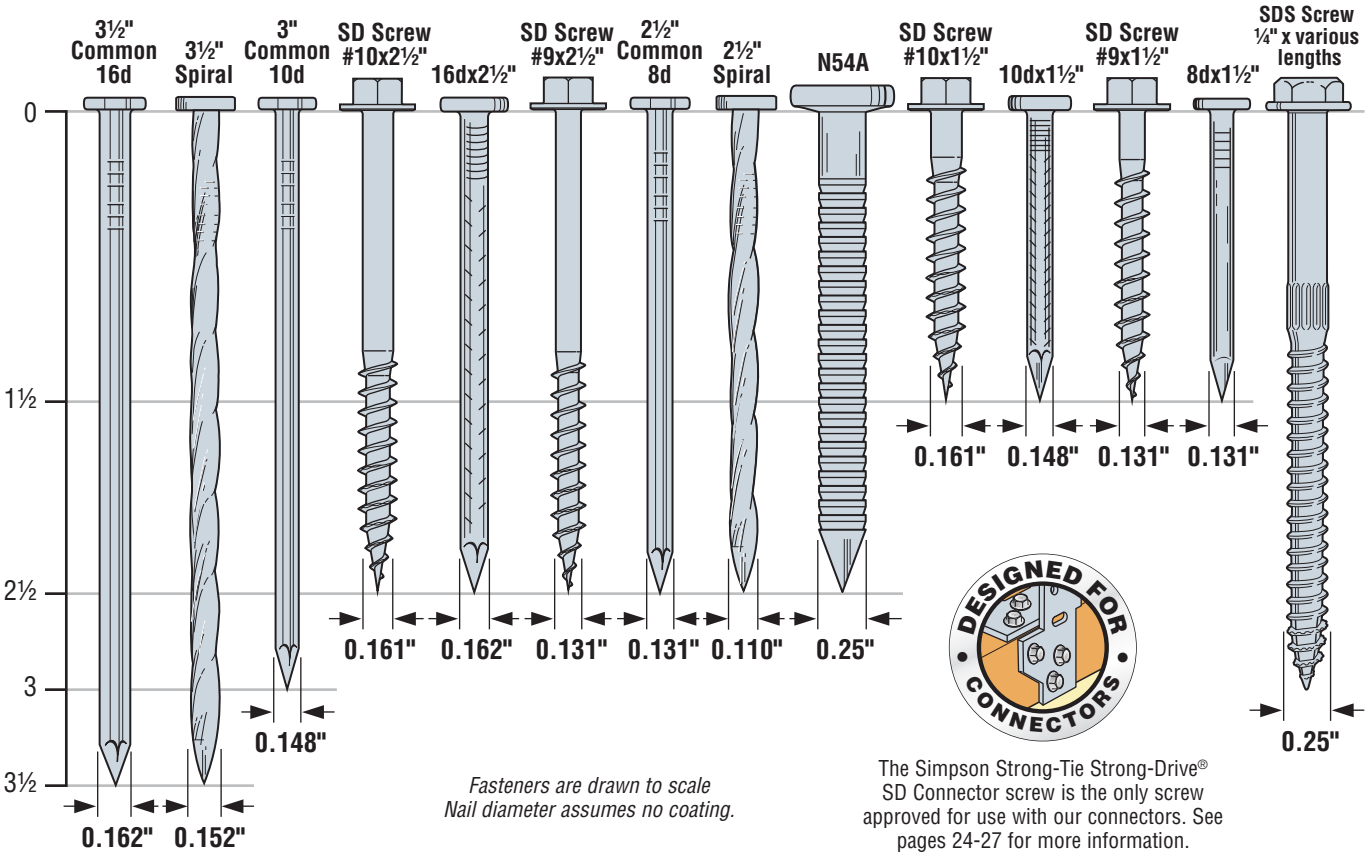
Steel thickness varies according to mill standards.

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 values. 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.



Fasteners are drawn to scale
Nail diameter assumes no coating.

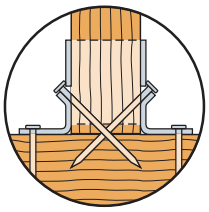
The Simpson Strong-Tie Strong-Drive® SD Connector screw is the only screw approved for use with our connectors. See pages 24-27 for more information.

NAIL DESIGN INFORMATION

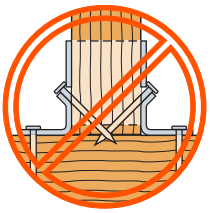
In some cases it is desirable to install Simpson Strong-Tie face mount joist hangers and straight straps with nails that are a different type or size than what is called out in the load table. In these cases these reduction factors must be applied to the factored resistances listed for the connector.

Resistance Adjustment Factors for Optional Nails Used with Face Mount Hangers and Straight Straps

Specified Catalogue Nail	Replacement Nail	Face Mount Hangers	Straight Straps
16d common (0.162"x3½")	10d common (0.148"x3")	0.83	0.83
	12d common (0.148"x3¼")		
16d common (0.162"x3½")	16dx2½" (0.162"x2½")	1.00	1.00
16d common (0.162"x3½")	10dx1½" (0.148"x1½")	0.64	0.77
16d common (0.162"x3½")	16d spiral (0.152"x3½")	0.91	0.91
16d common (0.162"x3½")	10d spiral (0.122"x3")	0.61	0.61
	12d spiral (0.122"x3¼")		
10d common (0.148"x3")	10dx2½" (0.148"x2½")	0.85	1.00
10d common (0.148"x3")	8d common (0.131"x2½")	0.80	0.80
10d common (0.148"x3")	10dx1½" (0.148"x1½")	0.77	0.92
10d common (0.148"x3")	10d spiral (0.122"x3")	0.74	0.74
8d common (0.131"x2½")	8dx1½" (0.131"x1½")	0.85	0.98
8d common (0.131"x2½")	8d spiral (0.110"x2½")	0.64	0.75



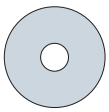
Double shear nailing should use full length common nails



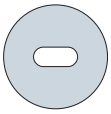
Shorter nails may not be used as double shear nails

1. Resistance 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 catalogue, except as noted in the footnotes below.
2. Some products have been tested specifically with alternate fasteners and have 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 230-231, or steel thicker than 10 gauge.
4. Unless noted otherwise, 10dx1½", 10dx2½" or 16dx2½" nails may not be substituted for joist nails in double-shear hangers *(i.e. LUS, HUS, HHUS, HGUS)*. For applications involving pneumatic nails, refer to specific tool manufacturer technical bulletins.
5. Do not substitute 10dx1½" nails for face nails on slope and skew combinations or skewed only LSU and LSSU.
6. For straps installed over sheathing use a 2½" long nail minimum.

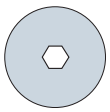
FASTENING IDENTIFICATION



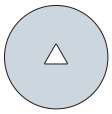
Round Holes
Purpose: to fasten a connector.
Fill Requirements: always fill, unless noted otherwise.



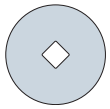
Obround Holes
Purpose: to make fastening a connector in a tight location easier.
Fill Requirements: always fill.



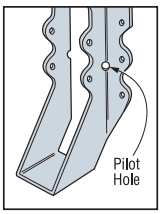
Hexagonal Holes
Purpose: to fasten a connector to concrete or masonry.
Fill Requirements: always fill when fastening a connector to concrete or masonry.



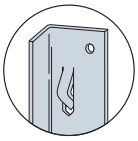
Triangular Holes
Purpose: to increase a connector's strength or to achieve Max strength.
Fill Requirements: when the Designer specifies Max nailing.



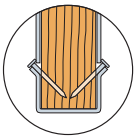
Diamond Holes
Purpose: to temporarily fasten a connector to make installing it easier.
Fill Requirements: none.



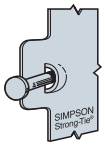
Pilot Holes
Tooling holes for manufacturing purposes. No fasteners required.



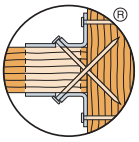
Speed Prongs
Used to temporarily position and secure the connector for easier and faster installation.



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.

STRONG-DRIVE® CONNECTOR 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, pages 20-21 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. Use HDG nails with ZMAX® and HDG products.
4. 16d sinker with GV finish is not acceptable for ZMAX or HDG applications.
5. HDG nails sold by Simpson Strong-Tie meet the specifications of ASTM A153. Stainless-steel nails are type 316 stainless.

STRONG-DRIVE® 33° SCNR RING-SHANK CONNECTOR NAILS

Simpson Strong-Tie® Strong-Drive® 33° SCNR Ring-Shank Connector Nails are 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 nail are available in 25-nail, paper-collated strips, and are compatible with a wide variety of popular pneumatic nailers.

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 capacities.
- 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 N8HDGPT4000	8d	0.131	1½
NEW 8DHDGPT2500	8d	0.131	2½
NEW N10HDGPT3000	10d	0.148	1½
NEW N10DHDGPT2500	10d	0.148	2½
NEW N16HDGPT2000	16d	0.162	2½
Bright			
NEW N8BRPT4000	8d	0.131	1½
NEW 8BRPT2500	8d	0.131	2½
NEW N10BRPT3000	10d	0.148	1½
NEW N10DBRPT2500	10d	0.148	2½

STRONG-DRIVE® SD CONNECTOR *Screw*

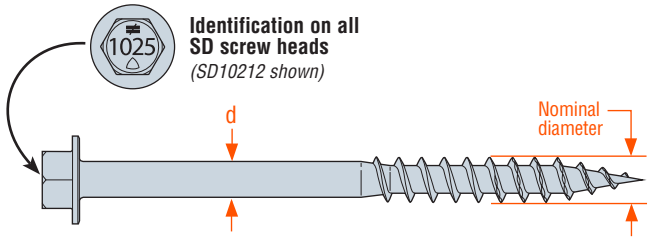
Simpson Strong-Tie offers the Strong-Drive® SD Connector screw for use with our connectors. Designed to replace nails in certain products, the load-rated Strong-Drive SD Connector screw has been tested and approved for use in many popular Simpson Strong-Tie® connectors. In certain applications screws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

The Strong-Drive SD 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.

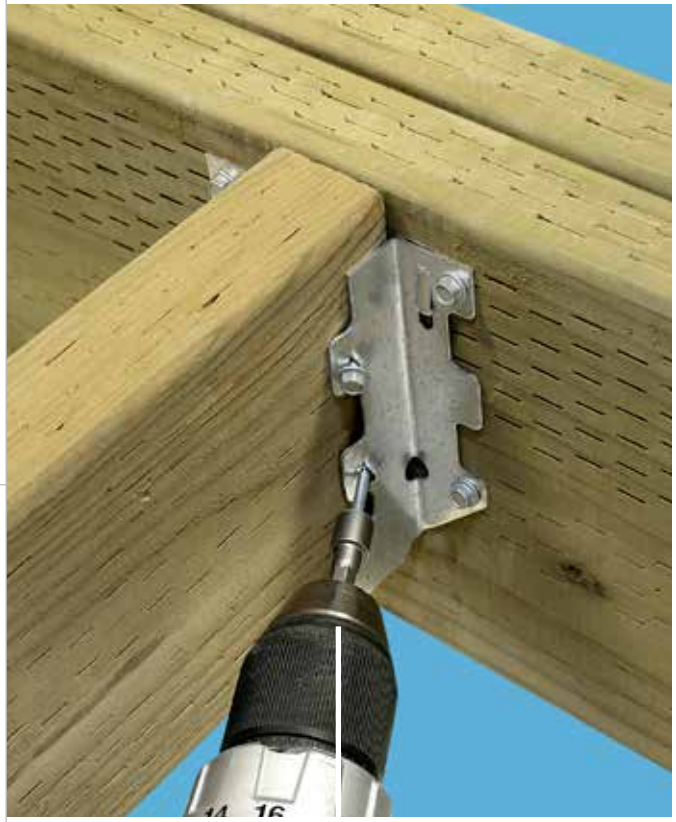
FEATURES:

- 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 capacity of the SD9 exceeds the capacity of a 10d common nail, while the single-fastener 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 *(see pages 14-17)*
- ¼" hex drive
- Head identification

MATERIAL: Heat-treated carbon steel
FINISH: Mechanically galvanized *(ASTM Class 55)*



Strong-Drive® SD10 CONNECTOR Screw
(Strong-Drive SD9 similar)
U.S. Patent 7,101,133



These products feature additional corrosion protection.

Product Information

Model No.	Shank Size (d)	Nominal Dia. (in)	Length (in)
SD9112R100	#9 (0.131")	0.177"	1½
SD9112R500			
SD9112MB			
SD9212R100			2½
SD9212R500			
SD9212MB			
SD10112R100	#10 (0.161")	0.200"	1½
SD10112R500			
SD10112MB			
SD10212R100			2½
SD10212R500			
SD10212MB			

Since testing of the Strong-Drive® SD 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/strongdrive**.

Model No.	Size (in)	Thread Length (in)	Factored Lateral Resistance (K_D = 1.00)							
			D.Fir-L				S-P-F			
			Side Plate				Side Plate			
			Wood		Steel		Wood		Steel	
			½"	1½"	20 ga	12 ga	½"	1½"	20 ga	12 ga
			lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
			kN	kN	kN	kN	kN	kN	kN	kN
SD9112	#9x1½	1	150	—	195	295	130	—	175	280
			0.67	—	0.87	1.31	0.58	—	0.78	1.25
SD9212	#9x2½	1	240	230	285	390	205	195	250	360
			1.07	1.02	1.27	1.73	0.91	0.87	1.11	1.60
SD10112	#10x1½	1	165	—	220	340	140	—	200	320
			0.73	—	0.98	1.51	0.62	—	0.89	1.42
SD10212	#10x2½	1	270	265	325	445	230	225	290	395
			1.20	1.18	1.45	1.98	1.02	1.00	1.29	1.76

1. Factored resistances shown have been developed in accordance with 12.11 CSA 086-14. Apply the adjustment factors K_D, K_{SF} and K_T as per 12.11.4.1 CSA 086-14 to the tabulated values shown when applicable. Resistances assume full penetration into the main member.
2. Factored resistances shown assume steel side plates with F_U = 45,000 psi (310 MPa).
3. Factored resistances shown for ½" wood side plates is applicable to structural panel side members (OSB, DFP and CSP) as per 12.11.4.2 CSA 086-14.
4. Widrawal values for Strong-Drive® SD9 and SD10 Connector screws may be calculated in accordance with 12.11.5.2 CSA 086-14.
5. Minimum spacing edge and end distances shall be in accordance with 12.9.2.1 CSA 086-14 using the nominal diameter.

STRONG-DRIVE® SDS HEAVY-DUTY CONNECTOR *Screw*

The Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screw 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 Strong-Drive SDS Heavy-Duty Connector screw is improved with a patented easy driving 4CUT™ tip and a corrosion resistant double-barrier coating.

The #8x1¼" SD8 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.

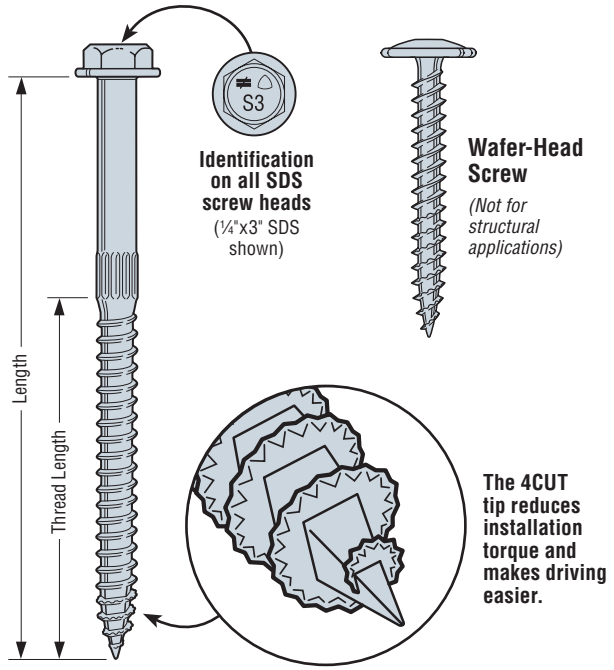
STRONG-DRIVE® FEATURES:

- 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 pages 14-17 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. Strong-Drive SDS Heavy-Duty Connector 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.

WARNING: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, the SD8 should be used in dry, interior, and noncorrosive environments only.



Strong-Drive® ¼"x3" SDS HEAVY-DUTY CONNECTOR Screw

U.S. Patent 6,109,850; 5,897,280; 7,101,133

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.	Size (in)	Thread Length (in)	Fasteners per Carton	D.Fir-L Factored Lateral Resistance (K_D = 1.00) Side Plate Wood 1½"	D.Fir-L Factored Lateral Resistance (K_D = 1.00) Side Plate Wood 1¾" SCL	D.Fir-L Factored Lateral Resistance (K_D = 1.00) Side Plate Steel 14 ga	D.Fir-L Factored Lateral Resistance (K_D = 1.00) Side Plate Steel 10 ga	D.Fir-L Factored Lateral Resistance (K_D = 1.00) Side Plate Steel 3 ga	D.Fir-L Factored Withdrawal Resistance (K_D = 1.15)	S-P-F Factored Lateral Resistance (K_D = 1.00) Side Plate Wood 1½"	S-P-F Factored Lateral Resistance (K_D = 1.00) Side Plate Wood 1¾" SCL	S-P-F Factored Lateral Resistance (K_D = 1.00) Side Plate Steel 14 ga	S-P-F Factored Lateral Resistance (K_D = 1.00) Side Plate Steel 10 ga	S-P-F Factored Lateral Resistance (K_D = 1.00) Side Plate Steel 3 ga	S-P-F Factored Withdrawal Resistance (K_D = 1.15)
				lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
				kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN
SD8x1.25	5/32 x 1¼	—	—	—	—				—	—	—				—
				—	—				—	—	—				—
SDS25112	¼ x 1½	1	1500	—	—	340	465	545	280	—	—	315	435	435	215
SDS25112SS				—	—	1.51	2.07	2.42	1.25	—	—	1.40	1.94	1.94	0.96
SDS25200	¼ x 2	1¼	1300	—	—	400	530	655	355	—	—	370	455	455	270
SDS25200SS				—	—	1.78	2.36	2.91	1.58	—	—	1.65	2.02	2.02	1.20
SDS25212	¼ x 2½	1½	1100	—	—	465	590	825	425	—	—	420	550	590	320
SDS25212SS				—	—	2.07	2.62	3.67	1.89	—	—	1.87	2.45	2.62	1.42
SDS25300	¼ x 3	2	950	370	—	525	655	840	565	320	—	475	590	590	430
SDS25300SS				1.65	—	2.34	2.91	3.74	2.51	1.42	—	2.11	2.62	2.62	1.91
SDS25312	¼ x 3½	2¼	900	435	435	585	715	840	635	370	370	525	590	590	485
SDS25312SS				1.94	1.94	2.60	3.18	3.74	2.82	1.65	1.65	2.34	2.62	2.62	2.16
SDS25412	¼ x 4½	2¾	800	475	510	585	720	840	775	420	450	530	590	590	590
				2.11	2.27	2.60	3.20	3.74	3.45	1.87	2.00	2.36	2.62	2.62	2.62
SDS25500	¼ x 5	2¾	500	475	510	585	720	840	775	420	450	530	590	590	590
				2.11	2.27	2.60	3.20	3.74	3.45	1.87	2.00	2.36	2.62	2.62	2.62
SDS25600	¼ x 6	3¼	600	475	510	585	720	840	915	420	450	530	590	590	700
				2.11	2.27	2.60	3.20	3.74	4.07	1.87	2.00	2.36	2.62	2.62	3.11
SDS25800	¼ x 8	3¼	400	475	510	585	720	840	915	420	450	530	590	590	700
				2.11	2.27	2.60	3.20	3.74	4.07	1.87	2.00	2.36	2.62	2.62	3.11

1. Factored resistances shown have been developed in accordance with 12.11 CSA 086-14. Apply the adjustment factors K_D, K_{SF} and K_T as per 12.11.4.1 CSA 086-14 when applicable.
2. Factored lateral resistances shown assume steel side plates with a minimum F_U = 45,000 psi (310 MPa).
3. Factored lateral resistances shown assume full penetration into the main member.
4. Factored withdrawal resistances shown are applicable to short term loads, reduce for other load durations where applicable.
5. Factored withdrawal resistances shown assume the entire threaded portion of the screw is installed into the main member. Where the penetration into the main member is less than the length of the thread, the factored resistance may be calculated by multiplying the length of penetration of the threads x 230 lbs/in (49 N/mm) for D.Fir-L and 215 lbs/in (38 N/mm) for S-P-F).
6. Factored withdrawal resistances shown are for penetration into the main member. Head pull through resistance may govern and must be calculated in accordance with 12.11.5.3 CSA 086-14 using a washer diameter d_W = 0.480".
7. LSL wood-to-wood applications that require 4½", 5", 6" or 8" Strong-Drive SDS Heavy-Duty Connector screws are limited to interior-dry use only.
8. Minimum spacing, edge and end distances shall be in accordance with 12.9.2.1 CSA 086-14 using a fastener diameter of 0.250" (6.4 mm).
9. Screws may be provided with the 4CUT or Type 17 tip.
10. Strong-Drive® SDS Heavy-Duty Connector screws install best with a low speed ½" drill with a ⅜" hex head driver.
11. Where predrilling is required for SDS, use a 7/32" bit.

STRONG-DRIVE® SDW TRUSS-PLY & EWP-PLY *Screws*

The Simpson Strong-Tie® Strong-Drive® SDW Truss-Ply and EWP-Ply screws are the 0.22" diameter, high-strength structural wood screws specifically designed for fastening together multi-ply wood members, such as plated trusses, engineered-lumber products and solid-sawn lumber. Strong-Drive SDW Truss-Ply and EWP-Ply screws install easily with no pre-drilling and are available in optimized lengths for fastening 2, 3 and 4-ply trusses or 1¾" structural composite lumber (SCL). The Strong-Drive SDW Truss-Ply and EWP-Ply screws enable single-side fastening, while still allowing concurrent loading on both sides of the assembly.

- 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

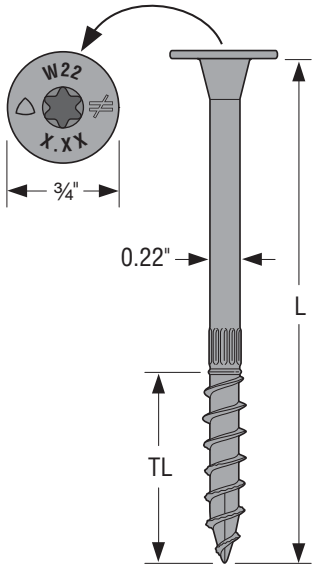
MATERIAL: Heat-treated carbon steel

FINISH: Black E-coat™ and double-barrier coating

WARNING: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, the Strong-Drive SDW Truss-Ply and EWP-Ply screws should only be used in dry, interior and non-corrosive environments.

INSTALLATION: • See General Notes.

- Strong-Drive Truss-Ply and EWP-Ply 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. Strong-Drive SDW Truss-Ply and EWP-Ply screws may be installed through metal truss plates as approved by the Truss Designer *(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.



Strong-Drive® SDW TRUSS-PLY and EWP-PLY Screw

U.S. Patents 5,897,280; 7,101,133 and patent pending

T-40 Driver Bit *(included)* **BIT40-R1**

Product Information

Model No.[2,3]	Head Stamp Length	Nominal 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	2 15/16	2x/Truss	1 7/16	50	6	250	950
SDW22338	3.37	3⅜	SCL	1 9/16	50	6	250	900
SDW22458	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[4]	6.00	6	2x/Truss	1 7/16	50	4	200	500
SDW22638[4]	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.
   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 6 3/16" thick, use the Strong-Drive SDW22600.

Model No.	Nominal Length (in)	Thread Length (in)	D.Fir-L			S-P-F		
			Factored Lateral Resistance (K_D = 1.00) Wood Side Member		Factored Withdrawal Resistance (K_D = 1.15)	Factored Lateral Resistance (K_D = 1.00) Wood Side Member		Factored Withdrawal Resistance (K_D = 1.15)
			1½"	1¾" SCL		1½"	1¾" SCL	
			lbs	lbs	lbs	lbs	lbs	lbs
			kN	kN	kN	kN	kN	kN
SDW22300	3	1 7/16	335	—	485	290	—	370
			1.49	—	2.16	1.29	—	1.65
SDW22338	3⅜	1 9/16	335	390	530	290	325	405
			1.49	1.73	2.36	1.29	1.44	1.80
SDW22438	4⅜	1 7/16	455	—	485	405	—	370
			2.02	—	2.16	1.80	—	1.65
SDW22458	4⅝	1 7/16	455	—	485	405	—	370
			2.02	—	2.16	1.80	—	1.65
SDW22500	5	1 9/16	455	495	530	405	430	405
			2.02	2.20	2.36	1.80	1.91	1.80
SDW22600	6	1 7/16	455	—	485	405	—	370
			2.02	—	2.16	1.80	—	1.65
SDW22638	6⅜	1 7/16	455	—	485	405	—	370
			2.02	—	2.16	1.80	—	1.65
SDW22634	6¾	1 9/16	455	495	530	405	430	405
			2.02	2.20	2.36	1.80	1.91	1.80

See pages 152-153 for specific multi-ply lamination details using Strong-Drive SDW Truss-Ply screws.

1. Factored resistances shown have been developed in accordance with 12.11 CSA 086-14 based on testing per ICC-ES AC233. Apply the adjustment factors K_D, K_{SF} and K_T as per 12.11.4.1 when applicable.
2. Factored withdrawal resistances shown are applicable to short term loads, reduce where other load durations govern.
3. Factored withdrawal resistances shown assume the entire threaded portion of the screw is installed into the main member. Where the penetration into the main member is less than the length of the thread, the factored resistances may be calculated by multiplying the length of penetration of the threads x 280 lbs/in (49 N/mm) for D.Fir-L and 215 lbs/in (38 N/mm) for S-P-F.
4. Minimum spacing, edge and end distances shall be in accordance with 12.9.2.1 CSA 086-14 using a diameter value of 0.30".

QUIK DRIVE® FASTENERS AND ATTACHMENTS

QUIK DRIVE® 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.

FASTENERS FOR QUIK DRIVE® SYSTEMS

Featuring patented collation technology, these 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*

Concrete Anchors Designed to Meet Annex D of CSA A23.3

Cracked Concrete CODE LISTED

Building Codes Have Changed – New Anchor Designs Now Required

Most Canadian provinces have adopted either the 2009 or 2014 version of the CSA Standard A23.3 – *Design of Concrete Structures*. As a result, designers are increasingly being required to specify anchors designed and tested to meet the requirements of CSA A23.3 Annex D, utililizing a true Limit States Design methodology. This affects how and when post-installed concrete anchors are specified and what products are suitable for use.

When designing concrete anchorages, designers must consider whether conditions exist that may cause the concrete to crack. If it's determined such conditions do exist, anchors designed and tested for cracked concrete must be specified. If determined that there is no risk of concrete cracking, the designer may choose to specify anchors approved for use in uncracked concrete. In either case, CSA A23.3 Annex D requires anchors to be tested in accordance with ACI 355.2 or ACI 355.4 and no longer supports designs soft converted from Working Stress Design (Allowable Stress Design) methodology.

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 North America 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

AD — Anchor Designer™

SIMPSON Strong-Tie ACE — Adhesive Cartridge Estimator

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

ANCHORING SYSTEMS *For Cracked-Concrete Applications*

SET-XP® High-Strength Anchoring Adhesive

A two-part, high-strength epoxy anchoring adhesive system formulated for threaded rod and rebar anchoring into concrete *(cracked/uncracked)* and masonry, SET-XP is a teal color when mixed, providing easy post-installation identification.

FEATURES:

- Qualified under ICC-ES AC308 regarding elevated temperature and long-term sustained loading conditions
- Code-listed for cracked and uncracked concrete per ICC-ES ESR-2508
- Code-listed for masonry per IAPMO UES ER-265
- Suitable for use under static and seismic loading conditions in cracked and uncracked concrete
- Multiple DOT listings; refer to ***www.strongtie.com/DOT***
- Manufactured in the USA using global materials

CODES: ICC-ES ESR-2508 (concrete); IAPMO UES ER-265 (masonry); City of L.A RR25744 (concrete); City of L.A. RR25965 (masonry); Florida FL15730 (concrete), FL16230 (masonry); ASTM C 881 (Type I and IV, Grade 3, Class C); NSF/ANSI Standard 61 (216 in^2/1000 gal)

AT-XP® High-Strength, Fast-Cure, All-Weather Anchoring Adhesive

Formulated for high-strength anchorage of threaded rod and rebar into concrete *(cracked/uncracked)* and masonry under a wide range of conditions, AT-XP dispenses easily in cold or warm environments and, when mixed, is a dark teal color for easy post-installation identification.

FEATURES:

- Qualified under ICC-ES AC308 regarding reduced temperature, elevated temperature, and long-term sustained loading conditions
- Code-listed for cracked and uncracked concrete per IAPMO UES ER-263
- Code-listed for masonry per IAPMO UES ER-281
- Fully cures in temperatures as low as 14°F (-10°C)
- Suitable for use under static and seismic loading conditions in cracked and uncracked concrete
- Manufactured in the USA using global materials

CODES: IAPMO UES ER-263 (concrete), ER-281 (masonry); City of L.A. RR25960 (concrete), RR25966 (masonry); Florida FL 16230, NSF/ANSI Standard 61 (43.2 in^2/1000 gal)

ET-HP® Anchoring Adhesive

A two-part epoxy anchoring adhesive system formulated for threaded rod and rebar anchoring into concrete *(cracked/uncracked)* and masonry.

FEATURES:

- Qualified under ICC-ES AC308 regarding elevated temperature and long-term sustained loading conditions
- Code-listed for cracked and uncracked concrete per ICC-ES ESR-3372
- Code-listed for uncracked masonry per IAPMO UES ER-241
- Suitable for use under static and seismic loading conditions in cracked and uncracked concrete
- Multiple DOT listings; refer to ***www.strongtie.com/DOT***
- Manufactured in the USA using global materials

CODES: ICC-ES ESR-3372 (concrete); ICC-ES ESR-3638 (unreinforced masonry); IAPMO UES ER-241 (masonry); City of L.A. RR25120 (unreinforced masonry); ASTM C 881 (Type I, II, IV and V, Grade 3, Class B and C, except gel time)

STRONG-BOLT® 2 Wedge Anchor

A wedge-type expansion anchor designed for optimum performance in cracked and uncracked concrete and uncracked masonry, the Strong-Bolt 2 is available in carbon-steel (¼" through 1" diameter) and Type 316 stainless steel (¼" through ¾" diameter).

FEATURES:

- Code-listed for cracked and uncracked concrete per ICC-ES ESR-3037
- Code-listed for masonry per IAPMO UES ER-240
- Qualified for static and seismic loading conditions

CODES: ICC-ES ESR-3037(concrete); IAPMO UES ER-240 (carbon steel in CMU); City of L.A. RR25891 (concrete), RR25936 (carbon steel in CMU); Florida FL 15731; UL File Ex3605; FM 3043342 and 3047639; meets the requirements of Federal Specifications A-A-1923A, Type 4

TORQ-CUT™ Self-Undercutting Anchor

A heavy-duty, high-capacity, self-undercutting anchor designed for cracked and uncracked concrete applications, the Torq-Cut has a built-in cutting ring that provides superior load-carrying capacity.

FEATURES:

- Code-listed for cracked and uncracked concrete per ICC-ES ESR-2705
- Provides higher load-carrying capacity that conventional mechanical anchors
- Excellent for resisting seismic (SDC A-F) and vibratory loads
- No special installation tools required

CODES: ICC-ES ESR-2705 (concrete); City of L.A. RR25946 (concrete); Florida FL15731

U.S. Patent 7,357,613

ANCHORING SYSTEMS *For Cracked-Concrete Applications*

SIMPSON Strong-Tie®

TITEN HD® Concrete Screw

Cracked Concrete CODE LISTED

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

The original, patented, high-strength screw anchor that offers industry-leading performance in cracked and uncracked concrete and uncracked masonry, the Titen HD installs with low installation torque for maximum efficiency.

FEATURES:

- Code-listed in accordance with ICC-ES AC193 for cracked and uncracked concrete per ICC-ES ESR-2713; includes Titen HD® Rod Hanger (models THD37212RH and THD50234RH only)
- Code-listed in accordance with ICC-ES AC106 for masonry per ICC-ES ESR-1056
- Qualified for static and seismic loading conditions
- Standard fractional sizes; no special drill bits required
- Removable; ideal for temporary anchoring applications like formwork or bracing

CODES: ICC-ES ESR-2713 (concrete), ICC-ES ESR-1056 (masonry); City of L.A. RR25741 (concrete), RR25560 (masonry); Florida FL 15730; FM 3017082, 3035761 and 3043442

ANCHORING SYSTEMS *For General-Purpose Applications*

SET® Anchoring Adhesive

A non-shrink, epoxy based anchoring system, SET is formulated for anchoring threaded rod and rebar in a wide range of base materials.

FEATURES:

- Code-listed for URM per ICC-ES ESR-1772
- Excellent as a pick-proof sealant around doors, windows and fixtures
- CalTrans and multiple DOT listings; refer to ***www.strongtie.com/DOT***
- Manufactured in the USA using global materials

CODES: ICC-ES ESR-1772 (URM); City of L.A. RR25279 (masonry); Florida FL 15730; ASTM C 881 (Type I, II and IV, Grade 3, Class B and C); NSF/ANSI Standard 61 (216 in^2/1000 gal) – except SET 1.7KTA

AT Fast-Cure, All-Weather Anchoring Adhesive

An acrylic-based adhesive anchoring system, AT is formulated for use as a high-strength anchoring material for threaded rod and rebar in a wide range of temperatures and base materials.

FEATURES:

- Code-listed for URM per ICC-ES ESR-1958
- Fully cures in temperatures as low as 0°F (-18°C)
- Multiple DOT listings; refer to ***www.strongtie.com/DOT***
- Manufactured in the USA using global materials

CODES: ICC-ES ESR-1958 (URM); Florida FL 14832; ASTM C 881 (Type I and IV, Grade 3, Class A, B and C – except AT is a non-epoxy formulated for fast cure time); NSF/ANSI Standard 61 (2.2 in^2/1000 gal)

WEDGE-ALL® Wedge Anchor

A non-bottom bearing, wedge-style expansion anchor for use in solid concrete or grout-filled masonry, the Wedge-All is available in carbon steel, mechanically galvanized, and Types 303/304/316 stainless steel.

FEATURES:

- Code-listed for CMU per ICC-ES ESR-1396
- One-piece, wrap-around clip ensures uniform holding capacity
- Chamfered thread end for ease of starting nut
- Wide range of diameters and lengths for added versatility

CODES: ICC-ES-ESR-1396 (CMU); City of L.A. RR24682 (CMU); Florida FL 15730; FM 3017082 and 3131136; UL File Ex3605; meets the requirements of Federal Specifications A-A-1923A, Type 4.
Note: *The Tie-Wire Anchor is not code-listed.*

Titen HD® *Heavy-Duty Screw Anchor for Cracked and Uncracked Concrete*

Cracked Concrete CODE LISTED

SIMPSON Strong-Tie®

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. 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.

PERFORMANCE FEATURES:

- Tested per AC193 to ensure outstanding performance in both cracked and uncracked concrete.
- Higher load capacity and vibration resistance: Threads along the length of the anchor undercut the concrete and efficiently transfer the load to the base material.
- Vibration and shock resistance: The mechanical interlock of the threads and the ratchet teeth on the underside of the head help prevent the anchor from loosening in vibratory conditions. The Titen HD anchor has been tested to 12.6 million vibratory cycles with no performance reductions.
- Specialized heat treating process: Creates superior surface hardness at the tip to facilitate cutting, while at the same time not compromising ductility within the anchor body.
- Less spacing and edge distance required: The anchor does not exert expansion forces on the base material.
- Easy post-installation inspection: The head is stamped with the Simpson Strong-Tie® "≠" sign and the anchor length in inches.

INSTALLATION FEATURES:

- No special drill bit needed: Designed to install using standard sized ANSI tolerance drill bits.
- Installs with 50% less torque: Testing shows that when compared to competitors, the Titen HD requires 50% less torque to be installed in concrete.
- Hex-washer head: Requires no separate washer and provides a clean installed appearance.*
- Removable: Ideal for temporary anchoring *(e.g. formwork, bracing)* or applications where fixtures may need to be moved. Re-use of the anchor to achieve listed load values is not recommended.

MATERIAL: Carbon steel, heat treated

FINISH: Zinc plated or mechanically galvanized

CODES: ICC-ES ESR-2713 (concrete); ICC-ES ESR-1056 (CMU); City of L.A. RR25741(concrete); City of L.A. RR25560 (CMU); Florida FL 11506.7; Factory Mutual 3017082, 3035761 and 3043442.

TEST CRITERIA: The Titen HD® anchor has been tested in accordance with ICC-ES AC193, ACI 355.2 and ICC-ES AC106 for the following:

- Static tension and shear loading in cracked and uncracked concrete
- Seismic and wind loading in cracked and uncracked concrete
- Performance in uncracked masonry

Anchor Fatigue Testing: Tested in accordance with ASTM E 488 for the effects of fatigue. 25% of the average ultimate load was applied to the anchor for 2 million cycles at a frequency of 15 Hz. Subsequent load tests showed no reduction in ultimate tension capacity.

Vibratory Load Testing: A 150 lb. concrete block was suspended from a ⅜" diameter anchor embedded at 1½" and vibrated for 12.6 million cycles at a frequency of 30 Hz and an amplitude of 0.0325 inches. Subsequent load test showed no reduction in ultimate tension capacity.

Field Testing: For guidance on field testing see technical bulletin T-SAS-THDINSP.

INSTALLATION: Holes in metal fixtures to be mounted should be ⅛" to 3⁄16" larger than the anchor diameter.

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. Use a Titen HD screw anchor one time only. Installing the anchor multiple times may result in excessive thread wear and reduce load capacity.

- Drill a hole in the base material using a carbide drill bit the same diameter as the nominal diameter of the anchor to be installed. Drill the hole to the specified embedment depth plus ½" minimum to allow the thread tapping dust to settle and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling and tapping.
- Insert the anchor through the fixture and into the hole.
- Tighten the anchor into the base material until the hex washer head contacts the fixture.
- Do not use impact wrenches to install into hollow CMU.

SUGGESTED SPECIFICATIONS: Screw anchors shall have 360-degree contact with the base material and shall not require oversized holes for installation. Fasteners shall be manufactured from carbon steel, and are heat-treated. Anchors shall be zinc plated in accordance with ASTM B633 or mechanically galvanized in accordance with ASTM B695. Anchors are not to be reused after initial installation. Screw anchors shall be Titen HD® anchors from Simpson Strong-Tie, Pleasanton, CA. Anchors shall be installed per the Simpson Strong-Tie instructions for the Titen HD anchor.

*Some jurisdictions require an additional square plate washer for sill plate applications.

See current Anchor Systems catalogue C-SAS for more information.

Titen HD® Screw Anchor

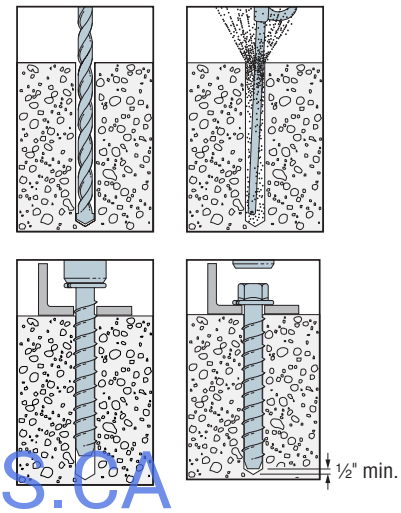
U.S. Patent 5,674,035 & 6,623,228

Serrated teeth on the tip of the Titen HD® screw anchor facilitate cutting and reduce installation torque.

Suitable for use in place of code anchor bolts.

Longer ½" diameter Titen HD anchors achieve sufficient embedment depth to develop tension capacities equal to many Simpson Strong-Tie holdowns that specify a ⅝" diameter anchor. Testing has been conducted to assure compatibility of these holdowns' anchor holes with the ½" Titen HD screw anchor.

Installation Sequence



Titen® Concrete and Masonry Screws

Titen® screws are 3/16" and 1/4" diameter hardened screws for attaching all types of components to concrete and masonry. Available in hex and phillips head designs in three colors. Use with appropriately sized Titen drill bits included with each box.

Warning: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, use these products in dry, interior and non-corrosive environments only.

MATERIAL: Heat-treated carbon steel

FINISH: Zinc plated with a baked on ceramic coating

INSTALLATION:

Caution: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Steps must be taken to prevent inadvertent sustained loads above the listed allowable loads. Overtightening and bending moments can initiate cracks detrimental to the hardened screw's performance. Use the Simpson Strong-Tie installation tool kit as it has a bit that is designed to reduce the potential for overtightening the screw.

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.

- Drill a hole in the base material using the appropriate diameter carbide drill bit as specified in the table. Drill the hole to the specified embedment depth plus 1/2" to allow the thread tapping dust to settle and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling and tapping.
- Position fixture, insert screw and tighten using drill and installation tool fitted with a hex socket or phillips bit.

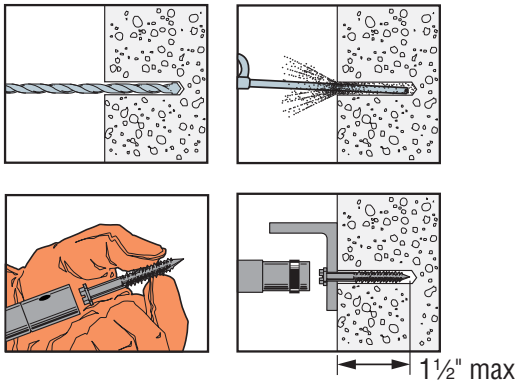
Preservative-treated wood applications: Suitable for use in non-ammonia formulations of CCA, ACQ-C, ACQ-D, CA-B, SBX/DOT and zinc borate. Use in dry, interior environments only. Use caution not to damage ceramic barrier coating during installation. Recommendations are based on testing and experience at time of publication and may change. Simpson Strong-Tie cannot provide estimates on service life of screws. Contact Simpson Strong-Tie for additional information.

See current Anchor Systems catalogue C-SAS for more information.

Titen® Phillips flat head screw (PF)

Titen® Hex head screw (H)

Installation Sequence



Titen® Tension and Shear Load Values in Normal-Weight Concrete

Titen Dia. in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Spacing in. (mm)	Critical Edge Dist. in. (mm)	Tension Load				Shear Load	
					f'c ≥ 2000 psi (13.8 MPa) Concrete		f'c ≥ 4000 psi (27.6 MPa) Concrete		f'c ≥ 2000 psi (13.8 MPa) Concrete	
					Ultimate lbs. (kN)	Allowable lbs. (kN)	Ultimate lbs. (kN)	Allowable lbs. (kN)	Ultimate lbs. (kN)	Allowable lbs. (kN)
3/16 (4.8)	5/32	1 (25.4)	2 1/4 (57.2)	1 1/8 (28.6)	500 (2.2)	125 (0.6)	640 (2.8)	160 (0.7)	1,020 (4.5)	255 (1.1)
3/16 (4.8)	5/32	1 1/2 (38.1)	2 1/4 (57.2)	1 1/8 (28.6)	1,220 (5.4)	305 (1.4)	1,850 (8.2)	460 (2.0)	1,670 (7.4)	400 (1.8)
1/4 (6.4)	3/16	1 (25.4)	3 (76.2)	1 1/2 (38.1)	580 (2.6)	145 (0.6)	726 (3.2)	180 (0.8)	900 (4.0)	225 (1.0)
1/4 (6.4)	3/16	1 1/2 (38.1)	3 (76.2)	1 1/2 (38.1)	1,460 (6.5)	365 (1.6)	2,006 (8.9)	500 (2.2)	1,600 (7.1)	400 (1.8)

1. The tabulated allowable loads are based on a factor of safety of 4.0.
2. Maximum anchor embedment is 1 1/2" (38.1 mm).
3. Concrete must be minimum 1.5 x embedment.
4. Loads shown are for Allowable Stress Design methodology.

Titen® Phillips head screw available in white and standard blue

Titen® Tension and Shear Load Values in Face Shell of Hollow and Grout-Filled CMU

Titen Dia. in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Spacing in. (mm)	Critical Edge Dist. in. (mm)	Values for 6" or 8" Lightweight, Medium-Weight or Normal-Weight CMU			
					Tension Load		Shear Load	
					Avg. Ult. lbs. (kN)	Allow. lbs. (kN)	Avg. Ult. lbs. (kN)	Allow. lbs. (kN)
3/16 (4.8)	5/32	1 (25.4)	2 1/4 (57.2)	1 1/8 (28.6)	542 (2.4)	110 (0.5)	1,016 (4.5)	205 (0.9)
1/4 (6.4)	3/16	1 (25.4)	3 (76.2)	1 1/2 (38.1)	740 (3.3)	150 (0.7)	1,242 (5.5)	250 (1.1)

1. The tabulated allowable loads are based on a safety factor of 5.0.
2. Maximum anchor embedment is 1 1/2" (38.1 mm).
3. Loads shown are for Allowable Stress Design methodology.

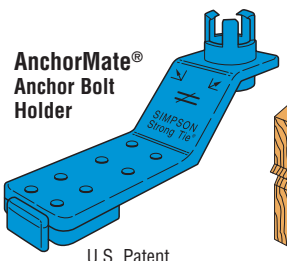
ANCHORMATE® *Anchor Bolt Holders*

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 ⅝" and ⅞" AnchorMate to secure the SSTB to the formboard before the concrete pour. Alignment arrows *(left or right)* match the SSTB bolt head arrow.

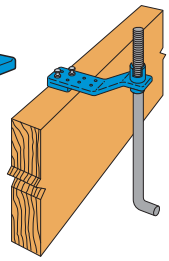
MATERIAL: Nylon

Model No.	Dia. (in)	Color
AM½	½	Yellow
AM⅝	⅝	Blue
AM¾	¾	Red
AM⅞	⅞	Green
AM1	1	Black

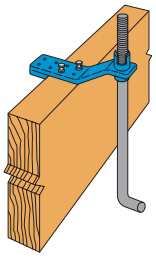


AnchorMate® Anchor Bolt Holder

U.S. Patent 6,065,730



Typical AnchorMate Installation for a 2x6 Mudsill



Typical AnchorMate Installation for a 2x4 Mudsill

ABS *Anchor Bolt Stabilizer*

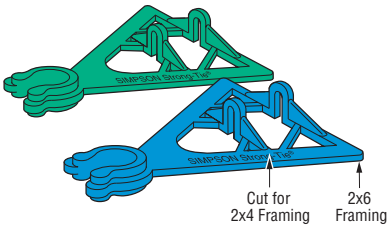
The ABS stabilizes the anchor bolt to prevent it from being pushed against the form during the concrete pour.

FEATURES:

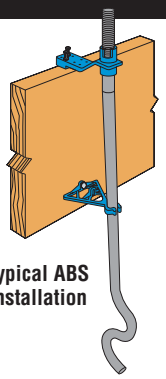
- Supports the bolt approx. 8" below the top of the concrete.
- Model ABS⅝ is for the ⅝" SSTB and ABS⅞ is for the ⅞" SSTB.
- Thin section limits the effect of a cold joint
- Sized for 2x4 and 2x6 mudsills.

MATERIAL: Engineered Composite Plastic.

Model No.	Dia. (in)	Color
ABS⅝	⅝	Blue
ABS⅞	⅞	Green



ABS Anchor Bolt Stabilizer



Typical ABS Installation

STRAPMATE® *Strap Holder*

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

- The StrapMate is reusable.
- Works with STHD and LSTHD.

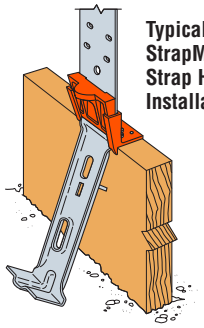
MATERIAL: Engineered Composite Plastic.

- Designed to fit ¾" plywood forms up to 1¾" LVL forms and larger.
- The strap is positioned off the front edge of the form board.

Model No.	Nails
SM1	2-8d Duplex

StrapMate Strap Holder

U.S. Patent 6,796,099



Typical StrapMate Strap Holder Installation

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.

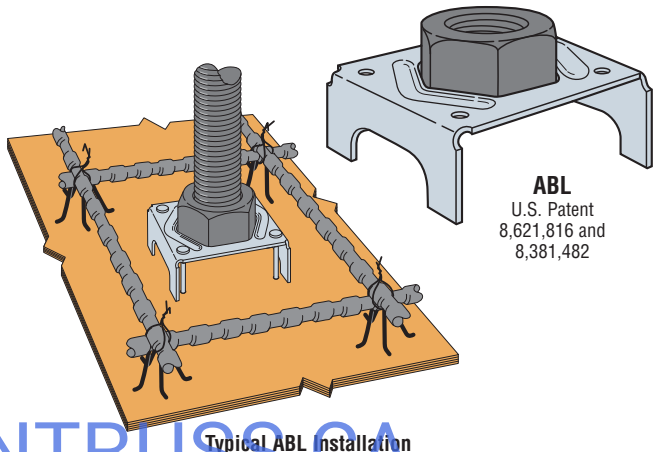
FEATURES:

- Designed for optimum concrete flow
- Installed with nails or screws
- Meets code requirement for 1" stand off. Also available with 1½" standoff. Order ABLXX-1.5.
- PAB anchors are not designed for use with the ABL. Contact Simpson Strong-Tie for pre-assembled anchor solutions to be used with ABL.

MATERIAL: Nut - Heavy hex, Chair – Steel

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

Model No.	Anchor Bolt Dia. (in)
ABL4-1	½
ABL5-1	⅝
ABL6-1	¾
ABL7-1	⅞
ABL8-1	1
ABL9-1	1⅛
ABL10-1	1¼



ABL
U.S. Patent 8,621,816 and 8,381,482

Typical ABL Installation

BP/LBP *Bearing Plates*

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

The BPS and LBPS are 3"x3" bearing plates that offer increased flexibility. The slotted hole allows for adjustability to account for bolts that are not in the middle of the sill plate.

The BP⅝SKT uses ¼"x1½" Strong-Drive® SDS Heavy-Duty Connector 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

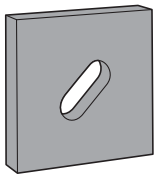
FINISH: LBP, LBPS & BP⅝S—Galvanized; BP⅞-2—Zinc Plated; BPS, BP—None. BP's and BPS's may be ordered HDG; LBP and LBPS products may be ordered ZMAX®; contact Simpson Strong-Tie. Refer to pages 14-17 for Corrosion Information.

INSTALLATION: See General Notes.

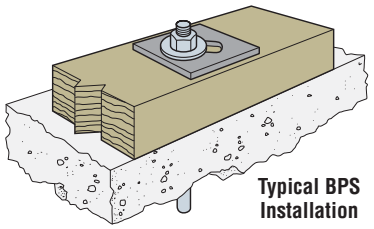
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Thickness	Dimensions (in)		Bolt Dia. (in)
		W	L	
LBP½	9/64	2	2	½
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
BPS ½-6	3 ga	3	4½	½
BPS⅝-3	3 ga	3	3	⅝
BPS ⅝-6	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
BP⅝-2	3/16	2	2	⅝
BP⅝SKT	3 ga	4	2	⅝
BP⅝	¼	2½	2½	⅝
BP⅝-3	3 ga	3	3	⅝
BP¾	5/16	2¾	2¾	¾
BP¾-3	3 ga	3	3	¾
BPS¾-3	3 ga	3	3	¾
BPS ¾-6	3 ga	3	4½	¾
BP⅞-2	⅜	1 15/16	2¼	⅞
BP⅞	5/16	3	3	⅞
BP1	⅜	3½	3½	1

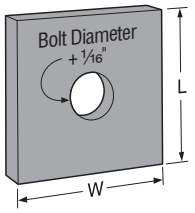
1. BP⅝SKT sold as a kit.
2. Standard cut washer required with BPS½-3, BPS ½-6, BPS⅝-3, BPS ⅝-6, BPS¾-3, and BPS ¾-6 *(not provided)*.



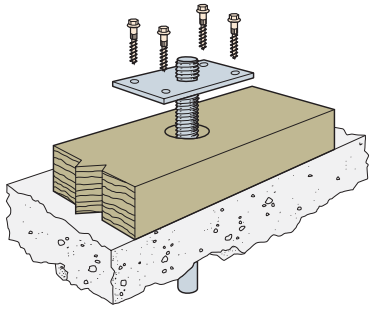
BPS
(LBPS similar)



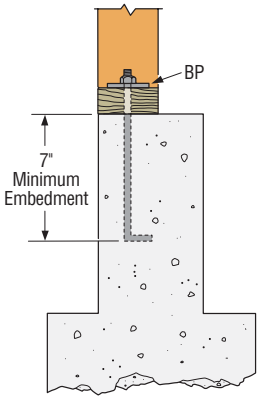
Typical BPS Installation



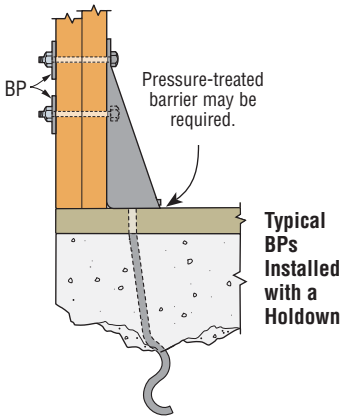
BP
(LBP similar)



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



Typical BP Installed with a Mudsill Anchor Bolt



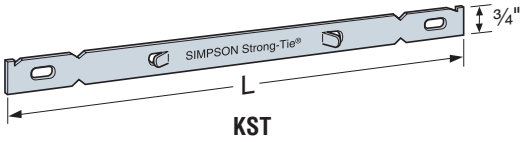
Typical BPs Installed with a Holdown

KST *Speed Wall Ties (Kwik Strip)*

MATERIAL: 16 gauge

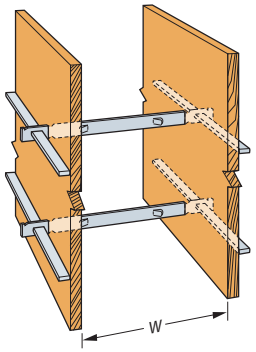
FINISH: none

Model No.	Wall Thickness W (in)	Length L (in)
KST6	6	10⅛
KST8	8	12⅛
KST10	10	14⅛
KST12	12	16⅛



KST

1. The Factored Tensile Resistance for all models is 1410 lbs (6.27 kN).
2. Formwork designer to specify tie spacing and concrete pour rate to ensure that Factored Resistances are not exceeded.



Typical KST Installation

CNW/HSCNW *Coupler Nuts*

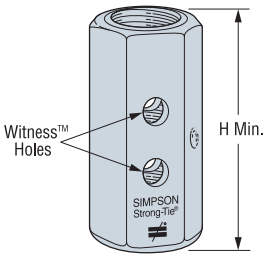
Simpson Strong-Tie® coupler nuts are a tested and load-rated method to join threaded rod and anchor bolts. "Witness" holes in the nut provide a means to verify when rods are properly installed. The positive stop feature helps ensure even threading into each end of the nut. CNWs meet and exceed the tensile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

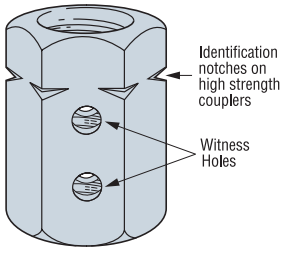
INSTALLATION:

- 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).*

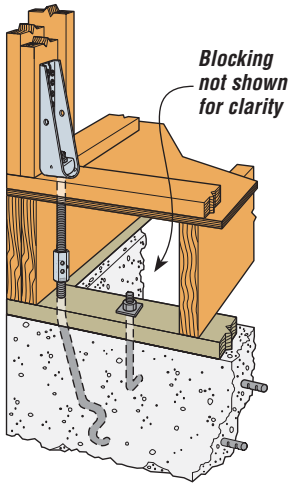
Model No.	Rod Diameter (in)	H Min. (in)
CNW½	0.500	1½
CNW⅝	0.625	1⅞
CNW¾	0.750	2¼
CNW⅞	0.875	2½
CNW1	1.000	2¾
CNW1¼	1.250	3
HSCNW¾	0.750	2¼
HSCNW1	1.000	2¾
Transition Couplers		
CNW⅝-½	0.625 to 0.500	1½
CNW¾-⅝	0.750 to 0.625	1¾
CNW⅞-⅝	0.875 to 0.625	2
CNW1-⅞	1.000 to 0.875	2¼



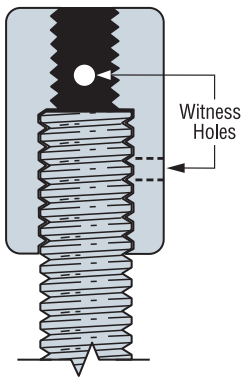
CNW
Allows fast visual check for correct all thread rod installation



HSCNW
High Strength Coupler Nut



Typical CNW Installation



CNW Transition Coupler Nut

WT *Wedge Form Ties*

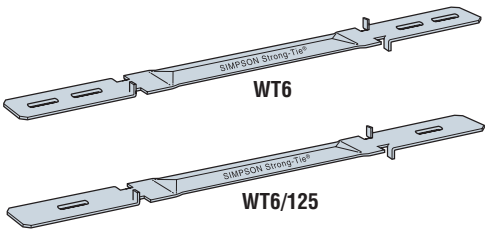
Designed for low foundation wall applications. ⅝" wide formed "V" design for rigidity allows accurate form spacing and support. Sizes now available for composite form board.

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

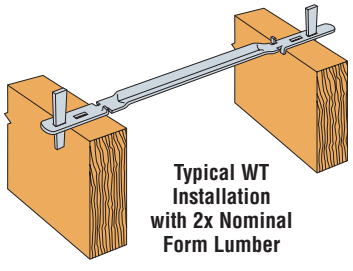
INSTALLATION:

- 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.

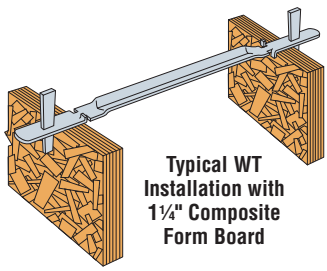
Model No.	Form Board	Wall Thickness (in)
WT6	2x Solid Sawn	6
WT8		8
WT10		10
WT12		12
WT6/125	1¼" Composite	6
WT8/125		8



Order wedges separately. Specify W1.



Typical WT Installation with 2x Nominal Form Lumber



Typical WT Installation with 1¼" Composite Form Board

SIMPSON Strong-Tie®

L-BOLT *Anchor Bolts*

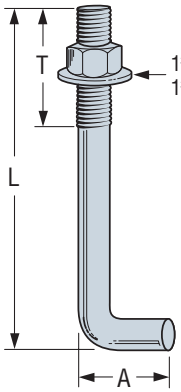
The L-Bolt anchor bolts are used to attach sill plates to concrete or masonry foundations, provide anchorage for light weight post bases and for general anchorage to concrete. The L-Bolt anchor bolts meet the prescriptive requirements of article 9.23.6 of the National Building Code of Canada 2015 (NBC 2015).

MATERIAL: ASTM F1554 Grade 36

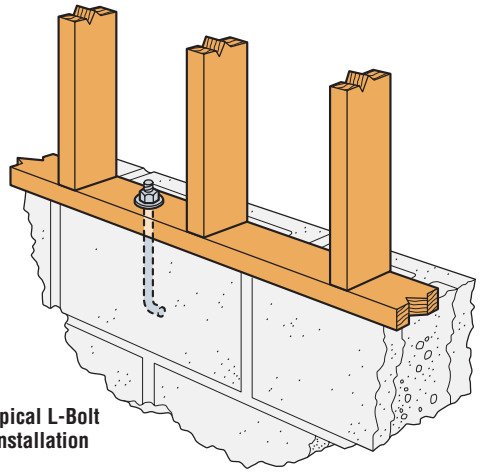
FINISH: Unfinished, available in HDG (per ASTM A153)

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)			
	Diameter	L	T	A
LBOLT50600	½	6	1½	1½
LBOLT50800	½	8	1½	1½
LBOLT50100	½	10	1½	1½
LBOLT50120	½	12	1½	1½
LBOLT62600HDG	⅝	6	3	1⅞
LBOLT62800	⅝	8	3	1⅞
LBOLT62100	⅝	10	3	1⅞



L-Bolt

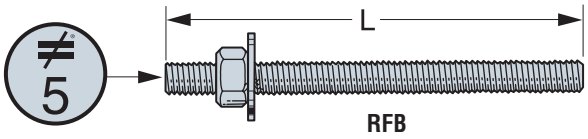

Typical L-Bolt Installation

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,
Type 316 stainless steel *(RFB#5X8SS only)*

FINISH: Zinc Plated *(unless otherwise noted)*, available in HDG (per ASTM A153)



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 (in)
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)*.

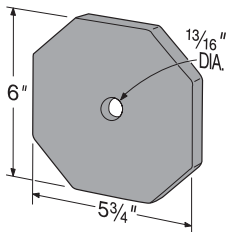
RP6 *Retro Plate*

The RP6 retrofit plate fits on the outside of masonry buildings, and helps tie the walls to the roof or floor structure with a ¾" diameter rod.

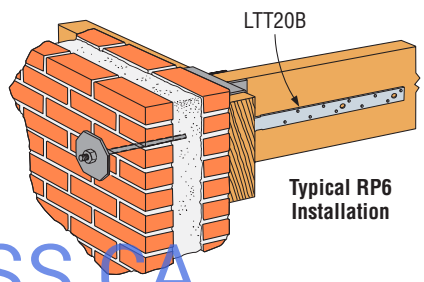
FINISH: Simpson Strong-Tie® gray paint. Optional hot-dip galvanized coating; see Corrosion Information, pages 14-17 and specify HDG.

MATERIAL: ⅜" Steel
Available with additional corrosion protection. Check with Simpson Strong-Tie.

INSTALLATION: Use a ¾" diameter rod.



RP6



Typical RP6 Installation

FAP/FJA/FSA *Foundation Anchors*

This series is for retrofit or new construction. These products may be used together as a system or in individual applications, designed and tested for earthquake and high wind conditions.

The FAP Plate connects the mudsill to the foundation. Designed to provide lateral load resistance.

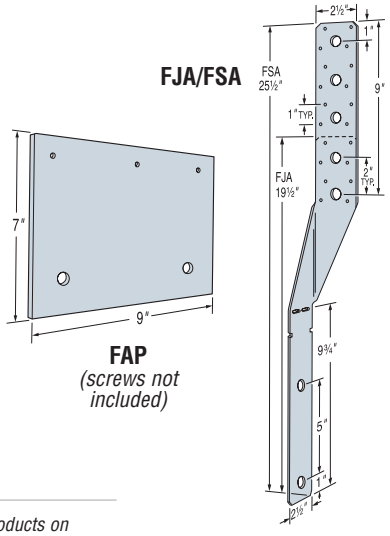
FJA Foundation Joist Anchor nails or bolts directly into floor joist, and provides a direct connection between the foundation and joist. It provides uplift and lateral resistance. FSA Foundation Stud Anchor nails or bolts to floor joist, or nails to stud. Plywood shearwall may require notching with stud-to-foundation installation.

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

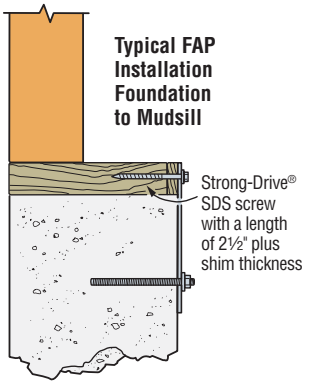
FINISH: Galvanized; may be ordered HDG, contact Simpson Strong-Tie. See Corrosion Information, pages 14-17.

INSTALLATION: • Use all specified fasteners; see General Notes.

- Select and install concrete anchor bolts in accordance with the manufacturer's recommendations.
- See Acrylic-Tie® adhesive, page 30 and RFB, page 36.
- Spacing to be specified by the Designer.
- FSA may be bent along bend line up to 20° to accommodate installation. Bend one time only.



FAP
(screws not included)



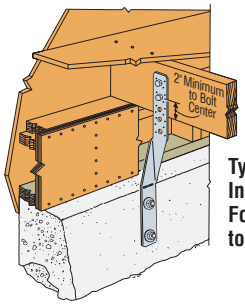
Typical FAP Installation Foundation to Mudsill

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 Strong-Drive® SDS Heavy-Duty Connector screw.

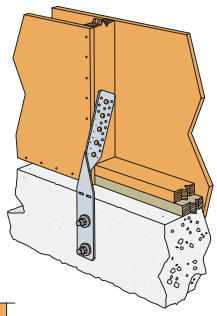
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Fasteners: Anchor Bolt Qty.	Fasteners: Anchor Bolt Dia. (in)	Fasteners: Stud/Joist/Plate	Factored Resistance (K_D = 1.15): D.Fir-L Uplift	D.Fir-L F_1	D.Fir-L F_2	S-P-F Uplift	S-P-F F_1	S-P-F F_2
				lbs	lbs	lbs	lbs	lbs	lbs
				kN	kN	kN	kN	kN	kN
FAP	2	½	3-¼"x2½" SDS	—	2035	690	—	1610	520
				—	9.05	3.07	—	7.16	2.31
FJA	2	½	8-10dx1½	2085	—	—	1480	—	—
				9.27	—	—	6.58	—	—
			2-½" MB	1805	—	—	1425	—	—
				8.02	—	—	6.33	—	—
FSA	2	½	8-10dx1½	1790	—	—	1270	—	—
				7.96	—	—	5.65	—	—
			2-½" MB	960	—	—	760	—	—
				4.27	—	—	3.38	—	—

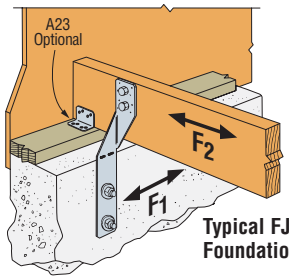
1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other load durations govern.
2. Use the RFB#4x6 with Acrylic-Tie® for the anchorage system.
3. FAP uses a minimum Strong-Drive® SDS Heavy-Duty Connector screw length of 2½" plus the shim thickness.
4. The shim must be fastened to the mudsill by means other than the FAP Strong-Drive SDS screw.
5. See page 25 for Strong-Drive SDS Heavy-Duty Connector screw information.
6. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See pages 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

UFP *Universal Foundation Plate*

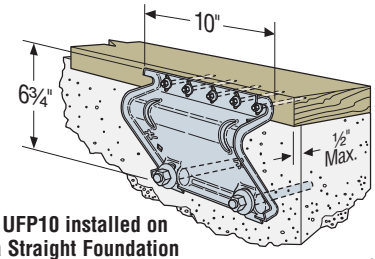
The UFP10 Retrofit Foundation Plate cuts installation time in half. Designed to connect when the mudsill is offset from the foundation up to 2½" or extended beyond the foundation up to ½".

MATERIAL: 14 gauge

FINISH: Galvanized. May be ordered HDG, contact Simpson Strong-Tie. See Corrosion Information, pages 14-17.

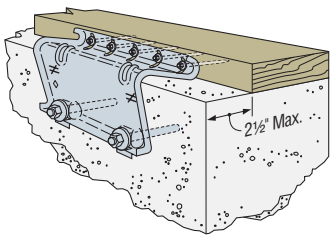
INSTALLATION: • Use all specified fasteners; see General Notes.

- Capacities are based on Simpson Strong-Tie® ¼"x3" Strong-Drive® SDS Heavy-Duty Connector screw's factored lateral resistance, which are supplied with the UFP10.
- Alternate lag screws will not achieve published values.



UFP10 installed on a Straight Foundation with ½" Offset Mudsill

U.S. Patent 5,732,519

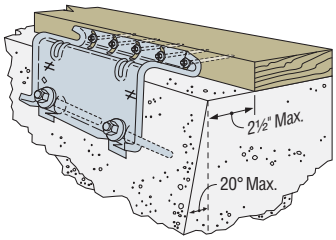


UFP10 installed on a Straight Foundation

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: Anchor Bolt Qty.	Fasteners: Anchor Bolt Dia. (in)	Fasteners: Plate	Factored Resistance Parallel to Plate (K_D = 1.15): D.Fir-L	S-P-F
				lbs	lbs
				kN	kN
UFP10-SDS3	2	½	5-¼"x3" SDS	2110	1525
				9.39	6.78

1. Factored resistances have been increased 15% for earthquake or wind loading, with no further increase allowed. Reduce where other load durations apply.
2. Each anchor bolt requires a standard cut washer.
3. Designer must specify anchor bolt type, length and embedment.



UFP10 installed on a Trapezoid Foundation

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.

Special Features:

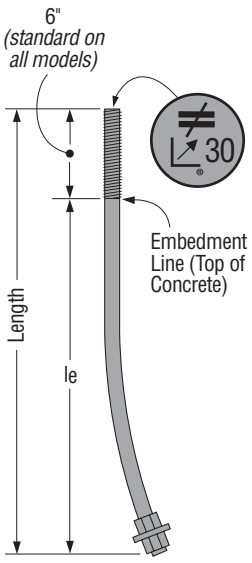
- Indentification on the bolt head showing embedment angle and model
- Sweep geometry to optimize position in form
- Rolled thread for higher tensile capacity
- Hex nuts and plate washer fixed in position
- Available in HDG for additional corrosion resistance

MATERIAL: ASTM F1554 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 20 MPa.
- When rebar is required it does not need to be tied to the SB.



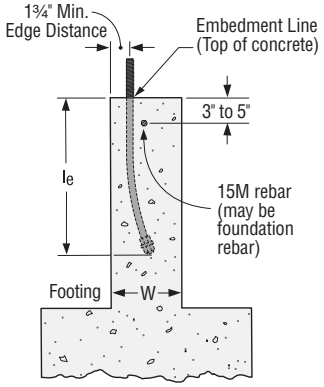
SB1x30
(Other models similar)

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.

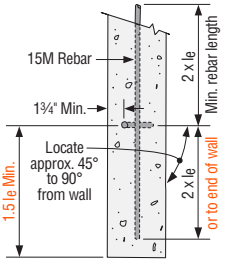
SB Bolts at Stemwall

Model No.	Dimensions (in)				Factored Tensile Resistance					
					Wind/Seismic $I_E F_a S_a(0.2) < 0.35$			Seismic $I_E F_a S_a(0.2) \geq 0.35$		
	Stemwall Width	Dia.	Length	Min. Embed. (l_e)	Midwall	Corner	End Wall	Midwall	Corner	End Wall
					lbs	lbs	lbs	lbs	lbs	lbs
					kN	kN	kN	kN	kN	kN
SB⅝x24	6	⅝	24	18	8915	8915	8915	8915	7600	7600
					39.66	39.66	39.66	39.66	33.81	33.81
SB⅞x24	8	⅞	24	18	15560	13895	10135	11670	10420	7600
					69.22	61.81	45.08	51.91	46.35	33.81
SB1x30	8	1	30	24	20285	13895	10730	15215	10420	8045
					90.24	61.81	47.73	67.68	46.35	35.79

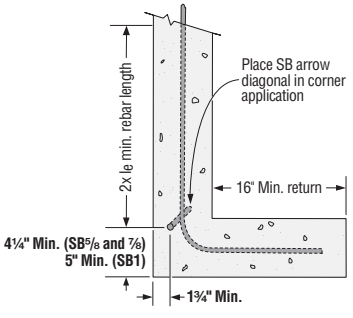
1. See page 39 for notes to the Designer.



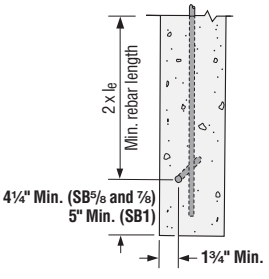
Typical SB Installation



Midwall

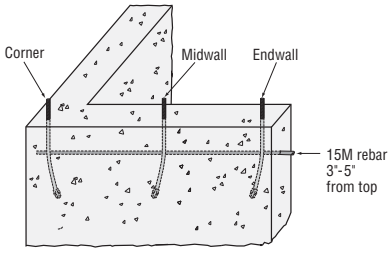


Corner

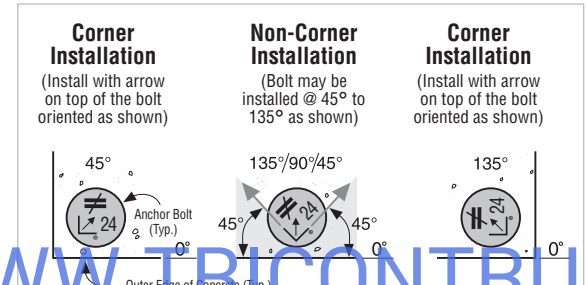


End Wall

STEMWALL PLAN VIEWS



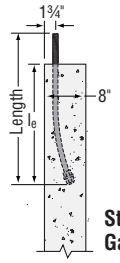
Perspective View



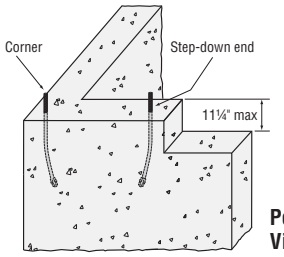
Plan View of SB Placement in Concrete

SB Bolts at Stemwall: Garage Front

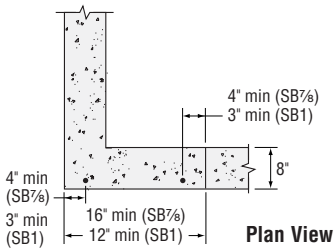
Model No.	Dimensions (in)				Factored Tensile Resistance			
					Wind/Seismic $I_E F_a S_a(0.2) < 0.35$		Seismic $I_E F_a S_a(0.2) \geq 0.35$	
	Stemwall Width	Dia.	Length	Min. Embed (l_e)	Step-Down End	Corner	Step-Down End	Corner
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
SB⅞x24	8	⅞	24	18	10735	11385	8050	8540
					47.75	50.65	35.81	37.99
SB1x30	8	1	30	24	16790	14550	12595	10910
					74.69	64.72	56.03	48.53



Stemwall Garage Front



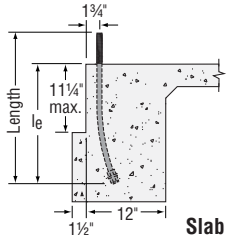
Perspective View



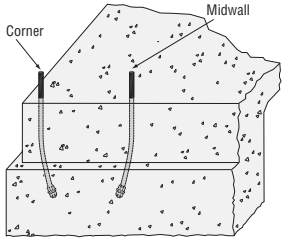
Plan View

SB Bolts at Slab on Grade: Edge

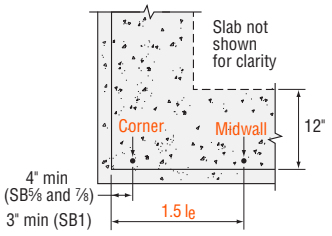
Model No.	Dimensions (in)				Factored Tensile Resistance			
					Wind/Seismic $I_E F_a S_a(0.2) < 0.35$		Seismic $I_E F_a S_a(0.2) \geq 0.35$	
	Footing Width	Dia.	Length	Min. Embed. (l_e)	Midwall	Corner	Midwall	Corner
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
SB⅝x24	12	⅝	24	18	8915	8915	8915	7600
					39.66	39.66	39.66	33.81
SB⅞x24	12	⅞	24	18	18220	18025	16345	13520
					81.05	80.18	72.71	60.14
SB1x30	12	1	30	24	23900	23150	23580	17360
					106.32	102.98	104.89	77.22



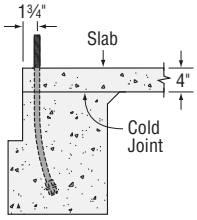
Slab Edge



Perspective View



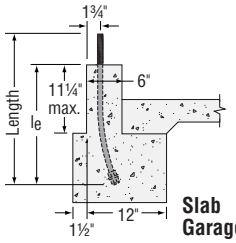
Plan View



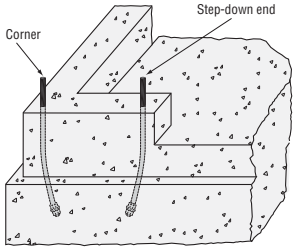
Two-Pour Installation

SB Bolts at Slab on Grade: Garage Curb

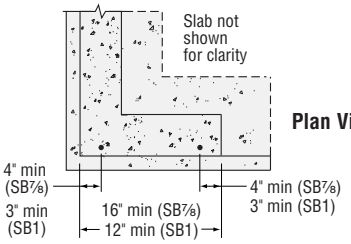
Model No.	Dimensions (in)				Factored Tensile Resistance			
					Wind/Seismic $I_E F_a S_a(0.2) < 0.35$		Seismic $I_E F_a S_a(0.2) \geq 0.35$	
	Curb Width	Dia.	Length	Min. Embed. (l_e)	Step-Down End	Corner	Step-Down End	Corner
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
SB⅞x24	6	⅞	24	18	13630	16685	10225	12515
					60.63	74.22	45.48	55.67
SB1x30	6	1	30	24	23150	23150	17360	17360
					102.98	102.98	77.22	77.22



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. Factored resistances have been developed based on testing per ICC AC399 in uncracked concrete using the corresponding adjustment factors from CSA A23.3-14 Annex D.
4. Factored resistances for seismic $I_E F_a S_a(0.2) \geq 0.35$ applications assumes ductile yielding in the attachment. See D.4.3.5 of CSA A23.3-14 for more information.
5. Midwall loads apply when anchor is 1.5 l_e or greater from the end. For bolts acting in tension simultaneously, the minimum bolt centre-to-centre spacing is 3 l_e.
6. Full published values apply for two-pour applications for slab on grade 1 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 tensile capacity of the SSTB when installed in many common applications.

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 F1554 Grade 36

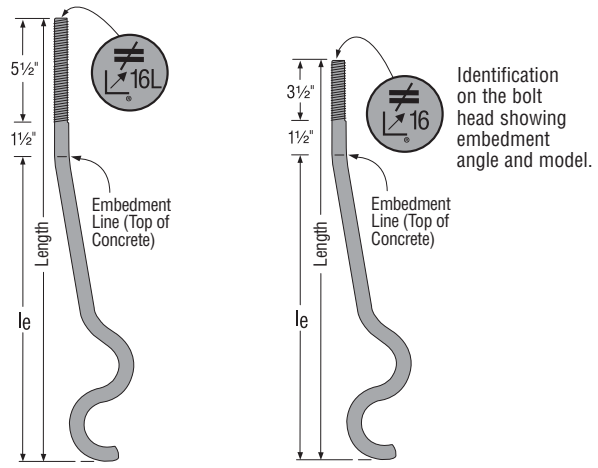
FINISH: None. May be ordered HDG; contact Simpson Strong-Tie.

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 20 MPa.
- 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 tensile capacities are the same. SSTB34 and SSTB36 feature 4½" and 6½" of thread respectively and are not available in "L" versions.

REINFORCED CONCRETE BLOCK

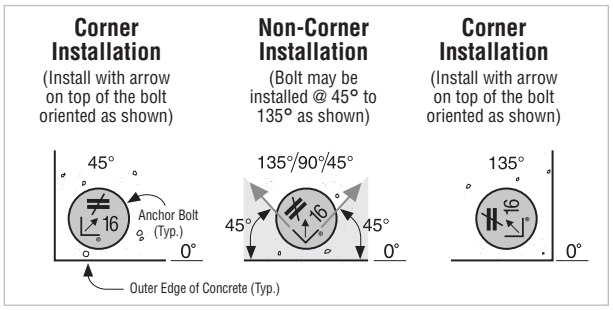
- Before concrete pour, install diagonally at approximately 45° in the cell.
- Grout all cells with coarse grout per CSA A179. Vibrate the grout per Code.
- See typical SSTB Installation in Grouted Concrete Block detail on page 42.



SSTB16L
(other models similar)

SSTB16
(other models similar)

See pages 41-42 for additional installation details.



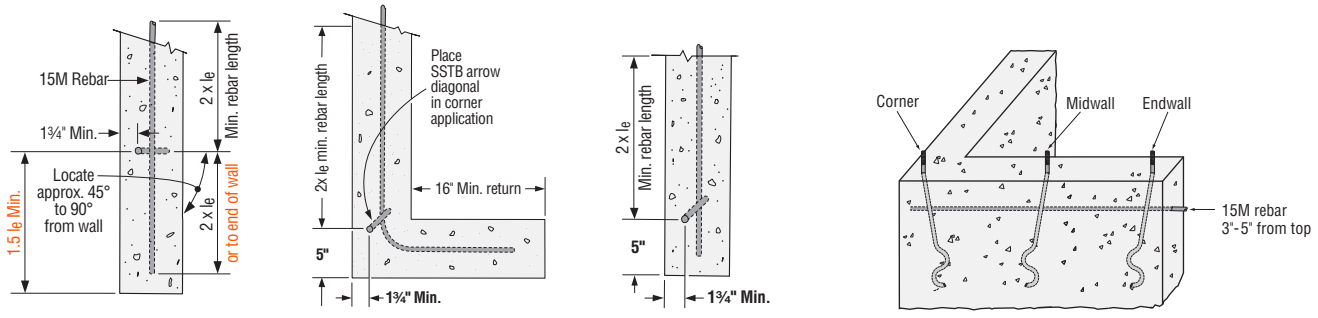
Plan View of SSTB Placement in Concrete

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.

SSTB Bolts at Stemwall

Model No.	Dimensions (in)				Factored Tensile Resistance					
					Wind/Seismic $I_E F_a S_a(0.2) < 0.35$			Seismic $I_E F_a S_a(0.2) \geq 0.35$		
	Stemwall Width	Dia.	Length	Min. Embed. (l_e)	Midwall	Corner	End Wall	Midwall	Corner	End Wall
					lbs	lbs	lbs	lbs	lbs	lbs
					kN	kN	kN	kN	kN	kN
SSTB16	6	⅝	17⅝ (16L = 19⅝)	12⅝	5365	5365	5365	3380	3380	3380
					23.87	23.87	23.87	15.04	15.04	15.04
SSTB20	6	⅝	21⅝ (20L = 24⅝)	16⅝	6415	6005	6005	4170	3895	3895
					28.54	26.71	26.71	18.55	17.33	17.33
SSTB24	6	⅝	25⅝ (24L = 28⅛)	20⅝	7470	6645	6645	4960	4410	4410
					33.23	29.56	29.56	22.06	19.62	19.62
SSTB28	8	⅞	29⅞ (28L = 32⅞)	24⅞	14710	12940	11315	11035	9705	8485
					65.44	57.56	50.33	49.09	43.17	37.74
SSTB34	8	⅞	34⅞	28⅞	14710	12940	11315	11035	9705	8485
					65.44	57.56	50.33	49.09	43.17	37.74
SSTB36	8	⅞	36⅞	28⅞	14710	12940	11315	11035	9705	8485
					65.44	57.56	50.33	49.09	43.17	37.74

1. See page 42 for notes to the Designer.

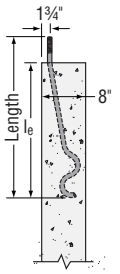


Midwall **Corner** **End Wall** **Perspective View**

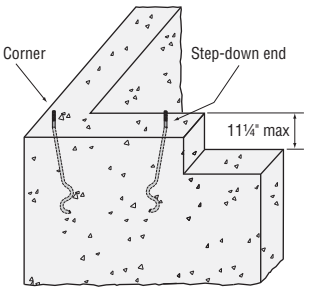
STEMWALL PLAN VIEWS

SSTB Bolts at Stemwall: Garage Front

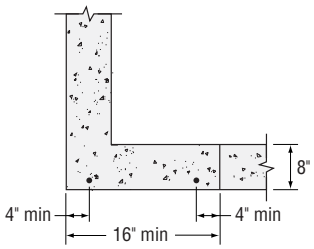
Model No.	Dimensions (in)				Factored Tensile Resistance			
					Wind/Seismic $I_E F_a S_a(0.2) < 0.35$		Seismic $I_E F_a S_a(0.2) \geq 0.35$	
	Stemwall Width	Dia.	Length	Min. Embed. (l_e)	Step-Down End	Corner	Step-Down End	Corner
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
SSTB28	8	⅞	29⅞	24⅞	10425	10470	7820	7850
					46.37	46.57	34.79	34.92



Stemwall Garage Front



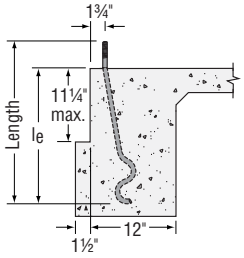
Perspective View



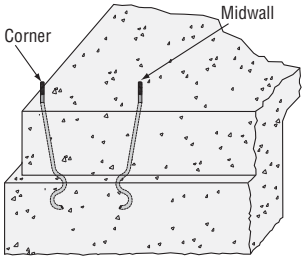
Plan View

SSTB Bolts at Slab on Grade: Edge

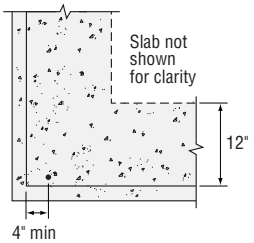
Model No.	Dimensions (in)				Factored Tensile Resistance			
					Wind/Seismic $I_E F_a S_a(0.2) < 0.35$		Seismic $I_E F_a S_a(0.2) \geq 0.35$	
	Footing Width	Dia.	Length	Min. Embed. (l_e)	Midwall	Corner	Midwall	Corner
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
SSTB16	12	⅝	17⅝	12⅝	7955	7955	5015	5015
					35.39	35.39	22.31	22.31
SSTB20	12	⅝	21⅝	16⅝	8915	8915	6345	6345
					39.66	39.66	28.23	28.23
SSTB24	12	⅝	25⅝	20⅝	8915	8915	7680	7680
					39.66	39.66	34.16	34.16
SSTB28	12	⅞	29⅞	24⅞	18220	18220	14670	15400
					81.05	81.05	65.26	68.51
SSTB34	12	⅞	34⅞	28⅞	18220	18220	14670	15400
					81.05	81.05	65.26	68.51
SSTB36	12	⅞	36⅞	28⅞	18220	18220	14670	15400
					81.05	81.05	65.26	68.51



Slab Edge



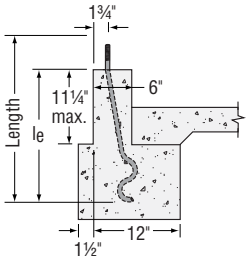
Perspective View



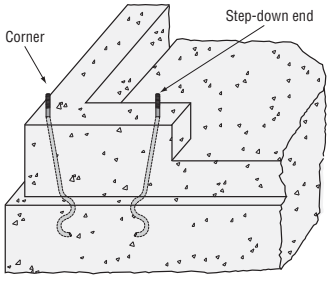
Plan View

SSTB Bolts at Slab on Grade: Garage Curb

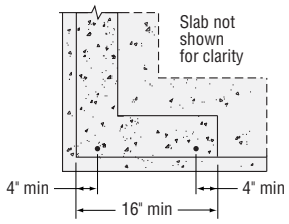
Model No.	Dimensions (in)				Factored Tensile Resistance			
					Wind/Seismic $I_E F_a S_a(0.2) < 0.35$		Seismic $I_E F_a S_a(0.2) \geq 0.35$	
	Curb Width	Dia.	Length	Min. Embed. (l_e)	Step-Down End	Corner	Step-Down End	Corner
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
SSTB28	6	⅞	29⅞	24⅞	15255	18220	11440	13785
					67.86	81.05	50.89	61.32



Slab Garage Curb



Perspective View



Plan View

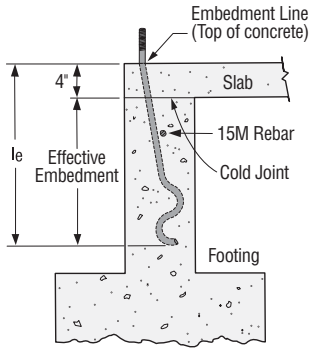
Notes to the Designer:

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. Factored resistances have been developed based on testing per ICC AC399 in uncracked concrete using the corresponding adjustment factors from CSA A23.3-14 Annex D.
4. Factored resistances for seismic $I_E F_a S_a(0.2) \geq 0.35$ applications assumes ductile yielding in the attachment. See D.4.3.5.3 CSA A23.3-14 for more information.
5. See ESR-2611 for additional information.
6. Midwall capacities apply when anchor is 1.5 l_e or greater from the end. For bolts acting in tension simultaneously, the minimum bolt centre-to-centre spacing is 3 l_e.

SSTB Bolts in 8" CMU Wall

Model No.	Dimensions (in)			Factored Tensile Resistance	
	Dia.	Length	Min. Embed. (l_e)	Midwall	End Wall
				lbs	lbs
				kN	kN
SSTB16	⅝	17⅝ (16L = 19⅝)	12⅝	5715	2340
				25.42	10.41
SSTB20	⅝	21⅝ (20L = 24⅝)	16⅝	5715	2340
				25.42	10.41
SSTB24	⅝	25⅝ (24L = 28⅛)	20⅝	5715	2340
				25.42	10.41
SSTB28	⅞	29⅞ (28L = 32⅞)	24⅞	8030	5760
				35.72	25.62
SSTB34	⅞	34⅞	28⅞	8030	5760
				35.72	25.62
SSTB36	⅞	36⅞	28⅞	8030	5760
				35.72	25.62

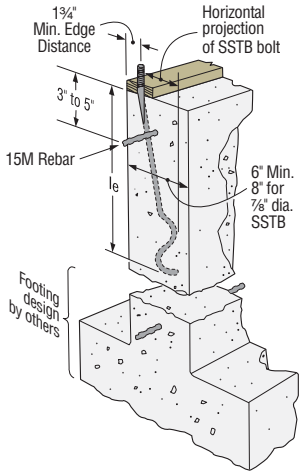
1. Factored resistances shown are based on testing per CSA A370-14.
2. Reinforced concrete masonry units shall have a minimum specified compressive strength of 15 MPa per CSA S304.1-14 using Type N mortar and filled solid using coarse grout per CSA A179-14.
3. Minimum end distance required to achieve Midwall resistance is 1.5 l_e.
4. Minimum end distance required to achieve End Wall resistance is 4¼".
5. See installation detail for minimum reinforcing requirements.



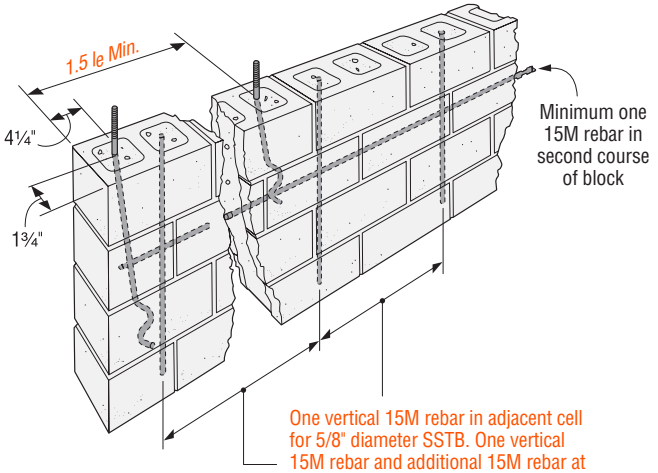
Two Pour Installation
(SSTB20, 24 and 34)

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.



Typical SSTB Installation in Concrete Foundation
Maintain minimum rebar cover, per CSA A23.1-14 requirements



Typical SSTB Installation in Grouted Concrete Block

PAB *Pre-Assembled Anchor Bolt*

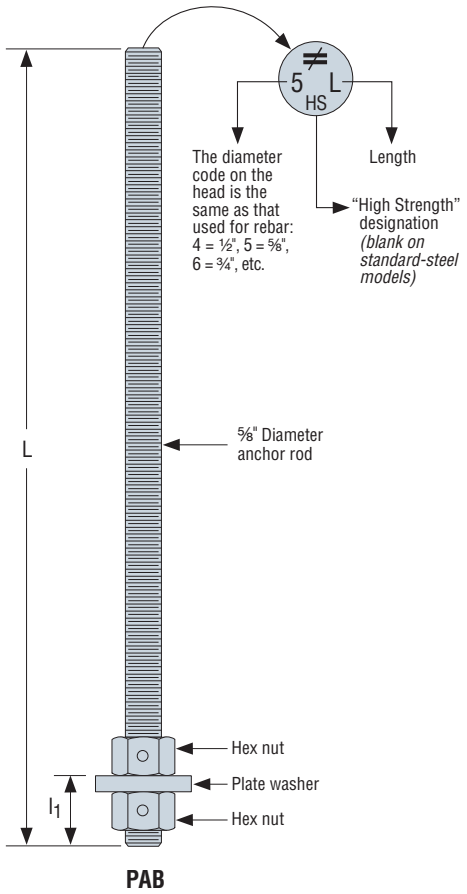
The PAB anchor bolt is a versatile new cast-in-place anchor bolt ideal for high-tension-load applications. It features a plate washer at the embedded end sandwiched between two fixed hex nuts and a head stamp for easy identification after the pour.

- 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 CSA A23.3 Annex D Limit States Design methodology. It provides cracked and uncracked-concrete anchorage solutions for numerous Simpson Strong-Tie Anchor Systems® mechanical and adhesive anchors as well as the PAB anchor. 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	2½	PAB10-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)*.

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	2½	PAB10H-XX	

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

Naming Scheme:

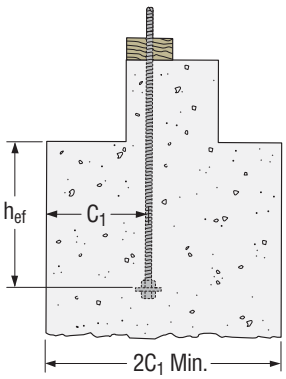
PAB5H-12

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

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

PAB Anchor Bolt – Anchorage Solutions

Model No.	Diameter (in)	Factored Tensile Resistance N_r					
		Wind/Seismic $I_E F_a S_a(0.2) < 0.35$			Seismic $I_E F_a S_a(0.2) \geq 0.35$		
		h_{ef}	C_1	N_r	h_{ef}	C_1	N_r
		in	in	lbs	in	in	lbs
		mm	mm	kN	mm	mm	kN
PAB4	½	4	7	5600	4	7	5600
		102	178	24.91	102	178	24.91
PAB5	⅝	5	8.5	8915	6	10	8915
		127	216	39.66	152	254	39.66
PAB6	¾	6	10	13175	7	11.5	13175
		152	254	58.61	178	292	58.61
PAB7	⅞	8	13.5	18225	9	15	18225
		203	343	81.07	229	381	81.07
PAB7H	⅞	12	19	37725	15	24	37725
		305	483	167.82	381	610	167.82
PAB8	1	9	15	23905	11	18	23905
		229	381	106.34	279	457	106.34
PAB8H	1	15	24	49485	*18*	*28.5*	*49485*
		381	610	220.13	*457*	*724*	*220.13*
PAB9	1⅛	11	18	30100	13	21	30100
		279	457	133.90	330	533	133.90
PAB10	1¼	12	19.5	38225	15	24	38225
		305	495	170.04	381	610	170.04



Design values are calculated using a full shear cone. Coverage on each side of the bolt shall be a minimum of C_1 or reductions must be taken.

1. Factored resistances shown are in accordance with CSA A23.3-14 Annex D using 20 MPa concrete assuming cracked concrete and no supplementary reinforcement (Category B).
2. PAB8H values shown in italics for seismic applications require minimum 25 MPa concrete.
3. Foundation dimensions are for anchorage only. Foundation design *(size and reinforcement)* is the responsibility of the design professional.
4. Factored resistances for seismic $I_E F_a S_a(0.2) \geq 0.35$ applications assumes ductile yielding in the attachment. See D.4.3.5.3 CSA A23.3-14 for more information.

MASA/MASAP *Mudsill Anchors*

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

Mudsill anchors have always been a time-saving alternative to anchor bolts, and the new MASA anchors provide even greater load-carrying capacity than our original MAS. As a result, the MASA provides an alternative for ⅝" and ½" mudsill anchor bolts on 2x, double-2x and 3x mudsills. Two versions of the MASA are available – the standard MASA for installation on standard forms and the MASAP for panelized forms.

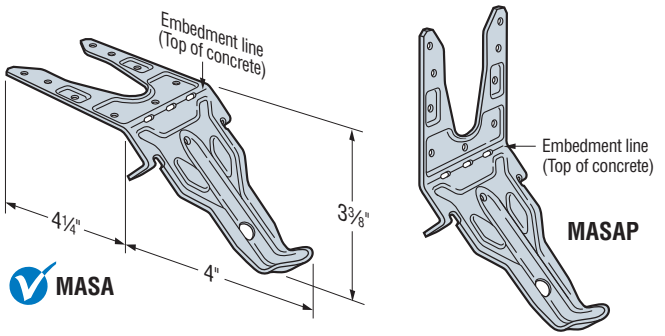
The MASA and MASAP have been tested to meet the requirements of ICC-ES acceptance criteria AC-398 for cracked and uncracked concrete. New test data is reflected in the table below.

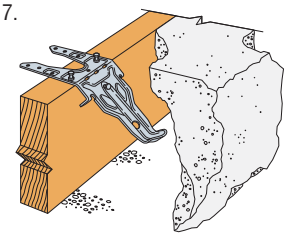
MATERIAL: 16 gauge

FINISH: Galvanized, all available in ZMAX® coating. See Corrosion Information, pages 14-17.

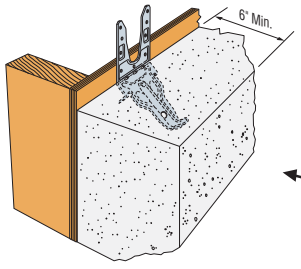
INSTALLATION: • Use all specified fasteners. See General Notes.

- Concrete shall have a minimum f'c = 2500 psi (17.25 MPa).
- Spalling—Full resistances 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.
- Minimum MASA end distance is 4" and minimum centre-to-centre spacing is 8" for full capacity.

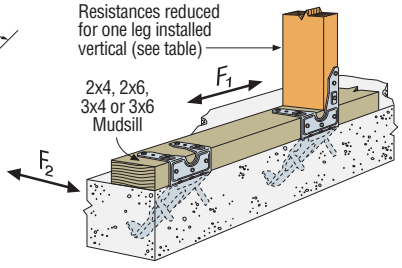




Typical MASA Installation in Concrete



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.

Factored Resistance for Non-Cracked Concrete

Model No.	Sill Plate Size	Fasteners		Factored Resistance Non-Cracked Concrete									
				Wind/Seismic $I_eF_aS_a(0.2) < 0.35$					Seismic $I_eF_aS_a(0.2) \geq 0.35$				
				Uplift	F_1		F_2		Uplift	F_1		F_2	
		Sides	Top	(K_D=1.15)	(K_D=1.15)	(K_D=0.65)	(K_D=1.15)	(K_D=0.65)	(K_D=1.15)	(K_D=1.15)	(K_D=0.65)	(K_D=1.15)	(K_D=0.65)
				lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
				kN	kN	kN	kN	kN	kN	kN	kN	kN	kN
STANDARD INSTALLATION – Attached to D.Fir-L Sill Plate													
MASA or MASAP	2x4, 2x6	3-10dx1½	6-10dx1½	1235	2000	1130	1800	1035	1155	1810	1130	1490	1035
				5.49	8.90	5.03	8.01	4.60	5.14	8.05	5.03	6.63	4.60
	3x4, 3x6	5-10dx1½	4-10dx1½	935	1910	1130	1260	710	730	1430	1130	1245	710
				4.16	8.50	5.03	5.60	3.16	3.25	6.36	5.03	5.54	3.16
ONE LEG UP INSTALLATION – Attached to D.Fir-L Sill Plate													
MASA or MASAP	2x4, 2x6	6-10dx1½	3-10dx1½	1115	1330	755	—	—	875	1025	755	—	—
				4.96	5.92	3.36	—	—	3.89	4.56	3.36	—	—
BOTH LEGS OVER MAX. ½" PLYWOOD OR OSB INSTALLATION – Attached to D.Fir-L Sill Plate and Rimboard													
MASA or MASAP	2x4, 2x6	9-10dx1½	—	1310	1560	1130	—	—	980	1170	1130	—	—
				5.83	6.94	5.03	—	—	4.36	5.20	5.03	—	—
DOUBLE 2x SILL PLATE INSTALLATION – Attached to D.Fir-L Sill Plate													
MASA or MASAP	2x4, 2x6	5-10dx1½	2-10dx1½	1300	1555	880	1315	745	975	1290	880	1315	745
				5.78	6.92	3.91	5.85	3.31	4.34	5.74	3.91	5.85	3.31
STANDARD INSTALLATION – Attached to S-P-F Sill Plate													
MASA or MASAP	2x4, 2x6	3-10dx1½	6-10dx1½	875	1505	1040	1275	735	875	1505	1040	1275	735
				3.89	6.69	4.63	5.67	3.27	3.89	6.69	4.63	5.67	3.27
	3x4, 3x6	5-10dx1½	4-10dx1½	665	1615	1040	895	505	665	1430	1040	895	505
				2.96	7.18	4.63	3.98	2.25	2.96	6.36	4.63	3.98	2.25
ONE LEG UP INSTALLATION – Attached to S-P-F Sill Plate													
MASA or MASAP	2x4, 2x6	6-10dx1½	3-10dx1½	795	950	650	—	—	795	950	650	—	—
				3.54	4.23	2.89	—	—	3.54	4.23	2.89	—	—
BOTH LEGS OVER MAX. ½" PLYWOOD OR OSB INSTALLATION – Attached to S-P-F Sill Plate and Rimboard													
MASA or MASAP	2x4, 2x6	9-10dx1½	—	960	1290	840	—	—	960	1170	840	—	—
				4.27	5.74	3.74	—	—	4.27	5.20	3.74	—	—
DOUBLE 2x SILL PLATE INSTALLATION – Attached to S-P-F Sill Plate													
MASA or MASAP	2x4, 2x6	5-10dx1½	2-10dx1½	1000	1170	760	935	525	975	1170	760	935	525
				4.45	5.20	3.38	4.16	2.34	4.34	5.20	3.38	4.16	2.34

1. Factored resistances shown are based on testing per ICC AC398 using the corresponding adjustment factors from CSA A23.3-14 Annex D.
2. The minimum 28-day concrete compressive strength (f'_c) shall be 2500 psi (17.25 MPa).
3. Factored resistances are base on a minimum wall width of 6".
4. For simultaneous loads in more than one direction, the connector must be evaluated using the unity equation (*see Instructions for the Designer, Note b. on page 20*).
5. **NAILS:** 10dx1½" = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

MASA/MASAP *Mudsill Anchors*

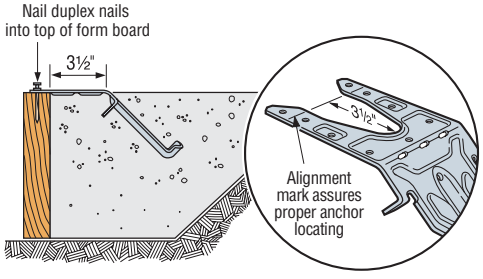
Factored Resistance for Cracked Concrete

Model No.	Sill Plate Size	Fasteners: Sides	Fasteners: Top	Factored Resistance Cracked Concrete									
				Wind/Seismic $I_eF_aS_a(0.2) < 0.35$					Seismic $I_eF_aS_a(0.2) \geq 0.35$				
				Uplift	F_1		F_2		Uplift	F_1		F_2	
				(K_D=1.15)	(K_D=1.15)	(K_D=0.65)	(K_D=1.15)	(K_D=0.65)	(K_D=1.15)	(K_D=1.15)	(K_D=0.65)	(K_D=1.15)	(K_D=0.65)
				lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
				kN	kN	kN	kN	kN	kN	kN	kN	kN	kN
STANDARD INSTALLATION – Attached to D.Fir-L Sill Plate													
MASA or MASAP	2x4, 2x6	3-10dx1½	6-10dx1½	1165	2000	1130	1455	1035	875	1810	1130	1090	1035
				5.18	8.90	5.03	6.47	4.60	3.89	8.05	5.03	4.85	4.60
	3x4, 3x6	5-10dx1½	4-10dx1½	735	1910	1130	1215	710	550	1430	1130	910	710
				3.27	8.50	5.03	5.40	3.16	2.45	6.36	5.03	4.05	3.16
ONE LEG UP INSTALLATION – Attached to D.Fir-L Sill Plate													
MASA or MASAP	2x4, 2x6	6-10dx1½	3-10dx1½	880	1330	755	—	—	660	1025	755	—	—
				3.91	5.92	3.36	—	—	2.94	4.56	3.36	—	—
BOTH LEGS OVER MAX. ½" PLYWOOD OR OSB INSTALLATION – Attached to D.Fir-L Sill Plate and Rimboard													
MASA or MASAP	2x4, 2x6	9-10dx1½	—	1125	1560	1130	—	—	840	1170	1130	—	—
				5.00	6.94	5.03	—	—	3.74	5.20	5.03	—	—
DOUBLE 2x SILL PLATE INSTALLATION – Attached to D.Fir-L Sill Plate													
MASA or MASAP	2x4, 2x6	5-10dx1½	2-10dx1½	985	1555	880	1315	745	735	1290	880	1150	745
				4.38	6.92	3.91	5.85	3.31	3.27	5.74	3.91	5.12	3.31
STANDARD INSTALLATION – Attached to S-P-F Sill Plate													
MASA or MASAP	2x4, 2x6	3-10dx1½	6-10dx1½	875	1505	1040	1275	735	875	1505	1040	1090	735
				3.89	6.69	4.63	5.67	3.27	3.89	6.69	4.63	4.85	3.27
	3x4, 3x6	5-10dx1½	4-10dx1½	665	1615	1040	895	505	550	1430	1040	895	505
				2.96	7.18	4.63	3.98	2.25	2.45	6.36	4.63	3.98	2.25
ONE LEG UP INSTALLATION – Attached to S-P-F Sill Plate													
MASA or MASAP	2x4, 2x6	6-10dx1½	3-10dx1½	795	950	650	—	—	660	950	650	—	—
				3.54	4.23	2.89	—	—	2.94	4.23	2.89	—	—
BOTH LEGS OVER MAX. ½" PLYWOOD OR OSB INSTALLATION – Attached to S-P-F Sill Plate and Rimboard													
MASA or MASAP	2x4, 2x6	9-10dx1½	—	960	1290	840	—	—	840	1170	840	—	—
				4.27	5.74	3.74	—	—	3.74	5.20	3.74	—	—
DOUBLE 2x SILL PLATE INSTALLATION – Attached to S-P-F Sill Plate													
MASA or MASAP	2x4, 2x6	5-10dx1½	2-10dx1½	985	1170	760	935	525	735	1170	760	935	525
				4.38	5.20	3.38	4.16	2.34	3.27	5.20	3.38	4.16	2.34

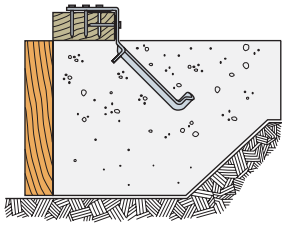
See foot notes on page 44.

ALTERNATIVE MUDSILL ANCHOR INSTALLATIONS

ALTERNATE INSTALLATION FOR INSIDE OF WALL CONTINUITY

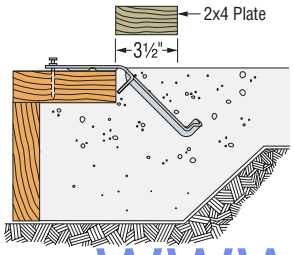


1 **STEP 1:**
Attach MASA 3½" from inside of form. After concrete cures, remove nails and bend straps up 90°

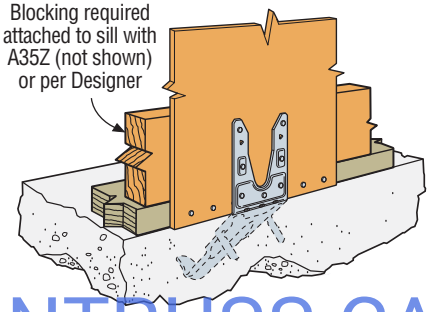


2 **STEP 2:**
Place mudsill on concrete and nail MASA over mudsill

ALTERNATE INSTALLATION FOR BRICK LEDGES



Alternate MASA Installation for Brick Ledges



MASA/MASAP Rim Joist or Blocking Installation in Concrete Over Max. ½" Sheathing

LMAZ/MAB/MASB *Mudsill Anchors*

The LMAZ offers a higher lateral load capacity in a lighter gauge.

The MASB is designed for installation on concrete masonry units.

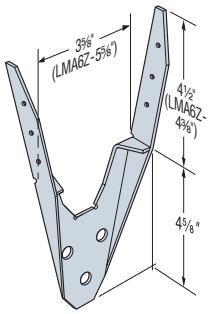
The MAB anchors the mudsill to concrete block, poured walls or slab foundation.

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

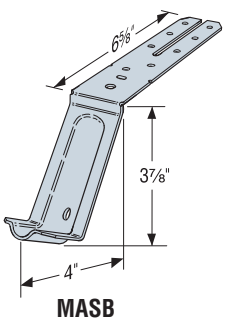
FINISH: Galvanized. Some products available in ZMAX®; LMAZ—ZMAX only. See Corrosion Information, pages 14-17.

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

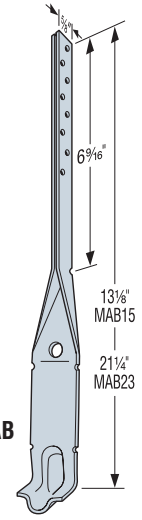
- Not for use where (a) a horizontal cold joint exists between the slab and foundation wall or footing beneath, unless provisions are made to transfer the load, or (b) anchors are installed in slabs poured over foundation walls formed of concrete block. All grout and concrete must have a minimum f'c of 2000 psi (13.8 MPa).
- MASB—First fill CMU cell with concrete grout. Place MASB into the grouted cell, and adjust into position. Attach mudsill to anchor after the concrete cures.
- MAB—When used in monolithic slab or stemwall construction, prior to installation, spread the MAB legs to accommodate mudsill. Immediately after pouring and screeding, insert into the concrete or grout. Attach the mudsill to the anchor with 10dx1½" nails after the concrete cures. When installed in grouted concrete block or solid pour for a centre hole installation, drill a ¾" hole through the mudsill and install straps through the hole. Wrap MAB straps around the mudsill and install 10dx1½" nails.



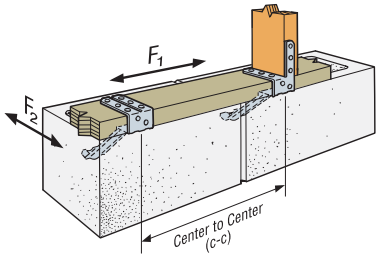
LMA4Z
(LMA6Z similar)



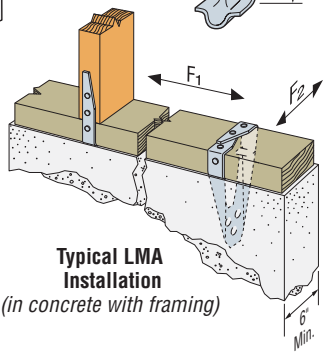
MASB



MAB



Typical MASB Installation

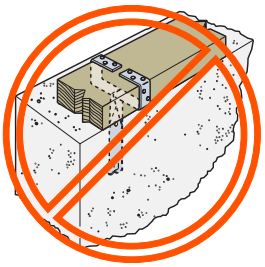


Typical LMA Installation
(in concrete with framing)

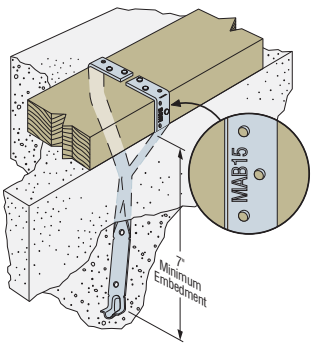
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Sill Size	Fasteners		Factored Resistance (K_D = 1.15)					
				D.Fir-L			S-P-F		
		Sides (total)	Top	Uplift	Parallel to Plate F_1	Perp. to Plate F_2	Uplift	Parallel to Plate F_1	Perp. to Plate F_2
				lbs	lbs	lbs	lbs	lbs	lbs
				kN	kN	kN	kN	kN	kN
MASB	2x4, 2x6	2-10dx1½	6-10dx1½	200	1315	900	140	935	640
				0.89	5.85	4.00	0.62	4.16	2.85
MAB15	2x4, 2x6	2-10dx1½	4-10dx1½	800	725	705	570	515	500
				3.56	3.23	3.14	2.54	2.29	2.22
MAB23	2x4, 2x6	2-10dx1½	4-10dx1½	800	725	705	570	515	500
				3.56	3.23	3.14	2.54	2.29	2.22
LMA4Z	2x4	2-10dx1½	4-10dx1½	1410	955	930	1000	675	660
				6.27	4.25	4.14	4.45	3.00	2.94
	3x4	4-10dx1½	2-10dx1½	1410	955	930	1000	675	660
				6.27	4.25	4.14	4.45	3.00	2.94
LMA6Z	2x6	2-10dx1½	4-10dx1½	1410	1165	1125	1000	825	800
				6.27	5.18	5.00	4.45	3.67	3.56
	3x6	4-10dx1½	4-10dx1½	1570	1165	1125	1115	825	800
				6.98	5.18	5.00	4.96	3.67	3.56

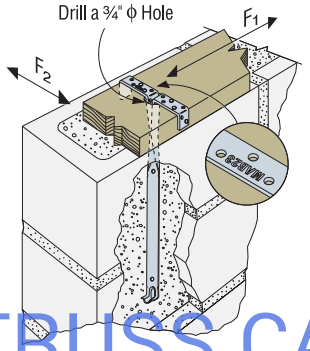
1. Factored resistances have been increased 15% for short-term load duration. Reduce where other durations govern.
2. For factored uplift resistances, provide attachment from the mudsill to the building structural components to prevent cross grain bending.
3. LMA attached to the studs has a factored uplift resistance of 1125 lbs (5.00 kN) for D.Fir-L and 800 lbs (3.55kN) for S-P-F; a factored F_1 resistance of 1025 lbs (4.56 kN) for D.Fir-L and 725 lbs (3.22 kN) for S-P-F; a factored F_2 resistance of 1075 lbs (4.78 kN) for D.Fir-L and 760 lbs (3.38 kN) for S-P-F.
4. MASB with one leg attached to the studs has a factored uplift resistance of 200 lbs (0.89 kN) for D.Fir-L and 140 lbs (0.62 kN) for S-P-F; a factored F_1 resistance of 1110 lbs (4.93 kN) for D.Fir-L and 1020 lbs (4.54 kN) for S-P-F; a factored F_2 resistance of 895 lbs (3.98 kN) for D.Fir-L and 635 lbs (2.82 kN) for S-P-F.
5. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See pages 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



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

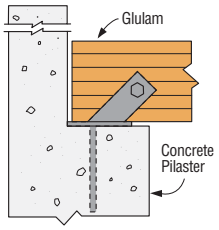
GLB/HGLB/GLBT *Beam Seats*

The GLB Series provides a connection between beam and concrete or CMU pilaster.

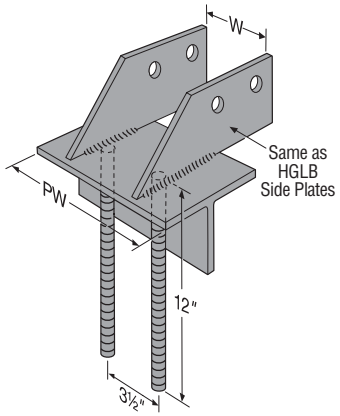
FINISH: Simpson Strong-Tie® gray paint. Hot-dip galvanized available. Specify HDG.

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 12.4.1.2 CSA 086-14)*.
- Check the rebar spacing requirements on all installations.

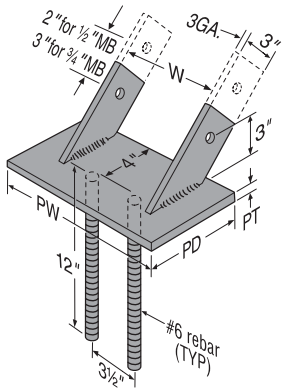
OPTIONS: • Beam seats for sawn timber and other sizes may be ordered by specifying special dimensions; use the letter designations shown on the illustrations.
- Specify if two-bolt GLB model is desired; see illustration.



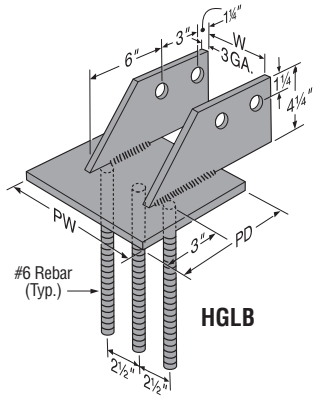
Typical GLB Installation



GLBT



GLB



HGLB

Model No.	Dimensions (in)				Bolts		Factored Bearing Resistance (K_D = 1.00)				Factored Horizontal Resistance (K_D = 1.15)	
							Concrete Block Masonry[1]		Concrete[2]		D.Fir-L Glulam	Spruce-Pine Glulam
	W[6]	PD	PW	PT	Qty	Dia.	Type N Mortar	Type S Mortar	D.Fir-L Glulam	Spruce-Pine Glulam		
							lbs	lbs	lbs	lbs	lbs	lbs
							kN	kN	kN	kN	kN	kN
GLB5A	5¼	5	7	3 ga	1	½"	7765	9700	23930	19805	—	—
							34.54	43.15	106.45	88.10	—	—
GLB5B	5¼	6	7	⅜"	1	½"	9320	11640	28715	23765	—	—
							41.46	51.78	127.74	105.72	—	—
GLB5C	5¼	7	7	⅜"	1	½"	10870	13580	33500	27725	—	—
							48.35	60.41	149.02	123.33	—	—
GLB5D	5¼	8	7	⅜"	1	½"	12425	15520	38285	31685	—	—
							55.27	69.04	170.31	140.95	—	—
GLB7A	6⅞	5	9	3 ga	1	¾"	9985	12475	31040	26565	—	—
							44.42	55.49	138.08	118.17	—	—
GLB7B	6⅞	6	9	⅜"	1	¾"	11980	14970	38520	31880	—	—
							53.29	66.59	171.35	141.81	—	—
GLB7C	6⅞	7	9	⅜"	1	¾"	13975	17465	44940	37190	—	—
							62.17	77.69	199.91	165.44	—	—
GLB7D	6⅞	8	9	⅜"	1	¾"	15975	19955	51360	42505	—	—
							71.06	88.77	228.47	189.08	—	—
HGLBA	3¼	5	10	⅜"	2	¾"	7625	9530	14590	12075	4680	4620
							33.92	42.39	64.90	53.71	20.82	20.55
	5¼	5	10	⅜"	2	¾"	9845	12300	23930	19805	4680	4680
							43.79	54.72	106.45	88.10	20.82	20.82
	7	5	10	⅜"	2	¾"	11095	13860	32100	26565	4680	4680
							49.35	61.65	142.79	118.17	20.82	20.82
	8⅝	5	10	⅜"	2	¾"	11095	13860	39685	32845	4680	4680
							49.35	61.65	176.53	146.11	20.82	20.82
HGLBB	3¼	6	10	⅜"	2	¾"	9150	11435	17510	14490	5280	4620
							40.70	50.87	77.89	64.46	23.49	20.55
	5¼	6	10	⅜"	2	¾"	11815	14760	28715	23765	8580	7510
							52.56	65.66	127.74	105.72	38.17	33.41
	7	6	10	⅜"	2	¾"	13310	16630	38520	31880	11555	10110
							59.21	73.98	171.35	141.81	51.40	44.97
	8⅝	6	10	⅜"	2	¾"	13310	16630	47625	39415	14060	12420
							59.21	73.98	211.85	175.33	62.54	55.25
HGLBC	3¼	7	10	⅜"	2	¾"	10675	13340	20425	16905	5280	4620
							47.49	59.34	90.86	75.20	23.49	20.55
	5¼	7	10	⅜"	2	¾"	13780	17220	33500	27725	8580	7510
							61.30	76.60	149.02	123.33	38.17	33.41
	7	7	10	⅜"	2	¾"	15530	19405	44940	37190	11555	10110
							69.08	86.32	199.91	165.44	51.40	44.97
	8⅝	7	10	⅜"	2	¾"	15530	19405	55560	45980	14060	12420
							69.08	86.32	247.15	204.54	62.54	55.25
HGLBD	3¼	8	10	⅜"	2	¾"	12200	15245	23345	19320	5280	4620
							54.27	67.82	103.85	85.94	23.49	20.55
	5¼	8	10	⅜"	2	¾"	15750	19680	38285	31685	8580	7510
							70.06	87.54	170.31	140.95	38.17	33.41
	7	8	10	⅜"	2	¾"	17750	22175	51360	42505	11555	10110
							78.96	98.64	228.47	189.08	51.40	44.97
	8⅝	8	10	⅜"	2	¾"	17750	22175	63500	52550	14060	12420
							78.96	98.64	282.47	233.76	62.54	55.25
GLBT512[4]	—	5¼	12	5/16"	2	¾"	13975	17465	See foonote 3	See foonote 3	8580[8]	7510[8]
							62.17	77.69			38.17	33.14
GLBT612[4]	—	6½	12	⅜"	2	¾"	17305	21620			8580[8]	7510[8]
							76.98	96.17			38.17	33.14
GLBT516	—	5¼	16	5/16"	2	¾"	18635	23285			8580[8]	7510[8]
							82.90	103.58			38.17	33.14
GLBT616	—	6½	16	⅜"	2	¾"	23070	28825			8580[8]	7510[8]
							102.62	128.23			38.17	33.14
GLBT520	—	5¼	20	5/16"	2	¾"	23295	29105			8580[8]	7510[8]
							103.63	129.47			38.17	33.14
GLBT620	—	6½	20	⅜"	2	¾"	36035	28840			8580[8]	7510[8]
							160.30	128.29			38.17	38.14

1. Factored bearing resistances for concrete block masonry assume a compressive unit strength of 15.0 MPa (net area) using solid or grouted units as per Table 4 of CSA S304-14.
2. Factored bearing resistances for concrete assume a 28-day compressive strength (f'_c) of 20 MPa as per CSA A23.3-14.
3. Bearing resistance of wood member will govern for these applications. Calculate factored resistance in accordance with CSA O86-14.
4. Bearing resistances shown assume a glulam width of 10½". For smaller widths, ensure that the factored bearing resistance of the wood member does not govern.
5. The GLBT5 has a WT4x9 structural tee; the GLTB6 has a WT4x12 structural tee.
6. Specify "W" dimension when ordering HGLB and GLTB beam seats.
7. Factored horizontal resistances include a 15% increase for short term loading; reduce if masonry or concrete is limiting.
8. For beam widths greater than or equal to 6⅞", the factored horizontal resistance is 11,025 lbs (49.04 kN).

PAI/MPAI *Purlin Anchors*

Wood-to-concrete and -concrete block connectors. The PA's dual embedment line allows installation in concrete or concrete block.

MATERIAL: MPAI—14 gauge; PAI—12 gauge

FINISH: Galvanized. Some products available HDG or ZMAX® coating.

INSTALLATION: • Minimum concrete strength is 15 MPa.

- Use all specified fasteners; some models have extra fastener holes. See General Notes.
- Wood splitting may occur when anchor is nailed to wood less than 3½" wide. To reduce splitting for widths less than 3½", fill every other nail hole with 10dx1½" nails. Reduce the factored resistance based on the size and quantity of fasteners used. *(See nail table on page 22.)*

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

CONCRETE BLOCK WALLS—The masonry embedment line on PAI, MPAI allows for 4" of grout embedment in a standard 8" concrete masonry unit.

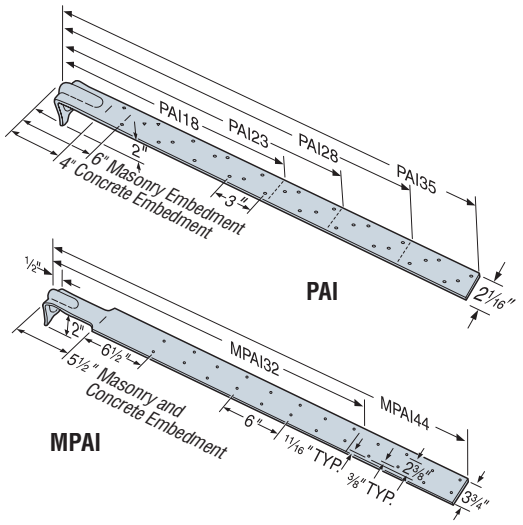
The minimum wall specifications are:

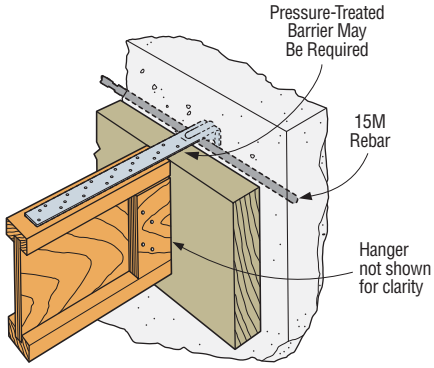
A One 15M vertical rebar, 32" long, 16" each side of anchor;

B Two courses of grout filled block above and below the anchor *(no cold joints allowed)*;

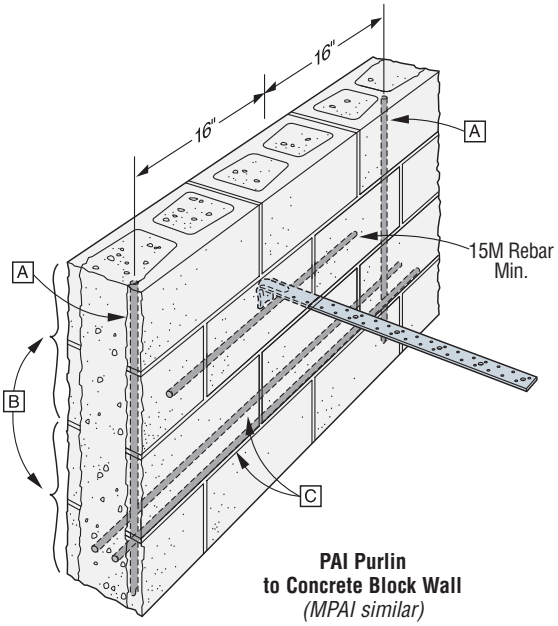
C A horizontal bond beam with two 15M rebars, 40" long, a maximum of two courses above or below the anchor.

All cells grouted with 15MPa ⅜" aggregate grout. Grout shall be vibrated per the Code. Rebar quantities, sizes and lengths are minimum requirements and may be increased per any additional wall design requirements.





PAI Purlin to Concrete Wall
(MPAI similar)



PAI Purlin to Concrete Block Wall
(MPAI similar)

Model No.	L (in)	Fasteners		Factored Tensile Resistance (K_D = 1.15)			
				D.Fir-L		S-P-F	
		Masonry	Concrete	Masonry	Concrete	Masonry	Concrete
				lbs	lbs	lbs	lbs
				kN	kN	kN	kN
No Ledger							
PAI18	18	10-10dx1½	12-10dx1½	2910	3490	2580	3095
				12.94	15.52	11.48	13.77
PAI23	23	15-10dx1½	17-10dx1½	3980	4945	3870	4385
				17.70	22.00	17.22	19.51
PAI28	29	21-10dx1½	23-10dx1½	3980	5215	3980	5215
				17.70	23.20	17.70	23.20
PAI35	35	26-10dx1½	29-10dx1½	3980	5215	3980	5215
				17.70	23.20	17.70	23.20
MPAI32	32	16-10dx1½	—	3920	—	3615	—
				17.44	—	16.08	—
MPAI44	44	24-10dx1½	—	4055	—	4055	—
				18.04	—	18.04	—
1¾" LVL and 2x Ledger							
PAI18	18	9-10dx1½	11-10dx1½	2620	3200	2320	2840
				11.65	14.23	10.32	12.63
PAI23	23	14-10dx1½	16-10dx1½	3980	4655	3610	4130
				17.70	20.71	16.06	18.37
PAI28	29	20-10dx1½	22-10dx1½	3980	5215	3980	5215
				17.70	23.20	17.70	23.20
PAI35	35	26-10dx1½	28-10dx1½	3980	5215	3980	5215
				17.70	23.20	17.70	23.20
MPAI32	32	16-10dx1½	—	3920	—	3615	—
				17.44	—	16.08	—
MPAI44	44	24-10dx1½	—	4055	—	4055	—
				18.04	—	18.04	—
2-2x and 4x Ledger							
PAI18	18	7-10dx1½	9-10dx1½	2035	2620	1805	2320
				9.05	11.65	8.03	10.32
PAI23	23	12-10dx1½	14-10dx1½	3490	3980	3095	3610
				15.52	17.70	13.77	16.06
PAI28	29	18-10dx1½	20-10dx1½	3980	5215	3980	5160
				17.70	23.20	17.70	22.95
PAI35	35	24-10dx1½	26-10dx1½	3980	5215	3980	5215
				17.70	23.20	17.70	23.20
MPAI32	32	16-10dx1½	—	3920	—	3615	—
				17.44	—	16.08	—
MPAI44	44	24-10dx1½	—	4055	—	4055	—
				18.04	—	18.04	—

1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other loads govern.
2. Factored resistances are for horizontal installation into the side of a concrete or masonry wall.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

LTT/HTT *Tension Ties*

SIMPSON Strong-Tie®

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 capacities than their predecessors.

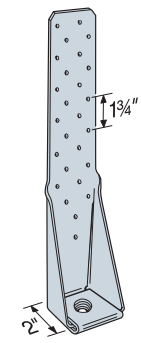
The LTT19 Light Tension Tie is designed for 2x joists or purlins and the LTT20B is for nail- or bolt-on applications. The 3" nail spacing makes the LTT20B suitable for wood I-joists with 10dx1½. The LTTI31 is designed for wood chord open web truss attachments to concrete or masonry walls and may also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

MATERIAL: See table

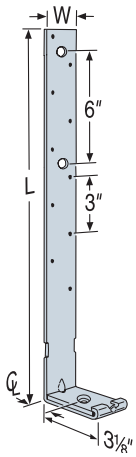
FINISH: Galvanized

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

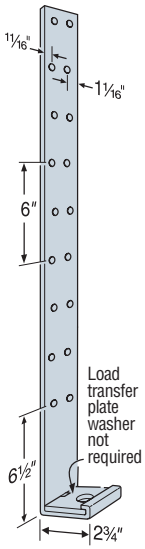
- Use the specified number and type of nails to attach the strap portion to the top or side of purlin or beam *(minimum 4x width (2-2x4 or 4x4), except LTT19)*. Bolt the base to the wall or foundation with a suitable anchor; see table for the required bolt diameter.
- Do not install LTT tension ties raised off the mudsill.
- See AT-XP® anchoring adhesive, page 29.
- 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.



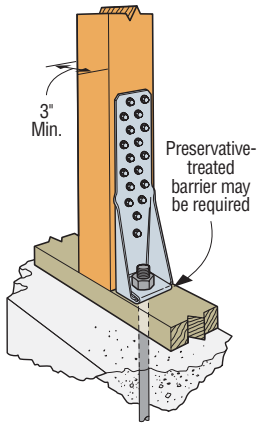
HTT5
(HTT4 similar)
U.S. Patent 5,467,570



LTT20B
(LTT19 similar)



LTTI31

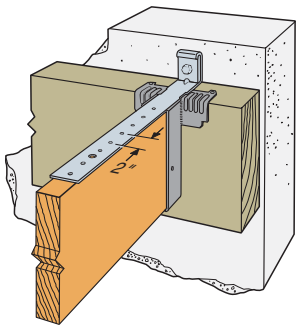


Vertical HTT4 Installation

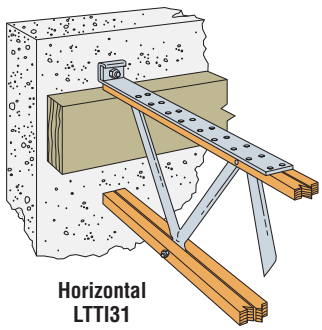
For tension ties, per ASTM test standards, anchor bolt nut should be finger-tight plus ⅓ to ½ turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used.

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 Thickness (in)	Factored Tensile Resistance (K_D = 1.15)		Deflection[6] at Factored Resistance
		W	L	℄[10]	Anchor Bolt Dia. (in)	Fasteners		D.Fir-L	S-P-F	
								lbs	lbs	in
								kN	kN	mm
LTT19	16	1¾	19⅛	1 7⁄16	¾	8-10dx1½	3	1795	1645	0.243
								7.98	7.32	6.17
						8-10d	3	1930	1785	0.241
								8.59	7.94	6.12
LTT20B	12	2	19¾	1½	¾	10-10dx1½	3	1900	1680	0.250
								8.45	7.47	6.35
						10-10d	3	2100	1840	0.250
								9.34	8.19	6.35
						2-½" Bolts	3	2270	2115	0.250
								10.10	9.41	6.35
LTTI31	18	3¾	31	1 7⁄16	⅝	18-10dx1½	3	1890	1560	0.250
								8.41	6.94	6.35
						18-10dx1½	3	3120[8]	2845[8]	0.250
								13.88[8]	12.66[8]	6.35
HTT4	11	2½	12⅜	1 5⁄16	⅝	18-10dx1½	3	4580	4020	0.175
								20.37	17.88	4.45
						18-16d	3	6000	5265	0.225
								26.69	23.42	5.72
HTT5	11	2½	16	1 5⁄16	⅝	26-10dx1½	3	6565	5760	0.250
								29.20	25.62	6.35
						26-10d	3	6720	5895	0.250
								29.89	26.22	6.35
						26-16d	3	7125	6255	0.250
								31.69	27.82	6.35



Horizontal LTT19 Installation
(LTT20B similar)



Horizontal LTTI31 Installation

1. Factored resistances have been increased 15% for short term load duration. Reduce where other load durations govern.
2. The Designer must specify anchor bolt type, length and embedment to ensure adequate anchorage to concrete.
3. Post design shall be by the Designer. Tabulated values are based on a minimum wood member thickness in the direction of the fastener penetration. Post may consist of multiple 2x members provided they are connected independently of the holdown fasteners.
4. Holdowns shall be installed centred along the width of the attached post.
5. Deflection at Factored Resistance includes fastener slip, holdown elongation and anchor bolt elongation (L = 6"). Additional elongation of anchor bolts shall be accounted for by the designer when the length of the anchor bolt above the top of the concrete to the attachment at the holdown is longer than 6". Similar consideration for floor to floor connections must be addressed by the Designer.
6. Deflection values may be reduced linearly for lesser loads including specified wind loads at h/500.
7. A ½" or ⅝" diameter anchor bolt may be used for the LTT19 or the LTT20B. A standard cut washer is required between the anchor bolt nut and the bearing seat of the tension tie for this application.
8. When the LTTI31 is installed with the base flush with the concrete or masonry wall this increased resistance applies.
9. When using structural composite lumber columns, screws must be applied to the wide face of the column *(see technical bulletin T-SCLCOLUMCAN for details)*.
10. Centre line dimension is taken from the face of the post/framing member to the centre of anchor.
11. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long, 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.

LSTHD/STHD *Strap-Tie Holdown*

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, 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.

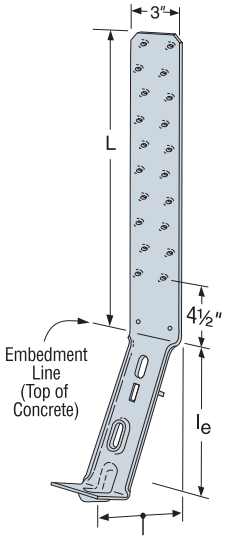
FEATURES

- 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: LSTHD—14 gauge, STHD—12 gauge

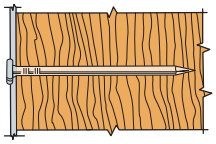
FINISH: Galvanized

INSTALLATION:
- Use all specified fasteners. See General Notes.
- 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 values apply. Any portion of the strap left exposed should be protected against corrosion.
- Unless otherwise noted, 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.

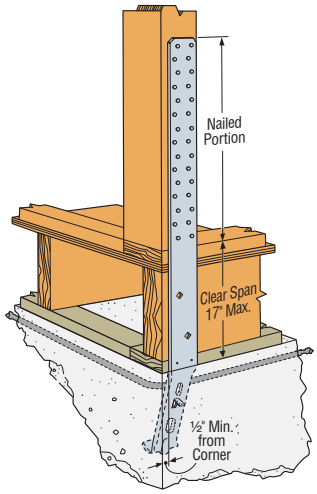


LSTHD8 varies from 4" to 4½"
STHD10, STHD14 varies from 4¾" to 5¼"

STHD
U.S. Patent 5,813,182



Nails are countersunk for a low-profile strap surface.



Typical STHD14RJ Rim Joist Application

Factored Resistances for Wind and Seismic $I_E F_a S_a(0.2) < 0.35$

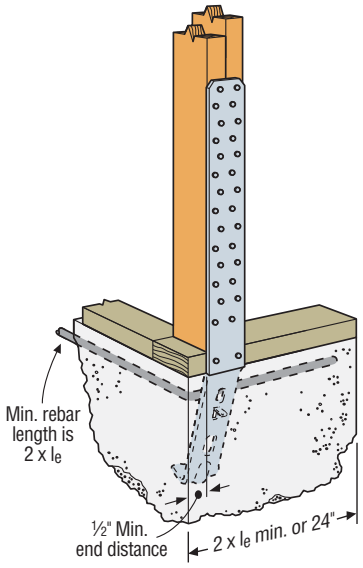
Min. Stem Wall Width (in)	Model No.		Strap Length (L) (in)		l_e (in)	Fasteners	Factored Tensile Resistance (K_D = 1.15)					
							Non Cracked			Cracked		
	Standard	Rim Joist	Standard	Rim Joist			Midwall	Corner	Endwall	Midwall	Corner	Endwall
							lbs	lbs	lbs	lbs	lbs	lbs
							kN	kN	kN	kN	kN	kN
6	LSTHD8	LSTHD8RJ	18⅝	32⅛	8	20-10d	4625	4130	2515	3975	3550	2160
							20.57	18.37	11.19	17.68	15.79	9.61
	STHD10	STHD10RJ	24⅝	38⅛	10	24-10d	5485	5485	3045	4470	4470	2480
							24.40	24.40	13.55	19.88	19.88	11.03
	STHD14	STHD14RJ	26⅛	39⅝	14	30-10d	7655	7655	4755	7655	7655	4755
							34.05	34.05	21.15	34.05	34.05	21.15
8	LSTHD8	LSTHD8RJ	18⅝	32⅛	8	20-10d	4625	4015	3310	3975	3450	2845
							20.57	17.86	14.72	17.68	15.35	12.66
	STHD10	STHD10RJ	24⅝	38⅛	10	24-10d	7400[3]	6320	4670	6070	5150	3810
							32.92[3]	28.11	20.77	27.00	22.91	16.95
	STHD14	STHD14RJ	26⅛	39⅝	14	30-10d	8800[4]	8195[4]	6185	7960[4]	7350	5550
							39.15[4]	36.45[4]	27.51	35.41[4]	32.70	24.69

Factored Resistances for Seismic $I_E F_a S_a(0.2) \geq 0.35$

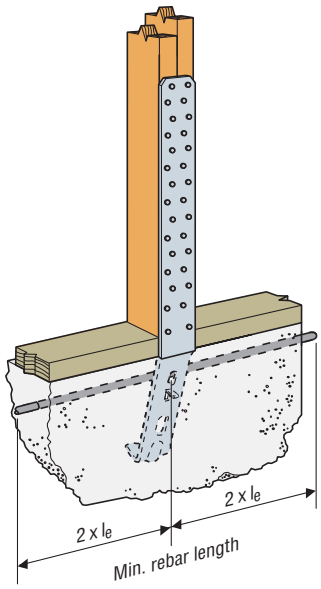
Min. Stem Wall Width (in)	Model No.		Strap Length (L) (in)		l_e (in)	Fasteners	Factored Tensile Resistance (K_D = 1.15)					
							Non Cracked			Cracked		
	Standard	Rim Joist	Standard	Rim Joist			Midwall	Corner	Endwall	Midwall	Corner	Endwall
							lbs	lbs	lbs	lbs	lbs	lbs
							kN	kN	kN	kN	kN	kN
6	LSTHD8	LSTHD8RJ	18⅝	32⅛	8	20-10d	3470	3100	1885	2980	2660	1620
							15.44	13.79	8.39	13.26	11.83	7.21
	STHD10	STHD10RJ	24⅝	38⅛	10	24-10d	4110	4110	2280	3350	3350	1860
							18.28	18.28	10.14	14.90	14.90	8.27
	STHD14	STHD14RJ	26⅛	39⅝	14	30-10d	5740	5740	3565	5740	5740	3565
							25.53	25.53	15.86	25.53	25.53	15.86
8	LSTHD8	LSTHD8RJ	18⅝	32⅛	8	20-10d	3470	3010	2485	2980	2585	2135
							15.44	13.39	11.05	13.26	11.50	9.50
	STHD10	STHD10RJ	24⅝	38⅛	10	24-10d	5550	4740	3505	4525	3865	2855
							24.69	21.09	15.59	20.13	17.19	12.70
	STHD14	STHD14RJ	26⅛	39⅝	14	30-10d	6665	6145	4640	5970	5510	4160
							29.60	27.34	20.64	26.56	24.51	18.51

1. Factored resistances have been developed based on testing per ICC-ES AC 398 using the corresponding adjustment factors from CSA A23.3-14 Annex D.
2. Unless otherwise noted, tabulated values are applicable to D.Fir-L and S-P-F framing members.
3. S-P-F factored resistance is 7210 lbs (32.07 kN).
4. S-P-F factored resistance is 7725 lbs (34.36 kN).
5. The minimum 28 day concrete compressive strength (f'_c) shall be 2500 psi (17.25 MPa).
6. The minimum centre-to-centre spacing is 3 times the required embedment depth ($S_{min} = 3xl_e$).
7. See T-SCLCOLUMNCAN for installation on structural composite lumber posts or studs.
8. Deflection at the highest factored resistance for installation over double studs are as follows:
   – Installed on framing:
   LSTHD8 = 0.094"
   STHD10 = 0.157"
   STHD14 = 0.135"
   – Installed over structural sheathing:
   LSTHD8 = 0.159"
   STHD10 = 0.201"
   STHD14 = 0.290"
   Deflection values shown are applicable for D.Fir-L studs. For attachment to S-P-F studs multiply the deflection values by 1.13.
9. Deflection values may be reduced linearly for lesser loads including specified wind loads at h/500.
10. Use the specified number of nails listed. In some cases, not all nail holes will be filled. Nail strap from bottom up.
11. **NAILS:** 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.

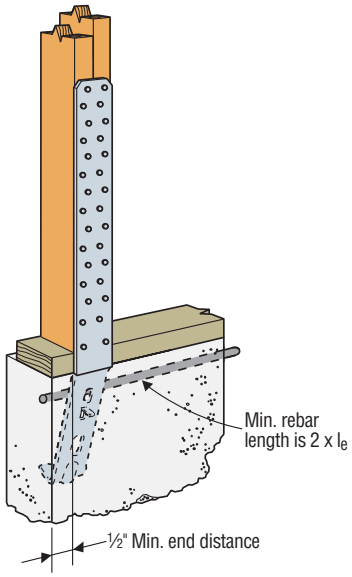
LSTHD/STHD *Strap-Tie Holdown*



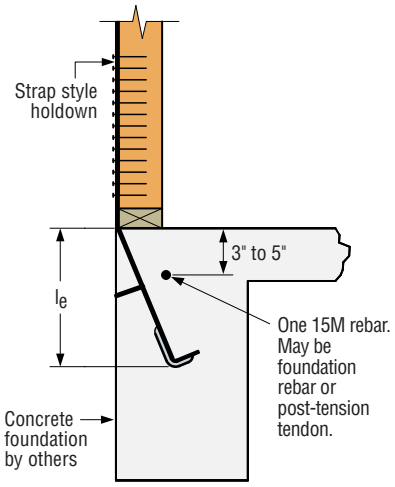
Typical STHD14 Corner Installation



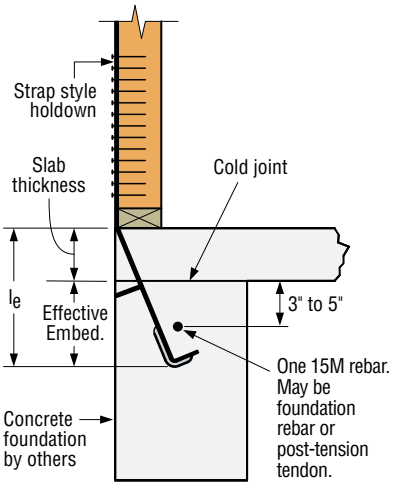
Typical STHD14 Mid Wall Installation



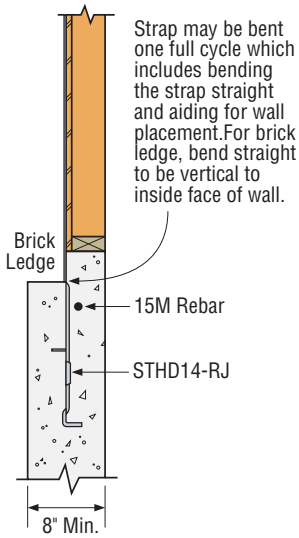
Typical STHD14 End Wall Installation



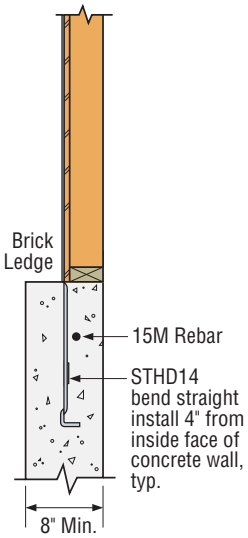
Single Pour Rebar Installation
**Maintain minimum rebar cover, per CSA A23.1-14*



Two Pour Installation for Downturn Footings



Brick Ledge Installation with Step



Brick Ledge Installation without Step

SPALL REDUCTION SYSTEM FOR STHD STRAP TIE HOLDOWN

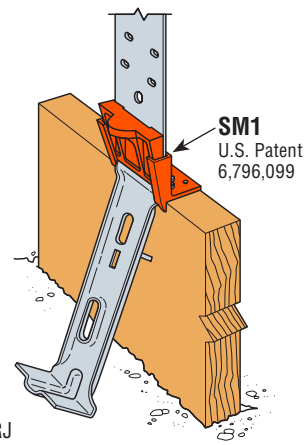
FEATURES
- Built-in tab.
- StrapMate® locator line.
- Additional diamond hole in RJ versions.

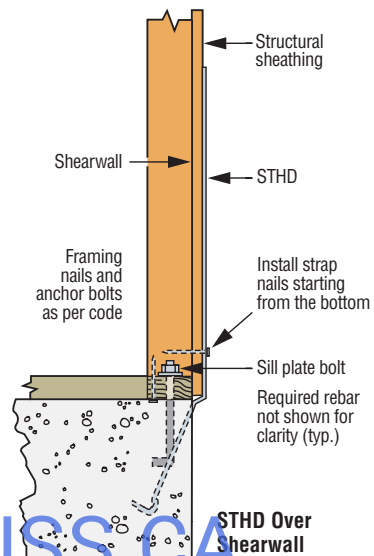
BENEFITS

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

HDU/DTT2Z *Holdown*

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

The HDU series of holdowns combine the advantages of low deflection and high capacity from the pre-deflected geometry with the ease of installation of Simpson Strong-Tie® patented Strong-Drive® SDS Heavy-Duty Connector screws.

The DTT2Z tension tie is suitable for lighter-duty holdown applications on single or double 2x posts, and installs easily with Strong-Drive SDS Heavy-Duty Connector screws *(included)*.

HDU SPECIAL FEATURES:

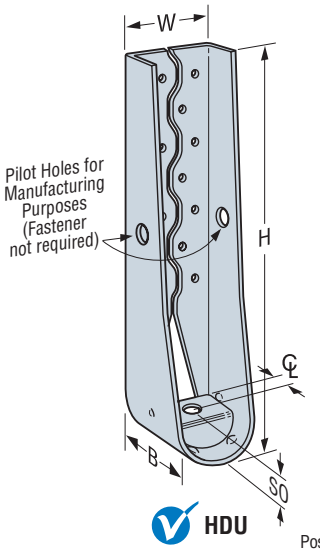
- Pre-deflected body virtually eliminates deflection due to material stretch.
- Uses Strong-Drive SDS Heavy-Duty Connector screws which install easily, reduce fastener slip, and provide a greater net section area of the post compared to bolts.
- ¼"x2½" Strong-Drive SDS Heavy-Duty Connector screws are supplied with the holdowns. *(Lag screws will not achieve the same capacity.)* This ensures the proper fasteners are used and is convenient for the installer.
- No stud bolts to countersink at openings.

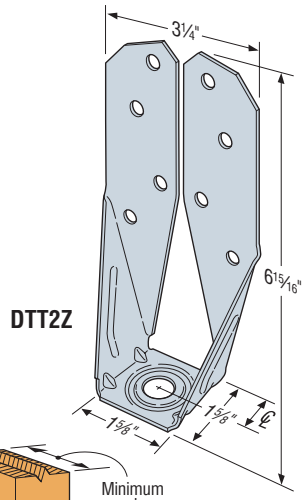
MATERIAL: See table

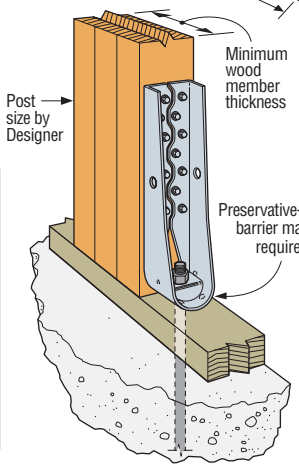
FINISH: HDG—Galvanized, DTT2Z—ZMAX® coating, and DTT2SS—Stainless steel

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

- Place the holdown over the anchor bolt.
- No additional washer required for HDU, the DTT2Z requires standard cut washer (included) be installed between the nut and seat.
- To tie multiple 2x members together, the Designer must determine the fasteners required to join the members to act as one unit without splitting the wood. See page 26 for Strong-Drive SDW values.
- See SB and SSTB Anchor Bolts on pages 38-42 for anchorage options.
- Strong-Drive SDS Heavy-Duty Connector screws install best with a low speed high torque drill with a ⅜" hex head driver.







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.

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	℄[11]	SO	Fasteners Anchor Bolt Dia. (in)	SDS Screws	Minimum Wood Thickness (in)	Factored Tensile Resistance (K_D = 1.15) D.Fir-L lbs kN	S-P-F lbs kN	Deflection[7,8] at Factored Resistance in mm
DTT2Z	14	3½	6¹⁵⁄₁₆	1⅝	¹⁵⁄₁₆	⅜	½	8-¼"x1½" SDS	1½	2805 12.48	2520 11.21	0.25 6.35
								8-¼"x1½" SDS	3	3060 13.61	2565 11.41	0.25 6.35
DTT2Z-SDS2.5								8-¼"x2½" SDS	3	3060 13.61	2950 13.12	0.25 6.35
HDU2-SDS2.5	14	2⅜	8¹¹⁄₁₆	3¼	1⅜	1⅜	⅝	6-¼"x2½" SDS	3	3210 14.28	2900 12.90	0.092 2.34
HDU4-SDS2.5	14	2⅜	10¹⁵⁄₁₆	3¼	1⅜	1⅜	⅝	10-¼"x2½" SDS	3	5350 23.80	4515 20.08	0.13 3.30
HDU5-SDS2.5	14	2⅜	13³⁄₁₆	3¼	1⅜	1⅜	⅝	14-¼"x2½" SDS	3	7485 33.30	6130 27.27	0.153 3.89
HDU8-SDS2.5	10	3	16⅝	3½	1⅜	1½	⅞	20-¼"x2½" SDS	3	9130 40.61	7330 32.61	0.124 3.15
									4½	12890 57.34	9280 41.28	0.190 4.83
HDU11-SDS2.5	10	3	22¼	3½	1⅜	1½	1	30-¼"x2½" SDS	5½	14090 62.68	10145 45.13	0.196 4.98
									7¼	16985 75.56	12230 54.40	0.197 5.00
HDU14-SDS2.5	7	3⅛	25¹¹⁄₁₆	3½	1⁹⁄₁₆	1⁹⁄₁₆	1	36-¼"x2½" SDS	7¼	20930 93.10	15070 67.04	0.250 6.35
									5½[9]	20850 92.75	15010 66.77	0.250 6.35

1. Factored resistances have been increased 15% for short term load duration. Reduce where other load durations govern.
2. The Designer must specify anchor bolt type, length and embedment to ensure dequate anchorage to concrete.
3. When using structural composite lumber columns, screws must be applied to the wide face of the column *(see technical bulletin T-SCLCOLUMNCAN for details)*.
4. Post design shall be by the Designer. Tabulated values are based on a minimum wood member thickness in the direction of the fastener penetration. Post may consist of multiple 2x members provided they are connected independently of the holdown fasteners.
5. Holdowns shall be installed centred along the width of the attached post.
6. Tension values are valid for holdowns flush or raised off of the sill plate.
7. Deflection at Factored Resistance includes fastener slip, holdown elongation and anchor bolt elongation (L = 6"). Additional elongation of anchor bolts shall be accounted for by the Designer when the length of the anchor bolt above the top of the concrete to the attachment at the holdown is longer than 6". Similar consideration for floor to floor connections must be addressed by the Designer.
8. Deflection values may be reduced linearly for lesser loads including specified wind loads at h/500.
9. Noted HDU14 factored resistances are based on a 5½" wide (6x6) post. All other resistances assume 3½" wide posts *(minimum)*.
10. HDU14 requires heavy hex nut for anchor bolt *(supplied with holdown)*.
11. Centre line dimension is taken from the face of the post/framing member to the centre of anchor.

Strong-Drive® ¼"x2½" SDS HEAVY-DUTY CONNECTOR Screw
(See page 25 for more information)

HDQ8/HHDQ *Holdowns*

SIMPSON Strong-Tie®

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 Heavy-Duty Connector screws which install easily, reduce fastener slip and provide a greater net section area of the post when compared to bolts. They may be installed either flush or raised off the mudsill without a reduction in capacity.

SPECIAL FEATURES:

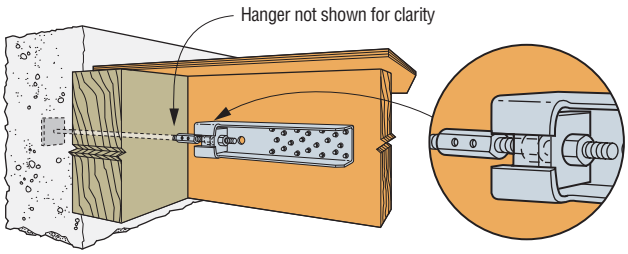
- Uses Strong-Drive SDS Heavy-Duty Connector screws which install easily, reduce fastener slip, and provide a greater net section area of the post compared to bolts.
- Strong-Drive SDS Heavy-Duty Connector screws are supplied with the holdowns to ensure proper fasteners are used.
- No stud bolts to countersink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

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

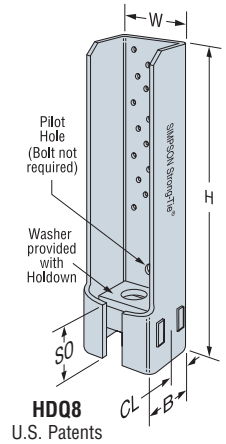
FINISH: HDQ8—Galvanized; HHDQ— Simpson Strong-Tie® gray paint

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

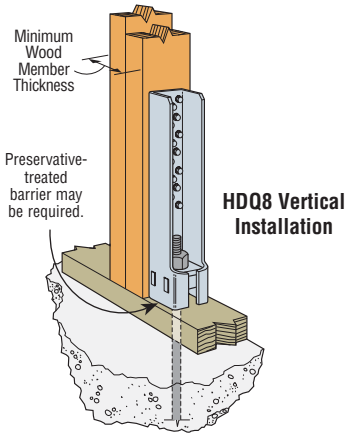
- For use in vertical and horizontal applications.
- No additional washer is required.
- To tie multiple 2x members together, the Designer must determine the fasteners required to join members without splitting the wood.
- See SB and SSTB Anchor Bolts on pages 38-42 for anchorage options.
- Strong-Drive SDS Heavy-Duty Connector screws install best with a low speed high torque drill with a ⅜" hex head driver.
- HDQ8 has ⅝" of adjustability perpendicular to the wall.
- HHDQ14 requires a heavy hex anchor nut *(supplied with holdown)*.



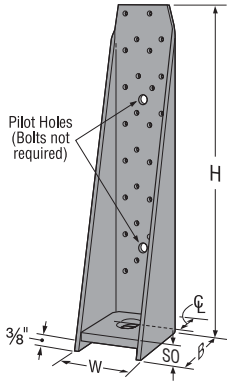
Horizontal HDQ8 Installation



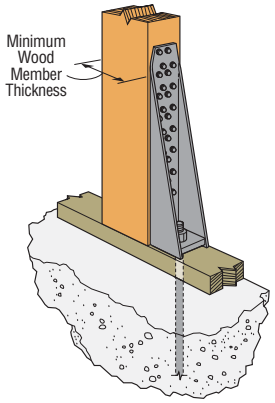
HDQ8
U.S. Patents 6,006,487 and 6,327,831



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.

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 Thickness (in)	Factored Tensile Resistance (K_D = 1.15)		Deflection[7,8] at Factored Resistance
		W	H	B	℄[11]	SO	Anchor Bolt Dia. (in)	SDS Screws		D.Fir-L	S-P-F	
										lbs	lbs	in
										kN	kN	mm
HDQ8-SDS3	7	2⅞	14	2½	1¼	2⅜	⅞	20-¼"x3" SDS	3	9825	7075	0.112
										43.71	31.47	2.84
									4½	13885	9995	0.139
										61.77	44.46	3.53
HHDQ11-SDS2.5	7	3	15⅛	3½	1⁹⁄₁₆	⅞	1	24-¼"x2½" SDS	5½	16285	12420	0.218
										72.44	55.25	5.54
HHDQ14-SDS2.5	7	3	18¾	3½	1⁹⁄₁₆	⅞	1	30-¼"x2½" SDS	7¼	17510	12610	0.168
										77.89	56.09	4.27
									5½[9]	20355[9,10]	16280[9,10]	0.140
										90.55	72.42	3.56

1. Factored resistances have been increased 15% for short term load duration. Reduce where other load durations govern.
2. The Designer must specify anchor bolt type, length and embedment to ensure adequate anchorage to concrete.
3. When using structural composite lumber columns, screws must be applied to the wide face of the column *(see technical bulletin T-SCLCOLUMNCAN for details)*.
4. Post design shall be by the Designer. Tabulated values are based on a minimum wood member thickness in the direction of the fastener penetration. Post may consist of multiple 2x members provided they are connected independently of the holdown fasteners.
5. Holdowns shall be installed centred along the width of the attached post.
6. Tension values are valid for holdowns flush or raised off of the sill plate.
7. Deflection at Factored Resistance includes fastener slip, holdown elongation and anchor bolt elongation (L = 6"). Additional elongation of anchor bolts shall be accounted for by the Designer when the length of the anchor bolt above the top of the concrete to the attachment at the holdown is longer than 6". Similar consideration for floor to floor connections must be addressed by the Designer.
8. Deflection values may be reduced linearly for lesser loads including specified wind loads at h/500.
9. Noted HHDQ14 factored resistances are based on a 5½" wide (6x6) post. All other resistances assume 3½" wide posts *(minimum)*.
10. Requires heavy hex nut for anchor bolt *(supplied with holdown)*.
11. Centre line dimension is taken from the face of the post/framing member to the centre of anchor.

HDC *Concentric Holdown*

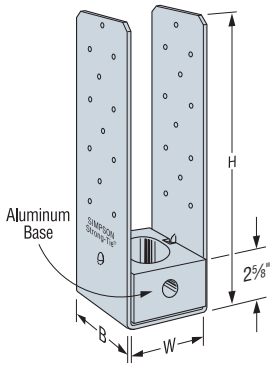
This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

The unique design of the HDC holdowns eliminate eccentricity. They install with Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector 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

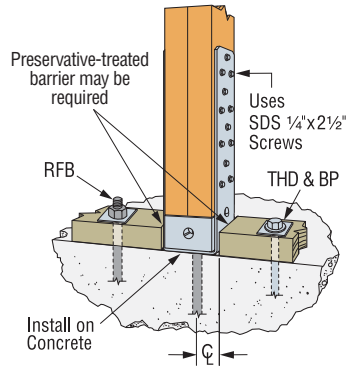
INSTALLATION: • Use all specified fasteners. See General Notes.

- Install on concrete.
- For use in vertical and horizontal applications.
- Sized for 2-2x and 4x. Centre posts on holdown.
- Uses Strong-Drive SDS Heavy-Duty Connector screws supplied with the holdowns to ensure proper fasteners are used.
- Slot in the seat allows for ⅜" of adjustment perpendicular to plate.
- Narrow cut washer with outside diameter of 1¾" required between base and anchor nut.
- 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.
- Strong-Drive SDS Heavy-Duty Connector screws install best with a low speed high torque drill with a ⅜" hex head driver.



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	Dimensions (in)				Fasteners		Factored Tensile Resistance (K_D = 1.15)		Deflection[5,6] at Factored Resistance	Concrete Bearing (f'_c = 20 MPa)
		W	H	B	℄[8]	Anchor Bolt Dia. (in)	SDS Screws	D.Fir-L	S-P-F		
								lbs	lbs	in	lbs
								kN	kN	mm	kN
HDC10/22-SDS2.5	2-2x4	3⅛	14½	3	1 11⁄16	⅞	24-¼"x2½" SDS	11785	8485	0.086	12940
								52.42	37.74	2.18	57.56
HDC10/4-SDS2.5	4x4	3 9⁄16	14¼	3	1⅞	⅞	24-¼"x2½" SDS	11785	8485	0.086	15755
								52.42	37.74	2.18	70.08

1. Factored resistances have been increased 15% for short term load duration. Reduce where other load durations govern.
2. The Designer must specify anchor bolt type, length and embedment to ensure adequate anchorage to concrete.
3. When using structural composite lumber columns, screws must be applied to the wide face of the column *(see technical bulletin T-SCLCOLUMNCAN for details)*.
4. Concrete bearing resistance has been calculated in accordance with 10.8 CSA A23.3-14 and may be increased when HDC is not placed near an edge or with f'_c > 20 MPa to a maximum value of 21310 lbs (94.80 kN).
5. Deflection at Factored Resistance includes fastener slip, holdown elongation and anchor bolt elongation (L = 6"). Additional elongation of anchor bolts shall be accounted for by the Designer when the length of the anchor bolt above the top of the concrete to the attachment at the holdown is longer than 6". Similar consideration for floor to floor connections must be addressed by the Designer.
6. Deflection values may be reduced linearly for lesser loads including specified wind loads at h/500.
7. The post capacity must be verified by the Designer.
8. Centre line dimension is taken from the outside face of the HDC to the centre of anchor.

HDB/HD *Holdowns*

Simpson Strong-Tie offers a wide range 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.

The HD3B is 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 a 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 resistances for intermediate-load-range shearwalls, braced-wall panels and lateral applications.

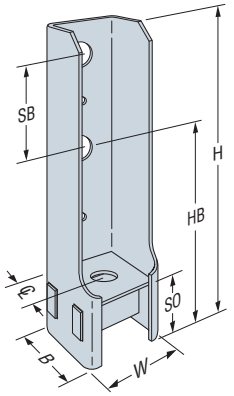
HD holdowns offer the highest bolted capacities for both vertical and horizontal applications. The HD12 and HD19 are self jigging, ensuring that a minimum of seven bolt diameters from the end of the post is met. They can be installed back-to-back when eccentricity is an issue.

MATERIAL: See table

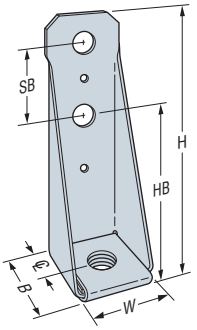
FINISH: HD3B/HD5B/HD7B/HD9B – Galvanized;
HD – Simpson Strong-Tie® gray paint

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

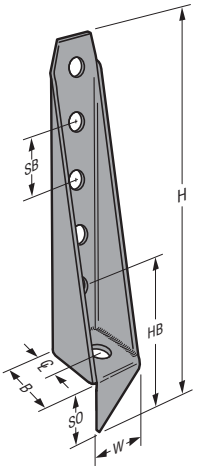
- Bolt holes shall be a minimum of 1⁄32" to a maximum of 1⁄16" larger than the bolt diameter *(per 12.4.1.2 CSA O86-14)*.
- Stud bolts should be snugly tightened with standard cut washers between the wood and nut.
- The Designer must specify anchor bolt type, length, and embedment. See SB and SSTB Anchor Bolts *(pages 38-42)*.
- To tie multiple 2x members together, the Designer must determine the fasteners required to join members without splitting the wood.



HD5B
(HD7B and HD9B similar)

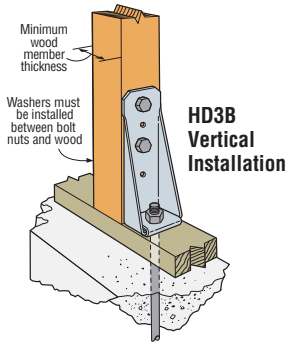


HD3B

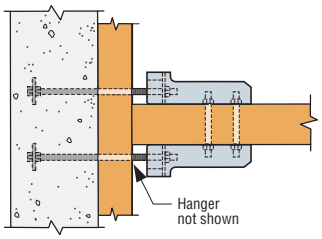


HD19
(HD12 similar)

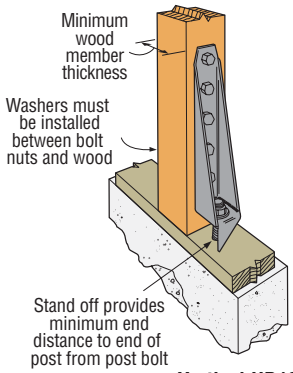
HDB/HD *Holdowns*



HD3B Vertical Installation



Horizontal HDB Installation
(Plan View)



Vertical HD19 Installation

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.

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.

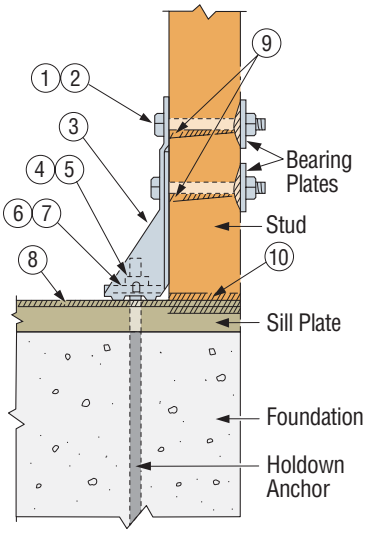
HD/HDB Holdown Resistances

Model No.	Body Ga	Dimensions (in)							Fasteners			Wood Member Thickness (in)	Factored Tensile Resistance (K_D = 1.15)		Deflection[8,9] at Factored Resistance
		HB	SB	W	H	SO	B	℄[11]	Anchor Bolt Dia. (in)	Stud Bolts Qty.	Stud Bolts Dia. (in)		D.Fir-L	S-P-F	
													lbs	lbs	in
													kN	kN	mm
HD3B	12	4¾	2½	2½	8⅝	⅜	2¼	1⁵⁄₁₆	⅝	2	⅝	1½	1305	1030	0.118
													5.81	4.58	3.00
												3	2610	2060	0.088
													11.61	9.16	2.24
												3½	3055	2412	0.114
													13.59	10.73	2.90
HD5B	10	5¼	3	2½	9⅜	2	2½	1¼	⅝	2	¾	3	3100	2445	0.106
													13.79	10.88	2.69
												3½	3630	2865	0.116
													16.15	12.74	2.95
												4½	4645	3670	0.142
													20.66	16.33	3.61
HD7B	10	5¼	3	2½	12⅜	2	2½	1¼	⅞	3	¾	3	4645	3670	0.107
													20.66	16.33	2.72
												3½	5440	4295	0.121
													24.20	19.11	3.07
												4½	5965	4710	0.130
													26.53	20.95	3.30
												5½	5965	4775	0.130
													26.53	21.24	3.30
HD9B	7	6⅛	3½	2⅞	14	2⅜	2½	1¼	⅞	3	⅞	3½	5415	4275	0.112
													24.09	19.02	2.84
												4½	8165	6445	0.155
													36.32	28.67	3.94
												5½	7915	6330	0.152
													35.21	28.16	3.86
												6	8320	6570	0.157
													37.01	29.23	3.99
HD12	3	7	4	3½	20⁵⁄₁₆	3⅝	4¼	2⅛	1	4	1	3½	9700	7660	0.150
													43.15	34.07	3.81
												4½	12425	9810	0.166
													55.27	43.64	4.22
												5½[7]	12045[7]	9635[7]	0.134
													53.58	42.86	3.40
												6[7]	16565[7]	13080[7]	0.171
													73.69	58.19	4.34
HD19	3	7	4	3½	24½	3⅝	4¼	2⅛	1⅛	5	1	5½[7]	15060[7]	12045[7]	0.187
													66.99	53.58	4.75
												6[7]	20710[7]	16350[7]	0.229
													92.12	72.73	5.82

1. Factored resistances have been increased 15% for short term load duration. Reduce where other load durations govern.
2. The Designer must specify anchor bolt type, length and embedment to ensure adequate anchorage to concrete.
3. When using structural composite lumber columns, bolts must be applied to the wide face of the column *(see technical bulletin T-SCLCOLUMNCAN for details).*
4. Post design shall be by the Designer. Tabulated values are based on a minimum wood member thickness in the direction of the fastener penetration. Post may consist of multiple 2x members provided they are connected independently of the holdown fasteners.
5. Holdowns shall be installed centred along the width of the attached post.
6. Tension values are valid for holdowns flush or raised off of the sill plate.
7. Noted HD12 and HD19 factored resistances are based on a 5½" wide post (6x6 or 4-2x6). All other resistances assume 3½" wide posts *(minimum)*.
8. Deflection at Factored Resistance includes fastener slip, holdown elongation and anchor bolt elongation (L = 6"). Additional elongation of anchor bolts shall be accounted for by the Designer when the length of the anchor bolt above the top of the concrete to the attachment at the holdown is longer than 6". Similar consideration for floor to floor connections must be addressed by the Designer.
9. Deflection values may be reduced linearly for lesser loads including specified wind loads at h/500.
10. The factored resistances shown are based on the lower of the assembly testing and the bolt calculations in accordance with 12.4 CSA O86-14. For applications where the HD or HDB holdowns are used on opposite sides of the post the capacity of the connection may be calculated using the lower of two times the tabulated value or the bolt calculations in accordance with 12.4 CSA O86-14 assuming double shear.
11. Centre line dimension is taken from the face of the post/framing member to the centre of anchor.

SOURCES OF DEFLECTION AT SHEARWALL HOLDOWN CONNECTIONS

1. Bolt slip can occur at holdown stud bolts.
2. Increased bolt slip can occur if oversized holes are drilled through the stud for holdown stud bolts *(oversized holes are when the hole diameter is greater than the bolt diameter plus 2mm per 12.4.1.2 CSA O86-14).*
3. When a holdown is installed on only one side of the stud, an eccentricity exists during loading which can cause more movement in the shearwall system.
4. Unrestrained anchor bolt nuts can spin loose during cyclic loading; using steel nylon locking nuts or thread adhesive may prevent nut spin.
5. Movement can occur when nuts are not tightened enough. Retightening bolts before covering wall may prevent this.
6. Deflection can occur in the holdown under load caused by stresses due to earthquake or high wind.
7. Lateral displacement at the top of the wall rotates the stud around its base causing the holdown base plate to displace vertically.
8. Wood shrinkage can occur due to drying of the sill plate, rim joist, and/or top plate; nuts may require retightening.
9. Uplift forces on the bolts can cause localized wood crushing at bolt bearing locations. Using larger bearing plates may prevent this.
10. Wood at the end of the studs *(sill plates, rim joists, etc.)* may crush under normal dead and live loading; additional compressive forces due to overturning during earthquake and high wind loads add to the deflection.

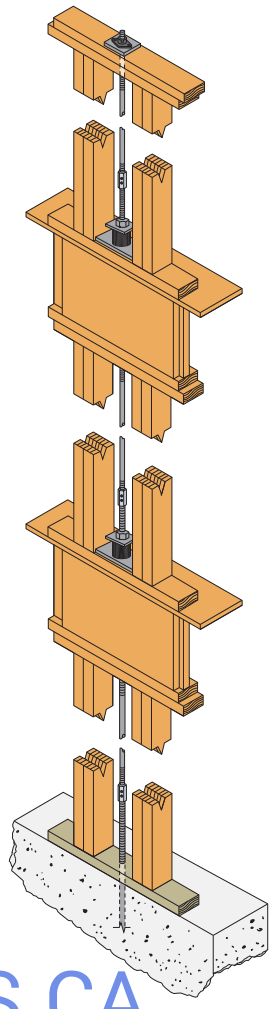


①②and ⑥ do not apply to the HDU.

NEED A HIGHER CAPACITY HOLDOWN?

When one of our conventional holdowns doesn't offer enough overturning capacity for a multi-storey project, consider specifying the Simpson Strong-Tie® Anchor Tiedown System (ATS). ATS is a high-capacity overturning-restraint system commonly used in 2-6 storey wood structures to anchor stacked shearwalls. This continuous rod system features our patented shrinkage take-up devices, extends from the foundation to the top of the structure and is restrained *(tied off)* at each level. Designed properly, it can provide over 50,000 lbs. of overturning restraint; important when designing for the cumulative overturning forces in multi-storey buildings.

For more information see page 76 of this catalogue and for specification options see our *Anchor Tiedown Systems Canadian Limit States Design* catalogue (C-ATSCAN11) or visit ***www.strongtie.com/ats***.



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

SIMPSON Strong-Tie®

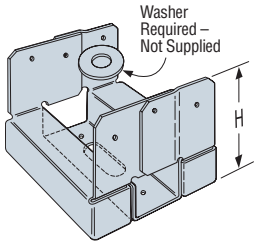
Post Bases provide tested capacity. They feature 1" standoff height above concrete floors. They reduce the potential for decay at post and column ends.

MATERIAL: See table

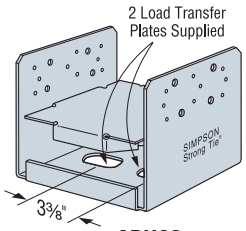
FINISH: Galvanized. Most available in ZMAX® coating; see Corrosion Information, pages 14-17.

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)*.
- Can be used with cast-in-place anchors. For epoxy or wedge anchors, select and install according to anchor manufacturer's recommendations; anchor diameter shown in table. Install required washer, which is not included for ABAs.
- ABU88 centre to centre dimension of anchors is 3⅜".
- See pages 31-32 for post-installed anchorage solutions.

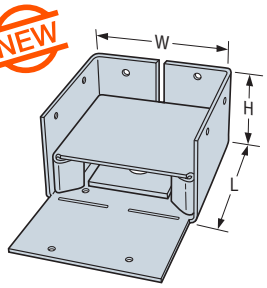


ABA44
(other sizes similar)
U.S. Patent 5,333,435

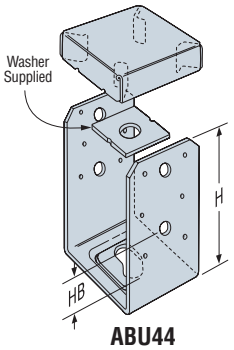


ABU88

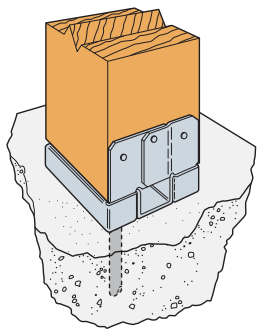
NEW



ABW



ABU44
(other sizes similar)



Typical ABA44 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 Connector screw. See page 24 for more information.

Model No.	Nominal Post Size	Material (ga)		Dimensions (in)			Fasteners		Factored Resistance			
									D.Fir-L		S-P-F	
		Base	Strap	W	L	H	Anchor Dia. (in)	Nails	Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)
									lbs kN	lbs kN	lbs kN	lbs kN
ABA44Z	4x4	16	16	3 9/16	3 1/8	3 1/16	1/2	6-10d	1030 4.58	10375 46.15	730 3.25	8610 38.30
NEW ABW44Z	4x4	16	16	3 9/16	3 9/16	2 1/4	1/2	8-10d	1635 7.27	9965 44.33	1160 5.16	8260 36.74
ABU44	4x4	16	12	3 9/16	3	5 1/2	5/8	12-16d	2955 13.15	10940 48.67	2095 9.32	9070 40.35
ABA44R	RGH 4x4	16	16	4 1/16	3 1/8	2 13/16	1/2	6-10d	925 4.11	10630 47.29	655 2.91	8810 39.19
NEW ABW44RZ	RGH 4x4	16	16	4	4 1/16	2	1/2	8-10d	1280 5.69	9965 44.33	905 4.03	8260 36.74
ABA46Z	4x6	14	14	3 9/16	5 3/16	3 1/8	5/8	8-16d	990 4.40	17200 76.51	705 3.14	14290 63.57
NEW ABW46Z	4x6	12	16	3 9/16	5 9/16	3	1/2	10-10d	1415 6.29	6645 29.56	1005 4.47	5500 24.47
ABU46	4x6	12	12	3 9/16	5	7	5/8	12-16d	3490 15.52	20190 89.81	2480 11.03	16765 74.58
ABA46R	RGH 4x6	14	14	4 1/16	5 3/16	2 7/8	5/8	8-16d	990 4.40	15090 67.13	705 3.14	12515 55.67
NEW ABW46RZ	RGH 4x6	14	16	4	6	2 13/16	1/2	10-10d	1305 5.81	6645 29.56	925 4.11	5500 24.47
ABA66Z	6x6	14	14	5 1/2	5 1/4	3 1/8	5/8	8-16d	1020 4.54	17635 78.45	725 3.23	13055 58.07
NEW ABW66Z	6x6	12	14	5 1/2	5 9/16	3	1/2	12-10d	1985 8.83	18860 83.01	1410 6.27	13810 61.43
ABU66	6x6	12	10	5 1/2	5	6 1/16	5/8	12-16d	3590 15.97	24880 110.68	2550 11.34	18445 82.05
ABA66R	RGH 6x6	14	14	6	5 3/16	2 7/8	5/8	8-16d	1020 4.54	17635 78.45	725 3.23	13055 58.07
NEW ABW66RZ	RGH 6x6	12	14	6	6	2 13/16	1/2	12-10d	1780 7.92	18660 83.01	1265 5.63	13810 61.43
ABU88[4]	8x8	12	14	7 1/2	7	7	2-5/8	18-16d	3555 15.81	28275 125.78	2525 11.23	20805 92.55
ABU88R	RGH 8x8	12	14	8	7	7	2-5/8	18-16d	3555 15.81	28275 125.78	2525 11.23	20805 92.55
NEW ABU1010Z	10x10	12	12	9 1/2	9	7 1/4	2-5/8	22-16d	3055 13.59	44950 199.96	2170 9.65	37025 164.70
NEW ABU1010RZ	RGH 10x10	12	12	10	9	7	2-5/8	22-16d	3055 13.59	44950 199.96	2170 9.65	37025 164.70

1. Uplift resistances have been increased 15% for short term loading, no further increase is allowed.
2. Factored Normal resistances may not be increased for short term loading.
3. Specifier to design concrete for applied loads.
4. ABU88 and ABU88R may be installed with 8-SDS ¼"x3" wood screws for same tabulated values.
5. Factored resistances shown assume No.1/No.2 for 4x4 and 4x6 and No.2 for 6x6, 8x8 and 10x10.
6. Factored resistances shown assume a minimum concrete compressive strength of 15 MPa with a concrete surface area of four times the bearing area of the connector. See 10.8.1 CSA A23.3-14.
7. Factored resistances shown assume dry service condition (K_{SF} = 1.00). Multiply table values by 0.67 for wet service conditions.
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.
9. **NAILS**: 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See pages 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.

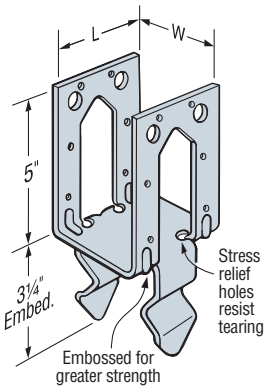
MATERIAL: PB—12 gauge; PBS44A, PBS46—14 gauge strap, 12 gauge standoff; PBS66—12 gauge

FINISH: Galvanized. Some products available in ZMAX® or HDG coating; see Corrosion Information, pages 14-17.

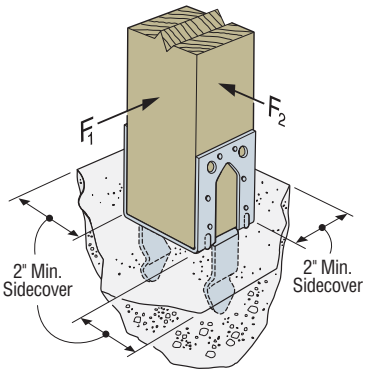
INSTALLATION: • Use all specified fasteners. See General Notes.

- Install either nails or bolts *(see page 19, 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)*.
- Holes are provided for installation with either 16d commons or ½" bolts. A 2" minimum sidecover is required to obtain the full capacity.
- 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 capacity. Holes in the bottom of the straps allow for free concrete flow.

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



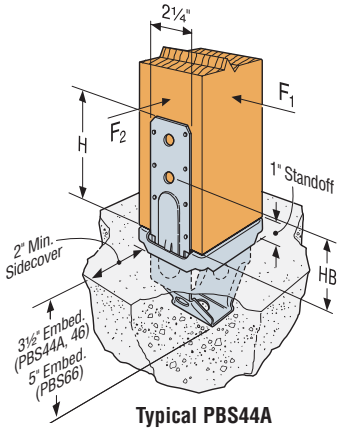
PB



Typical PB 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			Factored Resistance (K_D = 1.15)					
							D.Fir-L			S-P-F		
	W	L	H	Nails	Bolts Qty.	Bolts Dia. (in)	Uplift lbs / kN	F_1 lbs / kN	F_2 lbs / kN	Uplift lbs / kN	F_1 lbs / kN	F_2 lbs / kN
PB44	3⁹⁄₁₆	3¼	5	12-16d	2	½	1935 / 8.61	1445 / 6.43	1655 / 7.36	1375 / 6.12	1025 / 4.56	1655 / 7.36
PB44R	4	3¼	5	12-16d	2	½	1935 / 8.61	1445 / 6.43	1655 / 7.36	1375 / 6.12	1025 / 4.56	1655 / 7.36
PB46	5½	3¼	5	12-16d	2	½	1935 / 8.61	1445 / 6.43	1655 / 7.36	1375 / 6.12	1025 / 4.56	1655 / 7.36
PB66	5½	5¼	5	12-16d	2	½	1935 / 8.61	1445 / 6.43	1655 / 7.36	1375 / 6.12	1025 / 4.56	1655 / 7.36
PB66R	6	5¼	5	12-16d	2	½	1935 / 8.61	1445 / 6.43	1655 / 7.36	1375 / 6.12	1025 / 4.56	1655 / 7.36



Typical PBS44A Installation

1. Uplift and lateral resistances have been increased 15% for short term load duration. No further increase is allowed.
2. Download capacity is the lower of the concrete or post capacity per CSA A23.3-14 or CSA O86-14.
3. Structural composite lumer columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners should be installed through the wide face.
4. Factored resistances shown assume dry service condition (K_{SF} = 1.00). Multiply table values by 0.67 for wet service conditions.
5. Factored resistances shown assume a minimum of f'_c = 15MPa.
6. **NAILS:** 16d = 0.162" dia. x 3½" long. See pages 22-23 for other nail sizes and information.

These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

Model No.	Dimensions (in)			Fasteners			Factored Resistance							
							D.Fir-L				S-P-F			
	W	L	H	Nails	Bolts Qty.	Bolts Dia. (in)	Uplift (K_D = 1.15) lbs / kN	F_1 (K_D = 1.15) lbs / kN	F_2 (K_D = 1.15) lbs / kN	Normal (K_D = 1.00) lbs / kN	Uplift (K_D = 1.15) lbs / kN	F_1 (K_D = 1.15) lbs / kN	F_2 (K_D = 1.15) lbs / kN	Normal (K_D = 1.00) lbs / kN
PBS44A	3⁹⁄₁₆	3½	6¼	14-16d	2	½	2745 / 12.21	1650 / 7.34	1345 / 5.98	10920 / 48.58	1950 / 8.67	1170 / 5.20	955 / 4.25	9125 / 40.59
PBS46	3⁹⁄₁₆	5⁷⁄₁₆	6⁹⁄₁₆	14-16d	2	½	2745 / 12.21	1650 / 7.34	1345 / 5.98	15835 / 70.44	1950 / 8.67	1170 / 5.20	955 / 4.25	13155 / 58.52
PBS66	5½	5⅜	6½	14-16d	2	½	2745 / 12.21	1650 / 7.34	1345 / 5.98	15835 / 70.44	1950 / 8.67	1170 / 5.20	955 / 4.25	13155 / 58.52

1. Uplift and lateral resistances have been increased 15% for short term load duration. No further increase is allowed.
2. Structural composite lumer columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners should be installed through the wide face.
3. Specifier shall design concrete for shear capacity.
4. Normal loads (gravity) may not be increased for short term load duration.
5. PBS66 factored uplift resistance is 4650 lbs (20.68 kN) D.Fir-L and 3720 lbs (16.55 kN) S-P-F when installed with two ½" diameter bolts.
6. Factored resistances shown assume dry service condition (K_{SF} = 1.00). Multiply table values by 0.67 for wet service conditions.
7. Factored resistances shown assume a minimum of f'_c = 15MPa.
8. **NAILS:** 16d = 0.162" dia. x 3½" long. See pages 22-23 for other nail sizes and information.

CPTZ *Concealed Post Tie*

SIMPSON Strong-Tie®

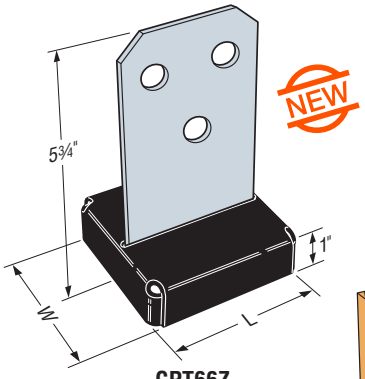
The new CPTZ post base incorporates a knife plate with a standoff base. It achieves a clean, concealed look while providing a 1" standoff height above concrete. The CPTZ is installed with ½" diameter galvanized dowels *(supplied)*. The 1" standoff height is code-required when supporting permanent structures 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.

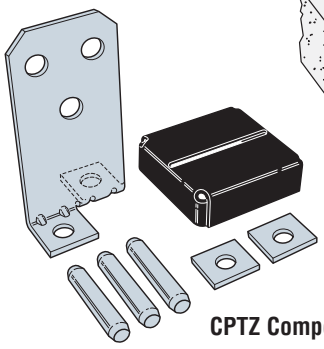
MATERIAL: 10 gauge **FINISH**: ZMAX® coating

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

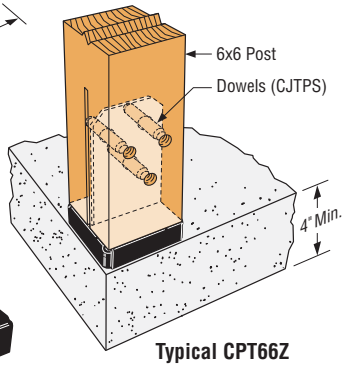
- Use knife blade portion of CPTZ as a template to mark dowel/bolt locations on post
- Drill ½" diameter holes perpendicular to post at marked locations
- Cut a 3⁄16" wide slot in the end of the post. Cut slot on face adjacent to the one with the holes. If using a circular saw cut the slot roughly 6½" 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 dowels supplied with the connector.
- See flier F-CPTZ13 for additional installation 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)*.



CPT66Z
(others similar)



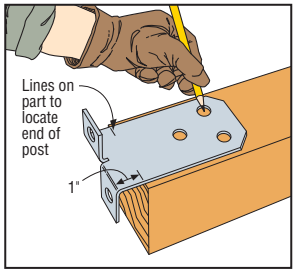
CPTZ Components



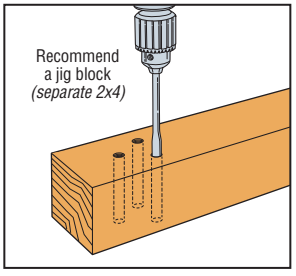
Typical CPT66Z Installation

Model No.	Post Size	Dimensions (in.) W	L	H	Fasteners: Anchor Qty.	Anchor Dia.	Post Qty.	Post Type	Factored Resistance: D.Fir-L (KD=1.15) Uplift lbs / kN	F1 lbs / kN	F2 lbs / kN	D.Fir-L Normal[7] (KD = 1.00) lbs / kN	S-P-F (KD=1.15) Uplift lbs / kN	F1 lbs / kN	F2 lbs / kN	S-P-F Normal[7] (KD = 1.00) lbs / kN
CPT66Z	6x6 6x6 RGH	5⅜	5⅜	5¾	2	½"	3	½"x4¾" dowel	4300 / 19.13	1095 / 4.87	1120 / 4.98	30465 / 135.52	3680 / 16.37	995 / 4.43	1120 / 4.98	22695 / 100.96
CPT88Z	8x8 8x8 RGH	7¼	7¼	5¾	2	½"	3	½"x4¾" dowel	4600 / 20.46	1235 / 5.49	1800 / 8.01	30465 / 135.52	3680 / 16.37	1120 / 4.98	1800 / 8.01	30465 / 135.52

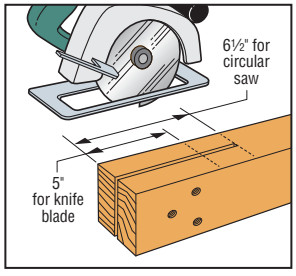
INSTALLATION SEQUENCES



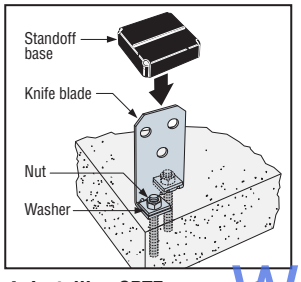
1. Using parts as template



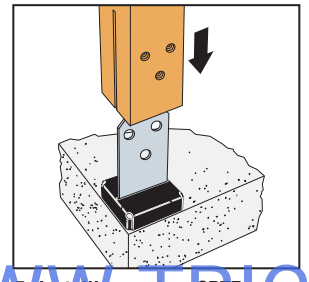
2. Drilling holes



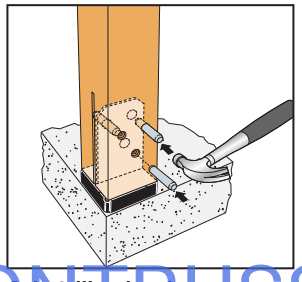
3. Cutting slot



4. Installing CPTZ on concrete



5. Installing post on CPTZ



6. Installing dowels

1. Uplift resistances have been increased 15% for short term loading, no further increase is allowed.
2. Factored normal resistances may not be increased for short term loading.
3. Factored resistances shown assume No.2 grade minimum.
4. Factored resistances shown assume a minimum concrete compressive strength of 20 MPa.
5. Factored resistances shown assume seasoned lumber under dry service condition (K_{SF}=1.00). Multiply table values by 0.67 for wet service conditions.
6. ½" diameter ASTM A307 Grade A bolts may be substituted for the ½"x4¾" dowels with no reduction in capacity. Standard cut washers are required between the head/nut and the wood.
7. Factored normal resistances for installation flush with the corner edge of concrete is 14975 lbs (66.61 kN) for all applications.
8. Factored resistances assume ½" diameter cast-in-place hex head anchor bolts with 4" embedment. Contact Simpson for post-install solutions.
9. When anchoring to a round concrete pier, a minimum 12" diameter is required to achieve tabulated uplift and lateral capacities.

PPBZ *Porch Post Base*

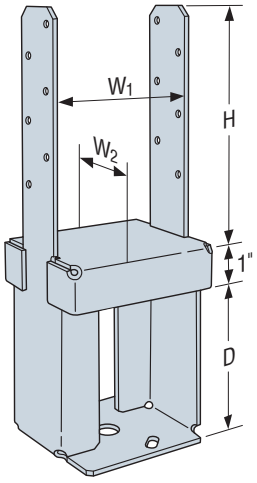
The PPBZ porch post base is designed to be installed once and will support permanent porch framing throughout all stages of construction. This design eliminates the need for temporary support of the porch roof structure and provides full access to installers/inspectors. Install the PPBZ to the cured 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

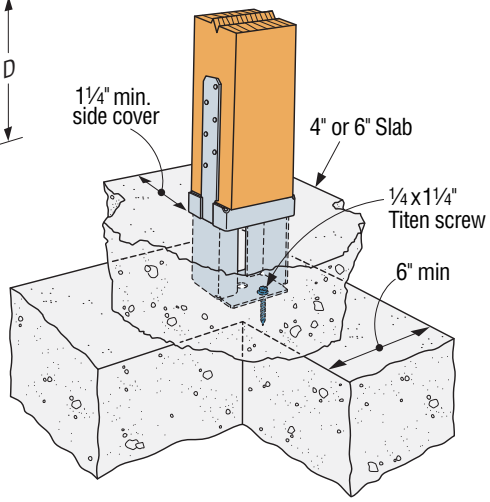
MATERIAL: 12 gauge
FINISH: ZMAX® coating
INSTALLATION:

- Use all specified fasteners. See General Notes.
- Titen® screws (Model No: TTN25114H) are not provided with the base
- See page 32 for Titen® screw information and installation instructions
- Minimum 1¼" side cover on concrete is required
- Post bases do not provide adequate resistance to prevent members from rotating about the base, and are not recommended for non top-supported installations *(i.e. fences or carports)*.



NEW

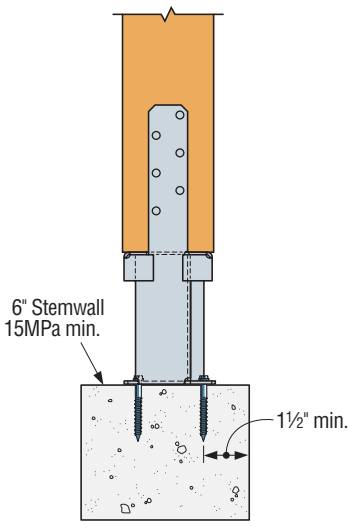
PPB44-4Z
(PPB44-6 similar)



Typical PPB44-4Z Installation

Model No.	Nominal Post Size	Dimensions (in.)				Fasteners		Factored Resistance			
								Prior to Pour		Embedded into Concrete	
		W_1	W_2	D	H	Foundation	Post	Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)
								lbs	lbs	lbs	lbs
								kN	kN	kN	kN
PPB44-4Z	4x4	3⅝	3⅝	4	5¾	2-¼x1¼ Titen	12-10dx1½	265	6610	1540	10970
								1.18	29.40	6.85	48.80
PPB44-6Z	4x4	3⅝	3⅝	6	5¾	2-¼x1¼ Titen	12-10dx1½	265	6020	1765	14715
								1.18	26.78	7.85	65.46

1. Factored uplift resistances for Embeded into Concrete installation have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other loads govern.
2. Tablulated factored resistances apply to both D.Fir-L and S-P-F posts.
3. The minimum 28-day concrete compressive strength (f'_c) shall be 2200 psi (15 MPa) for Prior to Pour, and 4650 psi (32 MPa) for Embeded into Concrete.
4. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Uplift values in the table reflect installation fastener installation into the wide face.
5. Designer is responsible for concrete and column design.
6. Factored resistances shown assume dry service conditions (K_{SF} = 1.00). Multiply uplift values by 0.67 for wet service conditions.
7. For slab thickness not shown between 4"-6", use PPB44X and specify slab thickness (D). Factored resistances may be interpolated.
8. **NAILS:** 10dx1½ = 0.148" x 1½" long. Use hot-dip galvanized nails. See pages 22-23 for other nail sizes and information.



Typical PPB44-4Z Installation
(Before slab is poured)

EPB *Elevated Post Bases*

The EPB44A is a single-piece, non-welded elevated post base. The EPB44PHDG can be used both for pier block and cast-in-place installations for 4x4 posts.

MATERIAL: EPB44A—14 gauge; EPB44, EPB46, EPB66—12 gauge base plate, 1 1/16" OD x 8" pipe; EPB44PHDG—12 gauge base plate, ¾"x6" threaded rod support *(nut and washer are shipped assembled)*

FINISH: EPB44A—Galvanized; EPB44, EPB46, EPB66—Simpson Strong-Tie® gray paint *(may be ordered HDG)*; EPB44PHDG—Hot-dip galvanized, see Corrosion Information, pages 14-17.

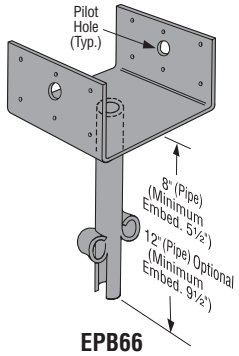
INSTALLATION: • Use all specified fasteners. See General Notes.

- Allows 1" to 2½" clearance above concrete, 2" for EPB44A. Insert EPB into concrete after screeding.
- 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)*.
- Provide a minimum side cover of 3" for EPB44PHDG and 4" for all others.

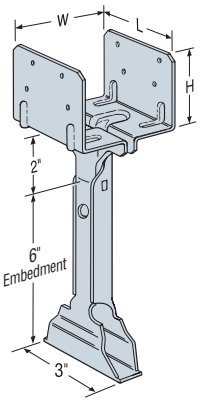
EPB44PHDG

- Secured with Epoxy—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".
- Supported by a Nut—Drill a 1" diameter hole 3½" deep minimum. Insert the EPB44PHDG and adjust to the desired height.
- Embedded in Wet Concrete—Embed the ¾" diameter rod a minimum of 3½". Ensure nut and washer are flush with the top of the concrete.
- Fully engage at least three threads in the base.

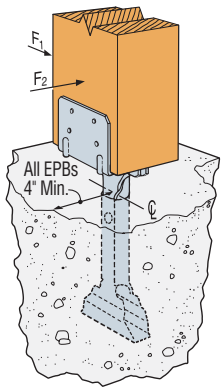
OPTIONS: 12" long pipe available for EPB44, EPB46, EPB66; specify "-12" after model number.



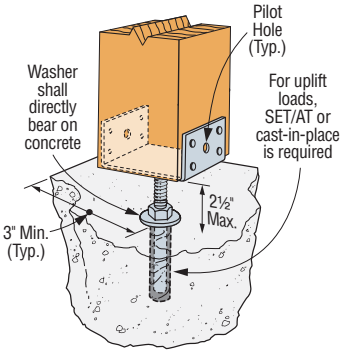
EPB66
(EPB44 and EPB46 similar)



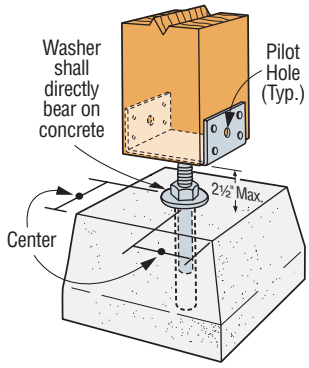
EPB44A



Typical EPB44A Installation



Typical EPB44PHDG Installed with SET Epoxy or AT Adhesive



Typical EPB44PHDG Pier Block Installation
(Supported by a nut)

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 Connector screw. See page 24 for more information.

Model No.	Dimensions (in) W	L	H	Nails	Factored Resistance D.Fir-L Uplift (K_D = 1.15) lbs / kN	F_1 (K_D = 1.15) lbs / kN	F_2 (K_D = 1.15) lbs / kN	Down (K_D = 1.00) lbs / kN	S-P-F Uplift (K_D = 1.15) lbs / kN	F_1 (K_D = 1.15) lbs / kN	F_2 (K_D = 1.15) lbs / kN	Down (K_D = 1.00) lbs / kN
EPB44PHDG	3 3/16	3¼	2¼	8-16d	1045[3]	—	—	5660	1045[3]	—	—	5660
					4.65	—	—	25.18	4.65	—	—	25.18
EPB44A	3 3/16	3	2⅜	8-16d	1965	1340	1530	4370	1395	950	1085	3640
					8.74	5.96	6.81	19.44	6.21	4.23	4.83	16.19
EPB44	3 3/16	3¼	2 5/16	8-16d	1270	1945	1700	8465	900	1380	1205	6995
					5.65	8.65	7.56	37.66	4.00	6.14	5.36	31.12
EPB46	5½	3 5/16	3	12-16d	1270	1390	1635	8465	900	990	1160	6980
					5.65	6.18	7.27	37.66	4.00	4.40	5.16	31.05
EPB66	5½	5½	3	12-16d	1570	1390	1635	8465	1115	990	1160	6225
					6.98	6.18	7.27	37.66	4.96	4.40	5.16	27.69

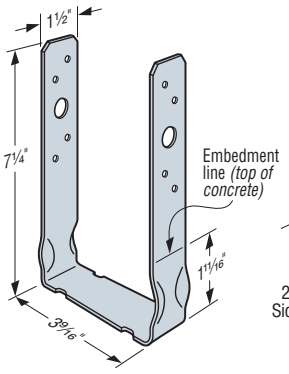
1. Uplift and lateral resistances have been increased 15% for short term loading. No further increase is allowed.
2. EPB44 and EPB46 have extra nail holes; only eight must be filled to achieve the resistances shown.
3. Uplift resistances for EPB44PHDG require the threaded rod to be set in wet concrete or attached to cured concrete with SET epoxy or AT adhesive. Uplift values do not apply to connection with pier block.
4. Specifier shall design concrete for applied loads.
5. Factored resistances shown assume dry service condition (K_{SF} = 1.00). Multiply table values by 0.67 under wet service conditions.
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.
7. Minimum f'_c shall be 15MPa.
8. **NAILS:** 16d = 0.162" dia. x 3½" long. See pages 22-23 for other nail sizes and information.

EPS4Z *Column Bases*

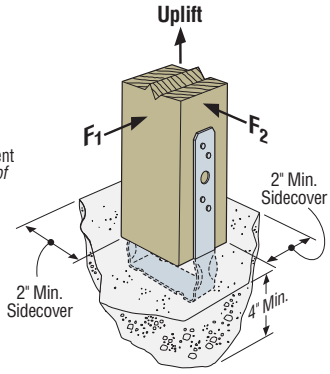
The EPS4Z provides a light-duty connector for attachment of posts to concrete.
MATERIAL: 14 gauge
FINISH: ZMAX® coating; see Corrosion Information, pages 14-17.
INSTALLATION: • Use all specified fasteners. See General Notes.
- Post bases do not provide adequate resistance to prevent members from rotating 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.

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	Factored Resistance (K_D = 1.15)					
		D.Fir-L			S-P-F		
		Uplift	F_1	F_2	Uplift	F_1	F_2
		lbs	lbs	lbs	lbs	lbs	lbs
		kN	kN	kN	kN	kN	kN
EPS4Z	8-10dx1½	1765	965	815	1255	685	580
		7.85	4.29	3.63	5.58	3.05	2.58



EPS4Z



Typical EPS4Z Installation

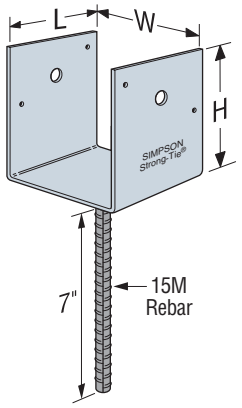
1. Uplift and lateral resistances have been increased 15% for short term loading. No further increase is allowed.
2. Download capacity is the lower of the concrete or post capacity per CSA A23.3-14 or CSA O86-14.
3. Structural composite lumer columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners should be installed through the wide face.
4. Factored resistances shown assume dry service condition (K_{SF} = 1.00). Multiply table values by 0.67 under wet service conditions.
5. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

RCPS *Rebar Carport Saddles*

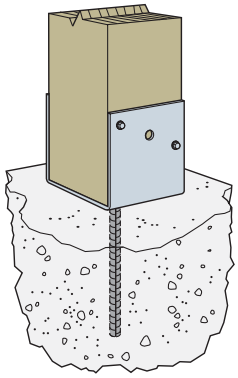
Rebar saddle bracket for connecting post to concrete.
MATERIAL: 13 gauge **FINISH**: Hot-dip galvanized, use HDG fasteners
INSTALLATION: • Use all specified fasteners. See General Notes.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.

Model No.	Dimensions (in)			Fasteners
	W	L	H	
RCPS3.5HDG	3⅝	3¼	3½	4-16d
RCPS4HDG	4⅛	4	3½	4-16d
RCPS46HDG	4⅛	6	3½	4-16d
RCPS4.5HDG	4⅝	3½	3½	4-16d
RCPS5.5HDG	5⅝	5½	3½	4-16d
RCPS6HDG	6⅛	6	3½	4-16d
RCPS7.5HDG	7⅝	7⅝	3½	4-16d
RCPS8HDG	8⅛	8	3½	4-16d

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



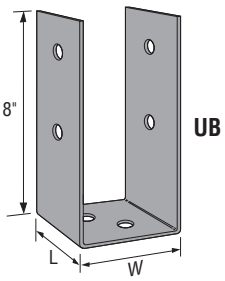
RCPS3.5HDG

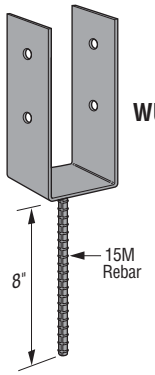

Typical RCPS3.5HDG Installation

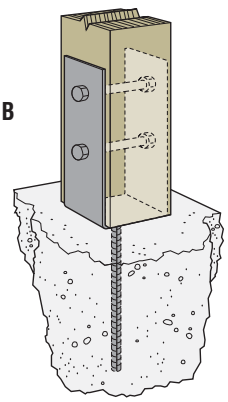
UB/WUB *Post Brackets*

Saddle bracket for connecting post to concrete.
MATERIAL: 3 gauge **FINISH**: Hot-dip galvanized, use HDG fasteners
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)*.

Model No.	Post Size	Dimensions (in)		Fasteners
		W	L	Post
UB44HDG	4x4	3⅝	3	2-½" MB
UB44RHDG	4x4R	4⅛	3	2-½" MB
UB66HDG	6x6	5⅝	4	2-½" MB
UB66RHDG	6x6R	6⅛	4	2-½" MB
WUB44HDG	4x4	3⅝	3	2-½" MB
WUB44RHDG	4x4R	4⅛	3	2-½" MB
WUB66HDG	6x6	5⅝	3	2-½" MB
WUB66RHDG	6x6R	6⅛	3	2-½" MB






Typical WUB Installation

1. Provide notched out area to accommodate the anchor bolts into the wood post for UB series only. Holes sized for ½" diameter anchor bolts.
2. WUBs do not require fasteners into concrete. Refer to the application drawing for installation.

LCB/CB *Column Bases*

LCB—Low-cost column base for patios, carports, breezeways and porches.
CB—For columns that require high structural values and rugged performance.

MATERIAL: See table

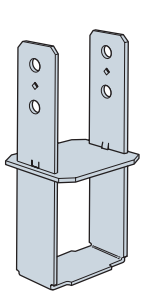
FINISH: LCB, CB44, CB46, CB48, CB66, CB68, CB86—galvanized; all other CB *(including all CBGT)*—Simpson Strong-Tie® gray paint or HDG. Some models available in stainless steel.

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)*.
- Contact engineered wood manufacturers for connections that are not through the wide face.

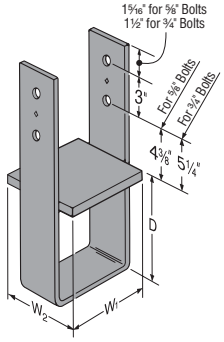
OPTIONS: • The LCB may be shipped unassembled; specify "Disassembled".
- LCB and CB are available in rough size. Other sizes available for CB specify W_1 and W_2 dimensions. Consult Simpson Strong-Tie for bolt sizes and factored resistances. See PBS.
- For rebar option add "GT" to the model name, i.e., CBGT44. *(Base plate comes 3 ga for all CBGTs)*

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.

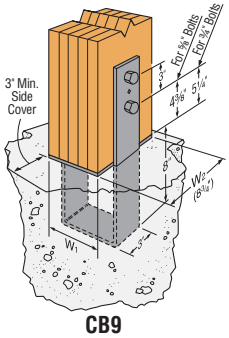
Model No.	Nominal Column Size	Material		Dimensions (in)			Column Bolts		Factored Uplift Resistance (K_D = 1.15)	
		Strap (Ga x W)	Base (Ga)	W_1	W_2	D	Qty.	Dia. (in)	D.Fir-L	S-P-F
									lbs kN	lbs kN
LCB44	4x4	12ga x 2	16	3⁹⁄₁₆	3½	6½	2	½	5175 23.02	4085 18.17
CB44	4x4	7ga x 2	7	3⁹⁄₁₆	3⁹⁄₁₆	8	2	⅝	5582 24.83	4407 19.60
LCB46	4x6	12ga x 2	16	3⁹⁄₁₆	5½	6½	2	½	5175 23.02	4085 18.17
CB46	4x6	7ga x 2	7	3⁹⁄₁₆	5½	8	2	⅝	5582 24.83	4407 19.60
CB48	4x8	7ga x 2	7	3⁹⁄₁₆	7½	8	2	⅝	5582 24.83	4407 19.60
CB5-4.5	Glulam	7ga x 3	7	4½	5⅛	8	2	⅝	5940 26.42	4690 20.86
CB5-6	Glulam	7ga x 3	7	6	5⅛	8	2	⅝	5940 26.42	4690 20.86
LCB66	6x6	12ga x 2	16	5½	5½	5½	2	½	5175 23.02	4085 18.17
CB66	6x6	7ga x 3	7	5½	5½	8	2	⅝	5940 26.42	4690 20.86
CB6-7	6x	7ga x 3	7	5½	7	8	2	⅝	5940 26.42	4690 20.86
CB68	6x8	7ga x 3	7	5½	7½	8	2	⅝	5940 26.42	4690 20.86
CB610	6x10	7ga x 3	7	5½	9½	8	2	⅝	5940 26.42	4690 20.86
CB612	6x12	7ga x 3	7	5½	11½	8	2	⅝	5940 26.42	4690 20.86
CB7-6	Glulam	3ga x 3	7	6	6¾	8	2	¾	9410 41.86	7530 33.50
CB7-7.5	Glulam	3ga x 3	7	7½	6¾	8	2	¾	9410 41.86	7530 33.50
CB7-9	Glulam	3ga x 3	7	9	6¾	8	2	¾	9410 41.86	7530 33.50
CB7-10.5	Glulam	3ga x 3	7	10½	6¾	8	2	¾	9410 41.86	7530 33.50
CB7⅛-4	PSL	3ga x 3	7	7⅛	3½	8	2	¾	8470 37.68	— —
CB7⅛-6	PSL	3ga x 3	7	7⅛	5½	8	2	¾	8470 37.68	— —
CB7⅛-7	PSL	3ga x 3	7	7⅛	7	8	2	¾	9410 41.86	— —
CB86	8x6	3ga x 3	7	7½	5½	8	2	¾	9410 41.86	7530 33.50
CB88	8x8	3ga x 3	7	7½	7½	8	2	¾	9410 41.86	7530 33.50
CB9-6	Glulam	3ga x 3	7	6	8¾	8	2	¾	9410 41.86	7530 33.50
CB9-7.5	Glulam	3ga x 3	7	7½	8¾	8	2	¾	9410 41.86	7530 33.50
CB9-9	Glulam	3ga x 3	7	9	8¾	8	2	¾	9410 41.86	7530 33.50
CB9-10.5	Glulam	3ga x 3	7	10½	8¾	8	2	¾	9410 41.86	7530 33.50
CB1010	10x10	3ga x 3	3	9½	9½	8	2	¾	9410 41.86	7530 33.50
CB1012	10x12	3ga x 3	3	9½	11½	8	2	¾	9410 41.86	7530 33.50
CB1212	12x12	3ga x 3	3	11½	11½	8	2	¾	9410 41.86	7530 33.50



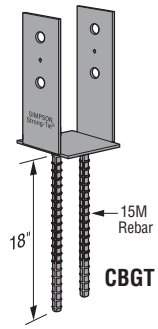
CB44
(CB46, CB66, CB88, CB610 similar)



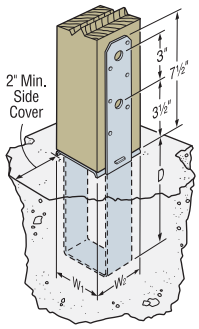
Configuration of all other CB sizes



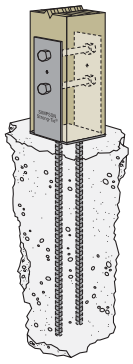
CB9
(CB5, CB7 similar)
for Glulam Column



CBGT



LCB



Typical CBGT Installed

1. Factored uplift resistances have been increased 15% for earthquake or wind loading, with no further increase allowed; reduce where other loads govern.
2. PSL is parallel strand lumber.
3. Factored resistances shown assume dry service condition (K_{SF} = 1.00). Multiply table values by 0.67 for uplift under wet service conditions.
4. Factored uplift resistance for CBGT option is 4350 lbs (19.35 kN).
5. LCB products must be installed with bolts to achieve table values.
6. Designer is responsible for concrete design.
7. 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.
8. W_2 shall be 2" Min. Minimum.
9. **NAILS:** 16d = 0.162" dia. x 3½" long. See pages 22-23 for other nail sizes and information.

CBSQ *Column Bases*

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

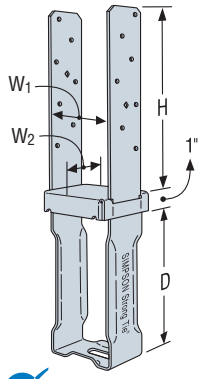
The CBSQ uses Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws, which allows for fast installation, reduced reveal, high capacity and provides a greater net section area of the column compared to bolts.

MATERIAL: See table

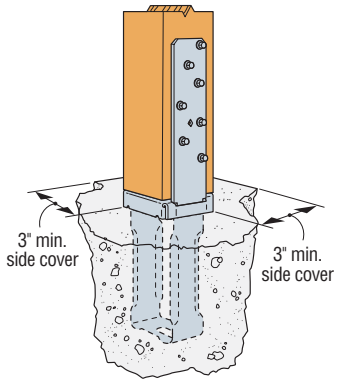
FINISH: Galvanized, available in HDG

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

- Install ¼"x2" Strong-Drive SDS Heavy-Duty Connector screws, which are provided with the column base. *(Lag screws will not achieve the same load.)*
- Minimum 3" side cover on concrete is required.
- 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)*.



CBSQ-SDS2
U.S. Patent 4,924,648



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		Dimesions (in)				Number of Simpson Strong-Tie SDS ¼"x2" Screws	Factored Resistance			
									D.Fir-L		S-P-F	
		Base (Ga)	Strap (Ga x W)	W_1	W_2	D	H		Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)
									lbs	lbs	lbs	lbs
									kN	kN	kN	kN
CBSQ44-SDS2	4x4	12	10 Ga x 2¼	3 9/16	3½	7 1/16	8⅜	14	7310	16195	5265	11660
									32.56	72.14	23.45	51.94
CBSQ46-SDS2	4x6	12	10 Ga x 3	3 9/16	5 5/16	7¾	8 11/16	14	7310	21280	5265	15320
									32.56	94.79	23.45	68.24
CBSQ66-SDS2	6x6	12	10 Ga x 3	5½	5½	6⅞	8¾	14	7310	21280	5265	15320
									32.56	94.79	23.45	68.24
CBSQ86-SDS2	6x8	12	7 Ga x 3	7½	5⅜	6⅛	8 11/16	12	6220	25140	4475	18100
									27.71	111.98	19.93	80.62
CBSQ88-SDS2	8x8	12	7 Ga x 3	7½	7⅜	6⅛	8 11/16	12	6730	26545	4845	19115
									29.98	118.24	21.58	85.14

1. For higher factored normal resistances, solidly pack grout under 1" standoff plate before installing CBSQ into concrete. Base factored normal resistances 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.
3. Designer is responsible for concrete and column design.
4. Factored resistances shown assume dry service condition (K_{SF} = 1.00). Multiply table values by 0.67 under wet service conditions.
5. Minimum f'_c shall be 20 MPa.

CBQGT *Column Bases*

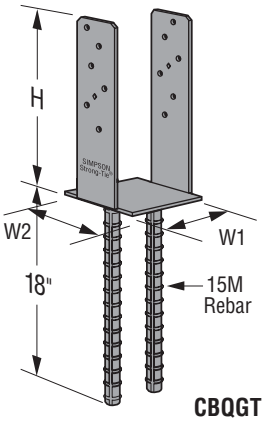
The CBQGT uses Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws, which allows for fast installation, reduced reveal, high capacity and provides a greater net section area of the column compared to bolts.

MATERIAL: See table

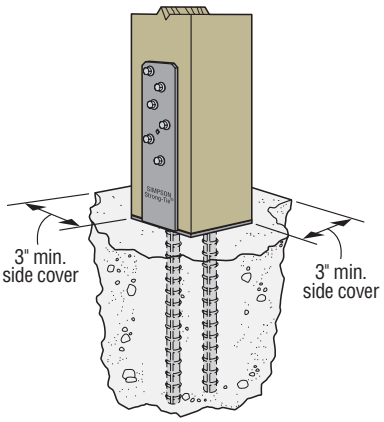
FINISH: Simpson Strong-Tie® gray paint, available in HDG

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

- Install ¼"x2" Strong-Drive SDS Heavy-Duty Connector screws, which are provided with the column base. *(Lag screws will not achieve the same load.)*
- Minimum 3" side cover on concrete is required.
- 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)*.
- Other sizes available. Check with Simpson Strong-Tie for details.



CBQGT



Typical CBQGT-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 Post Size	Material		Dimensions (in)			Number of Simpson Strong-Tie ¼"x2" SDS Screws	Factored Uplift Resistance (K_D = 1.15)	
								D.Fir-L	S-P-F
		Base (Ga)	Strap (Ga x W)	W_1	W_2	H		lbs	lbs
								kN	kN
CBQGT44-SDS2	4x4	7	7 Ga x 2	3 9/16	3 9/16	8 11/16	12	4350	4350
								19.35	19.35
CBQGT46-SDS2	4x6	7	7 Ga x 2	3 9/16	5½	8 11/16	12	4350	4350
								19.35	19.35
CBQGT66-SDS2	6x6	7	7 Ga x 3	5½	5½	8 11/16	12	4350	4350
								19.35	19.35

1. Factored uplift resistances have been increased 15% for earthquake or wind loading, 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.
3. Designer is responsible for concrete design.
4. Factored resistances shown assume dry service condition (K_{SF} = 1.00). Multiply table values by 0.67 under wet service conditions.
5. Minimum f'_c shall be 20 MPa.

BC/HBC/BCS *Post Caps and Bases*

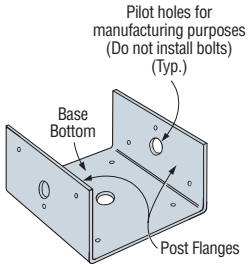
The BCS allows for the connection of 2-2x's to a 4x post or 3-2x's to a 6x post. Double shear nailing between beam and post gives added strength! The BC/HBC series offers dual purpose post cap/base for light cap or base connections.

MATERIAL: HBC—12 gauge; all others—18 gauge

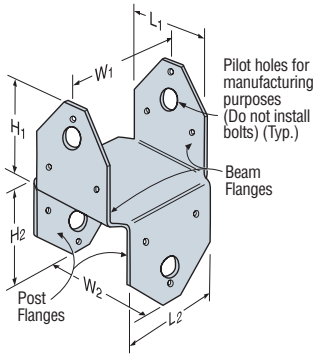
FINISH: HBC—HDG; all others—galvanized. Some products available in ZMAX® coating; see Corrosion Information, pages 14-17.

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" 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)*.



BC60 Half Base
(others similar)



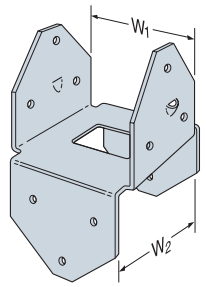
BC4 Cap/Base
(BC46, BC6 similar)

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.

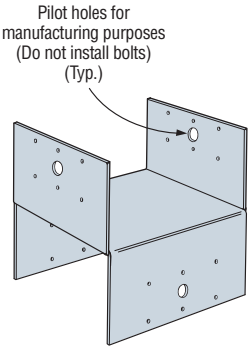
These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

Model No.	Dimensions (in)						Fasteners			Factored Resistance (K_D = 1.15)			
										D.Fir-L		S-P-F	
	W_1	W_2	L_1	L_2	H_1	H_2	Beam	Post	Base Bottom	Uplift lbs / kN	Lateral lbs / kN	Uplift lbs / kN	Lateral lbs / kN
CAPS													
BC4	3⁹⁄₁₆	3⁹⁄₁₆	2⅞	2⅞	3	3	6-16d	6-16d	—	875 / 3.90	1495 / 6.66	620 / 2.76	1060 / 4.72
BC46	3⁹⁄₁₆	5½	4⅞	2⅞	3½	2½	12-16d	6-16d	—	1415 / 6.30	1495 / 6.66	1005 / 4.48	1060 / 4.72
BC4R	4	4	4	4	3	3	12-16d	12-16d	—	875 / 3.90	1495 / 6.66	620 / 2.76	1060 / 4.72
BC6	5½	5½	4⅜	4⅜	3⅜	3⅜	12-16d	12-16d	—	1450 / 6.46	3145 / 14.01	1030 / 4.59	2765 / 12.32
BC6R	6	6	6	6	3	3	12-16d	12-16d	—	1560 / 6.94	3145 / 14.01	1110 / 4.94	2765 / 12.32
BC8	7½	7½	7½	7½	4	4	12-16d	12-16d	—	2545 / 11.34	3145 / 14.01	1810 / 8.06	2765 / 12.32
BCS2-2/4	3⅛	3⁹⁄₁₆	2⅞	2⅞	2¹⁵⁄₁₆	2¹⁵⁄₁₆	8-10d	6-10d	—	1190 / 5.30	1560 / 6.95	845 / 3.76	1370 / 6.09
BCS2-3/6	4⅝	5⁹⁄₁₆	4 3/8	2⅞	3⁵⁄₁₆	2¹⁵⁄₁₆	12-16d	6-16d	—	1370 / 6.10	2445 / 10.89	970 / 4.32	1735 / 7.73
BASES													
BC4O	3⁹⁄₁₆	—	3¼	—	2¼	—	6-16d	—	4-16d	510 / 2.27	1050 / 4.68	360 / 1.60	960 / 4.28
HBC4OHDG	3⁹⁄₁₆	—	3¼	—	2¼	—	6-16d	—	4-16d	510 / 2.27	1050 / 4.68	360 / 1.60	960 / 4.28
BC4OR	4	—	4	—	3	—	6-16d	—	4-16d	510 / 2.27	1050 / 4.68	360 / 1.60	960 / 4.28
BC46O	5½	—	3⅜	—	3	—	6-16d	—	4-16d	510 / 2.27	1050 / 4.68	360 / 1.60	960 / 4.28
BC6O	5½	—	5½	—	3	—	6-16d	—	4-16d	510 / 2.27	1050 / 4.68	360 / 1.60	960 / 4.28
HBC6OHDG	5½	—	5½	—	3	—	6-16d	—	4-16d	510 / 2.27	1050 / 4.68	360 / 1.60	960 / 4.28
BC6OR	6	—	6	—	3	—	6-16d	—	4-16d	510 / 2.27	1050 / 4.68	360 / 1.60	960 / 4.28
BC8O	7½	—	7½	—	4	—	6-16d	—	4-16d	510 / 2.27	1050 / 4.68	360 / 1.60	960 / 4.28
BC8OR	8	—	8	—	4	—	6-16d	—	4-16d	510 / 2.27	1050 / 4.68	360 / 1.60	960 / 4.28

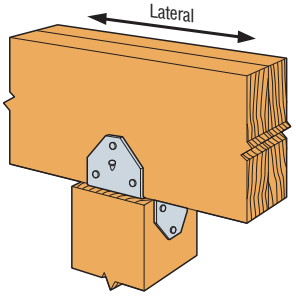
1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other loads govern.
2. Uplift values shown for BCO are only applicable for short-term loading. Do not use these products for other load durations.
3. Uplift resistances do not apply where Bases are nailed into the end grain of post as per 12.9.3.4 CSA O86-14.
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-SCLCOLUMNCAN for details)*.
5. Factored resistances shown assume dry service condition (K_{SF} = 1.00). Multiply table values by 0.67 under wet service conditions.
6. **NAILS:** 16d = 0.162" dia. x 3½" long; 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.



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



BC8 Cap/Base
(BC4R, BC6R similar)



Typical BCS Installation

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.

The AC MAX design allows for higher load capacity to match comparable post bases.

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, pages 14-17.

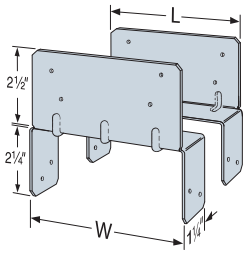
INSTALLATION: • Use all specified fasteners. See General Notes.
• Install all models in pairs.

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.

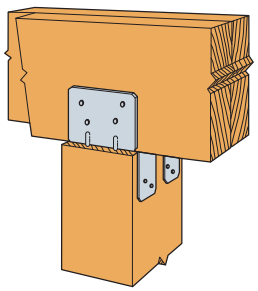
These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

Model No.	Dimensions (in)		Fasteners		Factored Resistance (K_D = 1.15)			
					D.Fir-L		S-P-F	
	W	L	Beam	Post	Uplift	Lateral	Uplift	Lateral
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
LPC4Z	3⁹⁄₁₆	3½	8-10d	8-10d	1225	460	870	325
					5.46	2.05	3.88	1.45
LCE4	—	5⅜	14-16d	10-16d	2560	2300	2315	1910
					11.40	10.24	10.31	8.51
AC4 (Min)	3⁹⁄₁₆	6½	8-16d	8-16d	2095	2290	1920	1625
					9.33	10.20	8.55	7.24
AC4 (Max)	3⁹⁄₁₆	6½	14-16d	14-16d	3670	2850	3360	2025
					16.35	12.69	14.97	9.02
ACE4 (Min)	—	4½	6-16d	6-16d	1570	695	1220	495
					6.99	3.10	5.43	2.20
ACE4 (Max)	—	4½	10-16d	10-16d	2225	900	1580	640
					9.91	4.01	7.04	2.85
AC4RZ (Min)	4	7	8-16d	8-16d	2095	2290	1920	1625
					9.33	10.20	8.55	7.24
AC4RZ (Max)	4	7	14-16d	14-16d	3670	2850	3360	2025
					16.35	12.69	14.97	9.02
LPC6Z	5⁹⁄₁₆	5½	8-10d	8-10d	1040	695	735	495
					4.63	3.10	3.27	2.20
AC6 (Min)	5½	8½	8-16d	8-16d	2095	1925	1855	1365
					9.33	8.57	8.26	6.08
AC6 (Max)	5½	8½	14-16d	14-16d	3670	3670	3030	2845
					16.35	16.35	13.50	12.67
ACE6 (Min)	—	6½	6-16d	6-16d	1570	1300	1440	1070
					6.99	5.79	6.41	4.77
ACE6 (Max)	—	6½	10-16d	10-16d	2620	2075	2400	1800
					11.67	9.24	10.69	8.02
AC6RZ (Min)	6	9	8-16d	8-16d	2095	1925	1920	1365
					9.33	8.57	8.55	6.08
AC6RZ (Max)	6	9	14-16d	14-16d	3670	3670	3360	2845
					16.35	16.35	14.97	12.67

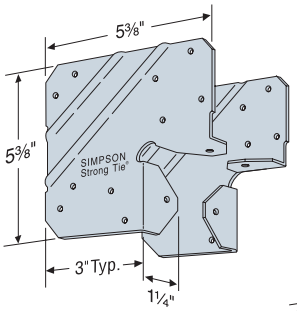
1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other loads govern.
2. Resistances apply only when used in pairs.
3. LPCZ lateral resistance is in the direction parallel to the beam.
4. MIN nailing quantity and resistances – fill all round holes; MAX nailing quantities and resistances – fill round and triangle holes.
5. Uplift values do not apply to splice conditions.
6. LCE4 uplift capacity for mitered corner conditions is 1615 lbs (7.18 kN) D.Fir-L and 1145 lbs (5.09 kN) S-P-F. Lateral resistances do not apply.
7. 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-SCLCOLUMNCAN for values on the narrow face (edge).
8. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.



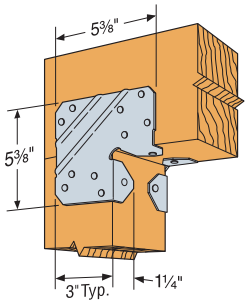
LPCZ



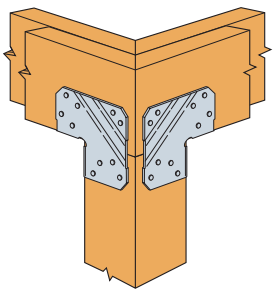
Typical LPCZ Installation



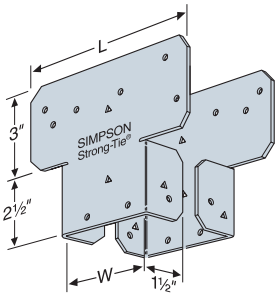
LCE4
(For 4x or 6x lumber)



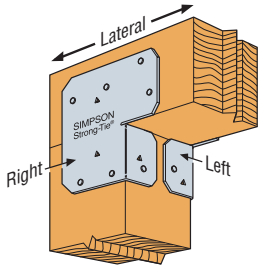
Typical LCE4 Installation



Typical LCE4 Corner Installation
(See note 6)



AC



Typical ACE Installation

PCZ/EPCZ *Post Caps*

The next-generation PCZ/EPCZ post caps are designed with their post and beam flanges in-line so that one PCZ/EPCZ model can accommodate several post sizes. The PCZ/EPCZ now uses easier-to-install 10d common nails. An alternate choice of fasteners is #9x1½" Strong-Drive® SD Connector screws. ZMAX® finish is standard to meet exposure conditions in many environments. See additional corrosion information at ***www.strongtie.com/info***.

MATERIAL: 16 gauge

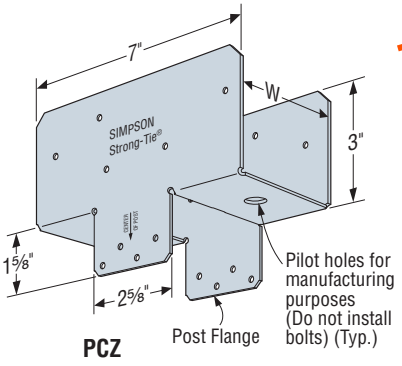
FINISH: ZMAX® coating

INSTALLATION:

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

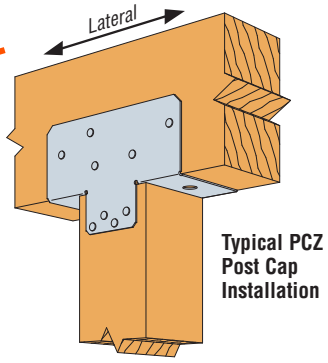
OPTIONS:

- For end conditions, specify EPCZ post caps.
- For heavy-duty applications, see CCQ and CC Series.



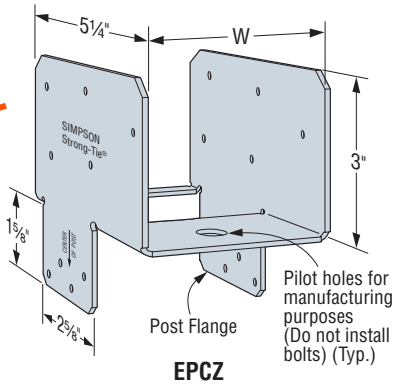
PCZ

NEW

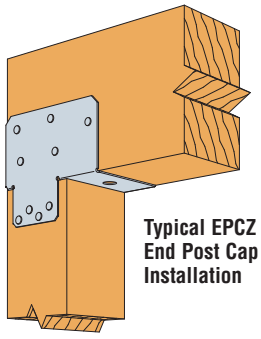


Typical PCZ Post Cap Installation

NEW



EPCZ



Typical EPCZ End Post Cap 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 Connector screw. See page 24 for more information.

Model	W (in)	Fasteners		Factored Resistance (K_D = 1.15)			
				D.Fir-L		S-P-F	
		Beam	Post	Uplift lbs kN	Lateral lbs kN	Uplift lbs kN	Lateral lbs kN
PC4Z	3⅜6	10-10d	8-10d	1920 / 8.54	1920 / 8.54	1785 / 7.94	1515 / 6.74
EPC4Z	3⅜6	10-10d	8-10d	1920 / 8.54	1795 / 7.98	1450 / 6.45	1315 / 5.85
PC4RZ	4	10-10d	8-10d	1920 / 8.54	1920 / 8.54	1785 / 7.94	1515 / 6.74
EPC4RZ	4	10-10d	8-10d	1920 / 8.54	1795 / 7.98	1450 / 6.45	1315 / 5.85
PC6Z	5½	10-10d	8-10d	1920 / 8.54	1920 / 8.54	1785 / 7.94	1515 / 6.74
EPC6Z	5½	10-10d	8-10d	1920 / 8.54	1795 / 7.98	1485 / 6.61	1315 / 5.85
PC6RZ	6	10-10d	8-10d	1920 / 8.54	1920 / 8.54	1785 / 7.94	1515 / 6.74
EPC6RZ	6	10-10d	8-10d	1920 / 8.54	1795 / 7.98	1485 / 6.61	1315 / 5.85
PC8Z	7½	10-10d	8-10d	1920 / 8.54	1920 / 8.54	1785 / 7.94	1515 / 6.74
EPC8Z	7½	10-10d	8-10d	1920 / 8.54	1795 / 7.98	1485 / 6.61	1315 / 5.85
PC8RZ	8	10-10d	8-10d	1920 / 8.54	1920 / 8.54	1785 / 7.94	1515 / 6.74
EPC8RZ	8	10-10d	8-10d	1920 / 8.54	1795 / 7.98	1485 / 6.61	1315 / 5.85

1. Factored resistances have been increased 15% for earthquake or wind loading. No further increase is permitted. Reduce where other load durations govern.
2. Factored uplift resistances do not apply to beams spliced over the column.
3. Spliced conditions must be detailed by the Designer to transfer tension loads between spliced members by means other than the post cap.
4. Structrual composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the table are only appicable to installation into the wide face of the post.
5. 10d nails may be substituted with Strong-Drive® SD#9x1½" Connector screws for full capacities shown.
6. Multiply the tablulated values x 0.67 for wet service conditions.
7. **NAILS:** 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.
   SCREWS: SD#9x1½" = 0.131" dia. x 1½" long (SD9112)

CCQ Column Caps

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

This design uses Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws to provide faster installation. The Strong-Drive SDS Heavy-Duty Connector screws provide for a lower profile compared to standard through bolts.

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

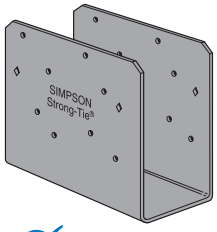
FINISH: Simpson Strong-Tie® gray paint, available in HDG; CCOQ—uncoated

INSTALLATION: Fasteners provided. See General Notes.

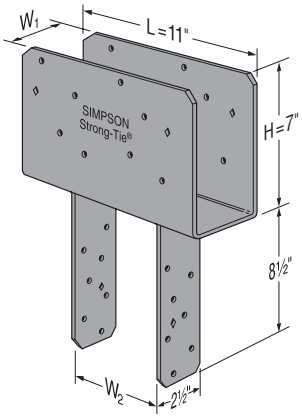
- Install ¼"x2½" Strong-Drive SDS Heavy-Duty Connector screws, which are provided with the column cap. *(Lag screws will not achieve the same load.)*

OPTIONS: Straps may be rotated 90° where $W_1 \geq W_2$.

- CCOQ—may be ordered for field welding to pipe or other columns *(no loads apply)*.
- Custom sizes are available. Contact Simpson Strong-Tie for more information.
- See page 73 for CCCQ and CCTQ options.



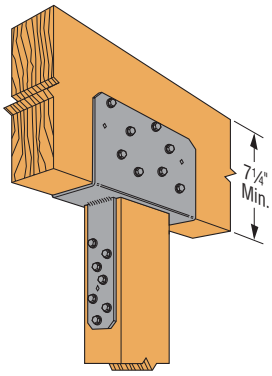
CCOQ4-SDS2.5



CCQ46SDS2.5

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)		No. of SDS ¼"x2½" Screws		Factored Resistance				
					Uplift (K_D = 1.15)		Normal (K_D = 1.00)		
					D.Fir-L	S-P-F	D.Fir-L	S-P-F	SCL
	W_1	W_2	Beam	Post	lbs kN	lbs kN	lbs kN	lbs kN	lbs kN
CCQ3-4SDS2.5	3¼	3⅜	16	14	9500 42.26	7705 34.27	23075 102.65	18955 84.32	— —
CCQ3-6SDS2.5	3¼	5½	16	14	9500 42.26	8855 39.39	27915 124.18	22545 100.29	— —
CCQ44SDS2.5	3⅝	3⅜	16	14	9500 42.26	7705 34.27	25845 114.97	21230 94.44	39100 173.93
CCQ46SDS2.5	3⅝	5½	16	14	9500 42.26	8855 39.39	31260 139.06	23660 105.25	42040 187.01
CCQ48SDS2.5	3⅝	7½	16	14	9500 42.26	8855 39.39	31260 139.06	23660 105.25	42040 187.01
CCQ4.62-3.62SDS2.5	4⅝	3⅜	16	14	9500 42.26	7705 34.27	33230 147.82	27295 121.42	— —
CCQ4.62-4.62SDS2.5	4⅝	4⅝	16	14	9500 42.26	7705 34.27	40195 178.80	30420 135.32	— —
CCQ4.62-5.5SDS2.5	4⅝	5½	16	14	9500 42.26	8855 39.39	40195 178.80	30420 135.32	— —
CCQ5-4SDS2.5	5¼	3⅜	16	14	10700 47.60	7705 34.27	37845 168.35	31090 138.30	— —
CCQ5-6SDS2.5	5¼	5½	16	14	13285 59.10	9500 42.26	45775 203.63	36975 164.48	— —
CCQ5-8SDS2.5	5¼	7½	16	14	13285 59.10	9500 42.26	45775 203.63	37885 168.53	— —
CCQ64SDS2.5	5½	3⅜	16	14	9500 42.26	7705 34.27	40615 180.67	33360 148.40	58660 260.94
CCQ66SDS2.5	5½	5½	16	14	9500 42.26	8855 39.39	49125 218.53	37175 165.37	63065 280.54
CCQ6-7.1SDS2.5	5½	7⅛	16	14	9500 42.26	8855 39.39	49125 218.53	37175 165.37	63065 280.54
CCQ68SDS2.5	5½	7½	16	14	9500 42.26	8855 39.39	49125 218.53	37175 165.37	63065 280.54
CCQ74SDS2.5	6⅞	3⅜	16	14	10700 47.60	7705 34.27	49845 221.73	40940 182.12	— —
CCQ76SDS2.5	6⅞	5½	16	14	13285 59.10	9500 42.26	60290 268.19	48695 216.61	— —
CCQ77SDS2.5	6⅞	6⅞	16	14	13285 59.10	9500 42.26	60290 268.19	49895 221.95	— —
CCQ78SDS2.5	6⅞	7½	16	14	13285 59.10	9500 42.26	60290 268.19	49895 221.95	— —
CCQ7.1-4SDS2.5	7⅛	3⅜	16	14	10700 47.60	7705 34.27	— —	— —	78205 347.89
CCQ7.1-6SDS2.5	7⅛	5½	16	14	13285 59.10	9500 42.26	— —	— —	84085 374.04
CCQ7.1-7.1SDS2.5	7⅛	7⅛	16	14	13285 59.10	9500 42.26	— —	— —	84085 374.04
CCQ7.1-8SDS2.5	7⅛	7½	16	14	13285 59.10	9500 42.26	— —	— —	84085 374.04
CCQ86-SDS2.5	7½	5½	16	14	13285 59.10	9500 42.26	66990 298.00	50695 225.51	— —
CCQ88-SDS2.5	7½	7½	16	14	13285 59.10	9500 42.26	66990 298.00	50695 225.51	— —
CCQ96-SDS2.5	8¾	5½	16	14	13285 59.10	9500 42.26	75920 337.72	61320 272.78	— —
CCQ98-SDS2.5	8¾	7½	16	14	13285 59.10	9500 42.26	75920 337.72	62830 279.49	— —
CCQ106-SDS2.5	9½	5½	16	14	13285 59.10	9500 42.26	84855 377.47	64215 285.65	— —



Typical CCQ46SDS2.5 Installation

NOTE: 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.

1. Factored down resistances are determined using ϕF_{cp} equal to: 812 psi (5.6 MPa) for D.Fir-L and 672 psi (4.64 MPa) for Spruce-Pine glulam sizes; 1092 psi (7.53 MPa) for SCL sizes; reduce where end grain bearing or buckling capacity of post governs.
2. Spliced conditions must be detailed by the Designer to transfer tension loads between spliced members by means other than the column cap.
3. Factored uplift resistances do not apply to splice conditions.
4. Post sides are assumed to lie in the same vertical plane as the beam sides.
5. Loads may not be increased for short-term loading.
6. Uplift loads have been increased 15% for earthquake or wind loading; reduce for other loading conditions in accordance with the code.
7. Designer to design beam for factored uplift resistance based on effective shear depth as per 12.2.1.4 CSA O86-14.
8. SCL assumes SG = 0.50
9. Beam depth must be greater than 7¼".
10. For uplift values when using SCL, use either D.Fir-L or S-P-F factored resistances based on SCL manufacturers recommendations.

ECCQ *Column Caps*

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

This design uses Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws to provide faster installation. The Strong-Drive SDS Heavy-Duty Connector screws provide for a lower profile compared to standard through bolts.

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

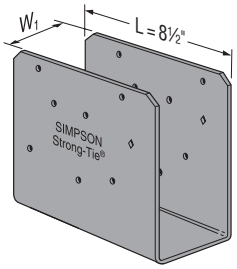
FINISH: Simpson Strong-Tie® gray paint, available in HDG; ECCOQ—uncoated.

INSTALLATION: Fasteners provided. See General Notes.

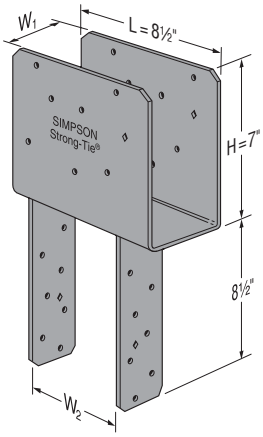
- Install ¼"x2½" Strong-Drive SDS Heavy-Duty Connector screws, which are provided with the column cap. *(Lag screws will not achieve the same load.)*

OPTIONS: Straps may be rotated 90° where $W_1 \geq W_2$.

- ECCOQ—may be ordered for field welding to pipe or other columns *(no loads apply)*.
- Custom sizes are available. Contact Simpson Strong-Tie for more information.
- See page 73 for ECCLQ options.



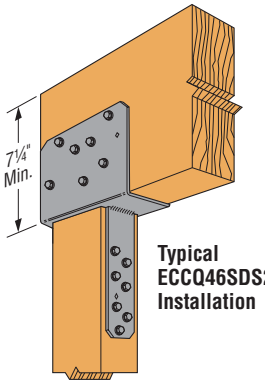
ECCOQ



ECCQ46SDS2.5

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)		No. of SDS ¼"x2½" Screws		Factored Resistance				
					Uplift (K_D = 1.15)		Normal (K_D = 1.00)		
					D.Fir-L	S-P-F	D.Fir-L	S-P-F	SCL
	W_1	W_2	Beam	Post	lbs kN	lbs kN	lbs kN	lbs kN	lbs kN
ECCQ3-4SDS2.5	3¼	3⅝	14	14	6965 30.98	5015 22.31	8880 39.50	7350 32.70	— —
ECCQ3-6SDS2.5	3¼	5½	14	14	7615 33.87	5480 24.38	13955 62.08	11550 51.38	— —
ECCQ44SDS2.5	3⅝	3⅝	14	14	6965 30.98	5015 22.31	9945 44.24	7530 33.50	13375 59.50
ECCQ46SDS2.5	3⅝	5½	14	14	7615 33.87	5480 24.38	15630 69.53	11830 52.62	21020 93.51
ECCQ48SDS2.5	3⅝	7½	14	14	7615 33.87	5480 24.38	21315 94.82	16130 71.75	28665 127.51
ECCQ4.62-3.62SDS2.5	4⅝	3⅝	14	14	6965 30.98	5015 22.31	12790 56.90	9680 43.06	— —
ECCQ4.62-4.62SDS2.5	4⅝	4⅝	14	14	6965 30.98	5015 22.31	16445 73.15	12445 55.36	— —
ECCQ4.62-5.5SDS2.5	4⅝	5½	14	14	7615 33.87	5480 24.38	20095 89.39	15210 67.66	— —
ECCQ5-4SDS2.5	5¼	3⅝	14	14	6965 30.98	5015 22.31	14565 64.79	12055 53.63	— —
ECCQ5-6SDS2.5	5¼	5½	14	14	7835 34.85	5640 25.09	22890 101.82	18490 82.25	— —
ECCQ5-8SDS2.5	5¼	7½	14	14	7835 34.85	5640 25.09	31210 138.83	25830 114.90	— —
ECCQ64SDS2.5	5½	3⅝	14	14	6965 30.98	5015 22.31	15630 69.53	11830 52.62	20065 89.26
ECCQ66SDS2.5	5½	5½	14	14	7615 33.87	5480 24.38	24565 109.27	18590 82.70	30100 133.90
ECCQ6-7.1SDS2.5	5½	7⅛	14	14	7615 33.87	5480 24.38	31260 139.06	23660 105.25	40130 178.51
ECCQ68SDS2.5	5½	7½	14	14	7615 33.87	5480 24.38	33495 149.00	25350 112.77	43000 191.28
ECCQ74SDS2.5	6⅞	3⅝	14	14	6965 30.98	5015 22.31	19185 85.34	15875 70.62	— —
ECCQ76SDS2.5	6⅞	5½	14	14	7835 34.85	5640 25.09	30145 134.10	24950 110.99	— —
ECCQ77SDS2.5	6⅞	6⅞	14	14	7835 34.85	5640 25.09	36995 164.57	30620 136.21	— —
ECCQ78SDS2.5	6⅞	7½	14	14	7835 34.85	5640 25.09	41110 182.87	34020 151.33	— —
ECCQ7.1-4SDS2.5	7⅛	3⅝	14	14	6965 30.98	5015 22.31	— —	— —	26755 119.02
ECCQ7.1-6SDS2.5	7⅛	5½	14	14	7835 34.85	5640 25.09	— —	— —	40130 178.51
ECCQ7.1-7.1SDS2.5	7⅛	7⅛	14	14	7835 34.85	5640 25.09	— —	— —	53510 238.03
ECCQ7.1-8SDS2.5	7⅛	7½	14	14	7835 34.85	5640 25.09	— —	— —	57330 255.03
ECCQ86-SDS2.5	7½	5½	14	14	7835 34.85	5640 25.09	33495 149.00	25350 112.77	— —
ECCQ88-SDS2.5	7½	7½	14	14	7835 34.85	5640 25.09	45675 203.18	34565 153.76	— —
ECCQ96-SDS2.5	8¾	5½	14	14	7835 34.85	5640 25.09	37960 168.86	31415 139.75	— —
ECCQ98-SDS2.5	8¾	7½	14	14	7835 34.85	5640 25.09	51765 230.27	42840 190.57	— —
ECCQ106-SDS2.5	9½	5½	14	14	7835 34.85	5640 25.09	42425 188.72	31110 142.84	— —



Typical ECCQ46SDS2.5 Installation

NOTE: 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.

1. Factored down resistances are determined using ϕFcp equal to: 812 psi (5.6 MPa) for D.Fir-L and 672 psi (4.64 MPa) for Spruce-Pine glulam sizes; 1092 psi (7.53 MPa) for SCL sizes; reduce where end grain bearing or buckling capacity of post governs.
2. Spliced conditions must be detailed by the Designer to transfer tension loads between spliced members by means other than the column cap.
3. Factored uplift resistances do not apply to splice conditions.
4. Post sides are assumed to lie in the same vertical plane as the beam sides.
5. Loads may not be increased for short-term loading.
6. Uplift loads have been increased 15% for earthquake or wind loading; reduce for other loading conditions in accordance with the code.
7. ECCQ downloads assume a post of W_1 x W_2.
8. Designer to design beam for factored uplift resistance based on effective shear depth as per 12.2.1.4 CSA O86-14.
9. SCL assumes SG = 0.50
10. Beam depth must be greater than 7¼".
11. For uplift values when using SCL, use either D.Fir-L or S-P-F factored resistances based on SCL manufacturers recommendations.

CC/ECC/ECCU *Column Caps*

The industry standard column caps. Precision factory gang-punched holes speed installation on this product line.

MATERIAL: CC3¼, CC44, CC4.62, CC6, ECC3¼, ECC4, ECC4.62, ECC6—7 gauge; all others—3 gauge

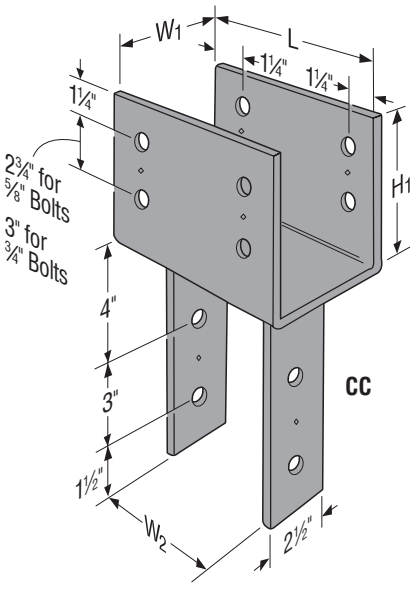
FINISH: Simpson Strong-Tie® gray paint; may be ordered HDG; CCO, ECCO—uncoated

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

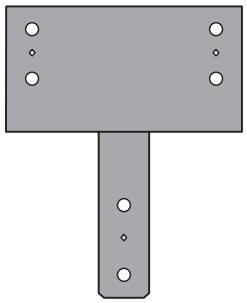
- Bolt holes shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt diameter (per 12.4.1.2 CSA O86-14).
- Contact engineered wood manufacturer for connections that are not through the wide face.

OPTIONS: • Straps may be rotated 90° where $W_1 \geq W_2$ *(see illustration)*.

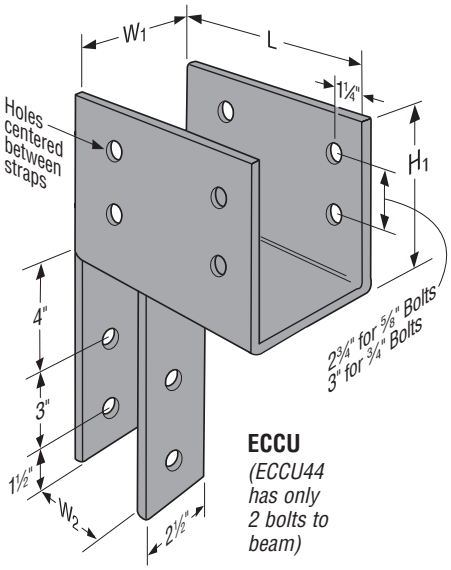
- For special, custom, or rough cut lumber sizes, provide dimensions. An optional W_2 dimension may be specified with any column size given *(note that the W_2 dimension on straps rotated 90° is limited by the W_1 dimension)*.
- **CCO//≥ECCO**—Column cap only *(no straps)* may be ordered for field-welding to pipe or other columns. No resistances apply. CCO/ECCO dimensions are the same as CC/ECC.
- **CCOB**—Any two CCO's may be specified for back-to-back welding to create a cross beam connector. Use the tabulated resistances; the resistance is no greater than that of the lesser element employed.
- **ECCU**—Order when uplift resistance is required for end column cap applications.
- See page 73 for CCC, CCT and ECCL options.



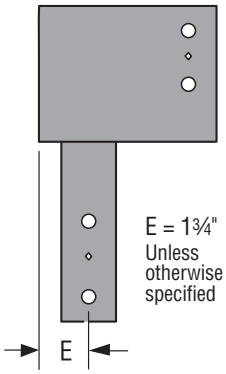
CC



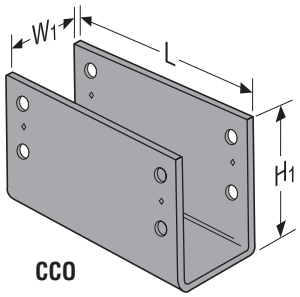
Optional CC with straps rotated 90°



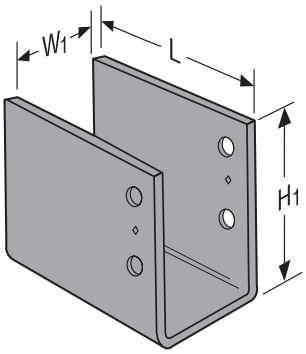
ECCU
(ECCU44 has only 2 bolts to beam)



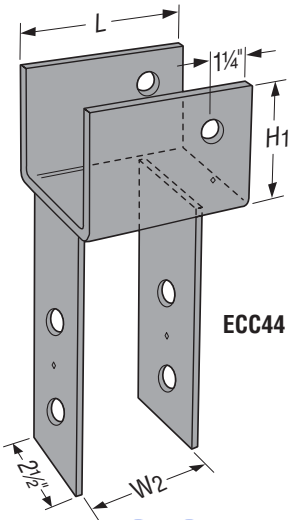
Optional ECC with straps rotated 90°



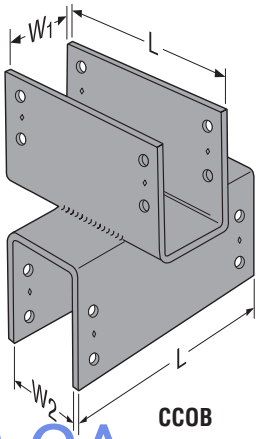
CCO



ECCO



ECC44



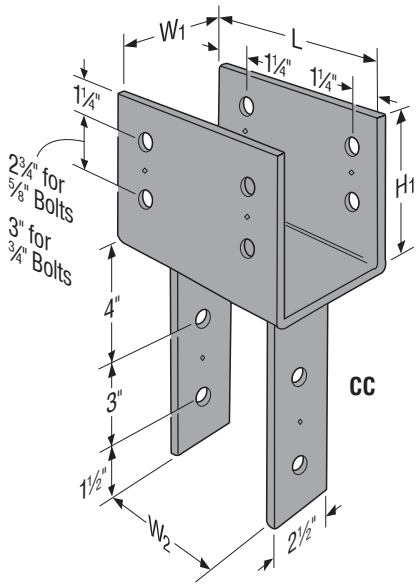
CCOB

CC/ECC/ECCU *Column Caps*

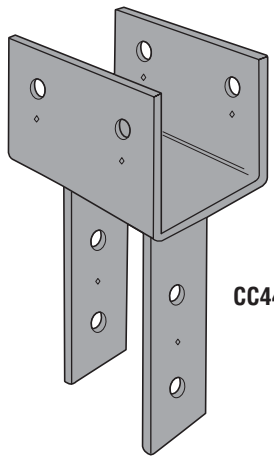
SIMPSON Strong-Tie®

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.

Model No.	Dimensions (in)				Fasteners				Factored Normal Resistance (K_D = 1.00)		
					Beam		Post		D.Fir-L	S-P-F	SCL
	W_1	W_2	L	H_1	Qty.	Dia. (in)	Qty.	Dia. (in)	lbs	lbs	lbs
									kN	kN	kN
CC3¼-4	3¼	3⅜	11	6½	4	⅝	2	⅝	23080	18955	—
									102.67	84.32	—
CC3¼-6	3¼	5½	11	6½	4	⅝	2	⅝	27915	23100	—
									124.18	102.76	—
CC44	3⅜	3⅜	7	4	2	⅝	2	⅝	19895	15055	26755
									88.50	66.97	119.02
CC46	3⅜	5½	11	6½	4	⅝	2	⅝	31260	23660	42040
									139.06	105.25	187.01
CC48	3⅜	7½	11	6½	4	⅝	2	⅝	31260	23660	42040
									139.06	105.25	187.01
CC4.62-3.62	4⅝	3⅜	11	6½	4	⅝	2	⅝	33235	27295	—
									147.84	121.42	—
CC4.62-4.62	4⅝	4⅝	11	6½	4	⅝	2	⅝	40195	30420	—
									178.80	135.32	—
CC4.62-5.5	4⅝	5½	11	6½	4	⅝	2	⅝	40195	30420	—
									178.80	135.32	—
CC5¼-4	5¼	3⅜	13	8	4	¾	2	¾	37850	31085	—
									168.37	138.28	—
CC5¼-6	5¼	5½	13	8	4	¾	2	¾	51810	36980	—
									230.47	164.50	—
CC5¼-8	5¼	7½	13	8	4	¾	2	¾	54100	44770	—
									240.66	199.15	—
CC64	5½	3⅜	11	6½	4	⅝	2	⅝	40620	33360	58655
									180.69	148.40	260.92
CC66	5½	5½	11	6½	4	⅝	2	⅝	49125	37175	63065
									218.53	165.37	280.54
CC6-7⅛	5½	7⅛	11	6½	4	⅝	2	⅝	49125	37175	63065
									218.53	165.37	280.54
CC68	5½	7½	11	6½	4	⅝	2	⅝	49125	37175	63065
									218.53	165.37	280.54
CC74	6⅞	3⅜	13	8	4	¾	2	¾	49850	40940	—
									221.75	182.12	—
CC76	6⅞	5½	13	8	4	¾	2	¾	68235	48710	—
									303.54	216.68	—
CC77	6⅞	6⅞	13	8	4	¾	2	¾	71255	58970	—
									316.97	262.32	—
CC78	6⅞	7½	13	8	4	¾	2	¾	71255	58970	—
									316.97	262.32	—
CC7⅛-4	7⅛	3⅜	13	8	4	¾	2	¾	—	—	78205
									—	—	347.89
CC7⅛-6	7⅛	5½	13	8	4	¾	2	¾	—	—	99370
									—	—	442.04
CC7⅛-7⅛	7⅛	7⅛	13	8	4	¾	2	¾	—	—	99370
									—	—	442.04
CC86	7½	5½	13	8	4	¾	2	¾	75820	54120	—
									337.28	240.75	—
CC88	7½	7½	13	8	4	¾	2	¾	79170	59915	—
									352.18	266.53	—
CC96	8⅞	5½	13	8	4	¾	2	¾	85925	61335	—
									382.23	272.84	—
CC98	8⅞	7½	13	8	4	¾	2	¾	89725	74255	—
									399.13	330.32	—
CC106	9½	5½	13	8	4	¾	2	¾	96035	68550	—
									427.20	304.94	—



CC



CC44

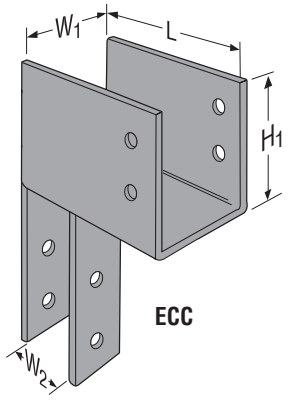
1. Post sides are assumed to lie in the same vertical plane as the beam sides.
2. Factored resistances may not be increased for short-term load duration.
3. Factored resistances are determined using ϕF_{cp} equal to: 812 psi (5.6 MPa) for D.Fir-L and 672 psi (4.64 MPa) for Spruce-Pine glulam sizes; 1092 psi (7.53 MPa) for SCL sizes; reduce where end grain bearing or buckling capacity of post governs.
4. Spliced conditions must be detailed by the Designer to transfer tension loads between spliced members by means other than the column cap.
5. SCL assumes SG = 0.50.
6. Beam depth must be greater than H_1.
7. Contact Simpson Strong-Tie for uplift resistances.

CC/ECC/ECCU *Column Caps*

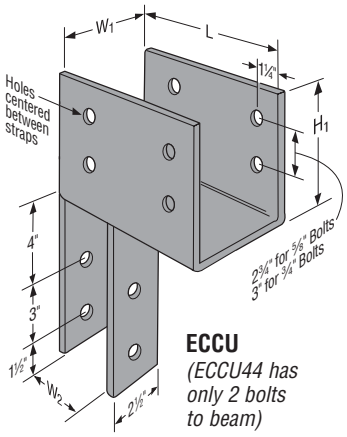
SIMPSON Strong-Tie®

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.

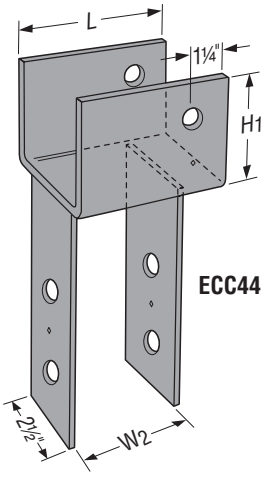
Model No.	Dimensions (in)					Fasteners					Factored Normal Resistance (K_D = 1.00)		
			L			Beam			Post		D.Fir-L	S-P-F	SCL
	W_1	W_2	ECC	ECCU	H_1	Qty.		Dia. (in)	Qty.	Dia. (in)	lbs	lbs	lbs
						ECC	ECCU				kN	kN	kN
ECC3¼-4	3¼	3⅝	7½	9½	6½	2	4	⅝	2	⅝	8880	7350	—
											39.50	32.70	—
ECC3¼-6	3¼	5½	7½	9½	6½	2	4	⅝	2	⅝	13955	11550	—
											62.08	51.38	—
ECC44	3⅝	3⅝	5½	6½	4	1	2	⅝	2	⅝	9945	7530	13375
											44.24	33.50	59.50
ECC46	3⅝	5½	8½	9½	6½	2	4	⅝	2	⅝	15630	11830	21020
											69.53	52.62	93.51
ECC48	3⅝	7½	8½	9½	6½	2	4	⅝	2	⅝	21315	16130	28665
											94.82	71.75	127.51
ECC4.62-3.62	4⅝	3⅝	8½	9½	6½	2	4	⅝	2	⅝	12780	9680	—
											56.85	43.06	—
ECC4.62-4.62	4⅝	4⅝	8½	9½	6½	2	4	⅝	2	⅝	16445	12445	—
											73.15	55.36	—
ECC4.62-5.5	4⅝	5½	8½	9½	6½	2	4	⅝	2	⅝	20095	15210	—
											89.39	67.66	—
ECC5¼-4	5¼	3⅝	9½	10½	8	2	4	¾	2	¾	14565	12055	—
											64.79	53.63	—
ECC5¼-6	5¼	5½	9½	10½	8	2	4	¾	2	¾	22890	18940	—
											101.82	84.25	—
ECC5¼-8	5¼	7½	9½	10½	8	2	4	¾	2	¾	31210	25830	—
											138.83	114.90	—
ECC64	5½	3⅝	7½	9½	6½	2	4	⅝	2	⅝	15630	11830	20065
											69.53	52.62	89.26
ECC66	5½	5½	7½	9½	6½	2	4	⅝	2	⅝	24565	18590	30100
											109.27	82.70	133.90
ECC6-7⅛	5½	7⅛	9½	9½	6½	2	4	⅝	2	⅝	31260	23660	40130
											139.06	105.25	178.51
ECC68	5½	7½	9½	9½	6½	2	4	⅝	2	⅝	33495	25350	43000
											149.00	112.77	191.28
ECC74	6⅞	3⅝	10½	10½	8	2	4	¾	2	¾	19185	15875	—
											85.34	70.62	—
ECC76	6⅞	5½	10½	10½	8	2	4	¾	2	¾	30145	24950	—
											134.10	110.99	—
ECC77	6⅞	6⅞	10½	10½	8	2	4	¾	2	¾	36995	30620	—
											164.57	136.21	—
ECC78	6⅞	7½	10½	10½	8	2	4	¾	2	¾	41110	34020	—
											182.87	151.33	—
ECC7⅛-4	7⅛	3⅝	10½	10½	8	2	4	¾	2	¾	—	—	26755
											—	—	119.02
ECC7⅛-6	7⅛	5½	10½	10½	8	2	4	¾	2	¾	—	—	42040
											—	—	187.01
ECC7⅛-7⅛	7⅛	7⅛	10½	10½	8	2	4	¾	2	¾	—	—	53510
											—	—	238.03
ECC86	7½	5½	10½	10½	8	2	4	¾	2	¾	33495	25350	—
											149.00	112.77	—
ECC88	7½	7½	10½	10½	8	2	4	¾	2	¾	45675	34565	—
											203.18	153.76	—
ECC96	8⅞	5½	10½	10½	8	2	4	¾	2	¾	37960	31415	—
											168.86	139.75	—
ECC98	8⅞	7½	10½	10½	8	2	4	¾	2	¾	51765	42840	—
											230.27	190.57	—
ECC106	9½	5½	10½	10½	8	2	4	¾	2	¾	42425	32110	—
											188.72	142.84	—



ECC



ECCU
(ECCU44 has only 2 bolts to beam)



ECC44

1. Post sides are assumed to lie in the same vertical plane as the beam sides.
2. Factored resistances may not be increased for short-term load duration.
3. Factored resistances are determined using ϕF_{cp} equal to: 812 psi (5.6 MPa) for D.Fir-L and 672 psi (4.64 MPa) for Spruce-Pine glulam sizes; 1092 psi (7.53 MPa) for SCL sizes; reduce where end bearing or buckling capacity of post governs.
4. ECC downloads assume a post of W_1 x W_2.
5. SCL assumes SG = 0.50.
6. Beam depth must be greater than H_1.
7. Contact Simpson Strong-Tie for uplift resistances.

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® SDS Heavy-Duty Connector screws 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:

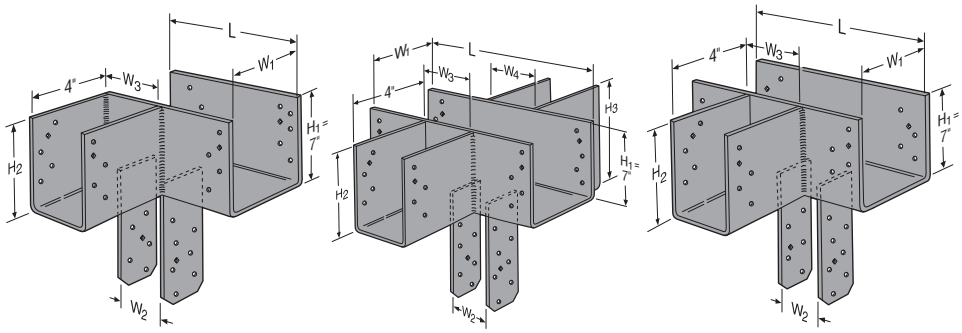
- Install ¼"x2½" Strong-Drive SDS Heavy-Duty Connector screws, which are provided, in all round holes. *(Lag screws will not achieve the same load.)*
- No additional welding is allowed.

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.

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: End condition with a 4x main beam, 4x side beam and 4x post oriented to the left is an ECCLLQ44.



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

CCCQ-SDS2.5

CCTQ-SDS2.5

Model No.	Factored Uplift Resistance (K_D = 1.15)					
	Main Beam		Side Beam		Total	
	D.Fir-L	S-P-F	D.Fir-L	S-P-F	D.Fir-L	S-P-F
	lbs	lbs	lbs	lbs	lbs	lbs
	kN	kN	kN	kN	kN	kN
ECCLQ-SDS2.5	5345	3845	3075	2215	6335	4560
	23.78	17.10	13.68	9.85	28.18	20.28
CCCQ-SDS2.5	7200	5185	3920	2825	7200	5185
	32.03	23.06	17.44	12.57	32.03	23.06
CCTQ-SDS2.5	8140	5900	3920	2825	8875	6390
	36.21	26.25	17.44	12.57	39.48	28.43

1. Factored resistances are per seat. Side beams must be loaded symmetrically for the CCCQ.
2. The combined uplift loads applied to all beams in the connector must not exceed the total factored resistance listed in the table.
3. The combined factored download for all of the carried beams shall not exceed the factored normal resistance for the unmodified product on pages 68-69 *(CCQ value for CCCQ and CCTQ, or ECCQ value for ECCLQ)*. The maximum factored download for each side beam shall not exceed 35% of the maximum factored normal resistance for the unmodified product or 11100 lbs (49.38 kN).

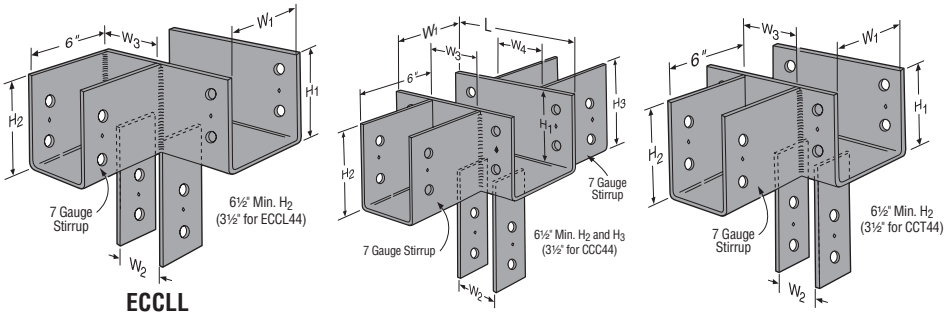
ECCL/CCC/CCT *Column Caps*

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 factored resistance shall be determined from the capacity for the unmodified product *(see pages 71-72)*. The side beam can take a maximum of 40% of the download and shall not exceed 13,640 lbs (60.68 kN). The sum of the loads for the side beam(s) and main beam can not exceed the tabulated values.
- 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 CCC66C with W_3 = 5½", H_2 and H_3 = 6½" is a CC66C column cap with 5½" beams on each side with all beam seats flush.
- An ECCL66C with W_3 = 3⅝", H_2 = 7½" is an ECC66C 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.

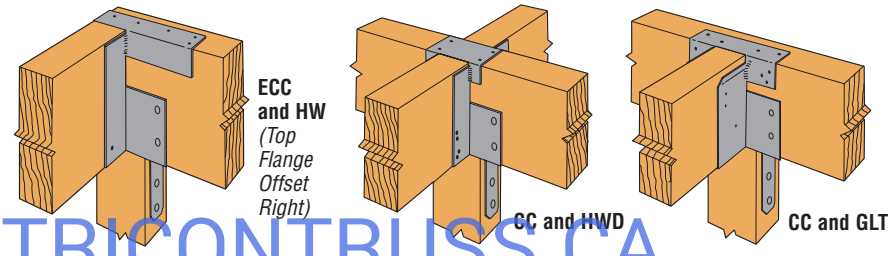


ECCLL
(Left direction shown)
(Order ECCLR for right direction)

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)*

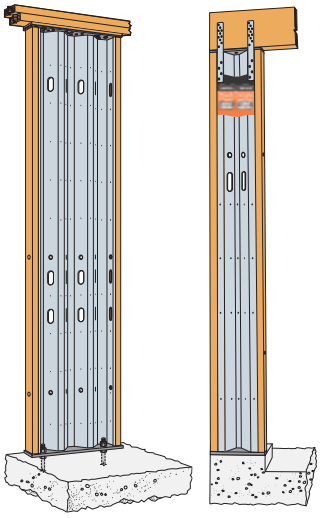
CC and HWD

CC and GLT

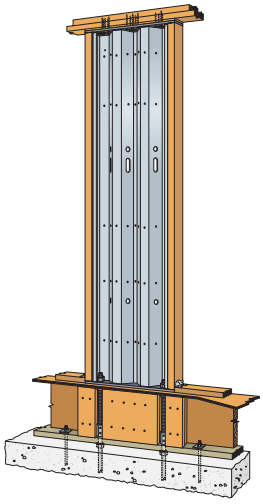
STRONG-WALL® SHEARWALLS

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.

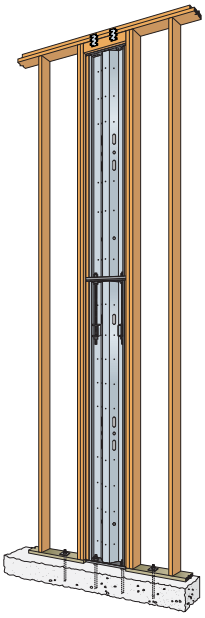
STEEL STRONG-WALL® PANEL



Standard and Garage Portal Applications on Concrete Foundations

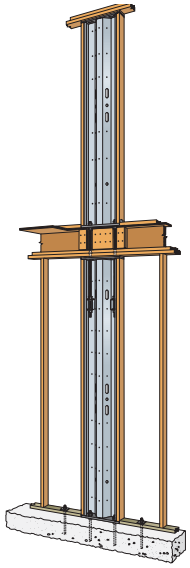


First-Storey Wood Floor Application

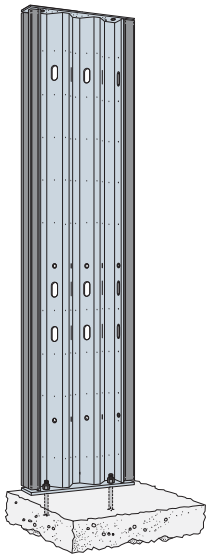


Tall Wall Applications up to 20'

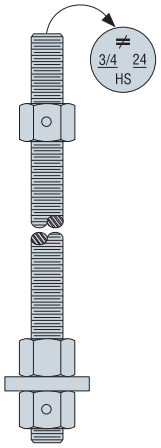
U.S. Patent Pending



Two-Storey Stacked-Wall Applications

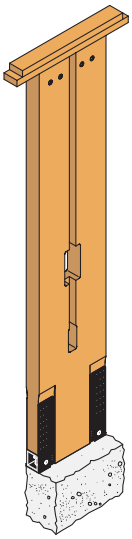


Cold-Formed Steel Applications
(Standard, Raised Floor and Two-Storey)

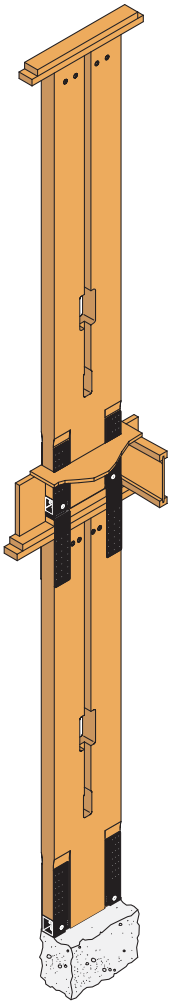


Complete Anchorage Solutions

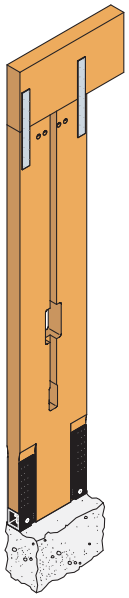
STRONG-WALL® SB SHEARWALL



Standard and Tall Wall Applications



Two-Storey Stacked Application



Portal Applications

For more information on Strong-Wall Shearwalls, contact Simpson Strong-Tie at (800) 999-5099 or visit our website at ***www.strongtie.com***.

Easy to Specify and Install – 336 Solutions Meeting the Requirements of CSA S16-09 and the NBC 2010

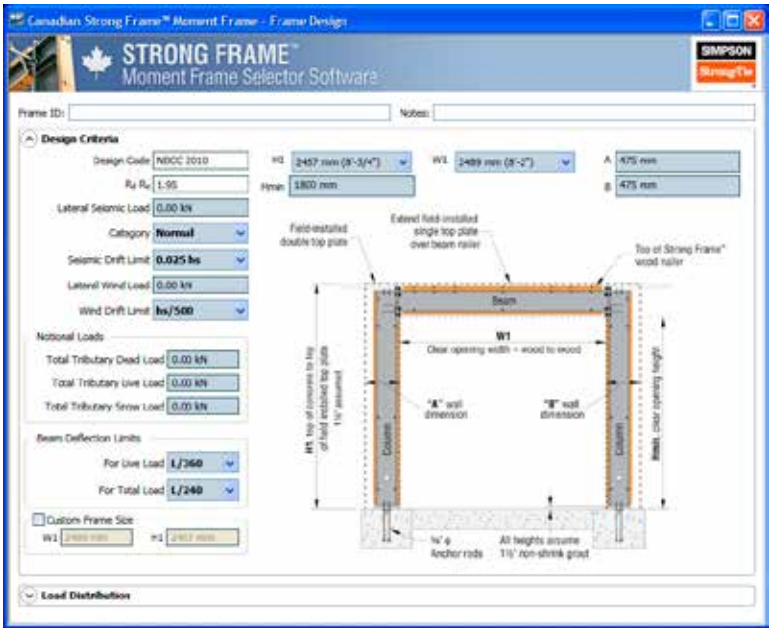
The Simpson Strong-Tie® Strong Frame® moment frame provides designers with the flexibility and performance they need while offering contractors the speed and efficiency of bolted connections. Now we have nearly doubled our offering by adding a new 16'-tall column and 14', 18' and 20'-wide beams, resulting in a total of 336 frame configurations to choose from.

New Custom Sizes

If one of our standard sizes of Strong Frame doesn't suit your project, have no fear – we now offer custom sizes to fit almost any project. Using our standard Strong Frame column and beam profiles we can manufacture frames to your size specifications in widths ranging from 6' to 20'-4" and heights from 6' to 19'-10½". Now you can get just the right size Strong Frame for your new or retrofit project with lead times that are typically less than six weeks. Call your local Simpson Strong-Tie representative for more details on the ordering process and lead times.

Canadian Strong Frame® Selector Software

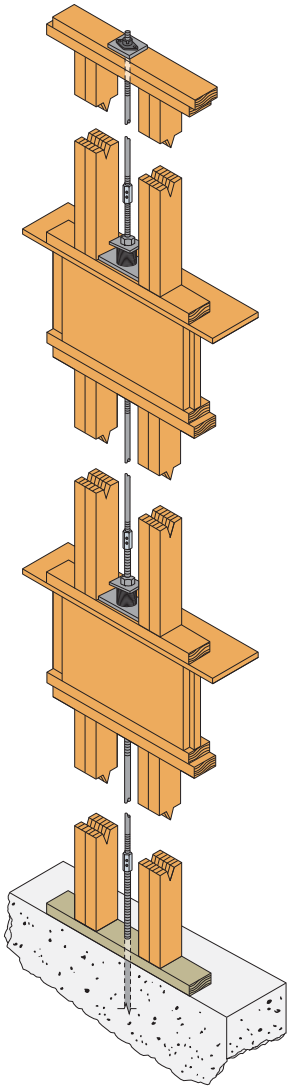
The Simpson Strong-Tie® Strong Frame® Selector software is designed to help the Designer select an appropriate frame for their given geometry and loading. Only minimum inputs are required for the software to select an appropriate frame for the available space. Based on input geometry, the Strong Frame Selector software will narrow down from the 336 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***.



ATS *The Next Generation Anchor Tiedown System*

SIMPSON Strong-Tie®

The Simpson Strong-Tie® Anchor Tiedown System (ATS) is designed to anchor stacked shearwalls in multi-storey 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 it can be configured to provide significantly higher resistances *(up to 60,000 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 manufactured and assembled in the USA to the highest quality 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 in our line as one can't just turn to a page in a catalogue with a single load and select the product. To best serve our customers and to assist engineers in specifying the product we have developed multiple methods of specification and a support service.

For more information on specification, please see our *Anchor Tiedown Systems Canadian Limit States Design* catalogue (C-ATSCAN11) or visit ***www.strongtie.com/ats***.

FACE MOUNT HANGERS LUCZ/LU/U/HU *Standard Joist Hangers*

LUCZ concealed flange hanger is 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 79-84. See Hanger Options on page 230 for hanger modifications, which may result in reduced resistances.

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 factored resistances.

HU—Most models have triangle and round holes. To achieve maximum resistances, 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 79-84.

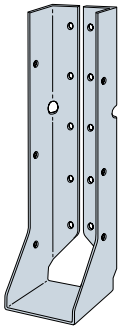
FINISH: Galvanized. Some products available in ZMAX® coating.

INSTALLATION:

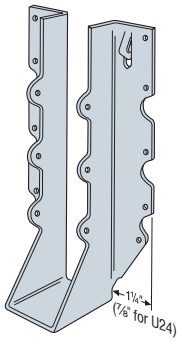
- Use all specified fasteners. See General Notes.
- HU—can be installed filling round holes only, or filling round and triangle holes for maximum values.
- Joists sloped up to ¼:12 achieve tabulated values.
- For installations to masonry or concrete see page 201.
- HU hangers can be welded to a steel member – refer to technical bulletin T-HUHUC-W.

OPTIONS:

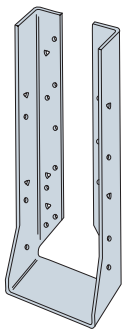
- HU hangers available with the header flanges turned in for 2⁵⁄₁₆" width and larger, with no reduction in resistances–order HUC hanger.
- See Hanger Options on pages 230-231 for sloped and/or skewed U/HU models, and HUC *(concealed flange)* models.
- HU only—rough beam sizes available by special order.
- See page 84 for stocked U hanger rough sizes tables. Rough sizes are not available in 8x.
- Also see LUS and HUS series.



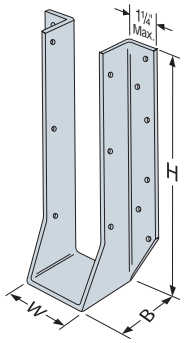
LUC210Z
(LUC26Z Similar)



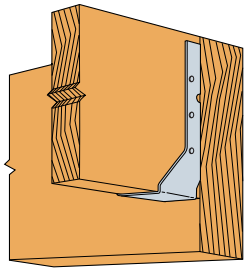
U210



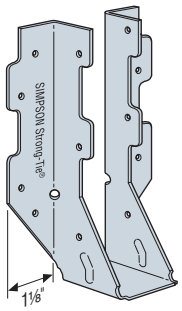
HUC412
Concealed Flanges



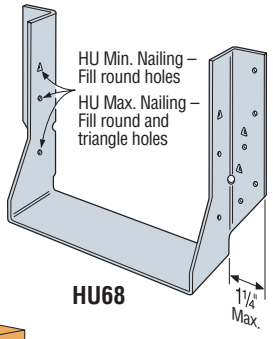
HU214
Projection seat on most models for maximum bearing and section economy.



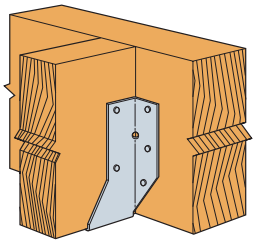
Typical LUCZ Installation



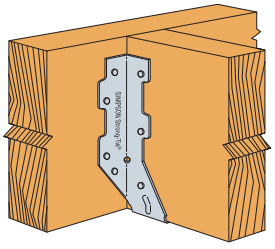
LU28L



HU68



Typical HU Installation



Typical LU28L Installation

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

JOIST FACTORED SHEAR RESISTANCES

The maximum capacity of a horizontal joist or rafter may be limited by its factored shear resistance (V_r). This table gives the capacity for common sizes.

Joist or Rafter	Factored Shear Resistance (V_r)			
	D.Fir-L		S-P-F	
	(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)
	lbs	lbs	lbs	lbs
	kN	kN	kN	kN
2x4	1470	1695	1160	1335
	6.54	7.54	5.18	5.95
2x6	1900	2200	1505	1730
	8.51	9.79	6.71	7.71
2x8	2150	2475	1695	1945
	9.59	11.02	7.54	8.67
2x10	2515	2895	1985	2280
	11.21	12.89	8.83	10.16
2x12	2785	3205	2195	2525
	12.41	14.27	9.78	11.25

1. Factored shear resistances shown assume a single member system factor (K_H=1.00). Resistances may be increased as per 6.4.4 CSA O86-14 for Case 1 and Case 2 systems.
2. Resistances shown are for No. 1/No. 2 grades.

FACE MOUNT HANGERS LUS/HUS *Double Shear Joist Hangers*

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

See Hanger tables on pages 79-84. See Hanger Options on page 230 for hanger modifications, which may result in reduced resistances.

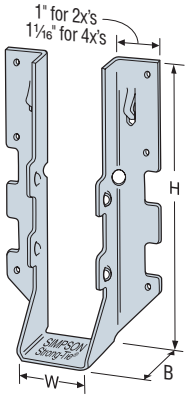
All hangers in this series have double shear nailing. This patented innovation distributes the load through two points on each joist nail for greater strength. It also allows the use of fewer nails, faster installation, and the use of standard nails for all connections. *(Do not bend or remove tabs.)*

MATERIAL: See tables, pages 79-84.

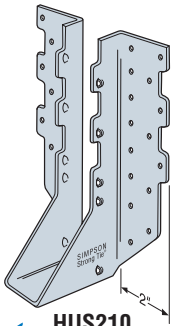
FINISH: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, pages 14-17.

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 tabulated resistances.
- Not designed for welded or nailer applications.
- Where 16d commons are specified, 10d commons may be used at 0.83 of the tabulated resistance.
- With 3x carrying members, use 16dx2½" nails into the header and 16d commons into the joist with no reduction in resistances. With a single 2x carrying member, use 10dx1½" nails into the header and 10d commons into the joist, reduce the resistance to 0.64 of the table value.

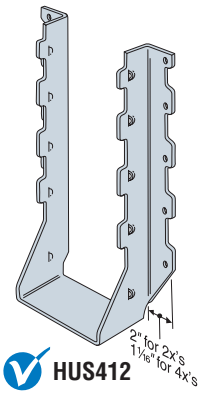
OPTIONS: • LUS hangers cannot be modified.
- HUS hangers available with the header flanges turned in for 2-2x (3⅛") and 4x only, with no reduction in resistances. See the HUSC Concealed Flange illustration.
- See Hanger Options, page 230.



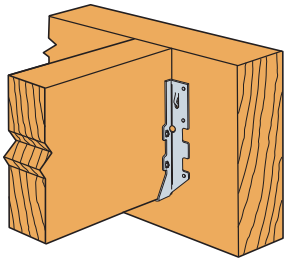
LUS28



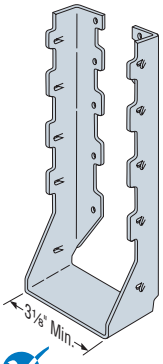
HUS210
(HUS26, HUS28, and HHUS similar)



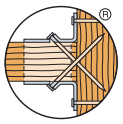
HUS412



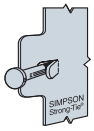
Typical LUS28 Installation
Standard LUS28 Installation use .148x3" (10d common)



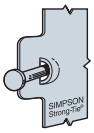
HUSC
Concealed Flanges
(not available for HHUS, HGUS and HUS2x)



Double Shear Nailing Top View



Double Shear Nailing Side View Do not bend tab back



Dome Double Shear Nailing prevents tabs from breaking off *(available on some models)*

U.S. Patent 5,603,580

HUCQ *Heavy Duty Joist Hangers*

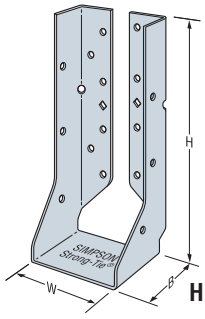
The HUCQ series are heavy duty joist hangers that incorporate Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Conntector screws. Designed and tested for installation at the end of a beam or on a post, they provide a strong connection with fewer fasteners than nailed hangers.

MATERIAL: 14 gauge

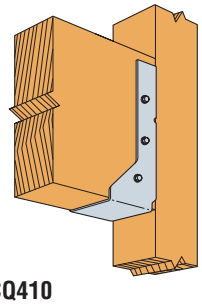
FINISH: Galvanized. Most models available in stainless steel or ZMAX® coating.

INSTALLATION: • Use all specified fasteners. See General Notes.
- Strong-Drive SDS Heavy-Duty Conntector screws supplied.
- For use on solid sawn or engineered wood products.

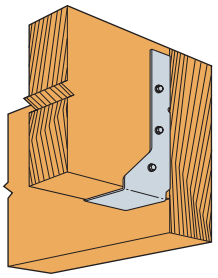
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.



HUCQ410



Typical HUCQ Installation on a Post



Typical HUCQ Installation on a Beam

Strong-Drive® ¼"x2½" SDS HEAVY-DUTY CONNECTOR Screw
(See page 25 for more information)

Model No.	Dimensions (in) W	H	B	Fasteners Face	Joist	Factored Resistance D.Fir-L Uplift (K_D=1.15) lbs / kN	D.Fir-L Normal (K_D=1.00) lbs / kN	S-P-F Uplift (K_D=1.15) lbs / kN	S-P-F Normal (K_D=1.00) lbs / kN
HUCQ310-SDS	2⁹⁄₁₆	9	3	8-¼"x2½" SDS	4-¼"x2½" SDS	2140 / 9.52	5235 / 23.29	1930 / 8.59	3770 / 16.77
HUCQ210-2-SDS	3¼	9	3	12-¼"x2½" SDS	6-¼"x2½" SDS	3210 / 14.28	7270 / 32.34	2900 / 12.90	6825 / 30.36
HUCQ410-SDS	3⁹⁄₁₆	9	3	12-¼"x2½" SDS	6-¼"x2½" SDS	3210 / 14.28	7270 / 32.34	2900 / 12.90	6825 / 30.36
HUCQ412-SDS	3⁹⁄₁₆	11	3	14-¼"x2½" SDS	6-¼"x2½" SDS	3210 / 14.28	9090 / 40.43	2900 / 12.90	7645 / 34.01
HUCQ210-3-SDS	4⅝	9	3	12-¼"x2½" SDS	6-¼"x2½" SDS	3210 / 14.28	7270 / 32.34	2900 / 12.90	6825 / 30.36
HUCQ610-SDS	5½	9	3	12-¼"x2½" SDS	6-¼"x2½" SDS	3210 / 14.28	7270 / 32.34	2900 / 12.90	6825 / 30.36
HUCQ612-SDS	5½	11	3	14-¼"x2½" SDS	6-¼"x2½" SDS	3210 / 14.28	9090 / 40.43	2900 / 12.90	7645 / 34.01

1. Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce by 15% for standard term loading such as cantilever construction.
2. When using structural composite lumber columns, Strong-Drive® SDS Heavy-Duty Connector screws must be applied to the wide face of the column.

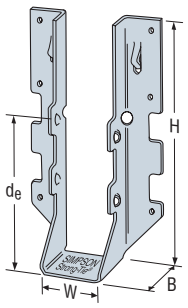
FACE MOUNT HANGERS – SOLID SAWN LUMBER

SIMPSON Strong-Tie®

Joist Size	Model No.	Ga	Dimensions (in) W	H	B	d_e[6]	Fasteners Min/ Max	Header	Joist	Factored Resistance D.Fir-L Uplift (K_D=1.15) lbs / kN	D.Fir-L Normal (K_D=1.00) lbs / kN	S-P-F Uplift (K_D=1.15) lbs / kN	S-P-F Normal (K_D=1.00) lbs / kN	Installed Cost Index
SAWN LUMBER SIZES														
2x4	LU24L	22	1 9/16	3 1/8	1 5/8	2 11/16	—	4-10d	2-10dx1 1/2	360 / 1.60	1020 / 4.54	320 / 1.42	725 / 3.22	Lowest
2x4	LUS24	18	1 9/16	3 1/8	1 3/4	2 1/4	—	4-10d	2-10d	710 / 3.16	1625 / 7.23	645 / 2.87	1155 / 5.14	+11%
2x4	U24	16	1 9/16	3 1/8	1 1/2	1 13/16	—	4-10d	2-10dx1 1/2	450 / 2.00	1340 / 5.96	355 / 1.58	1030 / 4.58	+90%
2x4	HU26	14	1 9/16	3 1/16	2 1/4	1 1/16	—	4-16d	2-10dx1 1/2	490 / 2.18	1525 / 6.78	450 / 2.00	1080 / 4.80	+490%
DBL 2x4	LUS24-2	18	3 1/8	3 1/8	2	1 17/32	—	4-16d	2-16d	835 / 3.71	2020 / 8.99	590 / 2.62	1435 / 6.38	Lowest
DBL 2x4	U24-2	16	3 1/8	3	2	1 15/16	—	4-10d	2-10d	480 / 2.14	1340 / 5.96	445 / 1.98	1030 / 4.58	+59%
DBL 2x4	HU24-2/ HUC24-2	14	3 1/8	3 1/16	2 1/2	2 11/16	—	4-16d	2-10d	525 / 2.34	1710 / 7.61	490 / 2.18	1585 / 7.05	+244%
2x6	LU26L	22	1 9/16	5	1 5/8	4 19/32	—	6-10d	4-10dx1 1/2	720 / 3.20	1605 / 7.14	645 / 2.87	1140 / 5.07	Lowest
2x6	LUS26	18	1 9/16	4 3/4	1 3/4	3 25/32	—	4-10d	4-10d	1420 / 6.32	2170 / 9.65	1290 / 5.74	1630 / 7.25	+10%
2x6	U26	16	1 9/16	4 3/4	2	3 15/16	—	6-10d	4-10dx1 1/2	895 / 3.98	2005 / 8.92	780 / 3.47	1860 / 8.27	+70%
2x6	LUC26Z	18	1 9/16	4 3/4	1 3/4	4	—	6-10d	4-10dx1 1/2	830 / 3.69	1605 / 7.14	710 / 3.16	1140 / 5.07	+74%
2x6	HUS26	16	1 5/8	5 3/8	3	3 15/16	—	14-16d	6-16d	2705 / 12.03	4940 / 21.97	2065 / 9.20	3875 / 17.24	+320%
DBL 2x6	LU26-2L	20	3 1/8	5	1 5/8	4 19/32	—	6-10d	4-10dx1 1/2	760 / 3.38	1605 / 7.14	680 / 3.02	1140 / 5.07	Lowest
DBL 2x6	LUS26-2	18	3 1/8	4 7/8	2	4 1/32	—	4-16d	4-16d	1720 / 7.65	2595 / 11.54	1545 / 6.87	1920 / 8.54	+24%
DBL 2x6	U26-2	16	3 1/8	5	2	3 13/16	—	8-10d	4-10d	960 / 4.27	2675 / 11.90	890 / 3.96	2475 / 11.01	+124%
DBL 2x6	HU26-2/ HUC26-2	14	3 1/8	5 3/8	2 1/2	5	Min	8-16d	4-10d	1055 / 4.69	3420 / 15.21	980 / 4.36	2845 / 12.66	+358%
DBL 2x6	HU26-2/ HUC26-2	14	3 1/8	5 3/8	2 1/2	5	Max	12-16d	6-10d	1580 / 7.03	4415 / 19.64	1470 / 6.54	3135 / 13.95	+372%
TPL 2x6	LUS26-3	18	4 5/8	4 1/8	2	3 9/32	—	4-16d	4-16d	1720 / 7.65	2595 / 11.54	1545 / 6.87	2340 / 10.41	Lowest
TPL 2x6	U26-3	16	4 5/8	4 1/4	2	3 11/16	—	8-10d	4-10d	960 / 4.27	2675 / 11.90	890 / 3.96	2475 / 11.01	+87%
TPL 2x6	HU26-3/ HUC26-3	14	4 11/16	5 3/8	2 1/2	5	Min	8-16d	4-10d	1055 / 4.69	3420 / 15.21	980 / 4.36	2845 / 12.66	+193%
TPL 2x6	HU26-3/ HUC26-3	14	4 11/16	5 3/8	2 1/2	5	Max	12-16d	6-10d	1580 / 7.03	4415 / 19.64	1470 / 6.54	3135 / 13.95	+198%
2x8	LU26L	22	1 9/16	5	1 5/8	4 19/32	—	6-10d	4-10dx1 1/2	720 / 3.20	1605 / 7.14	645 / 2.87	1140 / 5.07	Lowest
2x8	LUS26	18	1 9/16	4 3/4	1 3/4	3 25/32	—	4-10d	4-10d	1420 / 6.32	2170 / 9.65	1290 / 5.74	1630 / 7.25	+10%
2x8	LU28L	20	1 9/16	6 3/4	1 5/8	5 7/8	—	8-10d	6-10dx1 1/2	1140 / 5.07	2185 / 9.72	1020 / 4.54	1550 / 6.89	+29%
2x8	LUS28	18	1 9/16	6 5/8	1 3/4	3 25/32	—	6-10d	4-10d	1420 / 6.32	2520 / 11.21	1290 / 5.74	1790 / 7.96	+42%
2x8	U26	16	1 9/16	4 3/4	2	3 15/16	—	6-10d	4-10dx1 1/2	895 / 3.98	2005 / 8.92	780 / 3.47	1860 / 8.27	+70%
2x8	LUC26Z	18	1 9/16	4 3/4	1 3/4	4	—	6-10d	4-10dx1 1/2	830 / 3.69	1605 / 7.14	710 / 3.16	1140 / 5.07	+70%
2x8	HU28	14	1 9/16	5 1/4	2 1/4	4 7/8	—	6-16d	4-10dx1 1/2	980 / 4.36	2565 / 11.41	905 / 4.03	2380 / 10.59	+415%
2x8	HUS28	16	1 5/8	7 3/32	3	6 3/32	—	22-16d	8-16d	3605 / 16.04	5365 / 23.86	2675 / 11.90	4345 / 19.33	+457%

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 Connector screw. See page 24 for more information.



1. 10d common nails may be used instead of the specified 16d nails at 0.83 of the tabulated value.
2. Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce by 15% for standard term loading such as in cantilever construction.
3. MIN nailing quantity and factored resistances—fill all round holes. MAX nailing quantity and factored resistances—fill all round and triangle holes.
4. D.Fir-L factored resistances can be used for most LVL. Verify with manufacturer prior to selecting hanger.
5. See page 22 for hangers with reduced capacity due to installation with different nails.
6. d_e is the distance from the bearing seat to the top joist nail.
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

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

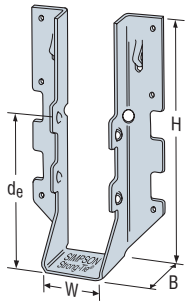
FACE MOUNT HANGERS – SOLID SAWN LUMBER

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.

These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

Joist Size	Model No.	Ga	Dimensions (in) W	H	B	d_e[6]	Fasteners Min/Max	Header	Joist	Factored Resistance D.Fir-L Uplift (K_D=1.15) lbs / kN	D.Fir-L Normal (K_D=1.00) lbs / kN	S-P-F Uplift (K_D=1.15) lbs / kN	S-P-F Normal (K_D=1.00) lbs / kN	Installed Cost Index
SAWN LUMBER SIZES														
DBL 2x8	LUS26-2	18	3⅛	4⅞	2	4$^{1}/_{32}$	—	4-16d	4-16d	1720 / 7.65	2595 / 11.54	1545 / 6.87	1920 / 8.54	Lowest
	LU 28-2L	20	3⅛	6¾	1⅝	5⅞	—	8-10d	6-10dx1½	1140 / 5.07	2185 / 9.72	1020 / 4.54	1550 / 6.89	+5%
	LUS28-2	18	3⅛	7	2	4$^{1}/_{32}$	—	6-16d	4-16d	1720 / 7.65	3325 / 14.79	1545 / 6.87	2575 / 11.45	+10%
	U26-2	16	3⅛	5	2	3$^{13}/_{16}$	—	8-10d	4-10d	960 / 4.27	2675 / 11.90	890 / 3.96	2475 / 11.01	+84%
	HUS28-2	14	3⅛	7$^{3}/_{16}$	2	5$^{15}/_{16}$	—	6-16d	6-16d	2540 / 11.30	3620 / 16.10	1805 / 8.03	2570 / 11.43	+214%
	HU28-2/ HUC28-2	14	3⅛	7	2½	6⅝	Min	10-16d	4-10d	1055 / 4.69	4270 / 18.99	980 / 4.36	3135 / 13.95	+296%
							Max	14-16d	6-10d	1580 / 7.03	5780 / 25.71	1470 / 6.54	4225 / 18.79	+307%
TPL 2x8	LUS28-3	18	4⅝	6¼	2	3$^{9}/_{32}$	—	6-16d	4-16d	1720 / 7.65	3325 / 14.79	1545 / 6.87	2375 / 10.56	Lowest
	HU26-3/ HUC26-3	14	4$^{11}/_{16}$	5⅜	2½	5	—	8-16d	4-10d	1055 / 4.69	3420 / 15.21	980 / 4.36	2845 / 12.66	+192%
QUAD 2x8	HU28-4/ HUC28-4	14	6⅛	7	2½	6$^{7}/_{16}$	Min	10-16d	4-16d	1230 / 5.47	4270 / 18.99	1140 / 5.07	3135 / 13.95	*
							Max	14-16d	6-16d	1840 / 8.18	5780 / 25.71	1710 / 7.61	4225 / 18.79	*
2x10	LU28L	20	1$^{9}/_{16}$	6⅜	1½	5½	—	8-10d	6-10dx1½	1140 / 5.07	2185 / 9.72	1020 / 4.54	1550 / 6.89	Lowest
	LUS28	18	1$^{9}/_{16}$	6⅝	1¾	3$^{25}/_{32}$	—	6-10d	4-10d	1420 / 6.32	2520 / 11.21	1290 / 5.74	1790 / 7.96	+10%
	LU210L	20	1$^{9}/_{16}$	8	1⅝	7$^{15}/_{32}$	—	10-10d	6-10dx1½	1140 / 5.07	2495 / 11.10	1020 / 4.54	1770 / 7.87	+18%
	LUS210	18	1$^{9}/_{16}$	7$^{13}/_{16}$	1¾	3⅞	—	8-10d	4-10d	1420 / 6.32	2785 / 12.39	1290 / 5.74	2210 / 9.83	+23%
	LUC210Z	18	1$^{9}/_{16}$	7¾	1¾	5½	—	10-10d	6-10dx1½	1240 / 5.52	2495 / 11.10	1130 / 5.03	1770 / 7.87	+85%
	U210	16	1$^{9}/_{16}$	7$^{13}/_{16}$	2	5¾	—	10-10d	6-10dx1½	1345 / 5.98	2755 / 12.25	1235 / 5.49	1955 / 8.70	+92%
	HU210	14	1$^{9}/_{16}$	7⅛	2¼	6¾	—	8-16d	4-10dx1½	980 / 4.36	3420 / 15.21	905 / 4.03	2865 / 12.74	+300%
	HUS210	16	1⅝	9$^{3}/_{32}$	3	7$^{31}/_{32}$	—	30-16d	10-16d	4505 / 20.04	5795 / 25.78	4010 / 17.84	4740 / 21.08	+472%
DBL 2x10	LUS28-2	18	3⅛	7	2	4$^{1}/_{32}$	—	6-16d	4-16d	1720 / 7.65	3325 / 14.79	1545 / 6.87	2575 / 11.45	Lowest
	LU210-2L	20	3⅛	8	1⅝	7$^{15}/_{32}$	—	10-10d	6-10dx1½	1140 / 5.07	2495 / 11.10	1020 / 4.54	1770 / 7.87	+16%
	LUS210-2	18	3⅛	9	2	6$^{1}/_{32}$	—	8-16d	6-16d	2580 / 11.48	4500 / 20.02	2320 / 10.32	3195 / 14.21	+30%
	U210-2	16	3⅛	8½	2	6$^{11}/_{16}$	—	14-10d	6-10d	1440 / 6.41	4355 / 19.37	1340 / 5.96	3090 / 13.75	+99%
	HUS210-2	14	3⅛	9$^{3}/_{16}$	2	7$^{15}/_{16}$	—	8-16d	8-16d	3795 / 16.88	5690 / 25.31	3450 / 15.35	4570 / 20.33	+252%
	HU210-2/ HUC210-2	14	3⅛	8$^{13}/_{16}$	2½	8$^{7}/_{16}$	Min	14-16d	6-10d	1580 / 7.03	5780 / 25.71	1470 / 6.54	4225 / 18.79	+339%
							Max	18-16d	10-10d	2635 / 11.72	5780 / 25.71	2450 / 10.90	4690 / 20.86	+352%
	HHUS 210-2	14	3$^{5}/_{16}$	9$^{3}/_{16}$	3	8	—	30-16d	10-16d	4745 / 21.11	9660 / 42.97	4310 / 19.17	7000 / 31.14	+385%



See footnotes on page 79.

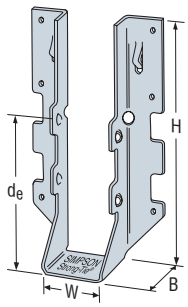
FACE MOUNT HANGERS – SOLID SAWN LUMBER

SIMPSON Strong-Tie®

Joist Size	Model No.	Ga	Dimensions (in) W	H	B	d_e[6]	Fasteners Min/Max	Header	Joist	Factored Resistance D.Fir-L Uplift (K_D=1.15) lbs / kN	D.Fir-L Normal (K_D=1.00) lbs / kN	S-P-F Uplift (K_D=1.15) lbs / kN	S-P-F Normal (K_D=1.00) lbs / kN	Installed Cost Index
SAWN LUMBER SIZES														
TPL 2x10	LUS28-3	18	4⅝	6¼	2	3⁹⁄₃₂	—	6-16d	4-16d	1720 7.65	3325 14.79	1545 6.87	2375 10.56	Lowest
	LUS210-3	18	4⅝	8³⁄₁₆	2	5⁹⁄₁₆	—	8-16d	6-16d	2580 11.48	3345 14.88	2320 10.32	2375 10.56	+9%
	U210-3	16	4⅝	7¾	2	5¾	—	14-10d	6-10d	1440 6.41	4355 19.37	1340 5.96	3090 13.75	+130%
	HU210-3/ HUC210-3	14	4¹¹⁄₁₆	8⁹⁄₁₆	2½	8⁷⁄₁₆	Min	14-16d	6-10d	1580 7.03	5780 25.71	1470 6.54	4225 18.79	+296%
							Max	18-16d	10-10d	2635 11.72	5780 25.71	2450 10.90	4690 20.86	+303%
	HHUS210-3	14	4¹¹⁄₁₆	9	3	7¹⁵⁄₁₆	—	30-16d	10-16d	4745 21.11	10545 46.91	4310 19.17	7485 33.29	+690%
Quad 2x10	HU210-4/ HUC210-4	14	6⅛	8⁹⁄₁₆	2½	8⁷⁄₁₆	Min	14-16d	6-16d	1840 8.18	5780 25.71	1710 7.61	4225 18.79	Lowest
							Max	18-16d	10-16d	2455 10.92	5780 25.71	2280 10.14	4690 20.86	+3%
	HHUS210-4	14	6⅛	8⅞	3	7¹³⁄₁₆	—	30-16d	10-16d	4745 21.11	10545 46.91	4310 19.17	7485 33.29	+275%
2x12	LU 210L	20	1⁹⁄₁₆	7¹³⁄₁₆	1⅝	7¹⁵⁄₃₂	—	10-10d	6-10dx1½	1140 5.07	2495 11.10	1020 4.54	1770 7.87	Lowest
	LUS210	18	1⁹⁄₁₆	7¹³⁄₁₆	1¾	3⅞	—	8-10d	4-10d	1420 6.32	2785 12.39	1290 5.74	2210 9.83	+5%
	LUC210Z	18	1⁹⁄₁₆	7¾	1¾	5½	—	10-10d	6-10dx1½	1240 5.52	2495 11.10	1130 5.03	1770 7.87	+56%
	U210	16	1⁹⁄₁₆	7¹³⁄₁₆	2	5¾	—	10-10d	6-10dx1½	1345 5.98	2755 12.25	1235 5.49	1955 8.70	+63%
	HUS210	16	1⅝	9³⁄₃₂	3	7³¹⁄₃₂	—	30-16d	10-16d	4505 20.04	5795 25.78	4010 17.84	4740 21.08	+384%
	HU212	14	1⁹⁄₁₆	9	2¼	8⅝	—	10-16d	6-10dx1½	1470 6.54	4020 17.88	1360 6.05	3135 13.95	+487%
DBL 2x12	LU210-2L	20	3⅛	8	1⅝	7¹⁵⁄₃₂	—	10-10d	6-10dx1½	1140 5.07	2495 11.10	1020 4.54	1770 7.87	Lowest
	LUS210-2	18	3⅛	9	2	6³⁄₃₂	—	8-16d	6-16d	2580 11.48	4500 20.02	2320 10.32	3195 14.21	+12%
	U210-2	16	3⅛	8½	2	6¹¹⁄₁₆	—	14-10d	6-10d	1440 6.41	4355 19.37	1340 5.96	3090 13.75	+72%
	LUS214-2	18	3⅛	10¹⁵⁄₁₆	2	6¹⁄₁₆	—	10-16d	6-16d	2580 11.48	5355 23.82	2320 10.32	3875 17.24	+110%
	HUS210-2	14	3⅛	9³⁄₁₆	2	7¹⁵⁄₁₆	—	8-16d	8-16d	3795 16.88	5690 25.31	3450 15.35	4570 20.33	+203%
	HUS212-2	14	3⅛	10¾	2	9⅞	—	10-16d	10-16d	4745 21.11	7015 31.20	3650 16.24	4980 22.15	+235%
	HU212-2/ HUC212-2	14	3⅛	10⁹⁄₁₆	2½	10⁹⁄₁₆	Min	16-16d	6-10d	1580 7.03	5780 25.71	1470 6.54	4225 18.79	+333%
							Max	22-16d	10-10d	2635 11.72	5780 25.71	2450 10.90	4690 20.86	+347%
TPL 2x12	LUS210-3	18	4⅝	8³⁄₁₆	2	5⁹⁄₁₆	—	8-16d	6-16d	2580 11.48	3345 14.88	2320 10.32	2375 10.56	Lowest
	U210-3	16	4⅝	7¾	2	5¾	—	14-10d	6-10d	1440 6.41	4355 19.37	1340 5.96	3090 13.75	+112%
	HU212-3/ HUC212-3	14	4¹¹⁄₁₆	10⁵⁄₁₆	2½	9¹⁵⁄₁₆	Min	16-16d	6-10d	1580 7.03	5780 25.71	1470 6.54	4225 18.79	+378%
							Max	22-16d	10-10d	2635 11.72	5780 25.71	2450 10.90	4690 20.86	+386%
Quad 2x12	HHUS210-4	14	6⅛	8⅞	3	7¹³⁄₁₆	—	30-16d	10-16d	4745 21.11	10545 46.91	4310 19.17	7485 33.29	*
3x4	U34	16	2⁹⁄₁₆	3⅜	2	2⅜	—	4-10d	2-10dx1½	450 2.00	1340 5.96	355 1.58	1030 4.58	Lowest
	HU34/ HUC34	14	2⁹⁄₁₆	3⅜	2½	3	—	4-16d	2-10dx1½	490 2.18	1710 7.61	455 2.02	1585 7.05	+101%

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 Connector screw. See page 24 for more information.



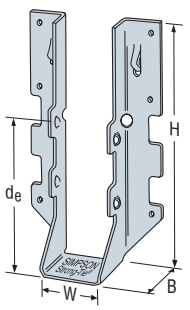
See footnotes on page 79.

FACE MOUNT HANGERS – SOLID SAWN 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.

Joist Size	Model No.	Ga	Dimensions (in) W	H	B	d_e[6]	Fasteners Min/Max	Header	Joist	Factored Resistance D.Fir-L Uplift (K_D = 1.15) lbs / kN	D.Fir-L Normal (K_D = 1.00) lbs / kN	S-P-F Uplift (K_D = 1.15) lbs / kN	S-P-F Normal (K_D = 1.00) lbs / kN	Installed Cost Index
SAWN LUMBER SIZES														
3x6	U36	16	2 9/16	5 3/8	2	4 5/16	—	8-10d	4-10dx1½	895 3.98	2675 11.90	780 3.47	2475 11.01	Lowest
3x6	LUS36	18	2 9/16	5 1/4	2	4 5/16	—	4-16d	4-16d	1720 7.65	2290 10.19	1545 6.87	1630 7.25	+26%
3x6	HU36/ HUC36	14	2 9/16	5 3/8	2½	5	—	8-16d	4-10dx1½	980 4.36	3420 15.21	905 4.03	2845 12.66	+185%
3x8	U36	16	2 9/16	5 3/8	2	4 15/16	—	8-10d	4-10dx1½	895 3.98	2675 11.90	780 3.47	2475 11.01	Lowest
3x8	HU38/ HUC38	14	2 9/16	7 1/8	2½	6¾	—	10-16d	4-10dx1½	980 4.36	4270 18.99	905 4.03	3135 13.95	+153%
3x10	LUS310	18	2 9/16	7 1/4	2	4 5/16	—	6-16d	4-16d	1720 7.65	3325 14.79	1545 6.87	2575 11.45	Lowest
3x10	U310	16	2 9/16	8 7/8	2	5¾	—	14-10d	6-10dx1½	1345 5.98	4355 19.37	1235 5.49	3090 13.75	+39%
3x10	HU310/ HUC310	14	2 9/16	8 7/8	2½	8½	—	14-16d	6-10dx1½	1470 6.54	5780 25.71	1360 6.05	4225 18.79	+151%
3x12	U310	16	2 9/16	8 7/8	2	5¾	—	14-10d	6-10dx1½	1345 5.98	4355 19.37	1235 5.49	3090 13.75	Lowest
3x12	HU312/ HUC312	14	2 9/16	10 5/8	2½	10¼	—	16-16d	6-10dx1½	1470 6.54	5780 25.71	1360 6.05	4225 18.79	+114%
4x4	LUS44	18	3 9/16	3	2	12 3/32	—	4-16d	2-16d	835 3.71	2020 8.99	590 2.62	1435 6.38	Lowest
4x4	U44	16	3 9/16	2 7/8	2	11 1/16	—	4-10d	2-10d	480 2.14	1340 5.96	445 1.98	1030 4.58	+34%
4x4	HU44/ HUC44	14	3 9/16	2 7/8	2½	2½	—	4-16d	2-10d	525 2.34	1710 7.61	490 2.18	1585 7.05	+180%
4x6	LUS46	18	3 9/16	4¾	2	3 13/16	—	4-16d	4-16d	1720 7.65	2595 11.54	1545 6.87	1920 8.54	Lowest
4x6	U46	16	3 9/16	4 7/8	2	3 13/16	—	8-10d	4-10d	960 4.27	2675 11.90	890 3.96	2475 11.01	+40%
4x6	HUS46	14	3 9/16	5	2	3⅝	—	4-16d	4-16d	1745 7.76	2845 12.66	1240 5.52	2570 11.43	+175%
4x6	HU46/ HUC46	14	3 9/16	5 3/16	2½	4 13/16	Min	8-16d	4-10d	1055 4.69	3420 15.21	980 4.36	2845 12.66	+186%
4x6	HU46/ HUC46	14	3 9/16	5 3/16	2½	4 13/16	Max	12-16d	6-10d	1580 7.03	4415 19.64	1470 6.54	3135 13.95	+197%
4x8	LUS46	18	3 9/16	4¾	2	3 13/16	—	4-16d	4-16d	1720 7.65	2595 11.54	1545 6.87	1920 8.54	Lowest
4x8	LUS48	18	3 9/16	6¾	2	3 13/16	—	6-16d	4-16d	1720 7.65	3325 14.79	1545 6.87	2575 11.45	+29%
4x8	U46	16	3 9/16	4 7/8	2	3 13/16	—	8-10d	4-10d	960 4.27	2675 11.90	890 3.96	2475 11.01	+38%
4x8	HUS48	14	3 9/16	6 15/16	2	5¾	—	6-16d	6-16d	2540 11.30	3620 16.10	1805 8.03	2570 11.43	+199%
4x8	HU48/ HUC48	14	3 9/16	6 13/16	2½	6 7/16	Min	10-16d	4-10d	1055 4.69	4270 18.99	980 4.36	3135 13.95	+299%
4x8	HU48/ HUC48	14	3 9/16	6 13/16	2½	6 7/16	Max	14-16d	6-10d	1580 7.03	5780 25.71	1470 6.54	4225 18.79	+250%
4x10	LUS48	18	3 9/16	6¾	2	3 13/16	—	6-16d	4-16d	1720 7.65	3325 14.79	1545 6.87	2575 11.45	Lowest
4x10	LUS410	18	3 9/16	8¾	2	5 27/32	—	8-16d	6-16d	2580 11.48	4500 20.02	2320 10.32	3195 14.21	+22%
4x10	U410	16	3 9/16	8⅜	2	6¼	—	14-10d	6-10d	1440 6.41	4355 19.37	1340 5.96	3090 13.75	+72%
4x10	HUS410	14	3 9/16	8 15/16	2	7¾	—	8-16d	8-16d	3795 16.88	5690 25.31	3450 15.35	4570 20.33	+195%
4x10	HU410/ HUC410	14	3 9/16	8⅝	2½	8¼	Min	14-16d	6-10d	1580 7.03	5780 25.71	1470 6.54	4225 18.79	+228%
4x10	HU410/ HUC410	14	3 9/16	8⅝	2½	8¼	Max	18-16d	10-10d	2635 11.72	5780 25.71	2450 10.90	4690 20.86	+239%

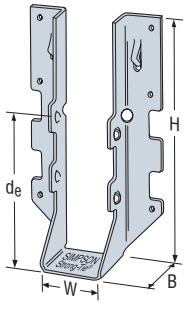


See footnotes on page 79.

FACE MOUNT HANGERS – SOLID SAWN LUMBER

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 (in) W	H	B	d_e[6]	Fasteners Min/ Max	Header	Joist	Factored Resistance D.Fir-L Uplift (K_D=1.15) lbs / kN	D.Fir-L Normal (K_D=1.00) lbs / kN	S-P-F Uplift (K_D=1.15) lbs / kN	S-P-F Normal (K_D=1.00) lbs / kN	Installed Cost Index
SAWN LUMBER SIZES														
4x12	LUS410	18	3 9/16	8 3/4	2	5 27/32	—	8-16d	6-16d	2580 / 11.48	4500 / 20.02	2320 / 10.32	3195 / 14.21	Lowest
	LUS414	18	3 9/16	10 3/4	2	5 9/11	—	10-16d	6-16d	2580 / 11.48	5355 / 23.82	2320 / 10.32	3875 / 17.24	+28%
	U410	16	3 9/16	8 3/8	2	6 1/4	—	14-10d	6-10d	1440 / 6.41	4355 / 19.37	1340 / 5.96	3090 / 13.75	+47%
	HUS410	14	3 9/16	8 15/16	2	7 3/4	—	8-16d	8-16d	3795 / 16.88	5690 / 25.31	3450 / 15.35	4570 / 20.33	+142%
	HUS412	14	3 9/16	10 1/2	2	9 3/4	—	10-16d	10-16d	4745 / 21.11	7015 / 31.20	3650 / 16.24	4980 / 22.15	+154%
	HU412/ HUC412	14	3 9/16	10 5/16	2 1/2	9 15/16	Min	16-16d	6-10d	1580 / 7.03	5780 / 25.71	1470 / 6.54	4225 / 18.79	+208%
							Max	22-16d	10-10d	2635 / 11.72	5780 / 25.71	2450 / 10.90	4690 / 20.86	+220%
6x6	U66	16	5 1/2	5	2	4 5/8	—	8-10d	4-10d	960 / 4.27	2675 / 11.90	890 / 3.96	2475 / 11.01	Lowest
	HU66/ HUC66	14	5 1/2	4 3/16	2 1/2	3 13/16	Min	8-16d	4-16d	1230 / 5.47	3420 / 15.21	1140 / 5.07	2845 / 12.66	+37%
							Max	12-16d	6-16d	1840 / 8.18	4415 / 19.64	1710 / 7.61	3135 / 13.95	+41%
6x8	U66	16	5 1/2	5	2	4 5/8	—	8-10d	4-10d	960 / 4.27	2675 / 11.90	890 / 3.96	2475 / 11.01	Lowest
	HU68/ HUC68	14	5 1/2	5 13/16	2 1/2	5 7/16	Min	10-16d	4-16d	1230 / 5.47	4270 / 18.99	1140 / 5.07	3135 / 13.95	+41%
							Max	14-16d	6-16d	1840 / 8.18	5780 / 25.71	1710 / 7.61	4225 / 18.79	+44%
6x10	U610	16	5 1/2	8 1/2	2	7 15/16	—	14-10d	6-10d	1440 / 6.41	4355 / 19.37	1340 / 5.96	3090 / 13.75	Lowest
	HU610/ HUC610	14	5 1/2	7 3/8	2 1/2	7 1/4	Min	14-16d	6-16d	1840 / 8.18	5780 / 25.71	1710 / 7.61	4225 / 18.79	+53%
							Max	18-16d	8-16d	2455 / 10.92	5780 / 25.71	2280 / 10.14	4690 / 20.86	+56%
6x12	HU612/ HUC612	14	5 1/2	9 3/8	2 1/2	9	Min	16-16d	6-16d	1840 / 8.18	5780 / 25.71	1710 / 7.61	4225 / 18.79	*
							Max	22-16d	8-16d	2455 / 10.92	5780 / 25.71	2280 / 10.14	4690 / 20.86	*
6x14	HU614/ HUC614	14	5 1/2	11 5/8	2 1/2	11 1/4	Min	18-16d	8-16d	2455 / 10.92	5780 / 25.71	2280 / 10.14	4690 / 20.86	*
							Max	24-16d	12-16d	3685 / 16.39	7025 / 31.25	3420 / 15.21	6185 / 27.51	*
6x16	HU616/ HUC616	14	5 1/2	12 11/16	2 1/2	12 5/16	Min	20-16d	8-16d	2455 / 10.92	5780 / 25.71	2280 / 10.14	4690 / 20.86	*
							Max	26-16d	12-16d	3685 / 16.39	7025 / 31.25	3420 / 15.21	6185 / 27.51	*
8x8	HU88/ HUC88	14	7 1/2	6 5/8	2 1/2	6 1/4	Min	10-16d	4-16d	1230 / 5.47	4270 / 18.99	1140 / 5.07	3135 / 13.95	*
							Max	14-16d	6-16d	1840 / 8.18	5780 / 25.71	1710 / 7.61	4225 / 18.79	*
8x10	HU810/ HUC810	14	7 1/2	8 3/8	2 1/2	8	Min	14-16d	6-16d	1840 / 8.18	5780 / 25.71	1710 / 7.61	4225 / 18.79	*
							Max	18-16d	8-16d	2455 / 10.92	5780 / 25.71	2280 / 10.14	4690 / 20.86	*
8x12	HU812/ HUC812	14	7 1/2	10 1/8	2 1/2	9 3/4	Min	16-16d	6-16d	1840 / 8.18	5780 / 25.71	1710 / 7.61	4225 / 18.79	*
							Max	22-16d	8-16d	2455 / 10.92	5780 / 25.71	2280 / 10.14	4690 / 20.86	*
8x14	HU814/ HUC814	14	7 1/2	11 7/8	2 1/2	11 1/2	Min	18-16d	8-16d	2455 / 10.92	5780 / 25.71	2280 / 10.14	4690 / 20.86	*
							Max	24-16d	12-16d	3685 / 16.39	7025 / 31.25	3420 / 15.21	6185 / 27.51	*
8x16	HU816/ HUC816	14	7 1/2	13 5/8	2 1/2	13 1/4	Min	20-16d	8-16d	2455 / 10.92	5780 / 25.71	2280 / 10.14	4690 / 20.86	*
							Max	26-16d	12-16d	3685 / 16.39	7025 / 31.25	3420 / 15.21	6185 / 27.51	*

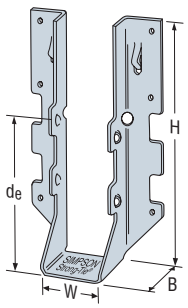


See footnotes on page 79.

FACE MOUNT HANGERS – ROUGH LUMBER

SIMPSON Strong-Tie®

Joist Size	Model No.	Ga	Dimensions (in)				Fasteners		Factored Resistance			
									D.Fir-L		S-P-F	
			W	H	B	d_e[6]	Header	Joist	Uplift (K_D=1.15) lbs kN	Normal (K_D=1.00) lbs kN	Uplift (K_D=1.15) lbs kN	Normal (K_D=1.00) lbs kN
ROUGH SAWN LUMBER SIZES												
2x4 (R)	LU2 4R-18	18	2	3 11/16	1 1/2	2 1/2	4-10d	2-10dx1 1/2	415 1.65	1020 4.54	355 1.58	725 3.22
	U24R	16	2	3 5/8	2	2 5/8	4-16d	2-10dx1 1/2	450 2.00	1340 5.96	355 1.58	1030 4.58
2x6 (R)	LU26R-18	18	2	4 9/16	1 1/2	3 13/16	6-10d	4-10dx1 1/2	830 3.69	1605 7.14	710 3.16	1140 5.07
	U26R	16	2	5 5/8	2	4 5/8	8-16d	4-10dx1 1/2	895 3.98	2675 11.90	780 3.47	2475 11.01
2x8 (R)	LU28R-18	18	2	6 3/8	1 1/2	5 5/8	8-10d	6-10dx1 1/2	1240 5.52	2185 9.72	1130 5.03	1550 6.89
	U26R	16	2	5 5/8	2	4 5/8	8-16d	4-10dx1 1/2	895 3.98	2675 11.90	780 3.47	2475 11.01
2x10 (R)	LU210R-18	18	2	7 9/16	2	5 9/16	10-16d	6-10dx1 1/2	1240 5.52	2495 11.10	1130 5.03	1770 7.87
	U210R	16	2	9 1/8	2	7 1/4	14-16d	6-10dx1 1/2	1345 5.98	4355 19.37	1235 5.49	3090 13.75
2x12 (R)	U210R	16	2	9 1/8	2	7 1/4	14-16d	6-10dx1 1/2	1345 5.98	4355 19.37	1235 5.49	3090 13.75
2x14 (R)	U210R	16	2	9 1/8	2	7 1/4	14-16d	6-10dx1 1/2	1345 5.98	4355 19.37	1235 5.49	3090 13.75
4x4 (R)	U44R	16	4	2 5/8	2	11 1/16	4-16d	2-16d	565 2.51	1340 5.96	520 2.31	1030 4.58
4x6 (R)	U46R	16	4	4 5/8	2	3 3/4	8-16d	4-16d	1130 5.03	3150 14.01	1045 4.65	2475 11.01
4x8 (R)	U46R	16	4	4 5/8	2	3 3/4	8-16d	4-16d	1130 5.03	3150 14.01	1045 4.65	2475 11.01
4x10 (R)	U410R	16	4	8 1/8	2	6 1/4	14-16d	6-16d	1695 7.54	4355 19.37	1495 6.65	3090 13.75
4x12 (R)	U410R	16	4	8 1/8	2	6 1/4	14-16d	6-16d	1695 7.54	4355 19.37	1495 6.65	3090 13.75
6x6 (R)	U66R	16	6	5	2	3 13/16	8-16d	4-16d	1130 5.03	3150 14.01	1045 4.65	2475 11.01
6x8 (R)	U66R	16	6	5	2	3 13/16	8-16d	4-16d	1130 5.03	3150 14.01	1045 4.65	2475 11.01
6x10 (R)	U610R	16	6	8 1/2	2	8	14-16d	6-16d	1695 7.54	4355 19.37	1495 6.65	3090 13.75
6x12 (R)	U610R	16	6	8 1/2	2	8	14-16d	6-16d	1695 7.54	4355 19.37	1495 6.65	3090 13.75
6x14 (R)	U610R	16	6	8 1/2	2	8	14-16d	6-16d	1695 7.54	4355 19.37	1495 6.65	3090 13.75



1. 10d common nails may be used instead of the specified 16d nails at 0.83 of the tabulated value.
2. Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce by 15% for standard term loading such as in cantilever construction.
3. D.Fir-L factored resistances can be used for most LVL. Verify with manufacturer prior to selecting hanger.
4. See page 22 for hangers with reduced capacity due to installation with different nails.
5. d_e is the distance from the bearing seat to the top joist nail.
6. HU rough beam sizes are available by special order. Contact Simpson Strong-Tie for more 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 pages 22-23 for other nail sizes and information.

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

TOP FLANGE HANGERS JB/JBA/LB/LBA/BA/B/HHB *Purlin Hangers*

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, 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 new, next-generation LBA and JBA hangers provide higher capacities for 2x10 and 2x12 members in 14 gauge and 18 gauge steel, respectively. The new nail locations on the JBA enable effective use with nailers.

See tables on pages 88-91. See Hanger Options on page 231 for hanger modifications, which may result in reduced resistances.

MATERIAL: See tables, pages 88-91.

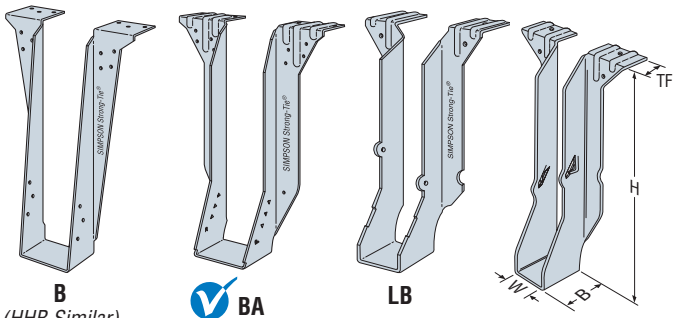
FINISH: JB, LB, B and BA—Galvanized; HHB–all saddle hangers and all welded sloped and special hangers—Simpson Strong-Tie® gray paint. LB, BA, B and HHB may be ordered hot-dip galvanized; specify HDG.

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

- LB and B may be used for weld-on applications. 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 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. Weld-on applications produce the maximum factored down resistance listed. Uplift resistances do not apply to welded applications. *(Contact Simpson Strong-Tie for uplift information.)*
- Ledgers must be evaluated for each application separately. Check TF dimension, nail length and nail location on ledger.

OPTIONS: • **B and HHB**

- Other widths are available; specify W dimension *(the minimum W dimension is 1¾16" for B and 2⅝" for HHB).*
- Saddle hangers are made to order; add "D" to model (e.g. HHBD412); specify S *(for saddle)* dimension. They may be used for most conditions except at end wall locations, and are preferred for nailer applications.
- B dimensions may be increased on some models.
- See Hanger Options, page 231.

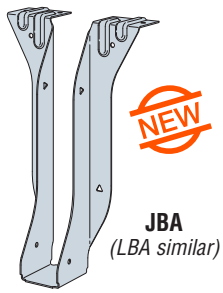


B
(HHB Similar)

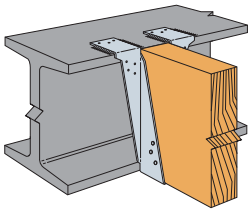
BA
U.S. Patent 7,334,372

LB

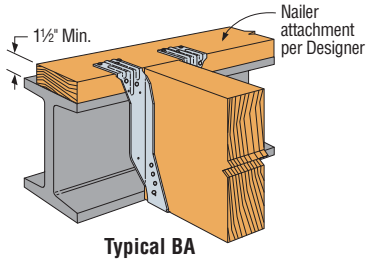
JB



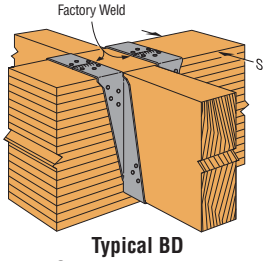
JBA
(LBA similar)



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

This table also applies to sloped-seat hangers.

Model No.	Nailer	Header Fasteners	Factored Resistance (K_D = 1.00) D.Fir-L	Factored Resistance (K_D = 1.00) S-P-F
			lbs	lbs
			kN	kN
LB/JB	2x	4-10dx1½	1420	855
			6.32	3.80
JBA	2x	6-10dx1½	1785	1395
			7.94	6.21
LBA	2x	6-10dx1½	1835	1545
			8.16	6.87
BA	2x	10-10dx1½	3220	2870
			14.32	12.77
	2-2x	14-10d	3915	3660
			17.41	16.28
	3x	14-16dx2½	4055	—
			18.04	—
	4x	14-16d	4055	—
			18.04	—
B	2x	10-10dx1½	2835	2340
			12.63	10.42
	2-2x	14-10d	3915	3660
			17.41	16.28
	3x	14-16dx2½	4055	—
			18.04	—
	4x	14-16d	4055	—
			18.04	—

B SERIES WITH VARIOUS HEADER APPLICATIONS

Model Series	Fasteners Top	Fasteners Face	Fasteners Joist	Factored Resistance Uplift[1] (K_D = 1.15)	Factored Resistance Normal (K_D = 1.00) D.Fir-L	S-P-F	LVL	PSL
				lbs	lbs	lbs	lbs	lbs
				kN	kN	kN	kN	kN
BA (Min)	6-10d	10-10d	2-10dx1½	435	4470	3975	4695	5385
				1.94	19.88	17.68	20.91	23.95
	6-16d	10-16d	2-10dx1½	435	4990	4370	5835	5385
				1.94	22.23	19.44	25.99	23.95
BA (Max)	6-10d	10-10d	8-10dx1½	1960	5265	4035	5825	5945
				8.72	23.42	17.95	25.91	26.44
	6-16d	10-16d	8-10dx1½	1960	5940	4370	6490	7075
				8.72	26.42	19.44	28.87	31.47
B	6-10d	8-10d	6-10dx1½	1650	5265	3590	5825	5230
				7.34	23.42	15.97	25.91	23.26
	6-16d	8-16d	6-16dx2½	1650	5940	3910	6490	5230
				7.34	26.46	17.39	28.87	23.26

1. Factored uplift resistances shown are for D.Fir-L. Multiply tabulated loads x 0.71 for either SPF joist or header.
2. Factored resistances shown are for header connection only. The Designer must ensure the joist is capable of generating the factored resistances shown.
3. 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 column.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

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 88-91; W—12 ga. top flange and stirrup; WM, WMU—12 ga. top flange and stirrup; WNP, 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-dipped galvanized available: specify HDG, contact Simpson Strong-Tie.

FACTORED RESISTANCES: For hanger heights exceeding the joist height, the factored resistance is 0.50 of the tabulated resistance.

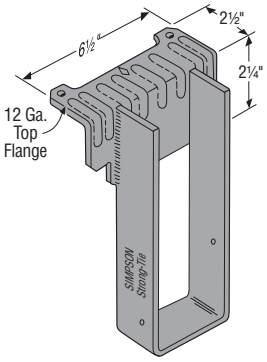
INSTALLATION: • Use all specified fasteners. WM/WMU—two 16d duplex nails must be installed into the top flange and embedded into the grouted wall for mid-wall applications. Verify that the grouted wall can take the required fasteners specified in the table.

- Hangers may be welded to steel headers with weld size to match material thickness *(approximate thickness shown)* 1/8" for W, 3/16" for WNP/WPU and 1/4" for HW/HWU, by 1½" fillet welds located at each end of the top flange. Weld-on applications produce maximum factored resistance listed. Uplift resistances do not apply to this application. *(Contact Simpson Strong-Tie for uplift information.)*
- 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.
- H dimensions are sized to account for normal joist shrinkage. W dimensions are for dressed timber widths.
- Embed WM into block with a minimum of one course above and one course below the top flange with one 15M vertical rebar minimum 24" long in each cell. Minimum grout strength is 15 MPa.
- See pages 103-104 for GLT and HGLT information.
- See Hanger Options, page 231 for hanger modifications and associated load reductions.

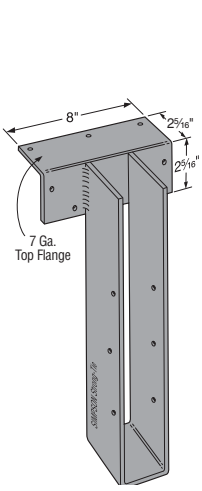
NAILER TABLE

The table indicates the maximum factored normal resistances 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. This table also applies to sloped-seat hangers.

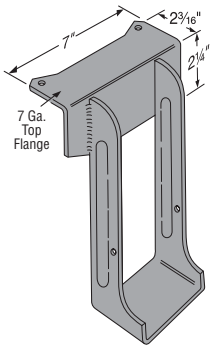
Model	Nailer	Top Flange Nailing	Factored Resistance (K_D = 1.00) D.Fir-L	S-P-F	LSL
			lbs	lbs	lbs
			kN	kN	kN
W	2x	2-10dx1½	2470	2470	—
			11.00	11.00	—
	2-2x	2-10d	2730	2730	—
			12.14	10.61	—
	3x	2-16dx2½	2895	2855	—
			12.88	12.70	—
	4x	2-10d	3025	2855	—
			13.46	12.70	—
WP/ WNP	2x	2-10dx1½	3665	3630	4900
			16.30	16.15	21.82
	2-2x	2-10d	4475	3760	—
			19.91	16.75	—
	3x	2-16dx2½	4110	3760	—
			18.28	16.75	—
	4x	2-10d	4475	3760	—
			19.91	16.75	—
WPU/ WNPU	2-2x	7-10d	4475	3760	—
			19.91	16.75	—
	3x	7-16dx2½	4110	3760	—
			18.28	16.75	—
	4x	7-10d	4475	3760	—
			19.91	16.75	—
HW	2-2x	4-10d	7600	—	—
			33.81	—	—
	3x	4-16dx2½	7600	—	—
			33.81	—	—
	4x	4-16d	7670	—	—
			34.16	—	—
HWU	2-2x	8-16dx2½	7880	—	—
			35.05	—	—
	3x	8-16dx2½	7880	—	—
			35.05	—	—
	4x	8-16d	7880	—	—
			35.05	—	—



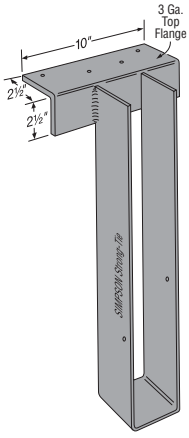
W



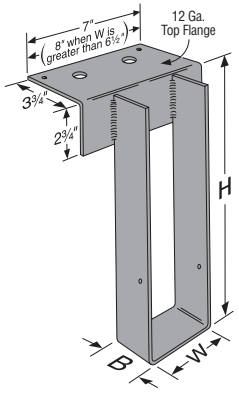
WPU



WNP412 and WNP414

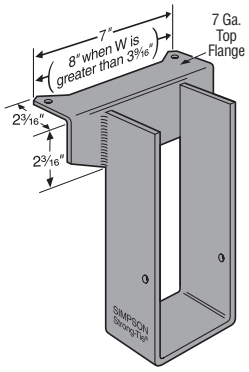


HW
(HWU similar)

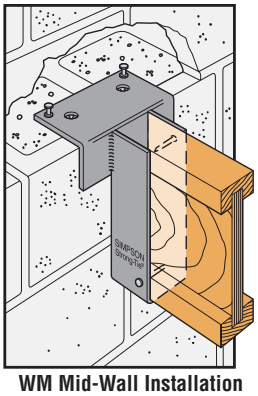


WM
(WMU similar)

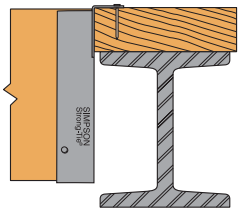
Some model configurations may differ from those shown. Contact Simpson Strong-Tie for details.



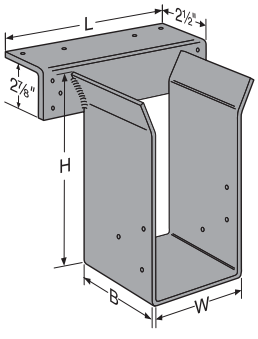
WP



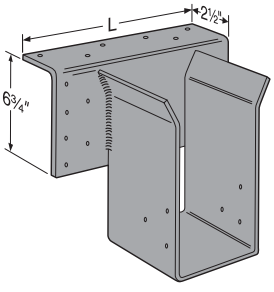
WM Mid-Wall Installation



Installation on Wood Nailer



GLT
(fasteners included)



HGLT
(fasteners included)

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

W SERIES WITH VARIOUS HEADER APPLICATIONS

Model No.	Joist		Fasteners			Factored Resistance						
	Width	Depth	Top	Face	Joist	Uplift[1] (K_D = 1.15)	Normal (K_D = 1.00)					
							D.Fir-L	S-P-F	LVL	PSL	LSL	Masonry
						lbs	lbs	lbs	lbs	lbs	lbs	lbs
						kN	kN	kN	kN	kN	kN	kN
W	1½ to 4	3½ to 30	2-10dx1½	—	2-10dx1½	—	2455	2375	2675	2850	—	—
						—	10.92	10.56	11.90	12.68	—	—
	1½ to 4	3½ to 30	2-10d	—	2-10dx1½	—	2920	2375	3425	3305	—	—
						—	12.99	10.56	15.24	14.70	—	—
	1½ to 4	3½ to 30	2-16d	—	2-10dx1½	—	2955	2375	3820	3190	—	—
						—	13.15	10.56	16.99	14.19	—	—
WM	1½ to 7½	3½ to 30	2-16d DPLX	—	2-10dx1½	—	MID-WALL INSTALLATION					6060
						—						26.96
	1½ to 7½	3½ to 30	2-¼x1¾ Titen	—	2-10dx1½	—	TOP OF WALL INSTALLATION					5300
						—						23.58
WMU	1½ to 7½	9 to 28	2-16d DPLX	4-¼x1¾ Titen	6-10dx1½	860	MID-WALL INSTALLATION					6060
						3.83						26.96
	1½ to 7½	9 to 28	2-¼x1¾ Titen	4-¼x1¾ Titen	6-10dx1½	745	TOP OF WALL INSTALLATION					5300
						3.31						23.58
WP/ WNP	1½ to 7½	3½ to 30	3-10dx1½	—	2-10dx1½	—	4095	3345	4695	4720	—	—
						—	18.22	14.88	20.89	21.00	—	—
	1½ to 7½	3½ to 30	3-10d	—	2-10dx1½	—	4095	3550	3665	4720	5980	—
						—	18.22	15.79	16.30	21.00	26.60	—
	1½ to 7½	3½ to 30	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—
						—	19.71	17.15	26.47	24.15	26.60	—
WPU/ WNPU	1¾ to 5½	7¼ to 18	3-16d	4-16d	6-10dx1½	1665	6390	6390	6825	7085	5980	—
						7.41	28.43	28.43	30.36	31.52	26.60	—
	1¾ to 5½	18½ to 28	3-16d	4-16d	6-10dx1½	595	6390	6390	6825	7085	5980	—
						2.65	28.43	28.43	30.36	31.52	26.60	—
HW	1½ to 7½	3½ to 32	4-10d	—	2-10dx1½	—	6900	5285	4695	5810	—	—
						—	30.69	23.51	20.89	25.85	—	—
	1½ to 7½	3½ to 32	4-16d	—	2-10dx1½	—	6900	5285	7695	5810	6870	—
						—	30.69	23.51	34.23	25.85	30.56	—
HWU	1¾ to 3½	9 to 18	4-16d	4-16d	6-10dx1½	1775	10170	8875	10170	8325	8925	—
						7.90	45.24	39.48	45.24	37.03	39.70	—
	1¾ to 3½	18½ to 28	4-16d	4-16d	6-10dx1½	1490	10170	8875	10170	8325	8925	—
						6.63	45.24	39.48	45.24	37.03	39.70	—
	1¾ to 3½	28½ to 32	4-16d	4-16d	8-10dx1½	1520	10170	8875	10170	8325	8925	—
						6.76	45.24	39.48	45.24	37.03	39.70	—
	4½ to 7⅛	9 to 18	4-16d	4-16d	6-10dx1½	1775	8250	8250	8250	8250	8250	—
						7.90	36.70	36.70	36.70	36.70	36.70	—
	4½ to 7⅛	18½ to 28	4-16d	4-16d	6-10dx1½	1490	8250	8250	8250	8250	8250	—
						6.63	36.70	36.70	36.70	36.70	36.70	—
	4½ to 7⅛	28½ to 32	4-16d	4-16d	8-10dx1½	1520	8250	8250	8250	8250	8250	—
						6.76	36.70	36.70	36.70	36.70	36.70	—

1. Factored uplift resistances shown are for D.Fir-L. Multiply tablulated values x 0.71 for either SPF joist or header.
2. Factored resistances shown are for header connection only. The Designer must ensure the joist is capable of generating the factored resistances shown.
3. WMU, WPU and HWU factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase allowed. Reduce by 15% for standard term loading like cantilever construction.
4. Titen® ¼x1¾ installed on top of wall after grout has cured.
5. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

HUSTF *Heavy Duty and Double Shear Joist Hangers*

SIMPSON Strong-Tie®

See dimensions, material, capacities on table pages.

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

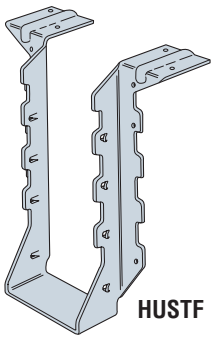
FINISH: Galvanized. Some products available with ZMAX® coating. See Corrosion Information, pages 14-17.

INSTALLATION:

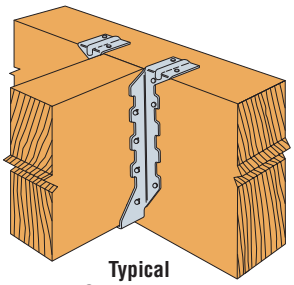
- Use all specified fasteners. See General Notes.
- Not acceptable for nailer or welded applications; see W and B hangers.
- HUSTF—With 3x carrying members, use 16dx2½" nails into the header and 16d commons into the joist.

OPTIONS:

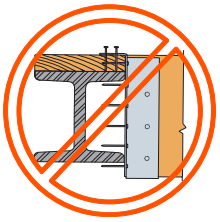
- Available with flanges turned in *(2-2x and 4x only for HUSCTF).*



HUSTF

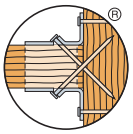


Typical HUSTF Installation



Nailer application is NOT acceptable. Fasteners cannot be installed

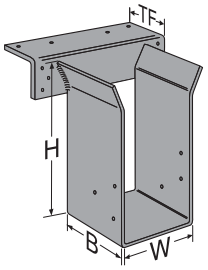
Some model configurations may differ from those shown. Production models have projected seats. Square cut seats may be ordered. Contact Simpson Strong-Tie for details.



Double Shear Nailing Top View

TOP FLANGE HANGERS – SOLID SAWN LUMBER

Joist Size	Model No.	Ga	Dimensions (in)				Fasteners		Factored Resistance				Installed Cost Index
									D.Fir-L		S-P-F		
									Uplift	Normal	Uplift	Normal	
			W	H	B	TF	Header	Joist	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)	
									lbs	lbs	lbs	lbs	
									kN	kN	kN	kN	
2x6	JB26	18	1⁹⁄₁₆	5⅜	1½	1⁵⁄₁₆	4-10d	2-PRONG	—	1555	—	1385	Lowest
									—	6.92	—	6.16	
	LB26	14	1⁹⁄₁₆	5⅜	1½	1½	4-16d	2-10dx1½	490	2080	455	1405	+79%
									2.18	9.25	2.02	6.26	
	W26	12	1⁹⁄₁₆	5⅜	2½	2½	2-10d	2-10dx1½	—	2920	—	2375	+710%
									—	13.00	—	10.58	
	WM26	12	1⁹⁄₁₆	5⅜	4½	3¾	2-16d DPLX	2-10dx1½	—	5995	—	4600	*
									—	26.67	—	20.46	
DBL 2x6	HUS26-2TF	14	3⅛	5⅜	2	1¾	6-16d	4-16d	1745	5130	1240	3645	Lowest
									7.76	22.82	5.51	16.21	
	WNP26-2	12	3⅛	5⅜	2½	2³⁄₁₆	2-10d	2-10d	—	4095	—	3550	+31%
									—	18.24	—	15.81	
	WM26-2	12	3⅛	5⅜	2½	3/34	2-16d DPLX	2-10d	—	6060	—	5065	*
									—	26.96	—	22.53	
2x8	JB28	18	1⁹⁄₁₆	7¼	1½	1⁵⁄₁₆	4-10d	2 PRONG	—	1555	—	1385	Lowest
									—	6.92	—	6.16	
	LB28	14	1⁹⁄₁₆	7¼	1½	1½	4-16d	2-10dx1½	490	2080	455	1405	+69%
									2.18	9.25	2.02	6.26	
	W28	12	1⁹⁄₁₆	7⅛	2½	2½	2-10d	2-10dx1½	—	2895	—	2385	+541%
									—	12.88	—	10.61	
	WM28	12	1⁹⁄₁₆	7⅛	4½	3¾	2-16d DPLX	2-10dx1½	—	5995	—	4600	*
									—	26.67	—	20.46	
DBL 2x8	HUS28-2TF	14	3⅛	7¼	2	1⅞	8-16d	6-16d	2540	6825	1805	4480	Lowest
									11.30	26.91	8.03	19.93	
	WNP28-2	12	3⅛	7⅛	2½	2³⁄₁₆	2-10d	2-10d	—	4095	—	3550	+30%
									—	18.22	—	15.81	
	WM28-2	12	3⅛	7⅛	2½	3¾	2-16d DPLX	2-10d	—	6060	—	5065	*
									—	26.96	—	22.53	
2x10	JB210A	18	1⁹⁄₁₆	9³⁄₁₆	2	1⁷⁄₁₆	6-16d	2-10dx1½	415	2430	370	1725	Lowest
									1.85	10.81	1.65	7.67	
	LB210A	14	1⁹⁄₁₆	9³⁄₁₆	2	1⁷⁄₁₆	6-16d	2-10dx1½	490	2710	490	1935	+28%
									2.18	12.06	2.18	8.61	
	W210	12	1⁹⁄₁₆	9⅛	2½	2½	2-10d	2-10dx1½	—	2920	—	2375	+327%
									—	13.00	—	10.58	
	WM210	12	1⁹⁄₁₆	9⅛	4½	3¾	2-16d DPLX	2-10dx1½	—	5995	—	4600	*
									—	26.67	—	20.46	



1. Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce by 15% for standard term loading such as in cantilever construction.

2. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

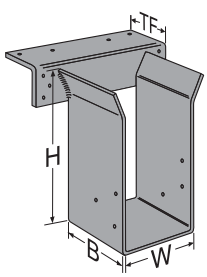
* *Hangers do not have an Installed Cost Index.*

TOP FLANGE HANGERS – SOLID SAWN LUMBER

SIMPSON Strong-Tie®

Joist	Model No.	Ga	Dimensions (in)				Fasteners		Factored Resistance				Installed Cost Index
									D.Fir-L		S-P-F		
			W	H	B	TF	Header	Joist	Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)	
									lbs	lbs	lbs	lbs	
									kN	kN	kN	kN	
DBL 2x10	HUS210-2TF	14	3⅛	9¼	2	1½	10-16d	8-16d	3795	6755	3450	5435	Lowest
									16.88	30.05	15.35	24.18	
	WNP210-2	12	3⅛	9⅛	2½	2⁹⁄₁₆	2-10d	2-10d	—	4095	—	3550	+ 32%
									—	18.22	—	15.79	
	WM210-2	12	3⅛	9⅛	2½	3¾	2-16d DPLX	2-10d	—	6060	—	5065	*
									—	26.96	—	22.53	
2x12	JB212A	18	1⁹⁄₁₆	11⅞	2	1⁷⁄₁₆	6-16d	2-10dx1½	415	2430	370	1725	Lowest
									1.85	10.81	1.65	7.67	
	LB212A	14	1⁹⁄₁₆	11⅞	2	1⁷⁄₁₆	6-16d	2-10dx1½	490	2710	455	1935	+ 29%
									2.18	12.06	2.02	8.61	
	W212	12	1⁹⁄₁₆	11	2½	2½	2-10d	2-10dx1½	—	2920	—	2375	+ 331%
									—	12.99	—	10.56	
	WM212	12	1⁹⁄₁₆	11	4½	3¾	2-16d DPLX	2-10dx1½	—	5995	—	4600	*
									—	26.67	—	20.46	
DBL 2x12	HUS212-2TF	14	3⅛	11⅞	2	2¼	10-16d	8-16d	3765	6755	2675	5435	Lowest
									16.75	30.05	11.90	24.18	
	WNP212-2	12	3⅛	11	2½	2⁹⁄₁₆	2-10d	2-10d	—	4095	—	3550	+ 20%
									—	18.22	—	15.79	
	WM212-2	12	3⅛	11	2½	3¾	2-16d DPLX	2-10d	—	6060	—	5065	*
									—	26.96	—	22.53	
3x6	W36	12	2⁹⁄₁₆	5⅞	2	2½	2-10d	2-10dx1½	—	2920	—	2375	*
									—	12.99	—	10.56	
	WM36	12	2⁹⁄₁₆	5⅞	3	3¾	2-16d DPLX	2-10dx1½	—	6060	—	5065	*
									—	26.96	—	22.53	
3x8	B38	12	2⁹⁄₁₆	7⅛	2½	2½	14-16d	6-16dx2½	1650	5940	1170	3910	Lowest
									7.34	26.42	5.20	17.39	
	W38	12	2⁹⁄₁₆	7⅛	2	2½	2-10d	2-10dx1½	—	2920	—	2375	+ 38%
									—	12.99	—	10.56	
	WM38	12	2⁹⁄₁₆	7⅛	3	3¾	2-16d DPLX	2-10dx1½	—	6060	—	5065	*
									—	26.96	—	22.53	
3x10	B310	12	2⁹⁄₁₆	9⅛	2½	2½	14-16d	6-16dx2½	1650	5940	1170	3910	Lowest
									7.34	26.42	5.20	17.39	
	W310	12	2⁹⁄₁₆	9⅛	2	2½	2-10d	2-10dx1½	—	2920	—	2375	+ 46%
									—	12.99	—	10.56	
	WM310	12	2⁹⁄₁₆	9⅛	3	3¾	2-16d DPLX	2-10dx1½	—	6060	—	5065	*
									—	26.96	—	22.53	
3x12	B312	12	2⁹⁄₁₆	11	2½	2½	14-16d	6-16dx2½	1650	5940	1170	3910	Lowest
									7.34	26.42	5.20	17.39	
	WNP312	12	2⁹⁄₁₆	11	2½	2⁹⁄₁₆	2-10d	2-10dx1½	—	4095	—	3550	+ 41%
									—	18.22	—	15.79	
	WM312	12	2⁹⁄₁₆	11	3	3¾	2-16d DPLX	2-10dx1½	—	6060	—	5065	*
									—	26.96	—	22.53	
4x6	HUS46TF	14	3⁹⁄₁₆	5⅞	2	1½	6-16d	4-16d	1745	5130	1240	3645	Lowest
									7.76	22.82	5.52	16.21	
	W46	12	3⁹⁄₁₆	5⅞	2½	2½	2-10d	2-10d	—	2920	—	2375	+ 41%
									—	12.99	—	10.56	
	HW46	11	3⁹⁄₁₆	5⅞	2½	2½	4-10d	2-10d	—	7620	—	4695	+ 177%
									—	33.90	—	20.89	
	WM46	12	3⁹⁄₁₆	5⅞	2½	3¾	2-16d DPLX	2-10d	—	6060	—	5380	*
									—	26.96	—	23.93	
4x8	BA48 (min)	14	3⁹⁄₁₆	7⅛	3	2½	16-16d	2-10dx1½	435	4990	310	4370	Lowest
									1.94	22.20	1.38	19.44	
	BA48 (max)	14	3⁹⁄₁₆	7⅛	2½	2½	16-16d	8-10dx1½	1960	5940	1565	4370	+ 4%
									8.72	26.42	6.96	19.44	
	B48	12	3⁹⁄₁₆	7⅛	2½	2½	14-16d	6-16d	1650	5940	1170	3910	+ 71%
									7.34	26.42	5.20	17.39	
	HUS48TF	14	3⁹⁄₁₆	7¼	2	1¹¹⁄₁₆	8-16d	6-16d	2540	6285	1805	4480	+ 76%
									11.30	27.96	8.03	19.93	
	W48	12	3⁹⁄₁₆	7⅛	2½	2½	2-10d	2-10d	—	2920	—	2375	+ 105%
									—	12.99	—	10.56	
	HW48	11	3⁹⁄₁₆	7⅛	2½	2½	4-10d	2-10d	—	7620	—	4695	+ 300%
									—	33.90	—	20.89	
	WM48	12	3⁹⁄₁₆	7⅛	2½	3¾	2-16d DPLX	2-10d	—	6060	—	5830	*
									—	26.96	—	25.93	

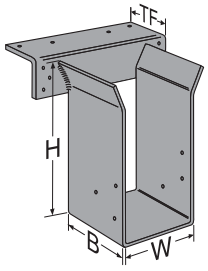
See footnotes on page 88.



TOP FLANGE HANGERS – SOLID SAWN LUMBER

SIMPSON Strong-Tie®

Joist	Model No.	Ga	Dimensions (in)				Fasteners		Factored Resistance				Installed Cost Index
									D.Fir-L		S-P-F		
									Uplift	Normal	Uplift	Normal	
									(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)	
			W	H	B	TF	Header	Joist	lbs	lbs	lbs	lbs	
									kN	kN	kN	kN	
4x10	BA410 (min)	14	3 9/16	9 1/4	3	2 1/2	16-16d	2-10dx1 1/2	435	4990	310	4370	Lowest
									1.94	22.20	1.38	19.44	
	BA410 (max)	14	3 9/16	9 1/4	3	2 1/2	16-16d	8-10dx1 1/2	1960	5940	1565	4370	+ 4%
									8.72	26.42	6.96	19.44	
	HUS410TF	14	3 9/16	9 1/4	2	1 1/2	10-16d	8-16d	3795	6755	3450	5435	+ 59%
									16.88	30.05	15.35	24.18	
	B410	12	3 9/16	9 1/8	2 1/2	2 1/2	14-16d	6-16d	1650	5940	1170	3910	+ 72%
									7.34	26.42	5.20	17.39	
	W410	12	3 9/16	9 1/8	2 1/2	2 1/2	2-10d	2-10d	—	2920	—	2375	+ 91%
									—	12.99	—	10.56	
	HW410	11	3 9/16	9 1/8	2 1/2	2 1/2	4-10d	2-10d	—	7620	—	4695	+ 270%
									—	33.90	—	20.89	
	GLT4[1]	7	3 9/16	7 1/2 Min.	5	2 1/2	10-N54A	6-N54A	2905	9625	2060	5225	*
									12.92	42.82	9.16	23.24	
	HGLT4[1]	7	3 9/16	7 1/2 Min.	6	2 1/2	18-N54A	6-N54A	2905	14885	2060	9830	*
									12.92	66.21	9.16	43.73	
	WM410	12	3 9/16	9 1/8	2 1/2	3 1/4	2-16d DPLX	2-10d	—	6060	—	5830	*
									—	26.96	—	25.93	
4x12	BA412 (min)	14	3 9/16	11	3	2 1/2	16-16d	2-10dx1 1/2	435	4990	310	4370	Lowest
									1.94	22.20	1.38	19.44	
	BA412 (max)	14	3 9/16	11	3	2 1/2	16-16d	8-10dx1 1/2	1960	5940	1565	4370	+ 3%
									8.72	26.42	6.96	19.44	
	HUS412TF	14	3 9/16	11 1/8	2	2	10-16d	8-16d	3795	6755	2675	5435	+ 28%
									16.88	30.05	11.90	24.18	
	B412	12	3 9/16	11	2 1/2	2 1/2	14-16d	6-16d	1650	5940	1170	3910	+ 72%
									7.34	26.42	5.20	17.39	
	WNP412	12	3 9/16	11	2 1/2	2 3/16	2-10d	2-10d	—	4095	—	3550	+ 100%
									—	18.22	—	15.79	
	HW412	11	3 9/16	11	2 1/2	2 1/2	4-10d	2-10d	—	7620	—	4695	+ 248%
									—	33.90	—	20.89	
	GLT4[1]	7	3 9/16	7 1/2 Min.	5	2 1/2	10-N54A	6-N54A	2905	9625	2060	5225	*
									12.92	42.82	9.16	23.24	
	HGLT4[1]	7	3 9/16	7 1/2 Min.	6	2 1/2	18-N54A	6-N54A	2905	14885	2060	9830	*
									12.92	66.21	9.16	43.73	
	WM412	12	3 9/16	11	2 1/2	3 1/4	2-16d DPLX	2-10d	—	6060	—	5830	*
									—	26.96	—	25.93	
6x6	WNP66	12	5 1/2	5 3/8	2 1/2	2 5/16	3-10d	2-10d	—	4095	—	3550	Lowest
									—	18.22	—	15.79	
	HW66	11	5 1/2	5 3/8	2 1/2	2 1/2	4-10d	2-10d	—	6900	—	5285	+ 51%
									—	30.69	—	23.51	
	WM66	12	5 1/2	5 3/8	2 1/2	3 1/4	2-16d DPLX	2-10d	—	6060	—	6060	*
									—	26.96	—	26.96	
6x8	B68	12	5 1/2	7 1/8	2 1/2	2 1/2	14-16d	6-16d	1650	5940	1170	3910	Lowest
									7.34	26.42	5.20	17.39	
	WNP68	12	5 1/2	7 1/8	2 1/2	2 5/16	3-10d	2-10d	—	4095	—	3550	+ 52%
									—	18.22	—	15.79	
	HW68	11	5 1/2	7 1/8	2 1/2	2 1/2	4-10d	2-10d	—	6900	—	5285	+ 134%
									—	30.69	—	23.51	
	WM68	12	5 1/2	7 1/8	2 1/2	3 1/4	2-16d DPLX	2-10d	—	6060	—	6060	*
									—	26.96	—	26.96	



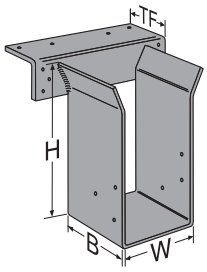
1. N54A fasteners are supplied with hangers. Specify height required.
2. Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce by 15% for standard term loading such as in cantilever construction.
3. **NAILS:** 16d = 0.162" dia. x 3 1/2" long, 10d = 0.148" dia. x 3" long, 10dx1 1/2 = 0.148" dia. x 1 1/2" long. See pages 22-23 for other nail sizes and information.

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

TOP FLANGE HANGERS – SOLID SAWN LUMBER

SIMPSON Strong-Tie®

Joist	Model No.	Ga	Dimensions (in)				Fasteners		Factored Resistance				Installed Cost Index
									D.Fir-L		S-P-F		
			W	H	B	TF	Header	Joist	Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)	
									lbs	lbs	lbs	lbs	
									kN	kN	kN	kN	
6x10	B610	12	5½	9⅛	2½	2½	14-16d	6-16d	1650	5940	1170	3910	Lowest
									7.34	26.42	5.20	17.39	
	WNP610	12	5½	9⅛	2½	2⁵⁄₁₆	3-10d	2-10d	—	4095	—	3550	+ 34%
									—	18.22	—	15.79	
	HW610	11	5½	9⅛	2½	2½	4-10d	2-10d	—	6900	—	5285	+ 125%
									—	30.69	—	23.51	
	GLT6[1]	7	5⁹⁄₁₆	7½ Min.	5	2½	10-N54A	6-N54A	2905	9625	2060	5225	*
									12.92	42.82	9.16	23.24	
	HGLT6[1]	7	5⁹⁄₁₆	7½ Min.	6	2½	18-N54A	6-N54A	2905	14885	2060	9830	*
									12.92	66.21	9.16	43.73	
	WM610	12	5½	9⅛	2½	3¾	2-16d DPLX	2-10d	—	6060	—	6060	*
									—	26.96	—	26.96	
6x12	B612	12	5½	11	2½	2½	14-16d	6-16d	1650	5940	1170	3910	Lowest
									7.34	26.42	5.20	17.39	
	HW612	11	5½	11	2½	2½	4-10d	2-10d	—	6900	—	5285	+ 125%
									—	30.69	—	23.51	
	HHB612	7	5½	11	3	2½	10-N54A	6-N54A	3340	8570	—	—	*
									14.86	38.12	—	—	
	GLT6[1]	7	5⁹⁄₁₆	7½ Min.	5	2½	10-N54A	6-N54A	2905	9625	2060	5225	*
									12.92	42.82	9.16	23.24	
	HGLT6[1]	7	5⁹⁄₁₆	7½ Min.	6	2½	18-N54A	6-N54A	2905	14885	2060	9830	*
									12.92	66.21	9.16	43.73	
6x14	B614	12	5½	13	2½	2½	14-16d	6-16d	1650	5940	1170	3910	Lowest
									7.34	26.42	5.20	17.39	
	HW614	11	5½	13	2½	2½	4-10d	2-10d	—	6900	—	5285	+ 98%
									—	30.69	—	23.51	
	HHB614	7	5½	13	3	2½	10-N54A	6-N54A	3340	8570	—	—	+ 192%
									14.86	38.12	—	—	
	GLT6[1]	7	5⁹⁄₁₆	7½ Min.	5	2½	10-N54A	6-N54A	2905	9625	2060	5225	*
									12.92	42.82	9.16	23.24	
	HGLT6[1]	7	5⁹⁄₁₆	7½ Min.	6	2½	18-N54A	6-N54A	2905	14885	2060	9830	*
									12.92	66.21	9.16	43.73	
6x16	B616	12	5½	15	2½	2½	14-16d	6-16d	1650	5940	1170	3910	Lowest
									7.34	26.42	5.20	17.39	
	HW616	11	5½	15	2½	2½	4-10d	2-10d	—	6900	—	5285	+ 89%
									—	30.69	—	23.51	
	HHB616	7	5½	15	3	2½	10-N54A	6-N54A	3340	8570	—	—	+ 174%
									14.86	38.12	—	—	
	GLT6[1]	7	5⁹⁄₁₆	7½ Min.	5	2½	10-N54A	6-N54A	2905	9625	2060	5225	*
									12.92	42.82	9.16	23.24	
	HGLT6[1]	7	5⁹⁄₁₆	7½ Min.	6	2½	18-N54A	6-N54A	2905	14885	2060	9830	*
									12.92	66.21	9.16	43.73	
8x6	HW86	7	7½	5⅜	2½	2½	4-10d	2-10d	—	6900	—	5285	*
									—	30.69	—	23.51	
8x8	HW88	7	7½	7⅛	2½	2½	4-10d	2-10d	—	6900	—	5285	*
									—	30.69	—	23.51	
8x10	HW810	7	7½	9⅛	2½	2½	4-10d	2-10d	—	6900	—	5285	*
									—	30.69	—	23.51	
8x12	HW812	7	7½	11	2½	2½	4-10d	2-10d	—	6900	—	5285	Lowest
									—	30.69	—	23.51	
	HHB812	7	7½	11	3	2½	10-N54A	6-N54A	3340	8570	—	—	+ 92%
									14.86	38.12	—	—	
8x14	HW814	7	7½	13	2½	2½	4-10d	2-10d	—	6900	—	5285	Lowest
									—	30.69	—	23.51	
	HHB814	7	7½	13	3	2½	10-N54A	6-N54A	3340	8570	—	—	+ 87%
									14.86	38.12	—	—	
8x16	HW816	7	7½	15	2½	2½	4-10d	2-10d	—	6900	—	5285	Lowest
									—	30.69	—	23.51	
	HHB816	7	7½	15	3	2½	10-N54A	6-N54A	3340	8570	—	—	83%
									14.86	38.12	—	—	



See footnotes on page 90.

LRUZ *Rafter Hanger*

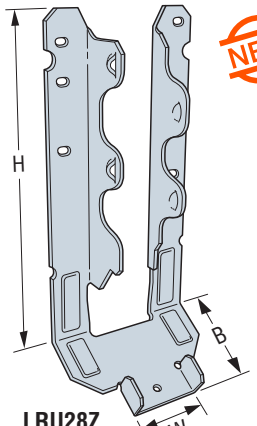
The LRUZ offers an economic alternative for those applications requiring a sloped hanger for rafter-to-ridge connections. Used with solid-sawn rafters, the LRUZ's unique design enables the hanger to be installed either before or after the rafter is in place. The field-adjustable seat helps improve job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

FEATURES:

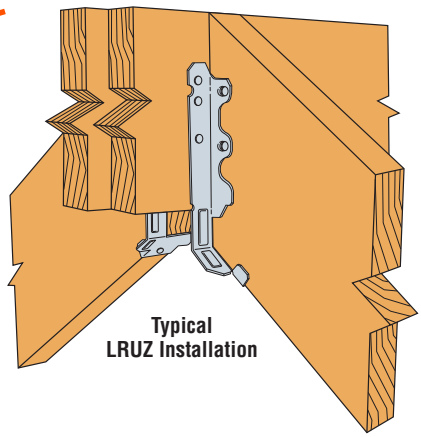
- The open design and ability to field-adjust the slope makes the LRUZ ideal for both retrofit or new applications
- Accommodates roof pitches from 0:12 to 14:12
- Slopes up or down to 45°. For slopes greater than 45° to 49° (14:12), allowable loads are 0.85 of table loads
- For added versatility, the fasteners on the face of the hanger are placed high enabling the bottom of the rafter to hang below the ridge beam *(see "Max. C1" dimension)*
- Can be installed using nails or Simpson Strong-Tie® Strong-Drive® SD Connector screws

MATERIAL: 18 gauge
FINISH: ZMAX® coating
INSTALLATION:

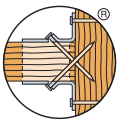
- Use all specified fasteners. See General Notes.
- Joist fasteners must be installed at an angle through the rafter or joist into the header to achieve the table loads.
- See alternate installation on page 86 for retrofit applications.



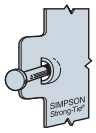
LRU28Z
(Other models similar)



Typical LRUZ 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 Connector screw. See page 24 for more information.

Standard Installation[1,2,3]

Model No.	Dimensions (in.)				Fasteners[4,5]		Factored Resistance			
							D.Fir-L		S-P-F	
							Uplift	Normal	Uplift	Normal
							(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)
	W	H	B	Max C_1	Header	Joist	lbs	lbs	lbs	lbs
							kN	kN	kN	kN
LRU26Z	1⅝	5¼	1 15/16	1¾	4-10d	5-10d	945	1360	670	965
							4.20	6.05	2.98	4.29
					4-16d	5-16d	1130	1985	800	1410
							5.03	8.83	3.56	6.27
LRU28Z	1⅝	6 15/16	1 15/16	2⅝	6-10d	5-10d	1180	1360	840	965
							5.25	6.05	3.74	4.29
					6-16d	5-16d	1180	1985	840	1410
							5.25	8.83	3.74	6.27
LRU210Z	1⅝	8 3/16	1 15/16	1¾	6-10d	7-10d	1610	2095	1145	1485
							7.16	9.32	5.09	6.61
					6-16d	7-16d	1610	2375	1145	1685
							7.16	10.56	5.09	7.50
LRU212Z	1⅝	10 11/16	1 15/16	3½	6-10d	7-10d	1910	2095	1355	1485
							8.50	9.32	6.03	6.61
					6-16d	7-16d	1910	2805	1355	1990
							8.50	12.48	6.03	8.85

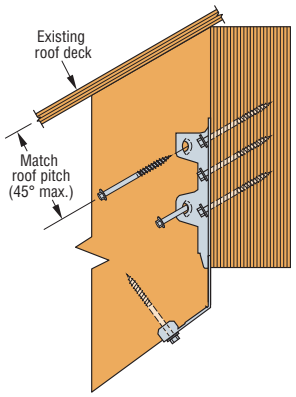
1. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed. Reduce where other load durations govern.
2. Factored resistances shown are applicable for roof slopes up to and including 45° (12:12). For roof slopes greater than 45° up to and including 49° (14:12) multiply the tabulated resistances by 0.85.
3. LRUZ's may be installed using Strong-Drive® SD#10x1½" Connector screws into the header and Strong-Drive SD#10x2½" Connector screws into the joist at full 16d capacity.
4. For single 2x headers, use 10dx1½" nails into the header and 10d commons into the joist. Multiply the tablulated 10d capadity x 0.77. Alternately, install Strong-Drive SD Connector screws *(see footnote 3 above)*.
5. For alternate installation under retrofit applications, Strong-Drive SD#10x2½" Connector screws may be installed sloped upwards to match the roof slope (45° max). Multiply the tabulated 16d values x 0.73. See Alternate Installation for Retrofit Applications detail on page 93.
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long; 10d = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.
7. **SCREWS:** SD#10x2½" (SD10212) = 0.161" dia. x 2½" long; SD#10x1½" (SD10112) = 0.161" dia. x 1½" long.

LRUZ *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" Connector screws may be installed sloped upward to match the roof pitch (45° max.). Use table values for an installation with 16d nails x 0.73 *(see footnote 5)* when SD screws are sloped. Nails may not be installed sloped upward.

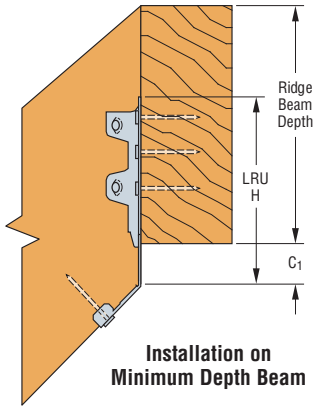


Alternate Installation for Retrofit Applications

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.



Installation on Minimum Depth Beam

HH *Header Hangers*

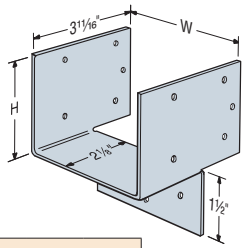
For fast, accurate installation of door and window headers and other cross members. HH header hangers can speed up the job, strengthen the frame, and eliminate the need for trimmers.

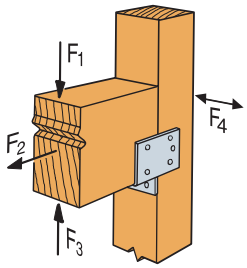
MATERIAL: 16 gauge **FINISH**: Galvanized

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 reduction in capacity. See table for capacities and nailing requirements.

HH4

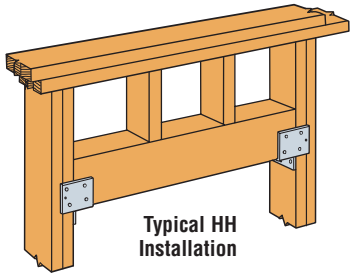




HH Load Directions

Model No.	Dimensions (in)		Post Size	Fasteners		Factored Resistance							
						D.Fir-L				S-P-F			
	W	H		Post	Header	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
						(K_D = 1.00)	(K_D = 1.15)			(K_D = 1.00)	(K_D = 1.15)		
						lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
						kN	kN	kN	kN	kN	kN	kN	kN
HH4	3½	2 13⁄16	2x	7-10dx1½	4-10dx1½	1240	—	890	1370	1125	—	765	970
						5.52	—	3.96	6.09	5.00	—	3.40	4.31
			2-2x	7-16dx2½	4-16dx2½	1715	—	1125	1410	1580	—	965	1000
						7.63	—	5.00	6.27	7.03	—	4.29	4.45
			4x	9-16d	4-16d	2205	1125	1125	2140	2035	1040	965	1520
						9.81	5.00	5.00	9.52	9.05	4.63	4.29	6.76
HH6	5½	5⅛	2x	10-10dx1½	6-10dx1½	1930	—	1330	1930	1585	—	1155	1370
						8.59	—	5.92	8.59	7.05	—	5.14	6.09
			2-2x	10-16dx2½	6-16dx2½	2450	—	1690	2405	2260	—	1480	1705
						10.90	—	7.52	10.70	10.05	—	6.58	7.58
			4x	12-16d	6-16d	2940	1690	1690	2405	2710	1370	1510	1705
						13.08	7.52	7.52	10.70	12.06	6.09	6.72	7.58

1. F_2, F_3 and F_4 factored resistances have been increased 15% for earthquake or wind loading; no further increase is allowed.
2. **NAILS:** 16d = 0.162" dia. x 3½" long. See pages 22-23 for other nail sizes and information.



Typical HH Installation

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 capacities, c) lower installed cost, or a combination of these features.

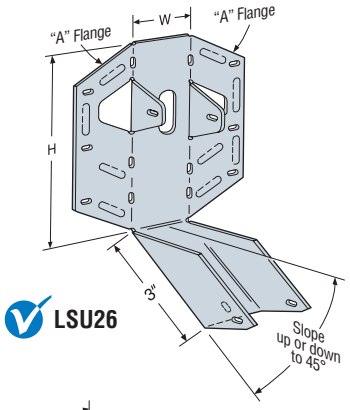
The LSU and LSSU series of hangers may be sloped and skewed in the field, offering a versatile solution for attaching joists and rafters. These hangers may be sloped up or down and skewed left or right, up to 45°.

MATERIAL: See table

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, pages 14-17.

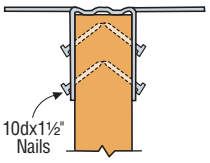
INSTALLATION: • Use all specified fasteners. See General Notes.

- 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.***
- 10dx1½" nails cannot be substituted for the specified face nails when skewed or sloped and skewed combinations.

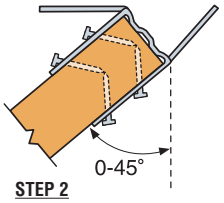


LSU and LSSU INSTALLATION SEQUENCE

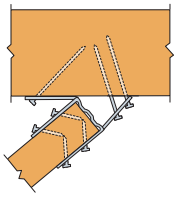
(For Skewed or Sloped/Skewed Applications)



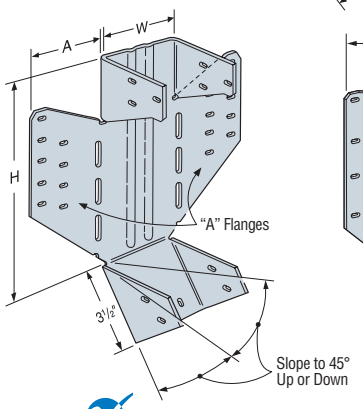
STEP 1
Nail hanger to slope-cut carried member, installing seat nail first. No bevel necessary for skewed installation. Install joist nails at 45° angle.



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. 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 (in)	Model No.	Ga	Dimensions (in)			Fasteners		Factored Resistance			
								D.Fir-L		S-P-F	
			W	H	A	Face	Joist	Uplift (K_D=1.15) lbs kN	Normal (K_D=1.00) lbs kN	Uplift (K_D=1.15) lbs kN	Normal (K_D=1.00) lbs kN
Sloped Only Hangers											
1½	LSU26	18	1 9/16	4 7/8	1½	6-10d	5-10dx1½	830	1255	715	895
								3.69	5.58	3.18	3.98
1½	LSSU28	18	1 9/16	7 1/8	1½	10-10d	5-10dx1½	800	3000	565	2130
								3.56	13.34	2.51	9.47
1½	LSSU210	18	1 9/16	8½	1 5/8	10-10d	7-10dx1½	1240	3090	1130	2325
								5.52	13.75	5.03	10.34
2½	LSSUH310	16	2 9/16	8½	3⅛	18-16d	12-10dx1½	1625	3675	1155	2780
								7.23	16.35	5.14	12.37
3	LSSU210-2	16	3⅛	8½	2⅞	18-16d	12-10dx1½	1625	3675	1155	2780
								7.23	16.35	5.14	12.37
3½	LSSU410	16	3 9/16	8½	2⅝	18-16d	12-10dx1½	1625	4520	1155	3210
								7.23	20.11	5.14	14.28
Skewed Hangers or Sloped and Skewed											
1½	LSU26	18	1 9/16	4 7/8	1½	6-10d	5-10dx1½	830	1255	715	895
								3.69	5.58	3.18	3.98
1½	LSSU28	18	1 9/16	7 1/8	1½	9-10d	5-10dx1½	735	1360	525	965
								3.27	6.05	2.34	4.29
1½	LSSU210	18	1 9/16	8½	1 5/8	9-10d	7-10dx1½	1240	2090	910	1485
								5.52	9.30	4.05	6.61
2½	LSSUH310	16	2 9/16	8½	3⅛	14-16d	12-10dx1½	1625	2345	1155	1665
								7.23	10.43	5.14	7.41
3	LSSU210-2	16	3⅛	8½	2⅞	14-16d	12-10dx1½	1625	2345	1155	1665
								7.23	10.43	5.14	7.41
3½	LSSU410	16	3 9/16	8½	2⅝	14-16d	12-10dx1½	1625	2345	1155	1665
								7.23	10.43	5.14	7.41

1. Factored uplift resistances include a 15% increase for earthquake or wind loading; no further increase is allowed; reduce when other loads govern.
2. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 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 capacities, c) lower installed cost, or a combination of these features.

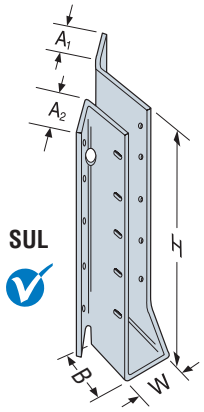
The SUR/L and HSUR/L series of hangers are skewed 45° left or right. Angled nail slots direct nails for proper installation.

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

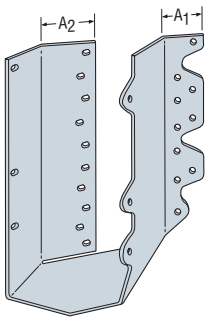
FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, pages 14-17.

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.

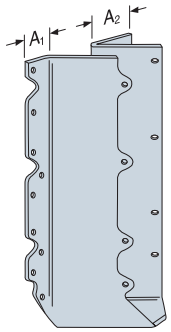
OPTIONS: • Available with the A_2 flange *(acute side)* turned in on the 2-2x and 4x models only *(see illustration).*
- To order, add "C" *(for concealed)* to the product name.
- For example, specify HSURC46, HSULC46, SURC46, or SULC46.



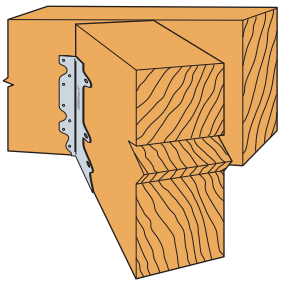
SUL



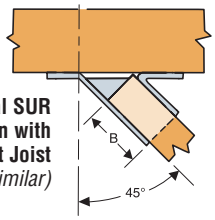
HSULC
Available for 2-2x and 4x models only



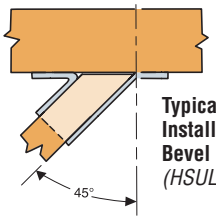
HSUR



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) W	H	B	A_1	A_2	Fasteners Face	Joist	Factored Resistance D.Fir-L Uplift (K_D=1.15) lbs. / kN	D.Fir-L Normal (K_D=1.00) lbs. / kN	S-P-F Uplift (K_D=1.15) lbs. / kN	S-P-F Normal (K_D=1.00) lbs. / kN
2x4	SUR/L24	1 9/16	3 1/2	2	1 1/8	1 1/4	4-16d	4-10dx1 1/2	850 / 3.78	1210 / 5.38	600 / 2.67	860 / 3.83
2x6, 8	SUR/L26	1 9/16	5	2	1 1/8	1 5/16	6-16d	6-10dx1 1/2	1255 / 5.58	2130 / 9.47	890 / 3.96	1530 / 6.81
2x10, 12	SUR/L210	1 9/16	8 1/8	2	1 1/8	1 5/16	10-16d	10-10dx1 1/2	2085 / 9.27	3820 / 16.99	1480 / 6.58	2710 / 12.05
2x12, 14	SUR/L214	1 9/16	10	2	1 1/8	1 5/16	12-16d	12-10dx1 1/2	2690 / 11.97	4585 / 20.40	2175 / 9.67	3255 / 14.48
3x10, 12	SUR/L2.56/9	2 9/16	8 13/16	3 3/16	1 1/8	2 1/8	14-16d	2-10dx1 1/2	385 / 1.71	3950 / 17.57	275 / 1.22	2805 / 12.48
(2) 2x6, 8	SUR/L26-2	3 1/8	4 15/16	2 5/8	1 7/16	2 3/8	8-16d	4-16dx2 1/2	1130 / 5.03	2035 / 9.05	1045 / 4.65	1380 / 6.14
	HSUR/L26-2	3 1/8	4 15/16	2 7/16	1 1/4	2 3/16	12-16d	4-16dx2 1/2	1230 / 5.47	2750 / 12.23	1090 / 4.85	1955 / 8.70
(2) 2x10, 12	SUR/L210-2	3 1/8	8 11/16	2 5/8	1 7/16	2 3/8	14-16d	6-16dx2 1/2	1695 / 7.54	4065 / 18.08	1540 / 6.85	2875 / 12.81
	HSUR/L210-2	3 1/8	8 11/16	2 7/16	1 1/4	2 3/16	20-16d	6-16dx2 1/2	1840 / 8.18	5270 / 23.44	1540 / 6.85	3745 / 16.66
4x6, 8	SUR/L46	3 3/16	4 3/4	2 5/8	1	2 3/8	8-16d	4-16d	1130 / 5.03	2035 / 9.05	1045 / 4.65	1380 / 6.14
	HSUR/L46	3 3/16	4 3/4	2 7/16	1	2 3/16	12-16d	4-16d	1230 / 5.47	2750 / 12.23	1090 / 4.85	1955 / 8.70
4x10, 12	SUR/L410	3 3/16	8 1/2	2 7/16	1	2 3/16	14-16d	6-16d	1695 / 7.54	4065 / 18.08	1540 / 6.85	2875 / 12.81
	HSUR/L410	3 3/16	8 1/2	2 7/16	1	2 3/16	20-16d	6-16d	1840 / 8.18	5270 / 23.44	1540 / 6.85	3745 / 16.66

1. Factored uplift resistances have been increased by 15% for earthquake or wind loading with no further increase allowed; reduce for other load durations as required by code.
2. **NAILS:** 16d = 0.162" dia. x 3 1/2" long, 16dx2 1/2 = 0.162" dia. x 2 1/2" long, 10dx1 1/2 = 0.148" dia. x 1 1/2" long. See pages 22-23 for other nail sizes and information.

HRC/HHRC *Hip Ridge Connectors*

SIMPSON Strong-Tie®

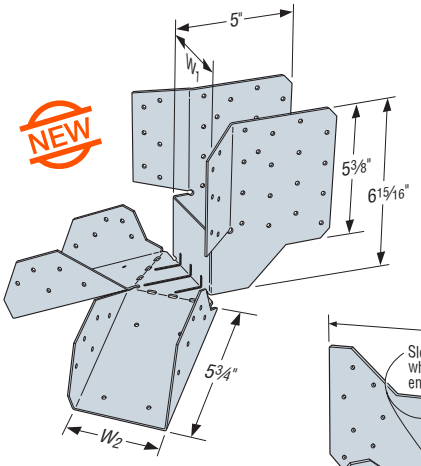
The HRC series are field slopeable connectors that attach hip roof beams to the end of a ridge beam. The HRC may be sloped downward a maximum of 45°.

MATERIAL: HRC22, HRC42—16 gauge; HRC44—14 gaugel; HHRC—12 gauge

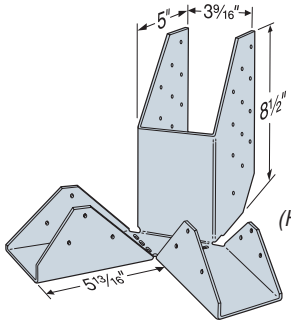
FINISH: Galvanized

INSTALLATION:

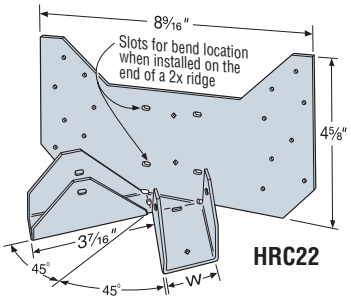
- Use all specified fasteners. See General Notes.
- On end of ridge—use optional diamond holes on HRC22 and HRC42 to secure the HRC. Bend face flanges on HRC22 back flush with ridge, and complete nailing.
- HRC22 on face of ridge—adjust to correct height and install nails.
- Double bevel-cut hip members to achieve full bearing capacity.



HHRC44
(others similar)



HRC44
(HRC42 similar)

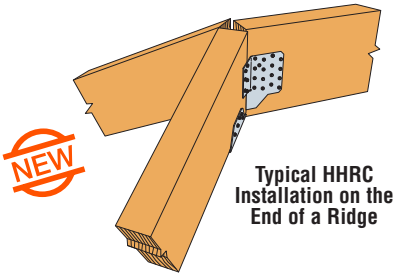


HRC22

HRC Factored Resistances

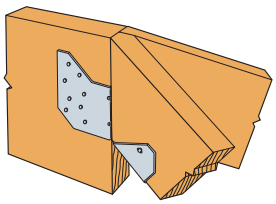
Model No.	Member Size (in)		Fasteners		Factored Resistance			
					D.Fir-L		S-P-F	
	W	Ridge	Carrying Member	Each Hip	Uplift (K_D = 1.15)	Down (K_D = 1.00)	Uplift (K_D = 1.15)	Down (K_D = 1.00)
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
HRC22	1 9/16	2x or 1 3/4"	16-10dx1½	2-10dx1½	445	1340	400	950
					1.98	5.96	1.78	4.23
HRC42	1 9/16	4x	16-16d	2-10dx1½	445	1515	400	1075
					1.98	6.74	1.78	4.78
HRC44	3 9/16	4x	24-16d	6-16d	790	2625	560	2035
					3.51	11.68	2.49	9.05

1. Factored resistances shown are for each hip. Total resistance carried by the connector is double this number.
2. Factored uplift resistances include a 15% increase for earthquake or wind loading; no further increase allowed; reduce where other loads govern.
3. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

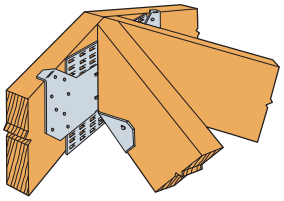


NEW

Typical HHRC Installation on the End of a Ridge



Typical HRC22 Installation on the End of a Ridge



Optional Installation for HRC22 only

HHRC Factored Resistances

Model No.	Member Width (in)		Dimensions (in)		Fasteners		Factored Resistance per Hip			
							D.Fir-L		S-P-F	
	Ridge	Hip	W_1	W_2	Ridge	Each Hip	Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)
							lbs	lbs	lbs	lbs
							kN	kN	kN	kN
NEW HHRC44	3½	3½	3⅝	3⅝	40-SD#10x2½	22-SD#10x2½	3365	4185	2390	2970
							14.97	18.62	10.63	13.21
NEW HHRC5.37/3.56	5¼	3½	5⅜	3⅜	40-SD#10x2½	22-SD#10x2½	3930	4205	2790	2985
							17.48	18.71	12.41	13.28
NEW HHRC64	5½	3½	5⅝	3⅝	40-SD#10x2½	22-SD#10x2½	3930	4205	2790	2985
							17.48	18.71	12.41	13.28

1. Factored resistances shown are per hip, the total load carried by the connector is double this number. Load must be equally distributed to both hips.
2. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed. Reduce where other load durations govern.
3. Factored resistances shown are applicable for roof slopes up to and including 45° (12:12).
4. Do not attach HHRC to columns or studs.
5. **SCREWS:** SD#10x2½" (SD10212) = 0.161" dia. x 2½" long.

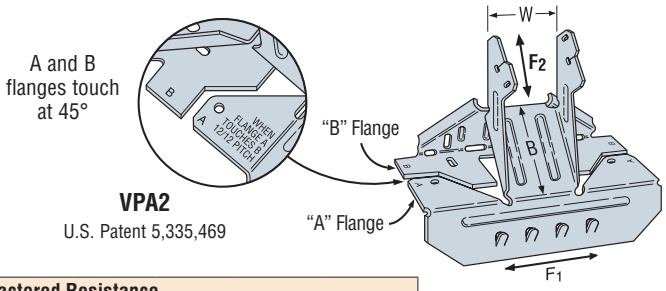
VPA *Adjustable Variable Pitch Connectors*

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.



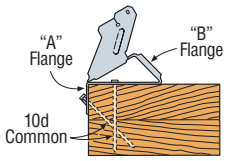
VPA2

U.S. Patent 5,335,469

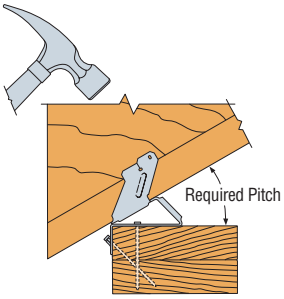
Model No.	Actual Joist Width (in)	W (in)	Fasteners		Factored Resistance							
					D.Fir-L				S-P-F			
			Carrying Member	Carried Member	Wind/Earthquake (K_D = 1.15)			Normal (K_D = 1.00)	Wind/Earthquake (K_D = 1.15)			Normal (K_D = 1.00)
					Uplift	F_1	F_2		Uplift	F_1	F_2	
					lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
					kN	kN	kN	kN	kN	kN	kN	kN
VPA2	1½	1⁹⁄₁₆	8-10d	2-10dx1½	405	695	405	1695	370	615	370	1555
					1.80	3.09	1.80	7.54	1.65	2.74	1.65	6.92
VPA3	2½	2⁹⁄₁₆	9-10d	2-10dx1½	405	695	405	2050	370	615	370	1855
					1.80	3.09	1.80	9.12	1.65	2.74	1.65	8.25
VPA4	3½	3⁹⁄₁₆	11-10d	2-10dx1½	405	695	405	2050	370	615	370	1855
					1.80	3.09	1.80	9.12	1.65	2.74	1.65	8.25

1. Factored uplift and lateral resistances have been increased 15% for earthquake or wind loading; no further increase is allowed.
2. Resistances may not be increased for short-term load duration.
3. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

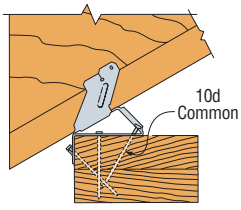
VPA INSTALLATION SEQUENCE



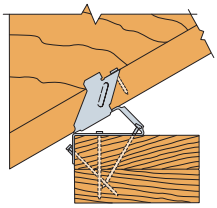
STEP 1
Install top nails and face PAN nails in "A" flange to outside wall top plate.



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

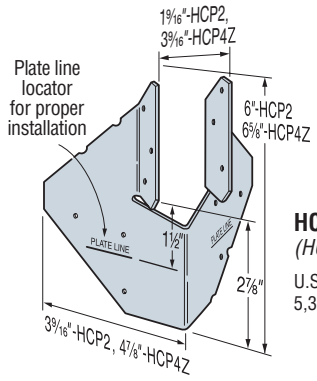
FINISH: HCP2—galvanized or ZMAX® coating; HCP4Z—ZMAX coating

INSTALLATION: • Use all specified fasteners. See General Notes.
- Attach HCP to double top plates; birdsmouth not required for table values.
- Install rafter and complete nailing. Rafter may be sloped to 45°.

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.

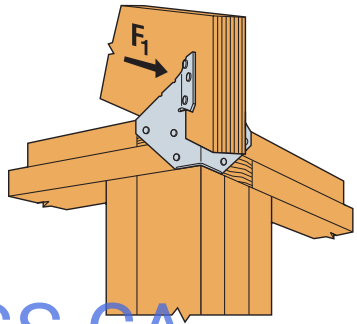
Model No.	Hip Size	Fasteners		Factored Resistance			
				D.Fir-L		S-P-F	
		To Hip	To Plates	Uplift (K_D = 1.15)	F_1 (K_D = 1.00)	Uplift (K_D = 1.15)	F_1 (K_D = 1.00)
				lbs	lbs	lbs	lbs
				kN	kN	kN	kN
HCP2	2x	6-10dx1½	6-10dx1½	1020	355	890	325
				4.54	1.58	3.96	1.45
HCP4Z	4x	8-10d	8-10d	1485	435	1300	310
				6.61	1.94	5.78	1.38

1. The HCP can be installed on the inside and the outside of the wall with a flat bottom chord truss and achieve twice the factored resistance.
2. Factored uplift resistances include a 15% increase for earthquake or wind loading; no further increase allowed.
3. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.



HCP2
(HCP4Z similar)

U.S. Patent 5,380,115



Typical HCP Installation

THA/THAC *Adjustable Hangers*

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

The THA series' extra long straps allow full nailing and can be field-formed to give top flange hanger convenience.

MATERIAL: See table **FINISH**: Galvanized

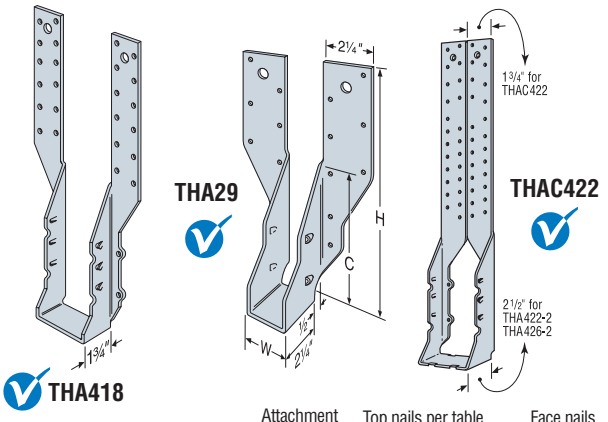
INSTALLATION: • Use all specified fasteners. See General Notes.

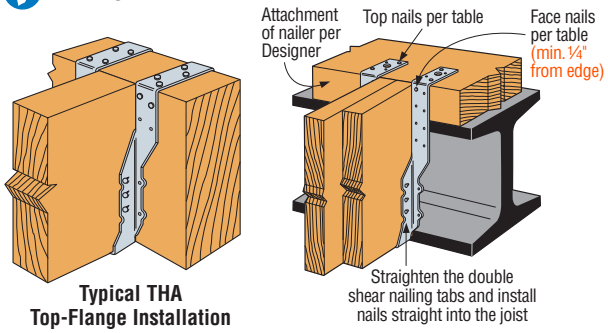
Two different installation methods may be used:

- **Face Mount**—Install all face nails according to the table. 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. With single 2x carrying members, use 10dx1½" nails into the carrying member, and 10d commons into the carried member, when 10d nails are specified and use 0.77 of the table value. When 16d nails are specified use 10dx1½" nails into the carrying member and 10d commons into the carried member for 0.64 of the table value.
- **Top Flange**—For the THA29, the top-flange nailing schedule requires the use of joist double shear nailing as detailed above, and that the strap be field-formed over the header a minimum of 2½". A minimum of four top and four face nails must be used. For all models except the THA29, the top-flange nailing schedule may be followed where double shear nailing is not possible, provided the strap is field-formed over the top of the header a minimum of 1½" for the THA213 and THA413, and 2" for all others, and a minimum of four top and two face nails are used. The joist double shear nailing tabs are easily straightened so that the nails can be driven straight into the joist.
- **Uplift**—Lowest face nails must be installed to achieve uplift resistances.

OPTIONS: • THA hangers available with the header flanges turned in for 3⅝" *(except THA413)* and larger, with no reduction in capacity – order THAC hanger.

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.

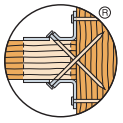




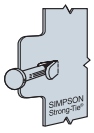
Typical THA Top-Flange Installation

Typical THA Top Flange Installation on a Nailer *(except THA29)*

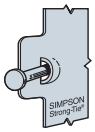
Min Joist Size	Model No.	Ga	Dimensions (in)			Fasteners				Factored Resistance			
						Header		Joist		D.Fir-L		S-P-F	
			W	H	C	Top	Face	Straight	Slant	Uplift (K_D=1.15) lbs / kN	Normal (K_D=1.00) lbs / kN	Uplift (K_D=1.15) lbs / kN	Normal (K_D=1.00) lbs / kN
TOP-FLANGE INSTALLATION													
2x4	THA29	18	1⅝	9 11/16	5⅛	4-10d	4-10d	—	4-10d	1050 / 4.67	3450 / 15.35	750 / 3.34	2720 / 12.10
2x6	THA213	18	1⅝	13 5/16	5½	4-10d	2-10d	4-10dx1½	—	— / —	2225 / 9.90	— / —	1760 / 7.83
	THA218	18	1⅝	17 3/16	5½	4-10d	2-10d	4-10dx1½	—	— / —	2225 / 9.90	— / —	1760 / 7.83
2-2x10	THA218-2	16	3⅛	17 11/16	8	4-16d	2-16d	6-16dx2½	—	— / —	2675 / 11.90	— / —	2405 / 10.70
	THA222-2	16	3⅛	22 3/16	8	4-16d	2-16d	6-16dx2½	—	— / —	2675 / 11.90	— / —	2405 / 10.70
4x6	THA413	18	3⅝	13 5/16	4½	4-10d	2-10d	4-10d	—	— / —	2225 / 9.90	— / —	1655 / 7.36
4x10	THA418	16	3⅝	17½	7⅛	4-16d	2-16d	6-16d	—	— / —	2675 / 11.90	— / —	2405 / 10.70
	THA422	16	3⅝	22	7⅛	4-16d	2-16d	6-16d	—	— / —	2675 / 11.90	— / —	2405 / 10.70
	THA426	14	3⅝	26	7⅛	4-16d	4-16d	6-16d	—	— / —	3590 / 15.97	— / —	2660 / 11.83
FACE-MOUNT INSTALLATION													
2x4	THA29	18	1⅝	9 11/16	5⅛	—	16-10d	—	4-10d	1050 / 4.67	3440 / 15.30	750 / 3.34	2455 / 10.92
2x6	THA213	18	1⅝	13 5/16	5½	—	14-10d	—	4-10d	1420 / 6.32	2785 / 12.39	1290 / 5.74	2210 / 9.83
	THA218	18	1⅝	17 3/16	5½	—	18-10d	—	4-10d	1420 / 6.32	2785 / 12.39	1290 / 5.74	2210 / 9.83
2-2x10	THA218-2	16	3⅛	17 11/16	8	—	16-16d	—	6-16d	2540 / 11.30	4765 / 21.20	1805 / 8.03	3385 / 15.06
	THA222-2	16	3⅛	22 3/16	8	—	22-16d	—	6-16d	2540 / 11.30	5550 / 24.69	1805 / 8.03	4150 / 18.46
4x6	THA413	18	3⅝	13 5/16	4½	—	14-10d	—	4-10d	1420 / 6.32	3555 / 15.81	1290 / 5.74	2525 / 11.23
4x10	THA418	16	3⅝	17½	7⅛	—	16-16d	—	6-16d	2540 / 11.30	4765 / 21.20	1805 / 8.03	3385 / 15.06
	THA422	16	3⅝	22	7⅛	—	22-16d	—	6-16d	2540 / 11.30	5850 / 26.02	1805 / 8.03	4150 / 18.46
	THA426	14	3⅝	26	7⅛	—	30-16d	—	6-16d	2540 / 11.30	6295 / 28.00	1805 / 8.03	4545 / 20.22



Double Shear Nailing Top View



Double Shear Nailing Side View
Do not bend tab unless otherwise noted



Dome Double Shear Nailing prevents tabs breaking off *(available on some models)*

U.S. Patent 5,603,580

1. Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other loads govern.
2. **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 pages 22-23 for other nail sizes and information.

FACE MOUNT HANGERS HU/HUCQ/HGUS *Glulam Beam & Double Shear Joist Hangers*

SIMPSON Strong-Tie®

See Hanger Options on page 230 for hanger modifications, which may result in reduced loads.

HU—Most models have triangle and round holes. To achieve maximum factored resistances, fill both round and triangle holes with common nails.

HGUS—The highest factored resistances available for nailed face mount hangers.

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)*

HUCQ – Heavy duty joist hangers that incorporate Simpson Strong-Tie® Strong Drive® SDS Heavy-Duty Connector screws

MATERIAL: See tables

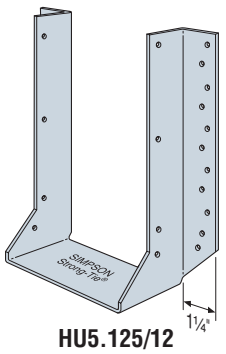
FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, pages 14-17.

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

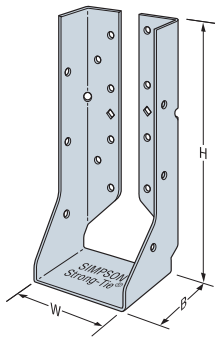
- HU—can be installed filling round holes only, or filling round and triangle holes for maximum values.
- HGUS—Nails must be driven at an angle through the joist into the header to achieve the table values.
- HUCQ – Install ¼"x2½" Strong Drive SDS Heavy-Duty Connector screws *(included)* in all round holes. Lag screws will not achieve the same capacities.
- Not designed for nailer applications.
- Where 16d commons are specified, 10d commons may be used at 0.83 of the tabulated resistance.
- With 3x carrying members, use 16dx2½" (0.162" dia. x 2½" long) nails into the header and 16d commons into the joist with no reduction in resistances. 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 factored resistances to 0.64 of the table value.

OPTIONS: • HU hangers available with the header flanges turned in for 2⁵⁄₁₆" and larger widths, with no reduction in resistances—order HUC hanger.

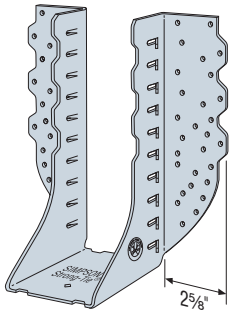
- See Hanger Options on page 230, for sloped and/or skewed HU models, and HUC *(concealed flange)* models.
- Concealed flanges are not available for HGUS.
- Other sizes available; contact Simpson Strong-Tie.



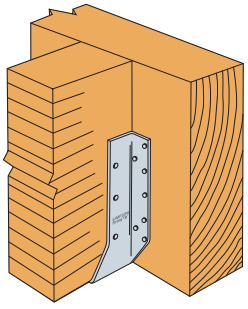
HU5.125/12



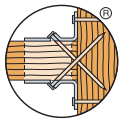
HUCQ5.25/9



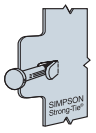
HGUS3.25/12



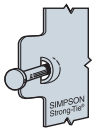
Typical HU Installation



Double Shear Nailing Top View



Double Shear Nailing Side View Do not bend tab back



Dome Double Shear Nailing prevents tabs breaking off *(available on some models)*

U.S. Patent 5,603,580

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

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

Joist Size	Model No.	Ga	Dimensions (in) W	H	B	d_e[4]	Fasteners Face	Joist	Factored Resistance D.Fir-L Glulam Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Spruce-Pine Glulam Uplift (K_D = 1.15)	Normal (K_D = 1.00)
									lbs	lbs	lbs	lbs
									kN	kN	kN	kN
3⅛ GLULAM	HU3.25/10.5 HUC3.25/10.5	14	3¼	10¼	2½	9⅞	22-16d	10-10d	2635	5780	2450	4690
									11.72	25.75	10.90	20.86
	HU3.25/12 HUC3.25/12	14	3¼	11¾	2½	11⅜	24-16d	12-10d	3160	5780	2695	5780
									14.06	25.75	11.99	25.75
	HU3.25/16 HUC3.25/16	14	3¼	13⅞	2½	13½	26-16d	12-10d	3160	5780	2695	5780
									14.06	25.75	11.99	25.75
	HGUS3.25/10	12	3¼	8⅝	4	8¼	46-16d	16-16d	6840	14645	4855	10400
									30.47	65.23	21.60	46.26
	HGUS3.25/12	12	3¼	10⅝	4	10¼	56-16d	20-16d	7640	14995	5425	10645
									33.98	66.79	24.13	47.35
5⅛ GLULAM	HUCQ5.25/9-SDS	14	5¼	9	3	8	12-¼"x2½" SDS	6-¼"x2½" SDS	3210	7270	2900	7645
									14.28	32.34	12.90	34.01
	HUCQ5.25/11-SDS	14	5¼	11	3	8	14-¼"x2½" SDS	6-¼"x2½" SDS	3210	9090	2900	7645
									14.28	40.44	12.90	34.01
	HU5.125/12 HUC5.12/12	14	5¼	10¼	2½	9⅞	22-16d	8-16d	2455	5780	2280	4690
									10.92	25.75	10.14	20.86
	HU5.125/13.5 HUC5.125/13.5	14	5¼	13¼	2½	12⅞	26-16d	12-16d	3685	7025	2615	6185
									16.39	31.25	11.63	27.51
	HU5.125/16 HUC5.125/16	14	5¼	13⅞	2½	13½	26-16d	12-16d	3685	7025	2615	6185
									16.39	31.25	11.63	27.51
	HGUS5.25/10	12	5¼	9⅛	4	8¼	46-16d	16-16d	6840	14645	4855	10400
									30.47	65.23	21.60	46.26
	HGUS5.25/12	12	5¼	10⅜	4	10⅜	56-16d	20-16d	7640	14995	5425	10645
									33.98	66.79	24.13	47.35

1. 10d common nails may be used instead of the specified 16d nails at 0.83 of the tabulated resistance value.
2. Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce by 15% for standard term loading.
3. MIN nailing quantity and load values— fill all round holes; MAX nailing quantity and load values— fill all round and triangle holes.
4. d_e is the distance from the bearing seat to the top joist nail.
5. For proprietary non-standard glulam sizes, see pages 114-116 for structural composite lumber.
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See pages 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® SDS Heavy-Duty Connector screws make installation fast and easy, with no pre-drilling required.

MATERIAL: See table

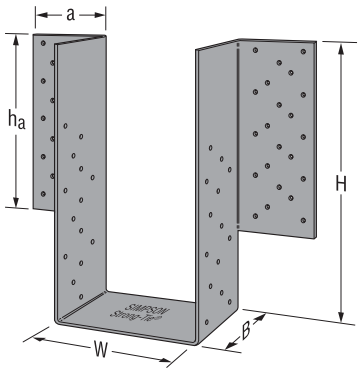
FINISH: LGU/MGU—Galvanized, HGU/HHGU—Simpson Strong-Tie® gray paint

INSTALLATION:

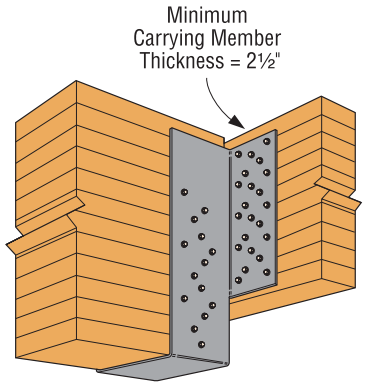
- Use all specified fasteners. See General Notes.
- Install with ¼"x2½" Strong-Drive SDS Heavy-Duty Connector screws, which are provided with the hangers. *(Note: lag screws will not achieve the same loads.)*
- All multiple members must be fastened together to act as a single unit.
- Multiple member headers may require additional fasteners at the hanger locations. The quantity and location of the additional fasteners must be determined by the Designer.

OPTIONS: • LGU, MGU and HGU hangers may be skewed up to 45°.

- One flange can be concealed for some sizes.
- For proprietary non-standard glulam sizes, see page 117 for structural composite lumber.
- See Hanger Options page 230.



HHGU



Typical HHGU Installation

Model No.	Ga	Dimensions (in)					Fasteners		Factored Resistance			
									D.Fir-L		S-P-F	
		W	B	Min. Height (H)	h_a	a	Header	Joist	Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)
									lbs	lbs	lbs	lbs
									kN	kN	kN	kN
LGU3.25-SDS2.5	10	3¼	4½	8	7½	3¼	16-¼"x2½" SDS	12-¼"x2½" SDS	7730	10170	5565	7320
									34.39	45.24	24.76	32.56
LGU5.25-SDS2.5	10	5¼	4½	8	7½	3¼	16-¼"x2½" SDS	12-¼"x2½" SDS	7730	10170	5565	7320
									34.39	45.24	24.76	32.56
MGU5.25-SDS2.5	10	5¼	4½	9¼	8¾	4	24-¼"x2½" SDS	16-¼"x2½" SDS	10100	13140	7270	9460
									44.93	58.45	32.34	42.08
HGU5.25-SDS2.5	7	5¼	5¼	11	10⅜	4¾	36-¼"x2½" SDS	24-¼"x2½" SDS	14300	20320	10295	14630
									63.61	90.39	45.80	65.08
MGU7.00-SDS2.5	10	7	4½	9¼	8¾	4	24-¼"x2½" SDS	16-¼"x2½" SDS	10100	13140	7270	9460
									44.93	58.45	32.34	42.08
HGU7.00-SDS2.5	7	7	5¼	11	10⅜	4¾	36-¼"x2½" SDS	24-¼"x2½" SDS	14300	20320	10295	14630
									63.61	90.39	45.80	65.08
HHGU7.00-SDS2.5	3	7	5¼	13	12⅜	4¾	44-¼"x2½" SDS	28-¼"x2½" SDS	21740	26665	15655	19195
									96.71	118.62	69.64	85.39
HGU9.00-SDS2.5	7	9	5¼	11	10⅜	4¾	36-¼"x2½" SDS	24-¼"x2½" SDS	14300	20320	10295	14630
									63.61	90.39	45.80	65.08
HHGU9.00-SDS2.5	3	9	5¼	13	12⅜	4¾	44-¼"x2½" SDS	28-¼"x2½" SDS	21740	26665	15655	19195
									96.71	118.62	69.64	85.39
HHGU11.00-SDS2.5	3	11	5¼	13	12⅜	4¾	44-¼"x2½" SDS	28-¼"x2½" SDS	21740	26665	15655	19195
									96.71	118.62	69.64	85.39

1. Factored uplift resistances have been increased for earthquake and wind loading, with no further increase allowed.
2. Specify H dimension. The Designer should check the shear capacity of the carried member to make sure it matches the hanger's capacity. Maximum H = 30".
3. Header depth must exceed the h_a dimension shown and is based on the size necessary to fit screw pattern. Use the next size up that meets the minimum depth requirement.

HCA *Hinge Connectors*

HCAs offer single-piece side plates, for fewer welds and higher horizontal resistances.

MATERIAL: Side plates–7 gauge;
Top and bottom plates–varies.

FINISH: Simpson Strong-Tie gray paint

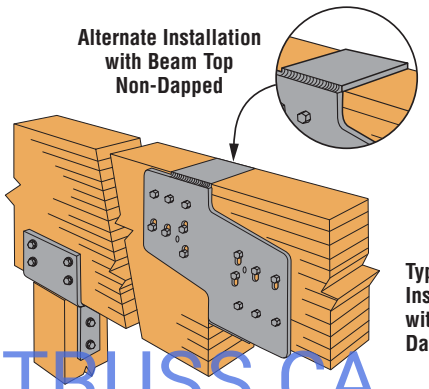
INSTALLATION: • Use all specified fasteners. See General Notes.

- All bolts specified are ¾" MBs. Bolt holes shall be a minimum of 1/32" and a maximum of 1/16" larger than the bolt diameter. *(per 12.4.1.2 CSA O86-14)*
- Position bolts in slots away from bearing seat to allow for wood shrinkage.

OPTIONS:

- To order, add the width and bearing plate size designation after the model mension by the PT dimension for each dap.

Contact Simpson Strong-Tie for available sizes and factored resistances.



Typical HC4C3TA Installation with Beam Top Dapped

TOP FLANGE HANGERS LEG/MEG/EG *Beam & Glulam Hangers*

SIMPSON Strong-Tie®

See Hanger Options on page 231 for hanger modifications, which may result in reduced capacities.

This whole series has precision fabrication which offers dimensional accuracy, and the funnel flanges which aid installation.

MATERIAL: See table

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

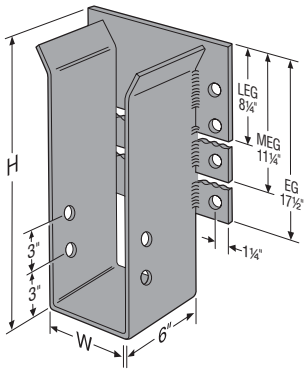
INSTALLATION: • Use all specified fasteners. See General Notes.

- Maintain minimum 4D end and edge distance from bolt to end of header or nearest loaded edge per CSA 086-14.
- Bolt holes in wood shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt hole per 12.4.1.2 and CSA 086-14.

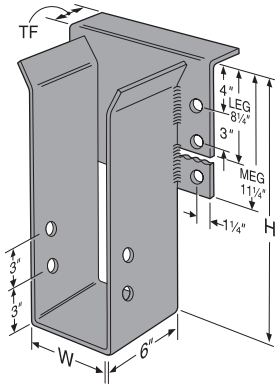
OPTIONS: • See Hanger Options, page 231.

- Special models are available without top flanges; see table values.

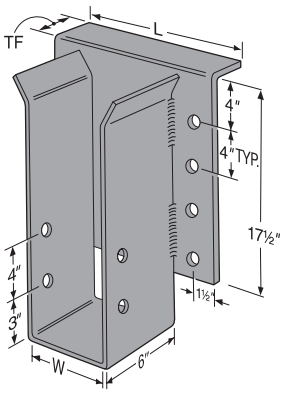
Model	Top Flange Ga	Top Flange Length (L)
LEG/MEG	7	12
EG5	3	11¾
EG7		13½
EG9		15½



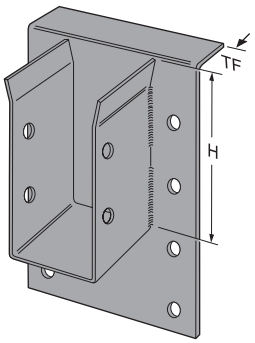
LEG/MEG/EG without Top Flange



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 (in)	Model No.	Stirrup Ga	Min. Header Depth (in)	Dimensions (in)			Bolts				Factored Normal Resistance (K_D = 1.00)			
							Header		Joist		D.Fir-L Glulam		Spruce-Pine Glulam	
				W	Min H	TF	Qty.	Dia.	Qty.	Dia.	No Top Flange	Top Flange	No Top Flange	Top Flange
											lbs	lbs	lbs	lbs
											kN	kN	kN	kN
3⅛	LEG3	7	10½	3¼	9	2½	4	¾	2	¾	5950	17510	5950	14490
											26.47	77.89	26.47	64.46
5⅛	LEG5	7	10½	5¼	9	2½	4	¾	2	¾	5950	19960	5950	17545
											26.47	88.79	26.47	78.05
	MEG5	7	13	5¼	9	2½	6	¾	2	¾	7780	21785	7780	19370
											34.61	96.91	34.61	86.17
	EG5	7	21	5¼	11	2½	8	1	2	1	13590	27305	13590	23765
											60.45	121.46	60.45	105.72
6¾[4]	LEG7	7	10½	6⅞	9	2½	4	¾	2	¾	5950	19960	5950	17545
											26.47	88.79	26.47	78.05
	MEG7	7	13	6⅞	9	2½	6	¾	2	¾	7780	21785	7780	19370
											34.61	96.91	34.61	86.17
	EG7	7	21	6⅞	11	2½	8	1	2	1	13590	29350	13590	26635
											60.45	130.56	60.45	118.48
8½[4]	EG9	7	21	8⅞	11	2½	8	1	2	1	13590	31685	13590	28565
											60.45	140.95	60.45	127.07

1. Factored resistances assume a minimum carrying member thickness of 5⅛".
2. Specify hanger height "H". "Min H" is the minimum height that may be ordered.
3. Minimum header depth below the lowest bolt hole is 3" for the LEG, MEG, and 4" for the EG.
4. For 6⅞" and 8½" beam widths add "X" to the end of the model number and specify the width required.

TOP FLANGE HANGERS WPU/WNP/HW/HWU

The WPU, HWU and HW series purlin hangers offer the greatest design flexibility and versatility.

MATERIAL: WNP/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-dipped galvanized available: specify HDG.

FACTORED RESISTANCES: For hanger heights exceeding the joist height, the factored resistance is 0.50 of the tabulated resistance.

INSTALLATION:

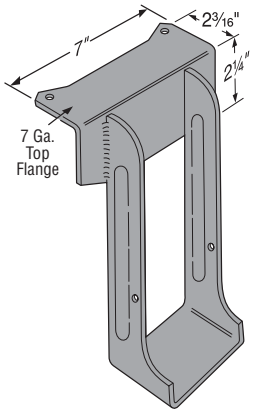
- Hangers may be welded to steel headers with 3⁄16" for WPU/WNP/WP, and ¼" for HW/HWU, by 1½" fillet welds located at each end of the top flange. Weld-on applications produce maximum factored resistance listed. Uplift resistances do not apply to this application.
- Hangers can support multi-ply carried members; the individual members must be secured together to work as a single unit before installation into the hanger.
- H dimensions are sized to account for normal joist shrinkage. W dimensions are for dressed timber widths.

OPTIONS: • See Hanger Options, page 231, for hanger modifications and associated load reductions.

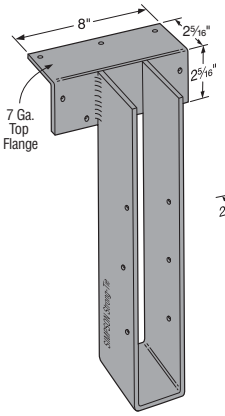
NAILER TABLE

The table indicates the maximum factored normal resistances for WP/WNP hanger used on wood nailers. Nailers are wood members attached to the top of a steel I-beam, concrete or masonry wall. This table also applies to sloped-seat hangers.

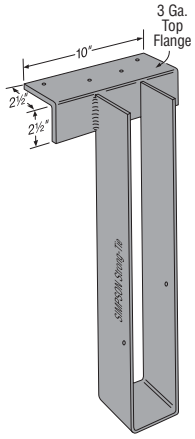
Model	Nailer	Top Flange Nailing	Factored Resistance (K_D = 1.00) D.Fir-L	S-P-F	LSL
			lbs	lbs	lbs
			kN	kN	kN
WP/WNP	2x	2-10dx1½	3665	3630	4900
			16.30	16.15	21.82
	2-2x	2-10d	4475	3760	—
			19.91	16.75	—
	3x	2-16dx2½	4110	3760	—
			18.28	16.75	—
	4x	2-10d	4475	3760	—
			19.91	16.75	—
WPU	2-2x	7-10d	4475	3760	—
			19.91	16.75	—
	3x	7-16dx2½	4110	3760	—
			18.28	16.75	—
	4x	7-10d	4475	3760	—
			19.91	16.75	—
HW	2-2x	4-10d	7600	—	—
			33.81	—	—
	3x	4-16dx2½	7600	—	—
			33.81	—	—
	4x	4-16d	7670	—	—
			34.16	—	—
HWU	2-2x	8-10d	7880	—	—
			35.05	—	—
	3x	8-16dx2½	7880	—	—
			35.05	—	—
	4x	8-16d	7880	—	—
			35.05	—	—



WNP412 and WNP414



WPU



HW
(HWU similar)

Model No.	Joist Width	Joist Depth	Fasteners Top	Fasteners Face	Fasteners Joist	Factored Resistance Uplift[1] (K_D = 1.15)	Normal (K_D = 1.00) D.Fir-L	S-P-F	LVL	PSL	LSL
						lbs	lbs	lbs	lbs	lbs	lbs
						kN	kN	kN	kN	kN	kN
WP/WNP	1½ to 7½	3½ to 30	3-10dx1½	—	2-10dx1½	—	4095	3345	4695	4720	—
						—	18.22	14.88	20.89	21.00	—
	1½ to 7½	3½ to 30	3-10d	—	2-10dx1½	—	4095	3550	3665	4720	5980
						—	18.22	15.79	16.30	21.00	26.60
	1½ to 7½	3½ to 30	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980
						—	19.71	17.15	26.47	24.15	26.60
WPU	1¾ to 5½	7¼ to 18	3-16d	4-16d	6-10dx1½	1665	6390	6390	6825	7085	5980
						7.41	28.43	28.43	30.36	31.52	26.60
	1¾ to 5½	18½ to 28	3-16d	4-16d	6-10dx1½	595	6390	6390	6825	7085	5980
						2.65	28.43	28.43	30.36	31.52	26.60
HW	1½ to 7½	3½ to 32	4-10d	—	2-10dx1½	—	6900	5285	4695	5810	—
						—	30.69	23.51	20.89	25.85	—
	1½ to 7½	3½ to 32	4-16d	—	2-10dx1½	—	6900	5285	7695	5810	6870
						—	30.69	23.51	34.23	25.85	30.56
HWU	1¾ to 3½	9 to 18	4-16d	4-16d	6-10dx1½	1775	10170	8875	10170	8325	8925
						7.90	45.24	39.48	45.24	37.03	39.70
	1¾ to 3½	18½ to 28	4-16d	4-16d	6-10dx1½	1490	10170	8875	10170	8325	8925
						6.63	45.24	39.48	45.24	37.03	39.70
	1¾ to 3½	28½ to 32	4-16d	4-16d	8-10dx1½	1520	10170	8875	10170	8325	8925
						6.76	45.24	39.48	45.24	37.03	39.70
	4½ to 7⅛	9 to 18	4-16d	4-16d	6-10dx1½	1775	8250	8250	8250	8250	8250
						7.90	36.70	36.70	36.70	36.70	36.70
	4½ to 7⅛	18½ to 28	4-16d	4-16d	6-10dx1½	1490	8250	8250	8250	8250	8250
						6.63	36.70	36.70	36.70	36.70	36.70
	4½ to 7⅛	28½ to 32	4-16d	4-16d	8-10dx1½	1520	8250	8250	8250	8250	8250
						6.76	36.70	36.70	36.70	36.70	36.70

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

1. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase allowed. Reduce by 15% for standard term loading (K_D = 1.00) like cantilever construction.
2. Factored uplift resistances shown are for D.Fir-L. Multiply tablulated loads x 0.71 for either S-P-F joist or header.
3. Factored resistances shown are for header connection only. The Designer must ensure the joist is capable of generating the factored resistances shown.
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 S-P-F column.
5. **NAILS:** 16d = 0.162" dia.x 3½" long, 10d = 0.148" dia.x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

TOP FLANGE HANGERS GLS/HGLS/GLT/HGLT *Beam & Glulam Saddle Hangers*

GLT and HGLT accommodate typical structural requirements for timber and glulam beams. Top flange depth allows installation on minimum 4x ledger (3½" net). Funnel flanges allow easy installation of beams.

GLS and HGLS are heavy glulam saddle hangers.

MATERIAL: See table on page 104.

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 tabulated factored resistances. Factored uplift resistances do not apply to this weld-on application.

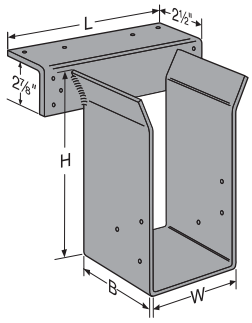
GLS/HGLS

- N54A nails are included with the hangers.
- Minimum header width for saddle hangers is 5¼".
- Factored resistances listed are per stirrup.

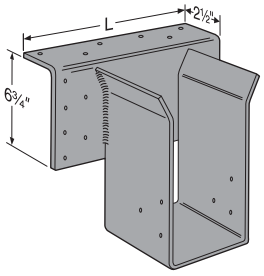
TO ORDER: GLS/HGLS—Specify H_1, H_2 and S dimensions *(see illustrations)*.

OPTIONS: See Hanger Options page 231.

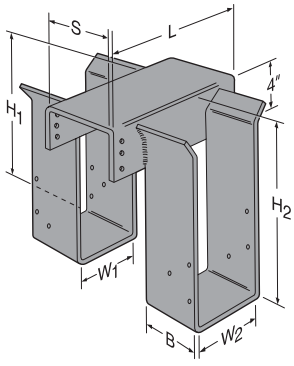
Model	Top Flange Ga	Stirrup Width (W)	Top Flange Length (L)
GLT	3	2⅝ - 5½	10
		5⁹⁄₁₆ - 6⅞	12
HGLT	3	2⅝ - 8¼	12
		8⅞	14
GLS	3	3¼	6
		5¼	9
		6⅞	12
HGLS	3	5¼ - 8⅞	12



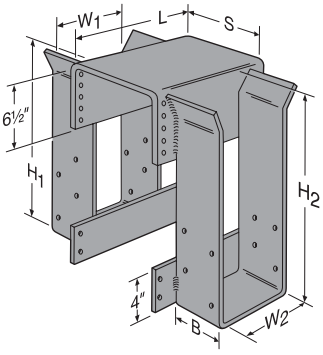
GLT
(fasteners included)



HGLT
(fasteners included)



GLS
(fasteners included)



HGLS
(fasteners included)

TOP FLANGE HANGERS HHB/GB/HGB *Beam & Purlin Hangers*

Precision forming with manufacturing quality control provides dimensional accuracy and helps ensure proper bearing area and connection.

MATERIAL: See table on page 104.

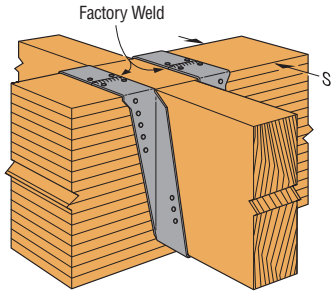
FINISH: HHB, GB, HGB, all saddle hangers and all welded sloped and special hangers—Simpson Strong-Tie gray paint. HHB may be ordered hot-dip galvanized; specify HDG.

INSTALLATION:

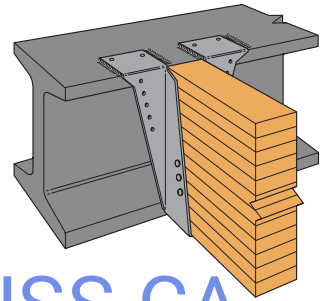
- Use specified fasteners. See General Notes and nailer table.
- HHB, GB and HGB may be used for weld-on applications. The minimum required weld to the top flanges is ⅛" x 2" fillet weld to each side of each top flange tab for 14 and 12 gauge and 3/16" x 2" fillet weld to each side of each top flange tab for 7 gauge. 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. Weld on applications produce the maximum factored resistance listed. Uplift resistances 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, page 231.



Typical HHB, GB and HGB Saddle Installation



HHB, GB and HGB are acceptable for weld-on applications. See Instructions to the Installer, page 20, note m.

TOP FLANGE HANGERS – GLULAM BEAM

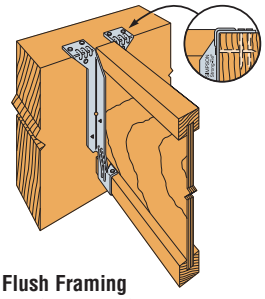
SIMPSON Strong-Tie®

Joist or Purlin Size (in)	Model No.	Ga	Dimensions (in)				Fasteners		Factored Resistance			
									D.Fir-L Glulam		Spruce-Pine Glulam	
									Uplift	Normal	Uplift	Normal
									(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)
			W	H	B	TF[9]	Header	Joist	lbs	lbs	lbs	lbs
									kN	kN	kN	kN
3⅛ LAM	GLT3	7	3¼	7½ Min.	5	2½	10-N54A	6-N54A	2905	9625	2060	5225
									12.92	42.82	9.16	23.24
	HGLT3	7	3¼	7½ Min.	6	2½	18-N54A	6-N54A	2905	14885	2060	9830
									12.92	66.21	9.16	43.73
	GLS3-5	7	3¼	8½ Min.	5	5¼	6-N54A	6-N54A	2905	16740	2060	13195
									12.92	74.47	9.16	58.70
	GLS3-7	7	3¼	8½ Min.	5	6⅞	6-N54A	6-N54A	2905	16740	2060	13195
									12.92	74.47	9.16	58.70
	GLS3-9	7	3¼	8½ Min.	5	8⅞	6-N54A	6-N54A	2905	16740	2060	13195
									12.92	74.47	9.16	58.70
	HW3.25	11	3¼	5 Min.	4	2½	4-10d	2-10d	—	6900	—	5285
									—	30.69	—	23.51
	HHB3	7	3¼	7½ Min.	3	2½	10-N54A	6-N54A	3340	8575	2370	6085
									14.86	38.15	10.54	27.07
	GB3	7	3¼	7½ Min.	3½	2½	14-N54A	6-N54A	3340	12935	2370	9710
									14.86	57.54	10.54	43.19
5⅛ LAM	GLT5	7	5¼	7½ Min.	5	2½	10-N54A	6-N54A	2905	9625	2060	5225
									12.92	42.82	9.16	23.24
	HGLT5	7	5¼	7½ Min.	6	2½	18-N54A	6-N54A	2905	14885	2060	9830
									12.92	66.21	9.16	43.73
	GLS5-5	7	5¼	8½ Min.	5	5¼	6-N54A	6-N54A	2905	20190	2060	14365
									12.92	89.81	9.16	63.90
	GLS5-7	7	5¼	8½ Min.	5	6⅞	6-N54A	6-N54A	2905	20190	2060	14365
									12.92	89.81	9.16	63.90
	HGLS5	7	5¼	10½ Min.	6	SPEC	14-N54A	8-N54A	4095	27570	2905	19575
									18.22	122.64	12.92	87.08
	HW5.25	11	5¼	5 Min.	2½	2½	4-10d	2-10d	—	6900	—	5285
									—	30.69	—	23.51
	HHB5	7	5¼	7½ Min.	3	2½	10-N54A	6-N54A	3340	8575	2370	6085
									14.86	38.15	10.54	27.07
	GB5	7	5¼	7½ Min.	3½	2½	14-N54A	6-N54A	3340	13675	2370	9710
									14.86	60.83	10.54	43.19
	HGB5	7	5¼	7½ Min.	4	2½	14-N54A	6-N54A	3340	16050	2370	11395
									14.86	71.40	10.54	50.69
6¾ LAM	HHB7	7	6⅞	7½ Min.	3	2½	10-N54A	6-N54A	3340	8575	2370	6085
									14.86	38.15	10.54	27.07
	GB7	7	6⅞	7½ Min.	3½	2½	14-N54A	6-N54A	3340	13675	2370	9710
									14.86	60.83	10.54	43.19
	HGB7	7	6⅞	7½ Min.	4	2½	14-N54A	6-N54A	3340	16050	2370	11395
									14.86	71.40	10.54	50.69
	GLT7	7	6⅞	7½ Min.	5	2½	10-N54A	6-N54A	2905	9625	2060	5225
									12.92	42.82	9.16	23.24
	HGLT7	7	6⅞	7½ Min.	6	2½	18-N54A	6-N54A	2905	14885	2060	9830
									12.92	66.21	9.16	43.73
	GLS7-7	7	6⅞	8½ Min.	5	6⅞	6-N54A	6-N54A	2905	20190	2060	14365
									12.92	89.81	9.16	63.90
	GLS7-9	7	6⅞	8½ Min.	5	8⅞	6-N54A	6-N54A	2905	20190	2060	14365
									12.92	89.81	9.16	63.90
	HGLS7	7	6⅞	10½Min.	6	SPEC	14-N54A	8-N54A	4095	27570	2905	19575
									18.22	122.64	12.92	87.08
8¾ LAM	HGLT9	7	8⅞	7½ Min.	6	2½	18-N54A	6-N54A	2905	14885	2060	9830
									12.92	66.21	9.16	43.73
	HGLS9	7	8⅞	10½ Min.	6	SPEC	14-N54A	8-N54A	4095	27570	2905	19575
									18.22	122.64	12.92	87.08

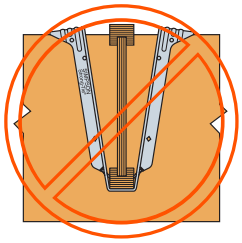
1. N54A fasteners are supplied with hangers.
2. Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce by 15% for standard term loading (K_D = 1.00) such as in cantilever construction.
3. GLT, HGLT, GLS, HGLS uplift resistances only apply when "H" is 28" or less.
4. Factored resistances for glulam sizes are based on 812 psi (5.6 MPa) D.Fir-L and 672 psi (4.64 MPa) Spruce-Pine wood bearing (ϕFcp).
5. GLS and HGLS loads must be distributed evenly on each side of the header, as they are saddle-style hangers.
6. GLS and HGLS fasteners listed are for one side only. Fasteners supplied are for both sides of the saddle.
7. For attachment to SCL, see GLTV/HGLTV on page 123.
8. Resistances shown are for each side of the hanger for GLS and HGLS.
9. For saddle hangers dimension shown is "S". Minimum "S" is 5¼".
10. **NAILS:** 10d = 0.148" dia. x 3" long, N54A = 0.250" dia. x 2½" long – annular ring. See pages 22-23 for other nail sizes and information.

GENERAL CONNECTOR INSTALLATION

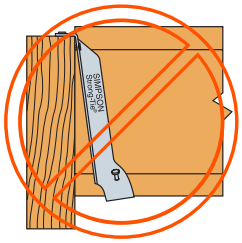
TOP FLANGE HANGERS



Flush Framing
Top flange configuration and thickness of top flange need to be considered for flush frame conditions.

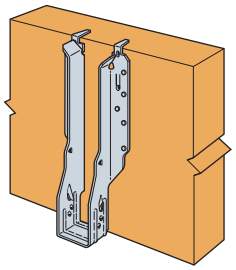


Hanger Over-Spread
If the hanger is over-spread, it can raise the I-joist above the header and may cause uneven surfaces and squeaky floors.

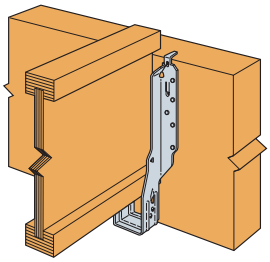


Hanger Not Plumb
A hanger "kicked-out" from the header can cause uneven surfaces and squeaky floors.

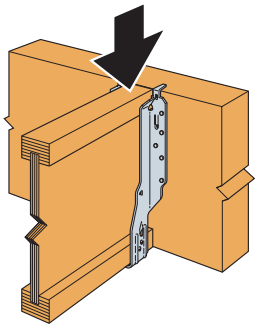
IUS INSTALLATION SEQUENCE



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.

WOOD I-JOISTS

SLOPED JOISTS
For sloped joists up to ¼:12 there is no reduction in capacity. For slopes greater than ¼:12 see individual product pages.

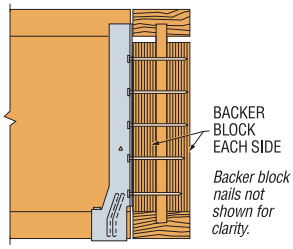
MULTIPLE JOISTS
Multiple joists should be adequately connected together to act as one unit.

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 reduction in capacity. Refer to individual hanger descriptions for information allowing any further skew applications.

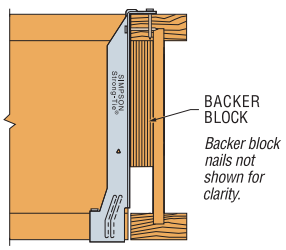
I-JOIST AS A HEADER INSTALLATIONS



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.

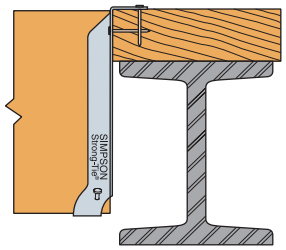
I-JOIST HEADERS



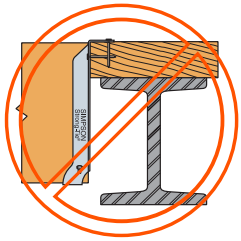
Top Flange Hanger

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 manufacture for additional design considerations.

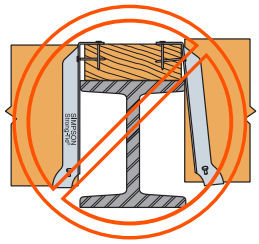
WOOD NAILERS



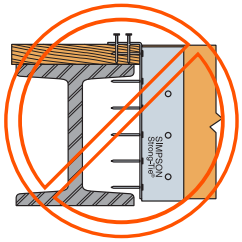
Correct Attachment



Nailer Too Wide
The loading may cause cross-grain bending. As a general rule, the maximum allowable overhang is ¼", depending on nailer thickness.



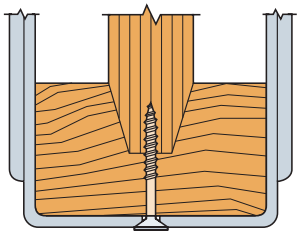
Nailer Too Narrow
Nailer should be full width.



Nailer Too Thin
or the wrong hanger for the application.

GENERAL CONNECTOR INSTALLATION

LF & LT INSTALLATION



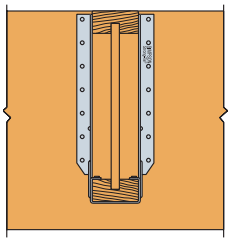
Use 8 gauge (0.164" diameter) x 1¼ wood screw (#8x1¼") to secure joist to hanger. *(Two screws required for joist widths > 2½".)*

To avoid stripping of the bottom chord screw hole, DO NOT over tighten screw.

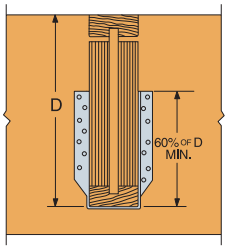
Use specified screw to seat joist into hanger *(required only for LF and LT hangers).*

PREVENT ROTATION

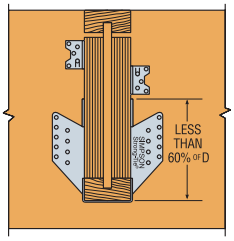
Hangers provide some joist rotation resistance; however, additional lateral restraint may be required for deep joists.



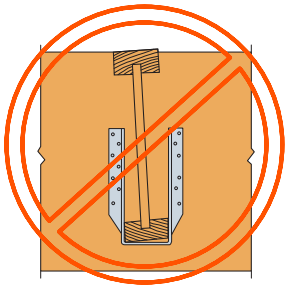
Rotation Prevented by Lateral Flange Support
Side of hanger laterally support the top flange of the I-joist.
No web stiffeners required!



Rotation Prevented by Web Stiffeners
Hanger height should be at least 60% of joist height.

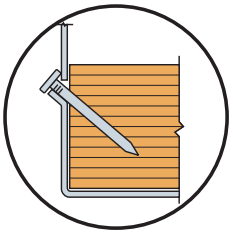


Rotation Prevented by Web Stiffeners
If hanger height is less than 60% of the joist height, add clips or blocking near the top.

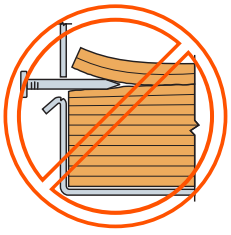


No Rotation Resistance
Lack of web stiffeners combined with short hanger allows unwanted rotation.

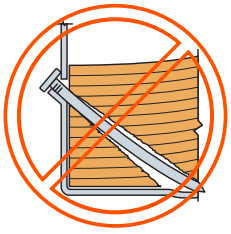
POSITIVE ANGLE NAILING



Correct Nailing
Approx. 45° angle

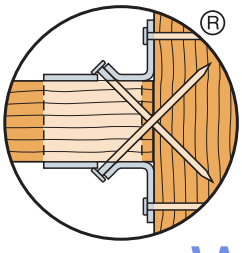


Nail at wrong angle



Nail too long

DOUBLE SHEAR NAILING



The nail is installed into joist and header, distributing load through two points on each nail for greater strength. Do not use hangers with double shear nailing with I-joists.

TOE-NAILING

Toe nailing causes squeaks and improper hanger installations. Do not toe nail I-joists before installing top flange or face mount hangers.

IUS/LF/MIU *I-Joist Hangers*

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

The improved IUS is now fully compatible with shallow flange I-joists!

I-joists with flange thicknesses between 1⅛" and 1½" achieve the full tabulated factored resistances 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.

The LF series is ideal for applications not requiring web stiffeners. The economical LF series comes with a height designed to support the top flange of the I-joist. This feature reduces installation time as well as material costs.

MATERIAL: See table pages 109-113.

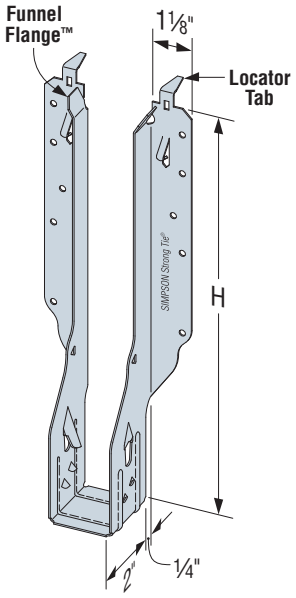
FINISH: Galvanized

UPLIFT RESISTANCES: • Models have optional triangle joist nail holes for additional uplift. Properly attached web stiffeners are required.
- LF/IUS—add two additional 10dx1½" joist nails for a total factored uplift resistance of 415 lbs D.Fir-L and 375 lbs S-P-F (K_D = 1.15).
- MIU—add four additional 10dx1½" joist nails for a total factored uplift resistance of 1345 lbs D.Fir-L and 1175 lbs S-P-F (K_D = 1.15).

INSTALLATION: • Use all specified fasteners. Verify that the header can take the required fasteners specified in the table. See pages 105-106 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— 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:

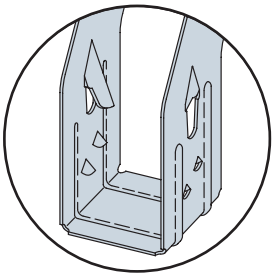
These hangers cannot be modified. However, these models will normally accommodate a skew of up to 5°. For a sloping joist to ½:12, tests show a 10% reduction in ultimate hanger strength. Local crushing of the bottom flange or excessive deflection may be limiting; check with joist manufacturer for specific limitations on bearing of this type.



IUS

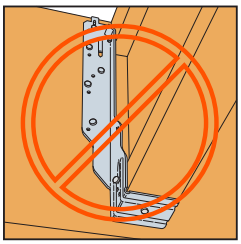
(Some IUS models have triangle holes in header flanges for Min/Max nailing)

U.S. Patent 6,523,321



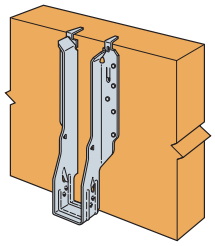
The Strong-Grip™ seat secures I-joists in position without joist nails

AVOID A MISINSTALLATION

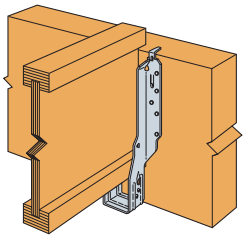


Do not make your own holes. Do not nail the bottom flange.

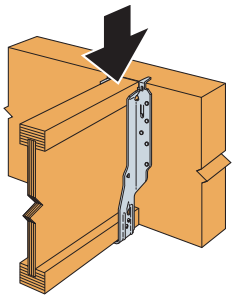
IUS INSTALLATION SEQUENCE



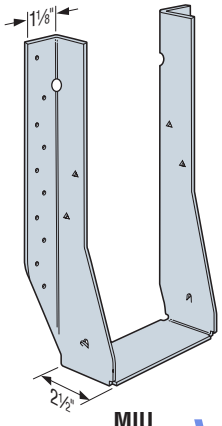
STEP 1
Attach the IUS to the header



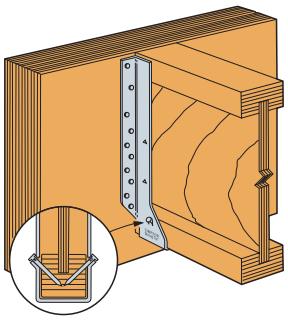
STEP 2
Slide the I-joist downward into the IUS until it rests above the large teardrop.



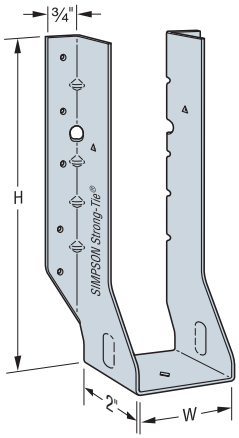
STEP 3
Firmly push or snap I-joist fully into the seat of the IUS.



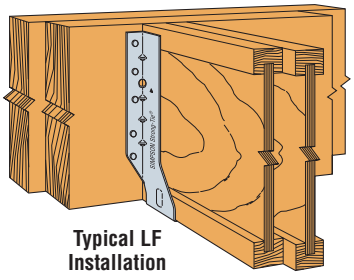
MIU



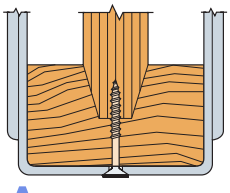
MIU with correct PAN installation



LF



Typical LF Installation



LF Installation

(Two screws required for joist widths > 2½".)

FACE MOUNT HANGERS U/HU *I-Joist & Structural Composite Lumber Hangers*

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

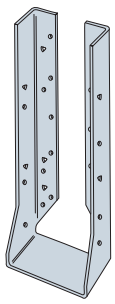
HU—Most models have triangle and round holes. To achieve maximum factored resistances, fill both round and triangle holes with common nails. These heavy-duty connectors are designed for schools and other structures requiring additional strength, longevity and safety factors.

MATERIAL: See tables on pages 109-116.

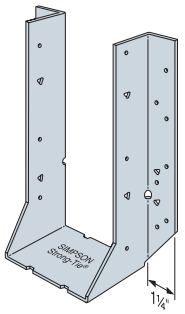
FINISH: Galvanized

INSTALLATION: • Use all specified fasteners. See General Notes.
- HU—can be installed filling round holes only, or filling round and triangle holes for maximum values.
- Web Stiffeners are required for all I-joists used with these hangers.

OPTIONS: • HU hangers available with the header flanges turned in for 2⁵⁄₁₆" and larger widths, with no reduction in resistances—order HUC hanger.
- See Hanger Options on page 230 for sloped and/or skewed U/HU models, and HUC *(concealed flange)* models.

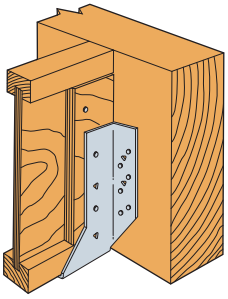


HUC412
Concealed Flanges

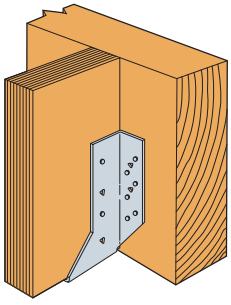


HU410

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



Typical HU Installation



Typical HU Installation

FACE MOUNT HANGERS HUS/HHUS/HGUS *Double Shear SCL Hangers*

These hangers are designed for applications where higher factored resistances are needed.

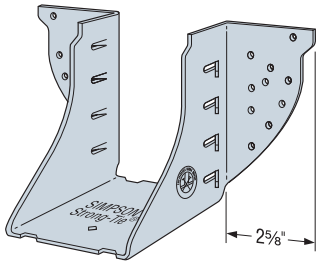
All hangers in this series have double shear nailing. This patented innovation distributes the load through two points on each joist nail for greater strength. It also allows the use of fewer nails, faster installation, and the use of common nails for all connections. *(Do not bend or remove tabs)*

MATERIAL: See tables, pages 114-116.

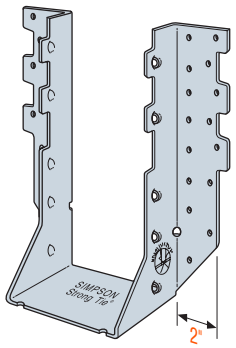
FINISH: Galvanized. Some products available in stainless steel or ZMAX®; see Corrosion Information, pages 14-17.

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 into the header to achieve the tabulated values.
- Not designed for welded or nailer applications.
- Where 16d commons are specified, 10d commons may be used at 0.83 of the tabulated factored resistance.
- With 3x carrying members, use 16dx2½" nails into the header and 16d commons into the joist with no reduction in resistances. With 2x carrying members, use 10dx1½" nails into the header and 10d commons into the joist, and reduce the tabulated factored resistance to 0.64 of the table value.

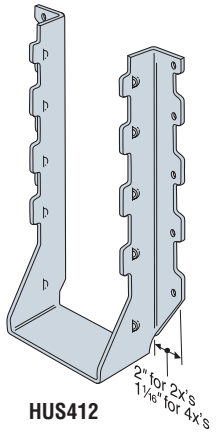
OPTIONS: • HUS hangers available with the header flanges turned in for 4x (3½") only, with no reduction in resistances. See HUSC Concealed Flange illustration.
- Concealed flanges are not available for HGUS, HHUS and HUS1.81/10.
- Other sizes available; consult your Simpson Strong-Tie representative.
- See hanger options on page 230.



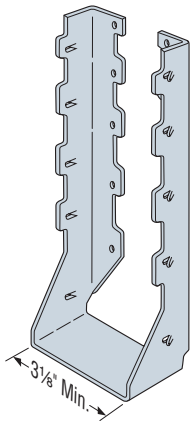
HGUS46



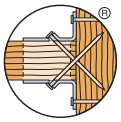
HHUS410



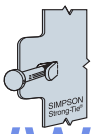
HUS412



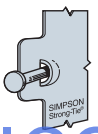
HUSC
Concealed Flanges
(not available for HHUS, HGUS and HUS1.81/10)



Double Shear Nailing Top View



Double Shear Nailing Side View Do not bend tab back



Dome Double Shear Nailing prevents tabs breaking off *(available on some models)*

U.S. Patent 5,603,580

FACE MOUNT HANGERS – I-JOISTS

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)			Fasteners			Factored Resistance			
										D.Fir-L		S-P-F	
				W	H	B	Min/ Max	Header	Joist	Uplift (K_D = 1.15) lbs kN	Normal (K_D = 1.00) lbs kN	Uplift (K_D = 1.15) lbs kN	Normal (K_D = 1.00) lbs kN
1½ x 9¼ - 9½	LF159	—	18	1⁹⁄₁₆	9¼	2	—	10-10d	1-#8x1¼ WS	105 0.47	2435 10.83	105 0.47	1845 8.21
	MIU1.56/9	—	16	1⁹⁄₁₆	8¹⁵⁄₁₆	2½	—	16-16d	2-10dx1½	375 1.67	3045 13.56	375 1.67	2305 10.27
1½ x 11¼ - 11⅞	LF1511	—	18	1⁹⁄₁₆	11¼	2	—	12-10d	1-#8x1¼ WS	105 0.47	2435 10.83	105 0.47	1845 8.21
	MIU1.56/11	—	16	1⁹⁄₁₆	11¹⁄₁₆	2½	—	20-16d	2-10dx1½	375 1.67	3045 13.56	375 1.67	2305 10.27
1½ x 14	LF1514	—	18	1⁹⁄₁₆	13½	2	—	14-10d	1-#8x1¼ WS	105 0.47	2435 10.83	105 0.47	1845 8.21
1¾ x 9½	IUS1.81/9.5	—	18	1⅞	9½	2	—	8-10d	—	175 0.78	2385 10.61	175 0.78	1690 7.52
1¾ x 9¼ - 9½	LF179	—	18	1¹³⁄₁₆	9¼	2	—	10-10d	1-#8x1¼ WS	105 0.47	2525 11.23	105 0.47	2155 9.60
	MIU1.81/9	—	16	1¹³⁄₁₆	8¹³⁄₁₆	2½	—	16-16d	2-10dx1½	375 1.67	3555 15.84	375 1.67	2690 11.98
1¾ x 11⅞	IUS1.81/11.88	—	18	1⅞	11⅞	2	—	10-10d	—	175 0.78	2565 11.41	175 0.78	1820 8.10
	LF1711	—	18	1¹³⁄₁₆	11¼	2	—	12-10d	1-#8x1¼ WS	105 0.47	2845 12.66	105 0.47	2155 9.60
	MIU1.81/11	—	16	1¹³⁄₁₆	11¹⁄₁₆	2½	—	20-16d	2-10dx1½	375 1.67	3555 15.84	375 1.67	2690 11.98
1¾ x 14	IUS1.81/14	—	18	1⅞	14	2	Min	12-10d	—	175 0.78	2565 11.41	175 0.78	1820 8.10
							Max	14-10d	—	175 0.78	2725 12.12	175 0.78	1935 8.61
	LF1714	—	18	1¹³⁄₁₆	13½	2	—	14-10d	1-#8x1¼ WS	105 0.47	2845 12.66	105 0.47	2155 9.59
	MIU1.81/14	—	16	1¹³⁄₁₆	13⁵⁄₁₆	2½	—	22-16d	2-10dx1½	375 1.67	3555 15.84	375 1.67	2690 11.98
1¾ x 16	IUS1.81/16	—	18	1⅞	16	2	—	14-10d	—	175 0.78	2725 12.12	175 0.78	1935 8.61
	MIU1.81/16	—	16	1¹³⁄₁₆	15⁵⁄₁₆	2½	—	24-16d	2-10dx1½	375 1.67	3555 15.84	375 1.67	2690 11.98
2 x 9½	IUS2.06/9.5	—	18	2⅛	9½	2	—	8-10d	—	175 0.78	2385 10.61	175 0.78	1690 7.52
	LF209	—	18	2¹⁄₁₆	9¼	2	—	10-10d	1-#8x1¼ WS	105 0.47	2525 11.23	105 0.47	2155 9.60
2 x 11⅞	IUS2.06/11.88	—	18	2⅛	11⅞	2	—	10-10d	—	175 0.78	2565 11.41	175 0.78	1820 8.10
	LF2011	—	18	2¹⁄₁₆	11¼	2	—	12-10d	1-#8x1¼ WS	105 0.47	2880 12.81	105 0.47	2270 10.11
2 x 14	IUS2.06/14	—	18	2⅛	14	2	Min	12-10d	—	175 0.78	2565 11.41	175 0.78	1820 8.10
							Max	14-10d	—	175 0.78	2725 12.12	175 0.78	1935 8.61
	LF2014	—	18	2¹⁄₁₆	13½	2	—	14-10d	1-#8x1¼ WS	105 0.47	3235 14.39	105 0.47	2385 10.61
2 x 16	IUS2.06/16	—	18	2⅛	16	2	—	14-10d	—	175 0.78	2725 12.12	175 0.78	1935 8.61
2¹⁄₁₆ x 9½	IUS2.06/9.5	—	18	2⅛	9½	2	—	8-10d	—	175 0.78	2385 10.61	175 0.78	1690 7.52
NEW	LF219	—	18	2⅛	8¹⁵⁄₁₆	2	—	10-10d	1-#8x1¼ WS	105 0.47	2525 11.23	105 0.47	2155 9.60
	HU2.1/9	✓	14	2⅛	9	2½	—	14-16d	6-10dx1½	1470 6.54	5465 24.31	1360 6.05	4225 18.79

1. 10d common nails may be used instead of the specified 16d nails at 0.83 of the tabulated value.
2. Uplift loads have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce by 15% for standard term loading (K_D = 1.00) such as in cantilever construction.
3. MIN nailing quantity and load values—fill all round holes; MAX nailing quantity and load values—fill all round and triangle holes.
4. D-Fir.L factored resistances can be used for most LVL. Verify with manufacturer prior to selecting hanger.
5. Web stiffeners are required when top flange isn't supported laterally by the hanger.
6. Web stiffeners are required when supporting double I-joists with flanges less than 1⁵⁄₁₆" thick.
7. For 16 and 18 gauge, 3½" wide I-joist hangers, web stiffeners are required when the factored reaction is greater than 2330 lbs. (10.36 kN).
8. **NAILS**: 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

FACE MOUNT HANGERS – I-JOISTS

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)			Fasteners			Factored Resistance			
										D.Fir-L		S-P-F	
										Uplift	Normal	Uplift	Normal
										(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)
										lbs	lbs	lbs	lbs
				W	H	B	Min/ Max	Header	Joist	kN	kN	kN	kN
2⅛ x 11⅞	IUS2.06/11.88	—	18	2⅛	11⅞	2	—	10-10d	—	175	2565	175	1820
										0.78	11.41	0.78	8.10
	LF2111	—	18	2⅛	11¼	2	—	12-10d	1-#8x1¼ WS	105	2880	105	2270
										0.47	12.81	0.47	10.11
	MIU2.1/11	—	16	2⅛	11⅛	2½	—	20-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	HU2.1/11	✓	14	2⅛	11	2½	—	16-16d	6-10dx1½	1470	5465	1360	4225
										6.54	24.31	6.05	18.79
2⅛ x 14	IUS2.06/14	—	18	2⅛	14	2	Min	12-10d	—	175	2565	175	1820
										0.78	11.41	0.78	8.10
							Max	14-10d	—	175	2725	175	1935
										0.78	12.12	0.78	8.61
	LF2114	—	18	2⅛	13⅜	2	—	14-10d	1-#8x1¼ WS	105	3235	105	2385
										0.47	14.39	0.47	10.61
2⅛ x 16	IUS2.06/16	—	18	2⅛	16	2	—	14-10d	—	175	2725	175	1935
										0.78	12.12	0.78	8.61
2⅝ x 9½	IUS2.37/9.5	—	18	2⅞	9½	2	—	8-10d	—	175	2385	175	1690
										0.78	10.61	0.78	7.52
	LF239	—	18	2⅜	9¼	2	—	10-10d	1-#8x1¼ WS	105	2525	105	2155
										0.47	11.23	0.47	9.60
	MIU2.37/9	—	16	2⅜	9	2½	—	16-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	U3510/14	✓	16	2⅝	9	2	—	14-16d	6-10dx1½	1345	4355	1235	3090
										5.98	19.37	5.49	13.75
	HU359/ HUC359	✓	14	2⅜	8⅝	2½	Min	14-16d	6-10dx1½	1470	5780	1360	4225
										6.54	25.71	6.05	18.79
							Max	18-16d	10-10dx1½	2450	5780	2265	4690
										10.90	25.71	10.08	20.86
2⅝ x 11⅞	IUS2.37/11.88	—	18	2⅞	11⅞	2	—	10-10d	—	175	2565	175	1820
										0.78	11.41	0.78	8.10
	LF2311	—	18	2⅜	11¼	2	—	12-10d	1-#8x1¼ WS	105	2880	105	2270
										0.47	12.81	0.47	10.11
	MIU2.37/11	—	16	2⅜	11⅛	2½	—	20-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	U3516/20	✓	16	2⅝	10⅜	2	—	16-16d	6-10dx1½	1345	4355	1235	3095
										5.98	19.37	5.49	13.77
	HU3511/ HUC3511	✓	14	2⅜	11⅛	2½	Min	16-16d	6-10dx1½	1470	5780	1360	4225
										6.54	25.71	6.05	18.79
							Max	22-16d	10-10dx1½	2450	5780	2265	4690
										10.90	25.71	10.08	20.86
2⅝ x 14	IUS2.37/14	—	18	2⅞	14	2	Min	12-10d	—	175	2565	175	1820
										0.78	11.41	0.78	8.10
							Max	14-10d	—	175	2725	175	1935
										0.78	12.12	0.78	8.61
	LF2314	—	18	2⅜	13½	2	—	14-10d	1-#8x1¼ WS	105	3235	105	2385
										0.47	14.39	0.47	10.61
	MIU2.37/14	—	16	2⅜	13½	2½	—	22-16d	2-10dx1½	375	4695	375	3485
										1.67	20.91	1.67	15.52
	HU3514/ HUC3514	✓	14	2⅜	13½	2½	Min	18-16d	8-10dx1½	1960	5780	1810	4690
										8.72	25.71	8.05	20.86
							Max	24-16d	12-10dx1½	2940	5780	2695	5780
										13.08	25.71	11.99	25.71
2⅝ x 16	IUS2.37/16	—	18	2⅞	16	2	—	14-10d	—	175	2725	175	1935
										0.78	12.12	0.78	8.61
	MIU2.37/16	—	16	2⅜	15½	2½	—	24-16d	2-10dx1½	375	4695	375	3485
										1.67	20.91	1.67	15.52
	HU3516/22	✓	14	2⅜	14¼	2½	—	20-16d	8-10dx1½	1960	5780	1810	4690
										8.72	25.71	8.05	20.86

See footnotes on page 109.

FACE MOUNT HANGERS – I-JOISTS

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)			Fasteners			Factored Resistance			
										D.Fir-L		S-P-F	
										Uplift	Normal	Uplift	Normal
				W	H	B	Min/ Max	Header	Joist	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)
										lbs	lbs	lbs	lbs
										kN	kN	kN	kN
2⅝ x 18	MIU2.37/18	—	16	2⅜	17½	2½	—	26-16d	2-10dx1½	375	4695	375	3485
										1.67	20.91	1.67	15.52
	HU3524/30/ HUC3524/30	✓	14	2⅝	18	2½	Min	18-16d	8-10dx1½	1960	5780	1810	4690
										8.72	25.71	8.05	20.86
							Max	24-16d	14-10dx1½	3430	5780	2695	5780
										15.26	25.71	11.99	25.71
2⅝ x 20	MIU2.37/20	—	16	2⅜	19½	2½	—	28-16d	2-10dx1½	375	4695	375	3485
										1.67	20.91	1.67	15.52
2⅝ x 22-30	HU3524/30/ HUC3524/30	✓	14	2⅝	18	2½	Min	18-16d	8-10dx1½	1960	5780	1810	4690
										8.72	25.71	8.05	20.86
							Max	24-16d	14-10dx1½	3430	5780	2695	5780
										15.26	25.71	11.99	25.71
2½ x 9½	IUS2.56/9.5	—	18	2⅝	9½	2	—	8-10d	—	175	2385	175	1690
										0.78	10.61	0.78	7.52
2½ x 9¼ - 9½	LF259	—	18	2⅜6	9¼	2	—	10-10d	1-#8x1¼ WS	105	2525	105	2155
										0.47	11.23	0.47	9.60
	MIU2.56/9	—	16	2⅜6	8¹⁵⁄16	2½	—	16-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	HU310/ HUC310	✓	14	2⅜6	8⅞	2½	—	14-16d	6-10dx1½	1470	5780	1360	4225
										6.54	25.71	6.05	18.79
2½ x 11⅞	IUS2.56/11.88	—	18	2⅝	11⅞	2	—	10-10d	—	175	2565	175	1820
										0.78	11.41	0.78	8.10
2½ x 11¼ - 11⅞	LF2511	—	18	2⅜6	11¼	2	—	12-10d	1-#8x1¼ WS	105	2880	105	2270
										0.47	12.81	0.47	10.11
	MIU2.56/11	—	16	2⅜6	11¹⁄16	2½	—	20-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	HU312/ HUC312	✓	14	2⅜6	10⅝	2½	—	16-16d	6-10dx1½	1470	5780	1360	4225
										6.54	25.71	6.05	18.79
2½ x 14	IUS2.56/14	—	18	2⅝	14	2	Min	12-10d	—	175	2565	175	1820
										0.78	11.41	0.78	8.10
							Max	14-10d	—	175	2725	175	1935
										0.78	12.12	0.78	8.61
	LF2514	—	18	2⅜6	13½	2	—	14-10d	1-#8x1¼ WS	105	3235	105	2385
										0.47	14.39	0.47	10.61
	MIU2.56/14	—	16	2⅜6	13⁷⁄16	2½	—	22-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
	HU314/ HUC314	✓	14	2⅜6	12⅜	2½	—	18-16d	8-10dx1½	1960	5780	1810	4690
										8.72	25.71	8.05	20.86
2½ x 16	IUS2.56/16	—	18	2⅝	16	2	—	14-10d	—	175	2725	175	1935
										0.78	12.12	0.78	8.61
	MIU2.56/16	—	16	2⅜6	15⁷⁄16	2½	—	24-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
	HU316/ HUC316	✓	14	2⅜6	14⅛	2½	—	20-16d	8-10dx1½	1960	5780	1810	4690
										8.72	25.71	8.05	20.86
2½ x 18	MIU2.56/18		16	2⅜6	17⁷⁄16	2½	—	26-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
2½ x 20	MIU2.56/20	—	16	2⅜6	19⁷⁄16	2½	—	28-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
2½ x 22 - 26	MIU2.56/20	✓	16	2⅜6	19⁷⁄16	2½	—	28-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
3 x 9¼ - 9½	LF2-159	—	18	3⅛	9¼	2	—	10-10d	2-#8x1¼ WS	105	2525	105	2150
										0.47	11.23	0.47	9.60
	MIU3.12/9	—	16	3⅛	9¹⁄16	2½	—	16-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	HU210-2 / HUC210-2	✓	14	3⅛	8¹³⁄16	2½	Min	14-16d	6-10d	1580	5780	1470	4225
										7.03	25.71	6.54	18.79
							Max	18-16d	10-10d	2635	5780	2450	4690
										11.72	25.71	10.90	20.86
3 x 11¼ - 11⅞	LF2-1511	—	18	3⅛	11¼	2	—	12-10d	2-#8x1¼ WS	105	2880	105	2270
										0.47	12.81	0.47	10.11
	MIU3.12/11	—	16	3⅛	11⅛	2½	—	20-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	HU212-2/ HUC212-2	✓	14	3⅛	10⁹⁄16	2½	Min	16-16d	6-10d	1580	5780	1470	4225
										7.03	25.71	6.54	18.79
							Max	22-16d	10-10d	2635	5780	2450	4690
										11.72	25.71	10.90	20.86

See footnotes on page 109.

FACE MOUNT HANGERS – I-JOISTS

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)			Fasteners			Factored Resistance			
										D.Fir-L		S-P-F	
										Uplift	Normal	Uplift	Normal
										(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)
										lbs	lbs	lbs	lbs
				W	H	B	Min/ Max	Header	Joist	kN	kN	kN	kN
3 x 14 - 20	HU214-2/ HUC214-2	✓	14	3⅛	12 13⁄16	2½	Min	18-16d	8-10d	2105	5780	1960	4690
										9.36	25.71	8.72	20.86
							Max	24-16d	12-10d	3160	5780	2695	5780
										14.06	25.71	11.99	25.71
3½ x 9½	IUS3.56/9.5	✓[7]	18	3⅝	9½	2	—	10-10d	—	175	2370	175	1685
										0.78	10.54	0.78	7.50
3½ x 9¼ - 9½	LF359	✓[7]	18	3 9⁄16	9¼	2	—	10-10d	2-#8x1¼ WS	105	2525	105	2155
										0.47	11.23	0.47	9.60
	MIU3.56/9	✓[7]	16	3 9⁄16	8 13⁄16	2½	—	16-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
3½ x 11⅞	IUS3.56/11.88	✓[7]	18	3⅝	11⅞	2	—	12-10d	—	175	2370	175	1685
										0.78	10.54	0.78	7.50
3½ x 11¼ - 11⅞	LF3511	✓[7]	18	3 9⁄16	11¼	2	—	12-10d	2-#8x1¼ WS	105	2880	105	2270
										0.47	12.81	0.47	10.11
	MIU3.56/11	✓[7]	16	3 9⁄16	11⅞	2½	—	20-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
3½ x 14	IUS3.56/14	✓[7]	18	3⅝	14	2	—	12-10d	—	175	2370	175	1685
										0.78	10.54	0.78	7.50
	LF3514	✓[7]	18	3 9⁄16	13½	2	—	14-10d	2-#8x1¼ WS	105	3235	105	2385
										0.47	14.39	0.47	10.61
	MIU3.56/14	✓[7]	16	3 9⁄16	13 5⁄16	2½	—	22-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
3½ x 16	IUS3.56/16	✓[7]	18	3⅝	16	2	—	14-10d	—	175	2370	175	1685
										0.78	10.54	0.78	7.50
	MIU3.56/16	✓[7]	16	3 9⁄16	15 5⁄16	2½	—	24-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
3½ x 18	MIU3.56/18	✓[7]	16	3 9⁄16	17 5⁄16	2½	—	26-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
3½ x 20	MIU3.56/20	✓[7]	16	3 9⁄16	19 5⁄16	2½	—	28-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
3½ x 22-30	MIU3.56/20	✓	16	3 9⁄16	19 5⁄16	2½	—	28-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
NEW 4 x 9½	MIU4.12/9	—	16	4⅛	9	2½	—	16-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	HU4.12/9/ HUC4.12/9	✓	14	4⅛	8⅝	2½	Min	14-16d	6-10d	1580	5780	1470	4225
										7.03	25.71	6.54	18.79
							Max	18-16d	10-10d	2635	5780	2450	4690
										11.72	25.71	10.90	20.86
NEW 4 x 11⅞	MIU4.12/11	—	16	4⅛	11⅞	2½	—	20-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	HU4.12/11/ HUC4.12/11	✓	14	4⅛	10 5⁄16	2½	Min	16-16d	6-10d	1580	5780	1470	4225
										7.03	25.71	6.54	18.79
							Max	22-16d	10-10d	2635	5780	2450	4690
NEW 4 x 14	MIU4.12/14	—	16	4⅛	13½	2½	—	22-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
NEW 4 x 16	MIU4.12/16	—	16	4⅛	15½	2½	—	24-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
4⅛ x 9½	MIU4.28/9	—	16	4 9⁄32	9	2½	—	16-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	HU4.28/9 HUC4.28/9	✓	14	4 9⁄32	9	2½	—	18-16d	8-10d	2105	5780	1960	4690
										9.36	25.71	8.72	20.86
4⅛ x 11⅞	MIU4.28/11	—	16	4 9⁄32	11⅞	2½	—	20-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	HU4.28/11/ HUC4.28/11	✓	14	4 9⁄32	11	2½	—	22-16d	8-10d	2455	5780	2280	4690
										10.92	25.71	10.14	20.86
4⅛ x 14	MIU4.28/14	—	16	4 9⁄32	13½	2½	—	22-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
4⅛ x 16	MIU4.28/16	—	16	4 9⁄32	15½	2½	—	24-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
4⅝ x 9¼ - 9½	MIU4.75/9	—	16	4¾	9 1⁄16	2½	—	16-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	U3510-2	✓	16	4¾	8¾	2	—	14-16d	6-10d	1440	4355	1340	3090
										6.41	19.37	5.96	13.75
	HU4.75/9/ HUC4.75/9	✓	14	4¾	9	2½	—	18-16d	8-10d	2105	5780	1960	4690
										9.36	25.71	8.72	20.86

See footnotes on page 109.

FACE MOUNT HANGERS – I-JOISTS

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)			Fasteners			Factored Resistance			
										D.Fir-L		S-P-F	
										Uplift	Normal	Uplift	Normal
				W	H	B	Min/ Max	Header	Joist	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)
										lbs	lbs	lbs	lbs
										kN	kN	kN	kN
4⅝ x 11¼ - 11⅞	MIU4.75/11	—	16	4¾	11 1⁄16	2½	—	20-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	U3512-2	✓	16	4¾	11¼	2	—	16-16d	6-10d	1440	4355	1340	3095
										6.41	19.37	5.96	13.77
	HU4.75/11/ HUC4.75/11	✓	14	4¾	11	2½	—	22-16d	8-10d	2455	5780	2280	4690
										10.92	25.71	10.14	20.86
4⅝ x 14	MIU4.75/14	—	16	4¾	13½	2½	—	22-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
	HU3514-2/ HUC3514-2	✓	14	4¾	13¼	2½	—	18-16d	8-10d	2105	5780	1960	4690
										9.36	25.71	8.72	20.86
4⅝ x 16	MIU4.75/16	—	16	4¾	15½	2½	—	24-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
	HU3516-2/ HUC3516-2	✓	14	4¾	15¼	2½	Min	20-16d	8-10d	2105	5780	1960	4690
										9.36	25.71	8.72	20.86
							Max	26-16d	12-10d	3160	5780	2695	5780
										14.06	25.71	11.99	25.71
4⅝ x 18	MIU4.75/18	—	16	4¾	17½	2½	—	26-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
4⅝ x 20	MIU4.75/20	—	16	4¾	19½	2½	—	28-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
	HU3520-2/ HUC3520-2	✓	14	4¾	19¼	2½	Min	20-16d	8-10d	2105	5780	1960	4690
										9.36	25.71	8.72	20.86
							Max	26-16d	12-10d	3160	5780	2695	5780
										14.06	25.71	11.99	25.71
4⅝ x 22-30	MIU4.75/20	✓	16	4¾	19½	2½	—	28-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
	HU3520-2/ HUC3520-2	✓	14	4¾	19¼	2½	Min	20-16d	8-10d	2105	5780	1960	4690
										9.36	25.71	8.72	20.86
							Max	26-16d	12-10d	3160	5780	2695	5780
										14.06	25.71	11.99	25.71
5 x 9¼ - 9½	MIU5.12/9	—	16	5⅛	8 13⁄16	2½	—	16-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	HU310-2/ HUC310-2	✓	14	5⅛	8⅞	2½	—	14-16d	6-10d	1580	5780	1470	4225
										7.03	25.71	6.54	18.79
5 x 11¼ - 11⅞	MIU5.12/11	—	16	5⅛	11⅛	2½	—	20-16d	2-10dx1½	375	4550	375	3230
										1.67	20.24	1.67	14.37
	HU312-2/ HUC312-2	✓	14	5⅛	10⅝	2½	—	16-16d	6-10d	1580	5780	1470	4225
										7.03	25.71	6.54	18.79
5 x 14	MIU5.12/14	—	16	5⅛	13 5⁄16	2½	—	22-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
5 x 16	MIU5.12/16	—	16	5⅛	15 5⁄16	2½	—	24-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
5 x 18	MIU5.12/18	—	16	5⅛	17 5⁄16	2½	—	26-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
5 x 20	MIU5.12/20	—	16	5⅛	19 5⁄16	2½	—	28-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
5 x 22 - 30	MIU5.12/20	✓	16	5⅛	19 5⁄16	2½	—	28-16d	2-10dx1½	375	4930	375	3485
										1.67	21.96	1.67	15.52
7 x 9¼ - 9½	HU410-2/ HUC410-2	✓	14	7⅛	9⅛	2½	Min	14-16d	6-16d	1840	5780	1710	4225
										8.18	25.71	7.61	18.79
							Max	18-16d	8-16d	2455	5780	2280	4690
										10.92	25.71	10.14	20.86
7 x 11¼ - 11⅞	HU412-2/ HUC412-2	✓	14	7⅛	11⅛	2½	Min	16-16d	6-16d	1840	5780	1710	4225
										8.18	25.71	7.61	18.79
							Max	22-16d	8-16d	2455	5780	2280	4690
										10.92	25.71	10.14	20.86
7 x 14	HU414-2/ HUC414-2	✓	14	7⅛	13⅞	2½	Min	20-16d	8-16d	2455	5780	2280	4690
										10.92	25.71	10.14	20.86
							Max	26-16d	12-16d	3685	7025	3420	5780
										16.39	31.25	15.21	25.71

See footnotes on page 109.

FACE MOUNT HANGERS – STRUCTURAL COMPOSITE LUMBER

SIMPSON Strong-Tie®

Joist Size	Model No.	Ga	Dimensions (in)			Fasteners			Factored Resistance			
									D.Fir-L		S-P-F	
									Uplift	Normal	Uplift	Normal
			W	H	B	Min/ Max	Header	Joist	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)
									lbs	lbs	lbs	lbs
									kN	kN	kN	kN
1¾ x 5½	HU1.81/5	14	1 13/16	5⅜	2½	Min	12-16d	4-10dx1½	980	2785	905	1975
									4.36	12.39	4.03	8.79
						Max	16-16d	6-10dx1½	1470	3715	1360	2635
									6.54	16.53	6.05	11.72
1¾ x 7¼	HU7	14	1 13/16	6 11/16	2½	Min	12-16d	4-10dx1½	980	3775	905	2670
									4.36	16.82	4.03	11.89
						Max	16-16d	8-10dx1½	1960	5445	1810	4225
									8.72	24.25	8.06	18.79
1¾ x 9½	HUS1.81/10	16	1 13/16	9	3	—	30-16d	10-16d	4505	6405	4010	5200
									20.05	28.48	17.84	23.13
	HU9	14	1 13/16	9 5/16	2½	Min	18-16d	6-10dx1½	1470	4830	1360	3875
									6.54	21.48	6.05	17.24
						Max	24-16d	10-10dx1½	2450	5685	2265	4660
									10.90	25.29	10.08	20.73
1¾ x 11¼ - 11⅞	HUS1.81/10	16	1 13/16	9	3	—	30-16d	10-16d	4505	6405	4010	5200
									20.05	28.48	17.84	23.13
	HU11	14	1 13/16	11 1/16	2½	Min	22-16d	6-10dx1½	1470	4830	1360	3875
									6.54	21.48	6.05	17.24
						Max	30-16d	10-10dx1½	2450	5685	2265	4660
									10.90	25.29	10.08	20.73
1¾ x 14	HUS1.81/10	16	1 13/16	9	3	—	30-16d	10-16d	4505	6405	4010	5200
									20.05	28.48	17.84	23.13
	HU14	14	1 13/16	13 11/16	2½	Min	28-16d	8-10dx1½	1960	5255	1810	4265
									8.72	23.38	8.05	18.97
						Max	36-16d	14-10dx1½	3430	5780	2695	5450
									15.26	25.71	11.99	24.24
3½ x 7¼	HU48/ HUC48	14	3 9/16	6 13/16	2½	Min	10-16d	4-10d	1055	4270	980	3135
									4.69	18.99	4.36	13.95
						Max	14-16d	6-10d	1580	5780	1470	4225
									7.03	25.71	6.54	18.79
	HGUS48	12	3⅝	7 1/16	4	—	36-16d	12-16d	6070	12980	4310	9215
									27.00	57.74	19.17	40.99
3½ x 9¼ - 9½	U410	16	3 9/16	8⅜	2	—	14-16d	6-10d	1440	4355	1340	3090
									6.41	19.37	5.96	13.75
	HUS410	14	3 9/16	8 15/16	2	—	8-16d	8-16d	3795	5690	3450	4570
									16.88	25.31	15.35	20.33
	HU410/ HUC410	14	3 9/16	8⅝	2½	Min	14-16d	6-10d	1580	5780	1470	4225
									7.03	25.71	6.54	18.79
						Max	18-16d	10-10d	2635	5780	2450	4690
									11.72	25.71	10.90	20.86
	HHUS410	14	3⅝	9	3	—	30-16d	10-16d	4745	9855	4310	7000
									21.11	43.84	19.17	31.14
	HGUS410	12	3⅝	9 1/16	4	—	46-16d	16-16d	6840	14645	4855	10400
									30.43	65.14	21.60	46.26
3½ x 11¼ - 11⅞	U410	16	3 9/16	8⅜	2	—	14-16d	6-10d	1440	4355	1340	3090
									6.41	19.37	5.96	13.75
	HUS412	14	3 9/16	10½	2	—	10-16d	10-16d	4745	7015	3650	4980
									21.11	31.20	16.24	22.15
	HU412/ HUC412	14	3 9/16	10 5/16	2½	Min	16-16d	6-10d	1580	5780	1470	4225
									7.03	25.71	6.54	18.79
						Max	22-16d	10-10d	2635	5780	2450	4690
									11.72	25.71	10.90	20.86
	HGUS410	12	3⅝	9 1/16	4	—	46-16d	16-16d	6840	14645	4855	10400
									30.43	65.14	21.60	46.26
	HGUS412	12	3⅝	10 7/16	4	—	56-16d	20-16d	7640	14995	5425	10645
									33.98	66.70	24.13	47.35

See footnotes on page 116.

FACE MOUNT HANGERS – STRUCTURAL COMPOSITE LUMBER

SIMPSON Strong-Tie®

Joist Size	Model No.	Ga	Dimensions (in)			Fasteners			Factored Resistance			
									D.Fir-L		S-P-F	
			W	H	B	Min/ Max	Header	Joist	Uplift (K_D = 1.15) lbs kN	Normal (K_D = 1.00) lbs kN	Uplift (K_D = 1.15) lbs kN	Normal (K_D = 1.00) lbs kN
3½ x 14	U414	16	3⁹⁄₁₆	10	2	—	16-16d	6-10d	1440 6.41	4355 19.37	1340 5.96	3095 13.77
	HU416/ HUC416	14	3⁹⁄₁₆	13⅝	2½	Min	20-16d	8-10d	2105 9.36	5780 25.71	1960 8.72	4690 20.86
						Max	26-16d	12-10d	3160 14.06	5780 25.71	2695 11.99	5780 25.71
	HGUS414	12	3⅝	12⁷⁄₁₆	4	—	66-16d	22-16d	10130 45.06	16400 72.95	7195 32.00	11645 51.80
3½ x 16	HGUS414	12	3⅝	12⁷⁄₁₆	4	—	66-16d	22-16d	10130 45.06	16400 72.95	7195 32.00	11645 51.80
3½ x 18	HGUS414	12	3⅝	12⁷⁄₁₆	4	—	66-16d	22-16d	10130 45.06	16400 72.95	7195 32.00	11645 51.80
5¼ x 7¼	HGUS5.50/8	12	5½	7³⁄₁₆	4	—	36-16d	12-16d	6070 27.04	12980 57.82	4310 19.17	9215 40.99
5¼ x 9¼ - 9½	HU610/ HUC610	14	5½	7⅝	2½	Min	14-16d	6-16d	1840 8.18	5780 25.71	1710 7.61	4225 18.79
						Max	18-16d	8-16d	2455 10.92	5780 25.71	2280 10.14	4690 20.86
	HHUS5.50/10	14	5½	9	3	—	30-16d	10-16d	4745 21.11	10545 46.91	4310 19.17	7485 33.29
	HGUS5.50/10	12	5½	8¹⁵⁄₁₆	4	—	46-16d	16-16d	6840 30.47	14645 65.23	4855 21.60	10400 46.26
5¼ x 11¼ - 11⅞	HU612/ HUC612	14	5½	9⅜	2½	Min	16-16d	6-16d	1840 8.18	5780 25.71	1710 7.61	4225 18.79
						Max	22-16d	8-16d	2455 10.92	5780 25.71	2280 10.14	4690 20.86
	HGUS5.50/12	12	5½	10½	4	—	56-16d	20-16d	7640 34.03	14995 66.79	5425 24.13	10645 47.35
5¼ x 14	HU614/ HUC614	14	5½	11⅝	2½	Min	18-16d	8-16d	2455 10.92	5780 25.71	2280 10.14	4690 20.86
						Max	24-16d	12-16d	3685 16.39	7025 31.25	3420 15.21	6185 27.51
	HGUS5.50/14	12	5½	12½	4	—	66-16d	22-16d	10130 45.12	16400 73.05	7195 32.00	11645 51.80
5¼ x 16	HU616/ HUC616	14	5½	12¹¹⁄₁₆	2½	Min	20-16d	8-16d	2455 10.92	5780 25.71	2280 10.14	4690 20.86
						Max	26-16d	12-16d	3685 16.39	7025 31.25	3420 15.21	6185 27.51
	HGUS5.50/14	12	5½	12½	4	—	66-16d	22-16d	10130 45.12	16400 73.05	7195 32.00	11645 51.80
5¼x 18	HU616/ HUC616	14	5½	12¹¹⁄₁₆	2½	Min	20-16d	8-16d	2455 10.92	5780 25.71	2280 10.14	4690 20.86
						Max	26-16d	12-16d	3685 16.39	7025 31.25	3420 15.21	6185 27.51
	HGUS5.50/14	12	5½	12½	4	—	66-16d	22-16d	10130 45.12	16400 73.05	7195 32.00	11645 51.80
7 x 7¼	HGUS7.25/8	12	7¼	7³²⁄₃₂	4	—	36-16d	12-16d	6070 27.04	12980 57.82	4310 19.17	9215 41.00
7 x 9¼ - 9½	HU410-2/ HUC410-2	14	7⅛	9⅛	2½	Min	14-16d	6-16d	1840 8.18	5780 25.71	1710 7.61	4225 18.79
						Max	18-16d	8-16d	2455 10.92	5780 25.71	2280 10.14	4690 20.86
	HHUS7.25/10	14	7¼	9	3⁵⁄₁₆	—	30-16d	10-16d	4745 21.11	10770 47.91	4310 19.17	7650 34.03
	HGUS7.25/10	12	7¼	8⅝	4	—	46-16d	16-16d	6840 30.47	15760 70.20	4855 21.60	11190 49.78
7 x 11¼ - 11⅞	HU412-2/ HUC412-2	14	7⅛	11⅛	2½	Min	16-16d	6-16d	1840 8.18	5780 25.71	1710 7.61	4225 18.79
						Max	22-16d	8-16d	2455 10.92	5780 25.71	2280 10.14	4690 20.86
	HGUS7.25/12	12	7¼	10⅝	4	—	56-16d	20-16d	7640 34.03	16110 71.76	5425 24.13	11435 50.87

See footnotes on page 116.

FACE MOUNT HANGERS – STRUCTURAL COMPOSITE LUMBER

SIMPSON Strong-Tie®

Joist Size	Model No.	Ga	Dimensions (in)			Fasteners			Factored Resistance			
									D.Fir-L		S-P-F	
			W	H	B	Min/ Max	Header	Joist	Uplift (K_D = 1.15) lbs kN	Normal (K_D = 1.00) lbs kN	Uplift (K_D = 1.15) lbs kN	Normal (K_D = 1.00) lbs kN
7 x 14	HU414-2/ HUC414-2	14	7⅛	13⅞	2½	Min	20-16d	8-16d	2455	5780	2280	4690
									10.92	25.71	10.14	20.86
						Max	26-16d	12-16d	3685	7025	3420	6185
									16.39	31.25	15.21	27.51
	HGUS7.25/14	12	7¼	12⅝	4	—	66-16d	22-16d	10130	18200	7195	12920
									45.06	81.07	32.00	57.47
7 x 16	HU414-2/ HUC414-2	14	7⅛	13⅞	2½	Min	20-16d	8-16d	2455	5780	2280	4690
									10.92	25.71	10.14	20.86
						Max	26-16d	12-16d	3685	7025	3420	6185
									16.39	31.25	15.21	27.51
	HGUS7.25/14	12	7¼	12⁷⁄₁₆	4	—	66-16d	22-16d	10130	18200	7195	12920
									45.06	81.07	32.00	57.47
7 x 18	HU414-2/ HUC414-2	14	7⅛	13⅞	2½	Min	20-16d	8-16d	2455	5780	2280	4690
									10.92	25.71	10.14	20.86
						Max	26-16d	12-16d	3685	7025	3420	6185
									16.39	31.25	15.21	27.51
	HGUS7.25/14	12	7¼	12⁷⁄₁₆	4	—	66-16d	22-16d	10130	18200	7195	12920
									45.06	81.07	32.00	57.47

1. 10d common nails may be used instead of the specified 16d nails at 0.83 of the tabulated value.
2. Uplift loads have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce by 15% for standard term loading (K_D = 1.00) such as in cantilever construction.
3. MIN nailing quantity and load values—fill all round holes; MAX nailing quantity and load values—fill all round and triangle holes.
4. Structural composite lumber is LVL, LSL and Parallam® PSL.
5. D-Fir.L factored resistances can be used for most LVL. Verify with manufacturer prior to selecting hanger.
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.

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HUCQ *Heavy-Duty Joist Hangers*

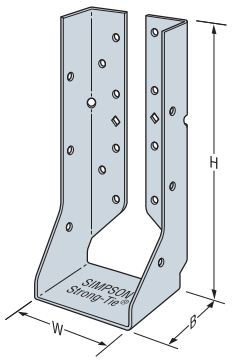
The HUCQ series are heavy-duty joist hangers that incorporate Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws. Designed and tested for installation at the end of a beam or on a post, they provide a strong connection with fewer fasteners than nailed hangers.

MATERIAL: 14 gauge

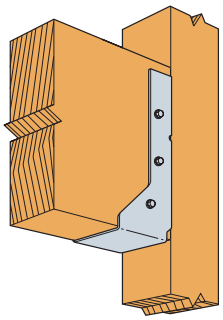
FINISH: Galvanized

INSTALLATION:
- Use all specified fasteners. See General Notes.
- Strong-Drive SDS Heavy-Duty Connector screws supplied.
- For use on solid sawn or engineered wood and structural composite lumber products.

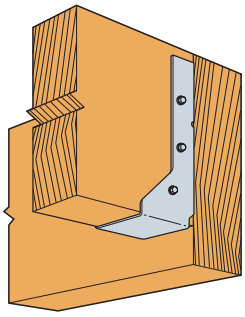
OPTIONS: HUCQ cannot be modified.



HUCQ410



Typical HUCQ Installation on a Post



Typical HUCQ Installation on a Beam

Model No.	Dimensions (in)			Fasteners		Factored Resistance			
						D.Fir-L		S-P-F	
	W	H	B	Face	Joist	Uplift (K_D = 1.15) lbs kN	Normal (K_D = 1.00) lbs kN	Uplift (K_D = 1.15) lbs kN	Normal (K_D = 1.00) lbs kN
HUCQ1.81/9-SDS1.75	1¹³⁄₁₆	9	3	8-¼"x1¾" SDS	4-¼"x1¾" SDS	1565	4350	1450	3300
						6.96	19.35	6.45	14.68
HUCQ1.81/11-SDS1.75	1¹³⁄₁₆	11	3	10-¼"x1¾" SDS	4-¼"x1¾" SDS	1565	5440	1450	3560
						6.96	24.20	6.45	15.84
HUCQ410-SDS2.5	3⅜	9	3	12-¼"x2½" SDS	6-¼"x2½" SDS	3210	7270	2900	6825
						14.28	32.34	12.90	30.36
HUCQ412-SDS2.5	3⅜	11	3	14-¼"x2½" SDS	6-¼"x2½" SDS	3210	9090	2900	7645
						14.28	40.43	12.90	34.01
HUCQ610-SDS2.5	5½	9	3	12-¼"x2½" SDS	6-¼"x2½" SDS	3210	7270	2900	6825
						14.28	32.34	12.90	30.36
HUCQ612-SDS2.5	5½	11	3	14-¼"x2½" SDS	6-¼"x2½" SDS	3210	9090	2900	7645
						14.28	40.43	12.90	34.01

1. Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce by 15% for standard term loading such as cantilever construction.
2. When using structural composite lumber columns, Strong-Drive® SDS Heavy-Duty Connector screws must be applied to the wide face of the column.

LGU/MGU/HGU/HHGU *High-Capacity Girder Hangers*

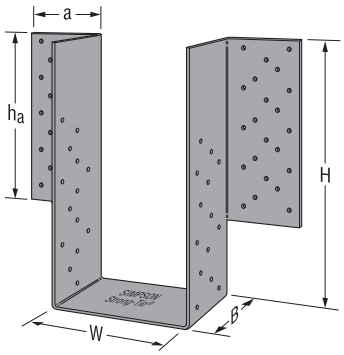
The GU hangers are a high-capacity girder hangers designed for situations where the header and joist are flush at top. This part can be used for retrofit on the framing members after they are temporarily placed in position. It uses Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws to make installation fast and easy, with no pre-drilling required.

MATERIAL: See table

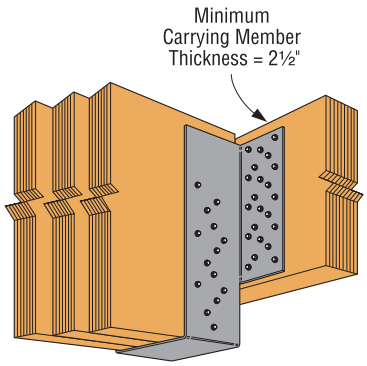
FINISH: LGU, MGU—Galvanized;
HGU, HHGU—Simpson Strong-Tie® gray paint

INSTALLATION: • Use all specified fasteners. See General Notes.
- Install with ¼"x2½" Strong-Drive SDS Heavy-Duty Connector screws, which are provided with the hangers. *(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 230-231, for one flange concealed option *(all models except MGU3.63)*.
- LGU, MGU and HGU hangers may be skewed up to 45°.



HHGU
(LGU, MGU, HGU similar)



Typical HHGU Installation

Model No.	Ga	Dimensions (in)					Fasteners		Factored Resistance			
									D.Fir-L		S-P-F	
		W	B	Min. Height (H)	h_a	a	Header	Joist	Uplift (K_D = 1.15) lbs / kN	Normal (K_D = 1.00) lbs / kN	Uplift (K_D = 1.15) lbs / kN	Normal (K_D = 1.00) lbs / kN
LGU3.63-SDS2.5	10	3⅝	4½	8	7½	3¼	16-¼"x2½" SDS	12-¼"x2½" SDS	7730 / 34.38	10170 / 45.24	5565 / 24.75	7320 / 32.56
MGU3.63-SDS2.5	10	3⅝	4½	9¼	8¾	4	24-¼"x2½" SDS	16-¼"x2½" SDS	10100 / 44.93	13140 / 58.45	7270 / 32.34	9460 / 42.08
NEW HGU3.63-SDS2.5	7	3⅝	5¼	11	10⅜	4⅜	36-¼"x2½" SDS	24-¼"x 2½" SDS	14300 / 63.61	20320 / 90.39	10295 / 45.79	14630 / 65.08
MGU5.50-SDS2.5	10	5½	4½	9¼	8¾	4	24-¼"x2½" SDS	16-¼"x2½" SDS	10100 / 44.93	13140 / 58.45	7270 / 32.34	9460 / 42.08
HGU5.50-SDS2.5	7	5½	5¼	11	10⅜	4¾	36-¼" x 2½" SDS	24-¼"x 2½" SDS	14300 / 63.61	20320 / 90.39	10295 / 45.79	14630 / 65.08
HHGU5.50-SDS2.5	3	5½	5¼	13	12⅜	4¾	44-¼"x2½" SDS	28-¼"x2½" SDS	21740 / 96.70	26665 / 118.61	15655 / 69.64	19195 / 85.38
HGU7.25-SDS2.5	7	7¼	5¼	11	10⅜	4¾	36-¼"x2½" SDS	24-¼"x2½" SDS	14300 / 63.61	20320 / 90.39	10295 / 45.79	14630 / 65.08
HHGU7.25-SDS2.5	3	7¼	5¼	13	12⅜	4¾	44-¼"x2½" SDS	28-¼"x2½" SDS	21740 / 96.70	26665 / 118.61	15655 / 69.64	19195 / 85.38
HGU9.00-SDS2.5	7	9	5¼	11	10⅜	4¾	36-¼"x2½" SDS	24-¼"x2½" SDS	14300 / 63.61	20320 / 90.39	10295 / 45.80	14630 / 65.08
HHGU9.00-SDS2.5	3	9	5¼	13	12⅜	4¾	44-¼"x2½" SDS	28-¼"x2½" SDS	21740 / 96.71	26665 / 118.62	15655 / 69.64	19195 / 85.39

1. Factored uplift resistances have been increased for earthquake and wind loading, with no further increase allowed.
2. Specify H dimension. The Designer should check the shear capacity of the carried member to make sure it matches the hanger's capacity. Maximum H = 30".
3. Header depth must exceed the h_a dimension shown and is based on the size necessary to fit screw pattern. Use the next size up that meets the minimum depth requirement.

TOP FLANGE HANGERS ITS/LT/MIT/HIT *Engineered Wood Products Hangers*

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, 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 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".

LT

The LT series of top flange hangers is designed for use with wood I-joists. Installation is fast and easy. The hanger's top flange simplifies placement and the side flanges laterally support the I-joist top flange eliminating the need for web stiffeners. Securing the carried I- joist is simple with only one or two screws required into the bottom flange through the seat of the hanger.

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 126-136.

Refer to Joist Manufacturer's literature or appropriate Simpson Strong-Tie Connector Selection Guide for actual joist sizes.

MATERIAL: ITS, LT—18 gauge; MIT, HIT—16 gauge

FINISH: Galvanized

INSTALLATION:

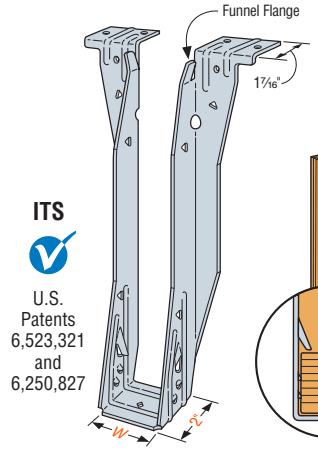
- Use all specified fasteners. Verify that the header can take the required fasteners specified in the table.
- See product specific installation drawings pages 118-119.
- ITS—no joist nailing required for standard I-joist installation without web stiffeners. When supporting I-joists with web stiffeners 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 capacity. See load tables.
- MIT and LT—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.

FACTORED RESISTANCES:

- The ITS, LT, 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 uplift capacities.

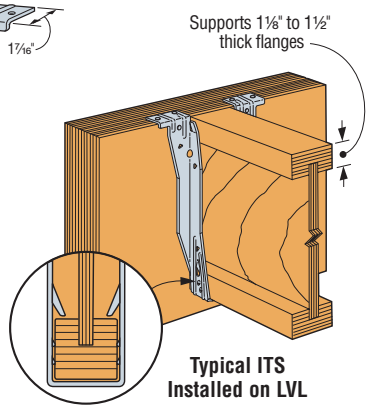
OPTIONS:

- Because these hangers are fully die-formed, they cannot be modified. However these models will normally accommodate a skew of up to 5°.

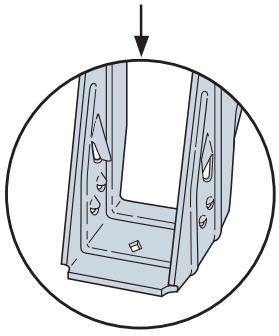


ITS

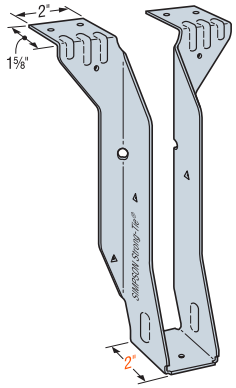
U.S. Patents 6,523,321 and 6,250,827



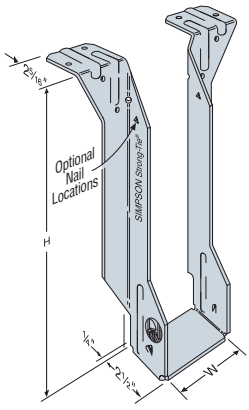
Typical ITS Installed on LVL



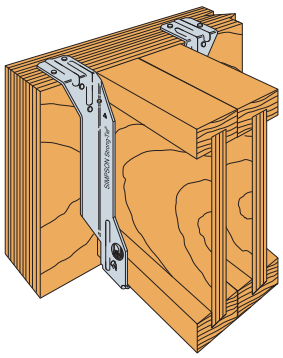
The Strong-Grip™ seat secures I-joists in position without joist nails



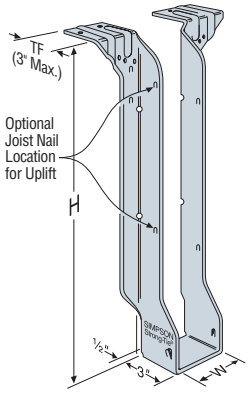
LT



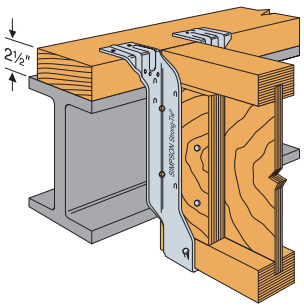
MIT



Typical MIT Installed on a Double LVL



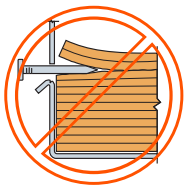
HIT



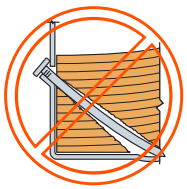
HIT Installation on a 3x Nailer mounted on a Steel Beam

POSITIVE ANGLE NAILING

Correct Nailing
Approx. 45° angle



Nail at wrong angle
Do not bend tab back



Nail too long

TOP FLANGE HANGERS ITS/LT/MIT/HIT *Engineered Wood Products Hangers*

SIMPSON Strong-Tie®

IT SERIES WITH VARIOUS HEADER APPLICATIONS

Model	Fasteners			Factored Resistance						
	Top	Face	Joist	Uplift (K_D=1.15)	Normal (K_D = 1.00)					
					D.Fir-L	S-P-F	LVL[4]	PSL	LSL	I-Joist[5]
				lbs	lbs	lbs	lbs	lbs	lbs	lbs
				kN	kN	kN	kN	kN	kN	kN
ITS Series *(Standard Installation)*	4-10dx1½	2-10dx1½	—	175	2115	1670	2050	1830	2385	1375
				0.78	9.41	7.43	9.12	8.14	10.61	6.12
	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	—
				0.78	9.94	7.52	10.14	8.92	11.63	—
	4-16d	2-16d	—	175	2375	1795	2610	2550	2795	—
				0.78	10.56	7.98	11.61	11.34	12.43	—
ITS Series[8] *(Optional Installation)*	4-10d	4-10d	4-10dx1½	830	2870	1805	2545	2345	2770	—
				3.69	12.77	8.03	11.32	10.43	12.32	—
	4-16d	4-16d	4-10dx1½	830	2870	1805	2610	2550	2795	—
				3.69	12.77	8.03	11.61	11.34	12.43	—
LT Series	4-10dx1½	2-10dx1½	1-#8x1¼ WS	105	1910	1480	2175	1980	2215	1695
				0.47	8.50	6.58	9.68	8.81	9.85	7.54
	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	—
				0.47	11.68	7.67	11.39	11.03	11.65	—
	4-16d	2-16d	1-#8x1¼ WS	105	2760	1850	2560	2480	2620	—
				0.47	12.28	8.23	11.39	11.03	11.65	—
MIT Series	4-10dx1½	4-10dx1½	2-10dx1½	375	3145	1825	3330	2455	2630	1900
				1.67	13.99	8.12	14.81	10.92	11.70	8.45
	4-10d	4-10d	2-10dx1½	375	3295	2420	3550	3025	2630	—
				1.67	14.66	10.77	15.79	13.46	11.70	—
	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	—
				1.67	15.52	10.77	15.79	13.46	15.41	—
HIT Series	4-16d	6-16d	2-10dx1½	450	4570	2705	3725	3220	3775	—
				2.00	20.33	12.03	16.57	14.32	16.79	—

1. When I-joist is used as header, all nails must be 10dx1½.
2. Resistances may not be increased for short-term loading.
3. Uplift resistances are based on D.Fir-L, and have been increased 15% for wind or earthquake loading with no further increase allowed. Divide by 1.15 for normal loading criteria like cantilever construction. For S-P-F use 0.71 x resistance.
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 S-P-F column.
5. For I-joist flanges less than 1½" thick multiply table values by a factor of 0.85.
6. Minimum solid header thickness to achieve LT table loads is 1¾".
7. Structural composite lumber is LVL, LSL and Parallam® PSL.
8. ITS optional installation requires web stiffeners installed per I-joist manufacturers recommendations.
9. For 16 and 18 gauge, 3½" wide I-joist hangers, web stiffeners are required when the factored reaction is greater than 2330 lbs. (10.36 kN).

Parallam is registered trademark of iLevel® by 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 pages 22-23 for other nail sizes and information.

OPTIONAL NAILING FOR INCREASED UPLIFT

Model	Fasteners			Factored Uplift Resistance (K_D = 1.15)	
	Top	Face	Joist	D.Fir-L	S-P-F
				lbs	lbs
				kN	kN
LT Series	4-10dx1½	4-10dx1½	2-10dx1½	380	380
				1.69	1.69
	4-10d	4-10d	2-10dx1½	380	380
				1.69	1.69
	4-16d	4-16d	2-10dx1½	380	380
				1.69	1.69
MIT Series	4-10dx1½	4-10dx1½	4-10dx1½	895	705
				3.98	3.14
	4-10d	4-10d	4-10dx1½	895	705
				3.98	3.14
	4-16d	4-16d	4-10dx1½	895	705
				3.98	3.14
HIT Series	4-16d	6-16d	4-10dx1½	895	705
				3.98	3.14
	4-16d	6-16d	6-10dx1½	1345	1175
				5.98	5.23

1. Factored resistances have been increased 15% for wind or earthquake loading with no further increase allowed. Reduce according to the code for normal loading criteria such as in cantilever construction.
2. Web stiffeners are required on I-joist for additional nailing.

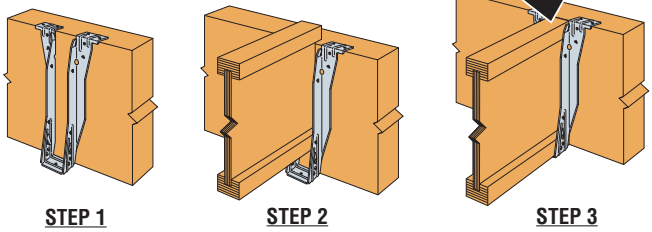
NAILER TABLE

This table indicates the maximum factored normal resistances for ITS/LT/MIT/HIT hangers used on wood nailers. The header nail type must be substituted for those listed in other tables.

Model	Nailer	Header Nailing	Factored Normal Resistance (K_D = 1.00)		
			D.Fir-L	S-P-F	LSL
			lbs	lbs	lbs
			kN	kN	kN
ITS Series *(Standard Installation)*	2x	6-10dx1½	1855	1855	—
			8.25	8.25	—
	2-2x	6-10d	1855	1855	—
			8.25	8.25	—
ITS Series *(Optional Installation)*	2-2x	8-10d	2560	2240	—
			11.39	9.96	—
	4x	8-16d	2770	—	—
			12.32	—	—
LT Series	2x	6-10dx1½	1770	1620	1995
			7.87	7.21	8.87
	2-2x	6-10d	2310	1995	—
			10.28	8.87	—
	4x	6-16d	2665	—	—
			11.85	—	—
MIT Series	2x	6-10dx1½	2140	2055	2630
			9.52	9.14	—
	2-2x	8-10d	2365	2055	—
			10.52	9.14	—
	3x	8-16dx2½	2720	2430	—
			12.10	10.81	—
	4x	8-16d	3090	—	—
			13.75	—	—
HIT Series	2-2x	10-10d	3815	—	—
			16.97	—	—
	3x	10-16dx2½	4645	—	—
			20.66	—	—
	4x	10-16d	4670	—	—
			20.77	—	—

1. Maximum factored uplift resistance (K_D=1.15) for nailer applications is the lesser of the value shown in "Various Header Applications" table or 310 lbs. (1.38kN).
2. For 16 and 18 gauge, 3½" wide I-joist hangers, web stiffeners are required when the factored reaction is greater than 2330 lbs. (10.36 kN).

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.

W/WP/WPU/WM/WMU/HW/HWU *I-Joist & Structural Composite Lumber Hangers*

SIMPSON Strong-Tie®

The W, WP, 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 126-141; W, WI—12 ga. top flange and stirrup; WM, WMI, WMU—12 ga. top flange and stirrup; WPU, WP—7 ga. top flange, 12 ga. stirrup; HW, HWI—3 ga. top flange, 11 ga. stirrup; HWU—3 ga. top flange, 10 ga, stirrup.

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

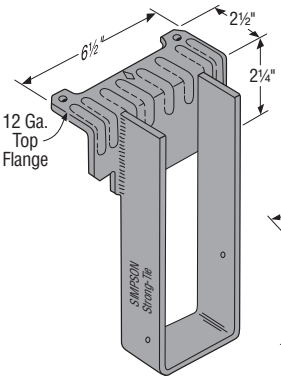
FACTORED RESISTANCES: For hanger heights exceeding the joist height, the factored resistance is 0.50 of the tabulated resistance.

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

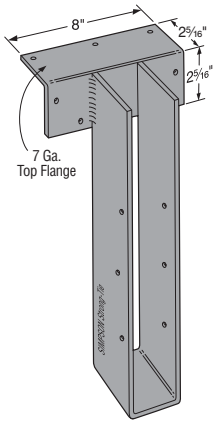
- Hangers may be welded to steel headers with ⅛" for W, WI, 3⁄16" for WP, WPI, and ¼" for HW, HWI, by 1½" fillet welds located at each end of the top flange. Weld-on applications produce maximum factored resistance listed. Uplift resistances do not apply to this application.
- Hangers can support multi-ply carried members; the individual members must be secured together to work as a single unit before installation into the hanger.
- Hangers can support joists sloped up to ¼:12 using table values. For joists sloping between ¼:12 - ⅜:12 use 85% of table value.
- Embed WM into block with a minimum of one course above and one course below the top flange with one 15M vertical rebar minimum 24" long in each cell. Minimum grout strength is 15 MPa.
- Web stiffeners are required for standard joist nailing configuration with this hanger.

OPTIONS: • Specify alternate nailing pattern when web stiffeners are not being used *(up to 16" in depth)*. Add X ANP after model number for nailing into the flange, available for 90° applications only. Uplift resistances do not apply to this application.

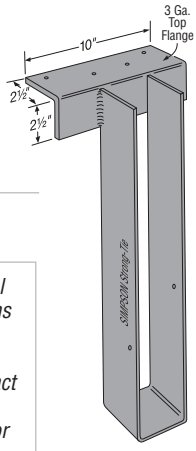
- See Hanger Options, page 231 for hanger modifications and associated load reductions.



W/WI

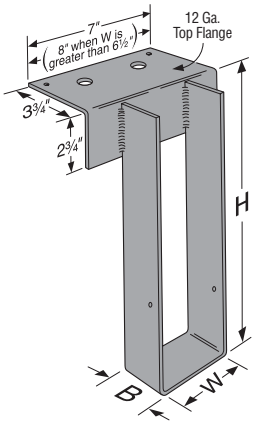


WPU

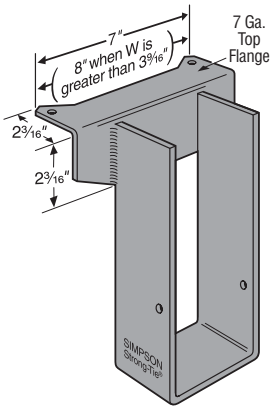


HW/HWI
(HWU similar)

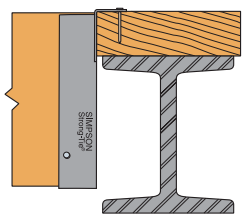
Some model configurations may differ from those shown. Contact Simpson Strong-Tie for details.



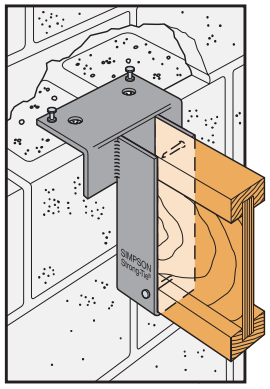
WM/WMI
(WMU similar)



WP/WPI



Correct Nailer Attachment



Typical WM Mid-Wall Installation with Alternate Nailing Pattern (ANP)

NAILER TABLE

The table indicates the maximum factored normal resistances 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. This table also applies to sloped-seat hangers.

Model	Nailer	Top Flange Nailing	Factored Resistance (K_D = 1.00) D.Fir-L	S-P-F	LSL
			lbs	lbs	lbs
			kN	kN	kN
W/WI	2x	2-10dx1½	2470	2470	—
			11.00	11.00	—
	2-2x	2-10d	2730	2730	—
			12.14	10.61	—
	3x	2-16dx2½	2895	2855	—
			12.88	12.70	—
	4x	2-10d	3025	2855	—
			13.46	12.70	—
WP/WPI	2x	2-10dx1½	3665	3630	4900
			16.30	16.15	21.82
	2-2x	2-10d	4475	3760	—
			19.91	16.75	—
	3x	2-16dx2½	4110	3760	—
			18.28	16.75	—
	4x	2-10d	4475	3760	—
			19.91	16.75	—
WPU/ WNPU	2-2x	7-10d	4475	3760	—
			19.91	16.75	—
	3x	7-16dx2½	4110	3760	—
			18.28	16.75	—
	4x	7-10d	4475	3760	—
			19.91	16.75	—
HW/ HWI	2-2x	4-10d	7600	—	—
			33.81	—	—
	3x	4-16dx2½	7600	—	—
			33.81	—	—
	4x	4-16d	7670	—	—
			34.16	—	—
HWU	2-2x	8-16dx2½	7880	—	—
			35.05	—	—
	3x	8-16dx2½	7880	—	—
			35.05	—	—
	4x	8-16d	7880	—	—
			35.05	—	—

W/WP/WPU/WM/WMU/HW/HWU *I-Joist & Structural Composite Lumber Hangers*

SIMPSON Strong-Tie®

W SERIES WITH VARIOUS HEADER APPLICATIONS

Model	Joist		Fasteners			Factored Resistance						
	Width (in)	Depth (in)	Top	Face	Joist	Uplift[1] (K_D = 1.15)	Normal (K_D = 1.00)					
							D.Fir-L	S-P-F	LVL	PSL	LSL	Masonry
						lbs	lbs	lbs	lbs	lbs	lbs	lbs
						kN	kN	kN	kN	kN	kN	kN
W/WI	1½ to 4	3½ to 30	2-10dx1½	—	2-10dx1½	—	2455	2375	2675	2850	—	—
						—	10.92	10.56	11.90	12.68	—	—
	1½ to 4	3½ to 30	2-10d	—	2-10dx1½	—	2920	2375	3425	3305	—	—
						—	12.99	10.56	15.24	14.70	—	—
	1½ to 4	3½ to 30	2-16d	—	2-10dx1½	—	2955	2375	3820	3190	—	—
						—	13.15	10.56	16.99	14.19	—	—
WM/ WMI	1½ to 7½	3½ to 30	2-16d DPLX	—	2-10dx1½	—	MID-WALL INSTALLATION					6060
						—						26.96
	1½ to 7½	3½ to 30	2-¼x1¾ Titen	—	2-10dx1½	—	TOP OF WALL INSTALLATION					5300
						—						23.58
WMU	1½ to 7½	9 to 28	2-16d DPLX	4-¼x1¾ Titen	6-10dx1½	860	MID-WALL INSTALLATION					6060
						3.83						26.96
	1½ to 7½	9 to 28	2-¼x1¾ Titen	4-¼x1¾ Titen	6-10dx1½	745	TOP OF WALL INSTALLATION					5300
						3.31						23.58
WP/ WPI	1½ to 7½	3½ to 30	3-10dx1½	—	2-10dx1½	—	4095	3345	4695	4720	—	—
						—	18.22	14.88	20.89	21.00	—	—
	1½ to 7½	3½ to 30	3-10d	—	2-10dx1½	—	4095	3550	3665	4720	5980	—
						—	18.22	15.79	16.30	21.00	26.60	—
	1½ to 7½	3½ to 30	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—
						—	19.71	17.15	26.47	24.15	26.60	—
WPU	1¾ to 5½	7¼ to 18	3-16d	4-16d	6-10dx1½	1665	6390	6390	6825	7085	5980	—
						7.41	28.43	28.43	30.36	31.52	26.60	—
	1¾ to 5½	18½ to 28	3-16d	4-16d	6-10dx1½	595	6390	6390	6825	7085	5980	—
						2.65	28.43	28.43	30.36	31.52	26.60	—
HW/ HWI	1½ to 7½	3½ to 32	4-10d	—	2-10dx1½	—	6900	5285	4695	5810	—	—
						—	30.69	23.51	20.89	25.85	—	—
	1½ to 7½	3½ to 32	4-16d	—	2-10dx1½	—	6900	5285	7695	5810	6870	—
						—	30.69	23.51	34.23	25.85	30.56	—
HWU	1¾ to 3½	9 to 18	4-16d	4-16d	6-10dx1½	1775	10170	8875	10170	8325	8925	—
						7.90	45.24	39.48	45.24	37.03	39.70	—
	1¾ to 3½	18½ to 28	4-16d	4-16d	6-10dx1½	1490	10170	8875	10170	8325	8925	—
						6.63	45.24	39.48	45.24	37.03	39.70	—
	1¾ to 3½	28½ to 32	4-16d	4-16d	8-10dx1½	1520	10170	8875	10170	8325	8925	—
						6.76	45.24	39.48	45.24	37.03	39.70	—
	4½ to 7⅛	9 to 18	4-16d	4-16d	6-10dx1½	1775	8250	8250	8250	8250	8250	—
						7.90	36.70	36.70	36.70	36.70	36.70	—
	4½ to 7⅛	18½ to 28	4-16d	4-16d	6-10dx1½	1490	8250	8250	8250	8250	8250	—
						6.63	36.70	36.70	36.70	36.70	36.70	—
	4½ to 7⅛	28½ to 32	4-16d	4-16d	8-10dx1½	1520	8250	8250	8250	8250	8250	—
						6.76	36.70	36.70	36.70	36.70	36.70	—

1. Factored uplift resistances shown are for D.Fir-L. Multiply tablulated resistances x 0.71 for either SPF joist or header.
2. Factored resistances shown are for header connection only. The Designer must ensure the joist is capable of generating the factored resistances shown.
3. Structural composite lumber is LVL, LSL and Parallam® PSL.
4. WP/WPI quantity of nail holes in top flange varies.
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 S-P-F column.
6. Titen® ¼x1¾ installed on top of wall after grout has cured.
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 pages 22-23 for other nail sizes and information.

BA/LBV/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 capacities, 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 capacities to support structural composite lumber. The unique two level embossment provides added stiffness to the top flange.

The LBV, B and HB hangers offer wide versatility for I-joists and structural composite lumber. An enhanced load capacity widens the range of applications for these hangers. The LBV features Positive Angle Nailing and does not require the use of web stiffeners for standard non modified I-joist installations.

MATERIAL: See tables, pages 126-141.

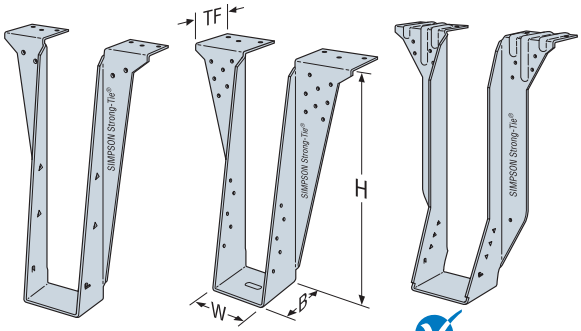
FINISH: LBV, B, BA and HB—Galvanized; all saddle hangers and all welded sloped and special hangers—Simpson Strong-Tie® gray paint. LBV, B, BA and HB may be ordered hot-dip galvanized; specify HDG.

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

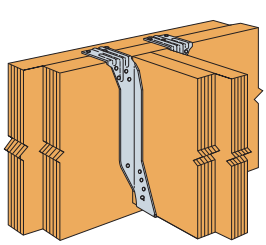
- LBV, B, BA and HB may be used for weld-on applications. Minimum weld size is ⅛"x2" fillet weld to each side of each top flange tab. Distribute the weld equally on both top flanges. Welding cancels the top and face nailing requirements. Consult the code for special considerations when welding galvanized steel. The area should be well-ventilated, see pages 20-21 for additional weld information. Weld on applications produce the maximum factored reisistance listed. Uplift values do not apply to welded applications.
- 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 the use of web stiffeners. BA Max nailing does require web stiffeners.
- Ledgers must be evaluated for each application separately. Check TF dimension, nail length and nail location on ledger.

OPTIONS: • LBV, B and HB

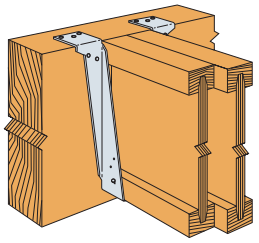
- See Hanger Options, page 231 for hanger modifications and associated reductions in resistance.



LBV **HB** *(B Similar)* **BA** Patent Pending

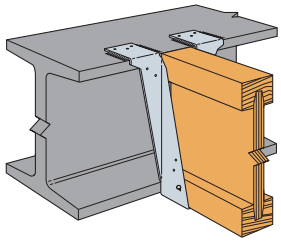


BA Installed LVL to LVL Max Nailing



Typical Double LBV Hanger Installation

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.

B SERIES WITH VARIOUS HEADER APPLICATIONS

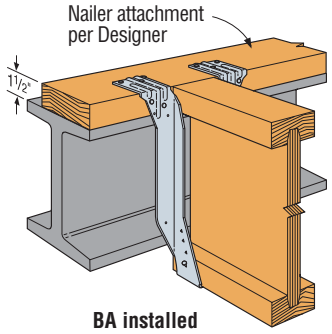
Model Series	Fasteners			Factored Resistance						
	Top	Face	Joist	Uplift[1] (K_D = 1.15)	Normal (K_D = 1.00)					
					D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
				lbs	lbs	lbs	lbs	lbs	lbs	lbs
				kN	kN	kN	kN	kN	kN	kN
LBV	6-10dx1½	4-10dx1½	2-10dx1½	435	3165	2340	3760	3885	3295	2200
				1.94	14.08	10.41	16.73	17.28	14.66	9.79
	6-10d	4-10d	2-10dx1½	435	3890	2805	3760	3885	4330	—
				1.94	17.33	12.48	16.73	17.28	19.26	—
	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	—
				1.94	17.37	13.90	17.37	19.62	20.60	—
BA (Min)	6-10dx1½	10-10dx1½	2-10dx1½	—	—	—	—	—	—	2420
				—	—	—	—	—	—	10.77
	6-10d	10-10d	2-10dx1½	435	4470	3975	4695	5385	5665	—
				1.94	19.88	17.68	20.89	23.95	25.20	—
	6-16d	10-16d	2-10dx1½	435	4990	4370	5835	5385	5820	—
				1.94	22.20	19.44	25.96	23.95	25.89	—
BA (Max)	6-10d	10-10d	8-10dx1½	1960	5265	4035	5825	5945	5980	—
				8.72	23.42	17.95	25.91	26.45	26.60	—
	6-16d	10-16d	8-10dx1½	1960	5940	4370	6490	7075	6185	—
				8.72	26.42	19.44	28.87	31.47	27.51	—
B	6-10d	8-10d	6-10dx1½	1650	5265	3590	5825	5230	5965	—
				7.34	23.42	15.97	25.91	23.27	26.53	—
	6-16d	8-16d	6-16dx2½	1650	5940	3910	6490	5230	6185	—
				7.34	26.42	17.39	28.87	23.27	27.51	—
HB[8]	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—
				15.81	41.53	26.45	42.37	41.11	46.60	—

1. Factored uplift resistances shown are for D.Fir-L. Multiply tabulated loads x 0.71 for either SPF joist or header.
2. Factored resistances shown are for header connection only. The Designer must ensure the joist is capable of generating the factored resistances shown.
3. 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 column.
4. I-joist values shown refer to I-joists made with SPF or LVL flanges.
5. I-joists with flanges less than 1⅝" thick used in combination with hangers thinner than 14 gauge may deflect an additional 1/32 inch beyond the standard ⅛" limit.
6. For flanges with thicknesses from 1⅝" to 1⅜", use 0.85 of the I-joist header value. For flanges with thicknesses from 1⅛" to 1¼", use 0.75 of the I-joist header value.
7. For LBV optional uplift, fill all triangle holes with 10dx1½" nails. Uplift resistances are 1465 lbs (6.52 kN) D.Fir-L and 1040 lbs (4.63 kN) S-P-F.
8. Values shown are for a minimum joist width of 2½".
9. **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 pages 22-23 for other nail sizes and information.

BA/LBV/B/HB *I-Joist & Structural Composite Lumber Hangers*

NAILER TABLE
This shows the maximum factored resistances for BA, LBV, 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. This table also applies to sloped-seat hangers.

Model No.	Nailer	Header Fasteners	Factored Normal Resistance (K_D = 1.00) D.Fir-L	Factored Normal Resistance (K_D = 1.00) S-P-F
			lbs	lbs
			kN	kN
LBV	2x	10-10dx1½	2835	2340
			12.61	10.41
	2-2x	10-10d	2835	2340
			12.61	10.41
	3x	10-16dx2½	3135	—
			13.95	—
	4x	10-16d	3135	—
			17.44	—
BA	2x	10-10dx1½	3220	2870
			14.32	12.77
	2-2x	14-10d	3915	3660
			17.41	16.28
	3x	14-16dx2½	4055	—
			18.04	—
	4x	14-16d	4055	—
			18.04	—
B	2x	10-10dx1½	2835	2340
			12.63	10.42
	2-2x	14-10d	3915	3660
			17.41	16.28
	3x	14-16dx2½	4055	—
			18.04	—
	4x	14-16d	4055	—
			18.04	—
HB	4x	22-16d	9015	—
			40.15	—



BA installed 2X nailer on steel beam minimum nailing

1. Maximum factored uplift resistance (K_D = 1.15) is the lesser of the value shown in the table on page 122 or 385 lbs. (1.71kN).
2. **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 pages 22-23 for other nail sizes and information.

GLTV/HGLTV *Heavy Duty Hangers*

GLTV and HGLTV hangers are designed for use with structural composite lumber headers, and may take heavy 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 series.

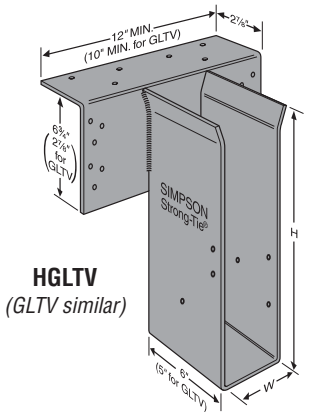
MATERIAL: Top flange—3 gauge; Stirrups—7 gauge

FINISH: Simpson Strong-Tie® gray paint

FACTORED RESISTANCES: • For hanger heights exceeding the joist height, the factored resistance is 0.50 of the tabulated resistance.

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. Weld-on applications produce maximum factored resistances listed. Uplift resistances do not apply to this application.
- Web stiffeners are required with I-joists using this hanger style.
- Nailers and ledgers must be a minimum of 4x lumber to guarantee the resistances given in the tables. Thinner lumber or laminated veneer lumber used as a nailer must be evaluated by the Building Designer. The HGLTV series cannot be used with a nailer.

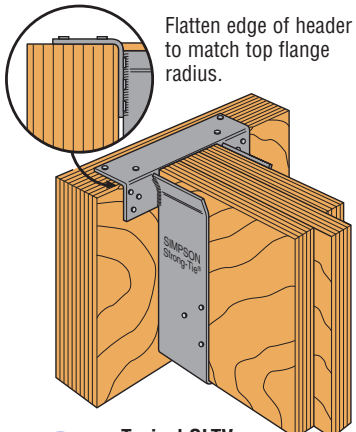
OPTIONS: • Hot-dipped galvanized: specify HDG.
- See Hanger Options, page 231.



HGLTV
(GLTV similar)

Model No.	Fasteners Top	Fasteners Face	Fasteners Joist	Factored Resistance Uplift (K_D = 1.15)	Normal (K_D = 1.00) D.Fir-L	S-P-F	LVL[4]	PSL	LSL
				lbs	lbs	lbs	lbs	lbs	lbs
				kN	kN	kN	kN	kN	kN
GLTV series	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590
				9.54	46.51	33.23	48.44	47.8	38.21
HGLTV series	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795
				9.54	58.14	43.73	68.35	50.38	61.36

1. Uplift resistances have been increased 15% for short-term loading with no further increase allowed. Reduce resistance when other load durations govern.
2. Uplift loads only apply when "H" is 28" or less.
3. S-P-F factored uplift resistance is 1520 lbs (6.76 kN).
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 S-P-F column.
5. For joist widths less than 3½" use 16d x 3½" nails into the joist.
6. **NAILS:** 16d = 0.162" dia. x 3½" long. See pages 22-23 for other nail sizes and information.



Typical GLTV Installation

SCL *High Capacity Top Flange Hangers*

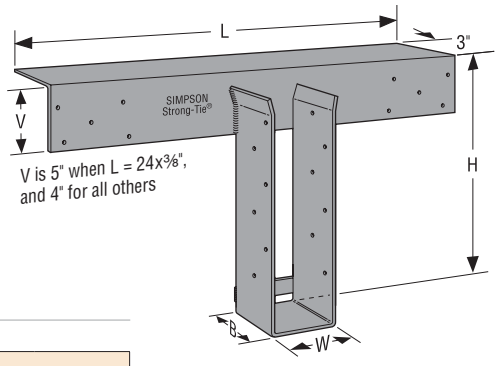
The SCL series of top flange hangers are high load capacity connectors designed for use with Structural Composite Lumber. The large top flange distributes the load to the carrying member and the fasteners are located specifically for structural composite lumber applications.

MATERIAL: Stirrups—3 gauge; Top flange—¼" or ⅜" hot rolled angle, see table

FINISH: Simpson Strong-Tie® gray paint

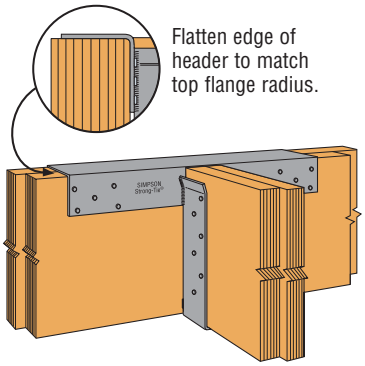
INSTALLATION: • Use all specified fasteners. See General notes.

- All multiple members must be fastened together to act as one single unit.
- This series may be used for weld on application. Weld top flange using ¼"x4" long fillet welds spaced at 7" on center with 2" return around corners.
- These hangers cannot be used with a nailer.



SCL

Model No.	Dimensions (in)				Fasteners		Factored Resistance				
							Uplift (K_D = 1.15)	Normal (K_D = 1.00)			
	W	H	B	L	Header	Joist		D.Fir-L	S-P-F	LVL[2]	PSL
							lbs	lbs	lbs	lbs	lbs
							kN	kN	kN	kN	kN
SCL3.62/9.5	3⅜	9½	4	18	6-16d	6-16d	2155	13245	6775	15850	15855
							9.59	58.92	30.14	70.51	70.53
SCL3.62/11.5	3⅜	11½	4	18	6-16d	6-16d	2155	13245	6775	15850	15855
							9.59	58.92	30.14	70.51	70.53
SCL3.62/11.88	3⅜	11⅞	4	18	6-16d	6-16d	2155	13245	6775	15850	15855
							9.59	58.92	30.14	70.51	70.53
SCL3.62/14	3⅜	14	4	18	6-16d	6-16d	2155	13245	6775	15850	15855
							9.59	58.92	30.14	70.51	70.53
SCL3.62/16	3⅜	16	4	18	6-16d	6-16d	2155	13245	6775	15850	15855
							9.59	58.92	30.14	70.51	70.53
SCL3.62/18	3⅜	18	5	22	12-16d	12-16d	3255	17635	11490	21600	20915
							14.48	78.45	51.11	96.09	93.04
SCL3.62/18.75	3⅜	18¾	5	22	12-16d	12-16d	3255	17635	11490	21600	20915
							14.48	78.45	51.11	96.09	93.04
SCL3.62/19	3⅜	19	5	22	12-16d	12-16d	3255	17635	11490	21600	20915
							14.48	78.45	51.11	96.09	93.04
SCL5.37/9.5	5⅜	9½	4	18	6-16d	6-16d	2155	13245	6775	15850	15855
							9.59	58.92	30.14	70.51	70.53
SCL5.37/11.5	5⅜	11½	5	22	12-16d	12-16d	3255	17635	11490	21600	20915
							14.48	78.45	51.11	96.09	93.04
SCL5.37/11.88	5⅜	11⅞	5	22	12-16d	12-16d	3255	17635	11490	21600	20915
							14.48	78.45	51.11	96.09	93.04
SCL5.37/14	5⅜	14	5	22	12-16d	12-16d	3255	17635	11490	21600	20915
							14.48	78.45	51.11	96.09	93.04
SCL5.37/16	5⅜	16	6	24x⅜	10-16d	12-16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66
SCL5.37/18	5⅜	18	6	24x⅜	10-16d	12-16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66
SCL5.37/18.75	5⅜	18¾	6	24x⅜	10-16d	12-16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66
SCL5.37/19	5⅜	19	6	24x⅜	10-16d	12-16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66
SCL7.25/9.5	7¼	9½	4	18	6-16d	6-16d	2155	13245	6775	15845	15855
							9.59	58.92	30.14	70.48	70.53
SCL7.25/11.5	7¼	11½	5	22	12-16d	12-16d	3255	17635	11490	21600	20915
							14.48	78.45	51.11	96.09	93.04
SCL7.25/11.88	7¼	11⅞	5	22	12-16d	12-16d	3255	17635	11490	21600	20915
							14.48	78.45	51.11	96.09	93.04
SCL7.25/14	7¼	14	5	22	12-16d	12-16d	3255	17635	11490	21600	20915
							14.48	78.45	51.11	96.09	93.04
SCL7.25/16	7¼	16	6	24x⅜	10-16d	12-16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66
SCL7.25/18	7¼	18	6	24x⅜	10-16d	12-16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66
SCL7.25/18.75	7¼	18¾	6	24x⅜	10-16d	12-16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66
SCL7.25/19	7¼	19	6	24x⅜	10-16d	12-16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66



Typical SCL Installation

1. Factored uplift resistances have been increased 15% for short term loading with no further increase allowed. Reduce when other load durations govern.
2. Factored uplift resistances shown are for D.Fir-L. Multiply tabulated loads x 0.71 for either SPF joist or header.
3. Applies to LVL headers made primarily from D.Fir-L, assuming ϕF_{CP} = 1092 psi and a specific gravity of 0.50. See LVL manufacturer specifications.
4. **NAILS:** 16d = 0.162" dia. x 3½" long. See pages 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 capacities, c) lower installed cost, or a combination of these features.

The EGQ is a high capacity connector for use with Structural Composite Lumber beams. Utilizing the Simpson Strong-Tie® Strong Drive® SDS Heavy-Duty Connector screws makes installation fast and easy.

EGQ hangers are precisely fabricated to individual order requirements. The H dimension required must be specified.

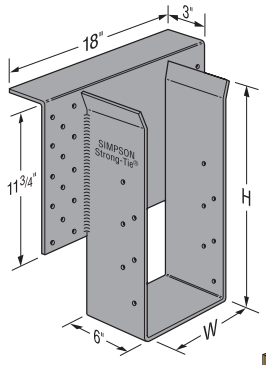
MATERIAL: Top flange—3 gauge; Stirrups—7 gauge

FINISH: Simpson Strong-Tie® gray paint

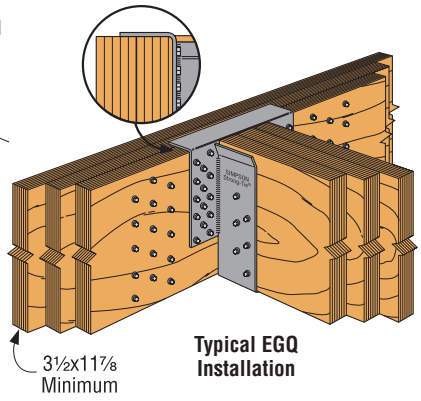
INSTALLATION: • Use all specified fasteners. See General Notes.

- Install with ¼"x3" Strong-Drive SDS Heavy-Duty Connector 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.
- Minimum header depth shall be 11⅞".

OPTIONS: • Can be skewed or sloped. See Hanger Options page 231.



EGQ



Typical EGQ Installation

Joist or Purlin Size (in)	Model No.	Dimensions (in)		Fasteners		Factored Resistance				
						Uplift	D.Fir-L	PSL	LVL[1]	S-P-F LVL
							Normal	Normal	Normal	Normal
		W	Min H	Header	Joist	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.00)	(K_D = 1.00)	(K_D = 1.00)
						lbs	lbs	lbs	lbs	lbs
						kN	kN	kN	kN	kN
3½	EGQ3.62-SDS3	3⅝	11⅞	28-¼"x3" SDS	12-¼"x3" SDS	9040	24915	25450	28410	19995
						40.21	110.83	113.21	126.38	88.95
5¼	EGQ5.50-SDS3	5½	11⅞	28-¼"x3" SDS	12-¼"x3" SDS	9040	27305	28030	30425	23930
						40.21	121.46	124.69	135.34	106.45
7	EGQ7.25-SDS3	7¼	11⅞	28-¼"x3" SDS	12-¼"x3" SDS	9040	27305	30605	32435	23930
						40.21	121.46	136.14	144.28	106.45

1. Applies to LVL made primarily from Douglas Fir or Southern Pine. For LVL made primarily from other species, contact the LVL manufacturer for suitability.
2. "Min H" is the minimum joist height dimension that may be specified.
3. Use S-P-F LVL values for S-P-F glulam.
4. Multiply tabulated uplift values x 0.72 for S-P-F LVL

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.

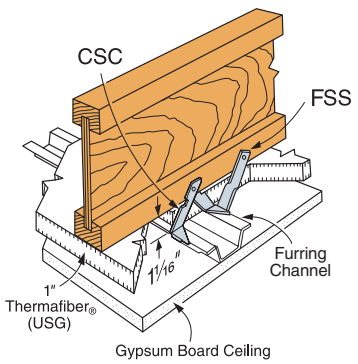
Field-form the FSS with the CSC to prevent furring channel rotation during installation. Furring channel must match dimensions shown to fit the CSC properly. U.L. listed. See Underwriters Laboratories, Inc., Design No. L530 for USG and TJI® I-joists.

MATERIAL: 24 gauge *(minimum)*

FINISH: Galvanized

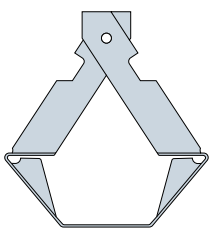
INSTALLATION: • For CSC use 1-8dx1½ nail.

- 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.

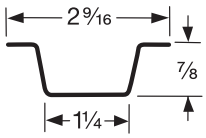


Typical CSC and FSS Installation

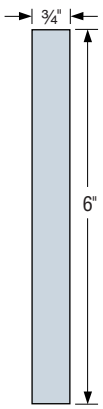
Thermafiber® and TJI® are registered trademarks of US Gypsum Company and Weyerhaeuser, respectively.



CSC



Furring Channel Detail



FSS
(See Installation Notes)

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
1½ x 9¼	LBV1.56/9.25	—	14	1⁹⁄₁₆	9¼	3	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP29.25	✓	12	1⁹⁄₁₆	9¼	4	2³⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM29.25	✓	12	1⁹⁄₁₆	9¼	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
1½ x 9½	LT159	—	18	1⁹⁄₁₆	9½	2	1⅝	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT29.5	—	16	1⁹⁄₁₆	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV1.56/9.5	—	14	1⁹⁄₁₆	9½	3	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP29.5	✓	12	1⁹⁄₁₆	9½	4	2³⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM29.5	✓	12	1⁹⁄₁₆	9½	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
1½ x 11⅞	LT151188	—	18	1⁹⁄₁₆	11⅞	2	1⅝	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT211.88	—	16	1⁹⁄₁₆	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV1.56/11.88	—	14	1⁹⁄₁₆	11⅞	3	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP211.88	✓	12	1⁹⁄₁₆	11⅞	4	2³⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM211.88	✓	12	1⁹⁄₁₆	11⅞	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
1½ x 14	LBV1.56/14	—	14	1⁹⁄₁₆	14	3	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
1½ x 16	LBV1.56/16	—	14	1⁹⁄₁₆	16	3	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
1¾ x 7¼	BA1.81/7.25 (Min)	—	14	1¹³⁄₁₆	7¼	3	2½	6-16d	10-16d	2-10d x 1½	435	4990	4370	5835	5385	5820	2420	—
											1.94	22.20	19.44	25.96	23.95	25.89	10.77	—
	BA1.81/7.25 (Max)	✓	14	1¹³⁄₁₆	7¼	3	2½	6-16d	10-16d	8-10d x 1½	1960	5940	4370	6490	7075	6185	—	—
											8.72	26.42	19.44	28.87	31.47	27.51	—	—
	LBV1.81/7.25	—	14	1⁹⁄₁₆	7¼	3	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP1.81/7.25	✓	12	1⁹⁄₁₆	7¼	3½	2³⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
1¾ x 9½	ITS1.81/9.5	—	18	1⅞	9⁷⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT179	—	18	1¹³⁄₁₆	9½	2	1⅝	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT9.5	—	16	1¹³⁄₁₆	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	BA1.81/9.5 (Min)	—	14	1¹³⁄₁₆	9½	3	2½	6-16d	10-16d	2-10d x 1½	435	4990	4370	5835	5385	5820	2420	—
											1.94	22.20	19.44	25.96	23.95	25.89	10.77	—
	BA1.81/9.5 (Max)	✓	14	1¹³⁄₁₆	9½	3	2½	6-16d	10-16d	8-10d x 1½	1960	5940	4370	6490	7075	6185	—	—
											8.72	26.42	19.44	28.87	31.47	27.51	—	—
	LBV1.81/9.5	—	14	1¹³⁄₁₆	9½	3	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP9	✓	12	1¹³⁄₁₆	9½	3½	2³⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM9	✓	12	1¹³⁄₁₆	9½	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96

1. When I-joist is used as a header, all header fasteners must be 10dx1½. See footnotes on pages 119 and 122 for reduction values when flange material is less than 1½" thick.
2. See pages 118-125 for specific notes on individual model types.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
1¾ x 11⅞	ITS1.81/11.88	—	18	1⅞	11 13/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT171188	—	18	1 13/16	11⅞	2	1⅝	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT11.88	—	16	1 13/16	11⅞	2½	2 5/16	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	BA1.81/11.88 (Min)	—	14	1 13/16	11⅞	3	2½	6-16d	10-16d	2-10dx1½	435	4990	4370	5835	5385	5820	2420	—
											1.94	22.20	19.44	25.96	23.95	25.89	10.77	—
	BA1.81/11.88 (Max)	✓	14	1 13/16	11⅞	3	2½	6-16d	10-16d	8-10dx1½	1960	5940	4370	6490	7075	6185	—	—
											8.72	26.42	19.44	28.87	31.47	27.51	—	—
	LBV1.81/11.88	—	14	1 13/16	11⅞	3	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP11	✓	12	1 13/16	11⅞	3½	2 3/16	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM11	✓	12	1 13/16	11⅞	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
1¾ x 14	ITS1.81/14	—	18	1⅞	13 15/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT1714	—	18	1 13/16	14	2	1⅝	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT1.81/14	—	16	1 13/16	14	2½	2 5/16	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
NEW	BA1.81/14 (Min)	—	14	1 13/16	14	3	2½	6-16d	10-16d	2-10dx1½	435	4990	4370	5835	5385	5820	2420	—
											1.94	22.20	19.44	25.96	23.95	25.89	10.77	—
NEW	BA1.81/14 (Max)	✓	14	1 13/16	14	3	2½	6-16d	10-16d	8-10dx1½	1960	5940	4370	6490	7075	6185	-	-
											8.72	26.42	19.44	28.87	31.47	27.51	-	-
	LBV1.81/14	—	14	1 13/16	14	3	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP14	✓	12	1 13/16	14	3½	2 3/16	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM14	✓	12	1 13/16	14	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
1¾ x 16	ITS1.81/16	—	18	1⅞	15 15/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT1716	—	18	1 13/16	16	2	1⅝	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT1.81/16	—	16	1 13/16	16	2½	2 5/16	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV1.81/16	—	14	1 13/16	16	3	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	B1.81/16	✓	12	1 13/16	16	3	2½	6-10d	8-10d	6-10dx1½	1650	5265	3590	5825	5230	5965	—	—
											7.34	23.42	15.97	25.91	23.27	26.53	—	—
	WP16	✓	12	1 13/16	16	3½	2 3/16	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM16	✓	12	1 13/16	16	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
2 x 9½	ITS2.06/9.5	—	18	2⅛	9 7/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LBV2.06/9.5	—	14	2 1/16	9½	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
2 x 11⅞	ITS2.06/11.88	—	18	2⅛	11⅞	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LBV2.06/11.88	—	14	2 1/16	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
2 x 14	ITS2.06/14	—	18	2⅛	13 15/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LBV2.06/14	—	14	2 1/16	14	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
2 x16	ITS2.06/16	—	18	2⅛	15 15/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LBV2.06/16	—	14	2 1/16	16	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
2 1/16 x 9½	ITS2.06/9.5	—	18	2⅛	9 7/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LBV2.1/9.5	—	14	2⅛	9½	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—

1. When I-joist is used as a header, all header fasteners must be 10dx1½. See footnotes on pages 119 and 122 for reduction values when flange material is less than 1½" thick.
2. See pages 118-125 for specific notes on individual model types.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
2⅛ x 11⅞	ITS2.06/11.88	—	18	2⅛	11 13/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LBV2.1/11.88	—	14	2⅛	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
2⅛ x 14	ITS2.06/14	—	18	2⅛	13 15/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LBV2.1/14	—	14	2⅛	14	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
2⅛ x 16	LBV2.1/16	—	14	2⅛	16	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
2⅝ x 9½	ITS2.37/9.5	—	18	2 7/16	9 7/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT239	—	18	2⅜	9½	2	1⅝	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	LBV2.37/9.5	—	14	2⅝	9½	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
2⅝ x 11⅞	ITS2.37.11.88	—	18	2 7/16	11 13/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT231188	—	18	2⅝	11⅞	2	1⅝	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT3511.88	—	16	2⅝	11⅞	2½	2 5/16	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV2.37/11.88	—	14	2⅝	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	W3511.88	✓	12	2⅝	11⅞	2½	2½	2-16d	—	2-10dx1½	—	2955	2375	3820	3190	—	—	—
											—	13.15	10.56	16.99	14.19	—	—	—
	WM3511.88	✓	12	2⅝	11⅞	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
2⅝ x 14	ITS2.37/14	—	18	2 7/16	13 15/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT2314	—	18	2⅜	14	2	1⅝	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT3514	—	16	2⅝	14	2½	2 5/16	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV2.37/14	—	14	2⅝	14	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP3514	✓	12	2⅝	14	2½	2 5/16	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM3514	✓	12	2⅝	14	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
2⅝ x 16	ITS2.37/16	—	18	2 7/16	15 15/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT2316	—	18	2⅜	16	2	1⅝	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT3516	—	16	2⅝	16	2½	2 5/16	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV2.37/16	—	14	2⅝	16	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP3516	✓	12	2⅝	16	2½	2 5/16	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM3516	✓	12	2⅝	16	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
2⅝ x 18	MIT3518	—	16	2⅝	18	2½	2 5/16	4-10d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV2.37/18	—	14	2⅝	18	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP3518	✓	12	2⅝	18	2½	2 5/16	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM3518	✓	12	2⅝	18	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96

1. When I-joist is used as a header, all header fasteners must be 10dx1½. See foonotes on pages 119 and 122 for reduction values when flange material is less than 1½" thick.
2. See pages 118-125 for specific notes on individual model types.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
2⅝ x 20	MIT3520	—	16	2⅝	20	2½	2⅝	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV2.37/20	✓	14	2⅝	20	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP3520	✓	12	2⅝	20	2½	2⅜	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM3520	✓	12	2⅝	20	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
2½ - 2⅝ x 9½	ITS2.56/9.5	—	18	2⅝	9⅞	2	1⅞	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT259	—	18	2⅝	9½	2	1⅝	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	BA2.56/9.5 (Min)	—	14	2⅝	9½	3	2½	6-16d	10-16d	2-10dx1½	435	4990	4370	5835	5385	5820	2420	—
											1.94	22.20	19.44	25.96	23.95	25.89	10.77	—
	BA2.56/9.5 (Max)	✓	14	2⅝	9½	3	2½	6-16d	10-16d	8-10dx1½	1960	5940	4370	6490	7075	6185	—	—
											8.72	26.42	19.44	28.87	31.47	27.51	—	—
	LBV2.56/9.5	—	14	2⅝	9½	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WI39.5	✓	12	2⅝	9½	2	2½	2-16d	—	2-10dx1½	—	2955	2375	3820	3190	—	—	—
											—	13.15	10.56	16.99	14.19	—	—	—
2½ x 11¼	ITS2.56/11.25	—	18	2⅝	11 3/16	2	1⅞	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LBV2.56/11.25	—	14	2⅝	11¼	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WI311.25	✓	12	2⅝	11¼	2	2½	2-16d	—	2-10dx1½	—	2955	2375	3820	3190	—	—	—
											—	13.15	10.56	16.99	14.19	—	—	—
2½ - 2⅝ x 11⅞	ITS2.56/11.88	—	18	2⅝	11 13/16	2	1⅞	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT251188	—	18	2⅝	11⅞	2	1⅝	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT311.88	—	16	2⅝	11⅞	2½	2⅝	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	BA2.56/11.88 (Min)	—	14	2⅝	11⅞	3	2½	6-16d	10-16d	2-10dx1½	435	4990	4370	5835	5385	5820	2420	—
											1.94	22.20	19.44	25.96	23.95	25.89	10.77	—
	BA2.56/11.88 (Max)	✓	14	2⅝	11⅞	3	2½	6-16d	10-16d	8-10dx1½	1960	5940	4370	6490	7075	6185	—	—
											8.72	26.42	19.44	28.87	31.47	27.51	—	—
	LBV2.56/11.88	—	14	2⅝	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPI311.88	✓	12	2⅝	11⅞	2½	2⅜	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
2½ - 2⅝ x 14	ITS2.56/14	—	18	2⅝	13 15/16	2	1⅞	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT2514	—	18	2⅝	14	2	1⅝	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT314	—	16	2⅝	14	2½	2⅝	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	BA2.56/14 (Min)	—	14	2⅝	14	3	2½	6-16d	10-16d	2-10dx1½	435	4990	4370	5835	5385	5820	2420	—
											1.94	22.20	19.44	25.96	23.95	25.89	10.77	—
	BA2.56/14 (Max)	✓	14	2⅝	14	3	2½	6-16d	10-16d	8-10dx1½	1960	5940	4370	6490	7075	6185	—	—
											8.72	26.42	19.44	28.87	31.47	27.51	—	—
	LBV2.56/14	—	14	2⅝	14	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPI314	✓	12	2⅝	14	2½	2⅜	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WMI314	✓	12	2⅝	14	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
2½ - 2⅝ x 16	ITS2.56/16	—	18	2⅝	15 15/16	2	1⅞	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT2516	—	18	2⅝	16	2	1⅝	4-10d	2-10d	1-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT316	—	16	2⅝	16	2½	2⅝	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	BA2.56/16 (Min)	—	14	2⅝	16	3	2½	6-16d	10-16d	2-10dx1½	435	4990	4370	5835	5385	5820	2420	—
											1.94	22.20	19.44	25.96	23.95	25.89	10.77	—
	BA2.56/16 (Max)	✓	14	2⅝	16	3	2½	6-16d	10-16d	8-10dx1½	1960	5940	4370	6490	7075	6185	—	—
											8.72	26.42	19.44	28.87	31.47	27.51	—	—

1. When I-joist is used as a header, all header fasteners must be 10dx1½". See footnotes on pages 119 and 122 for reduction values when flange material is less than 1½" thick.
2. See pages 118-125 for specific notes on individual model types.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
2½ - 2⁹⁄₁₆ x 16 *(cont.)*	LBV2.56/16	—	14	2⁹⁄₁₆	16	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPI316	✓	12	2⁹⁄₁₆	16	2½	2⁹⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WMI316	✓	12	2⁹⁄₁₆	16	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
2½ x 18	MIT318	—	16	2⁹⁄₁₆	18	2½	2⁹⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	HIT318	—	16	2⁹⁄₁₆	18	3	2⅞	4-16d	6-16d	2-10dx1½	375	4570	2705	3725	3220	3775	—	—
											1.67	20.33	12.03	16.57	14.32	16.79	—	—
	LBV2.56/18	—	14	2⁹⁄₁₆	18	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPI318	✓	12	2⁹⁄₁₆	18	2½	2⁹⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WMI318	✓	12	2⁹⁄₁₆	18	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
2½ x 20	MIT320	✓	16	2⁹⁄₁₆	20	2½	2⁹⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	HIT320	—	16	2⁹⁄₁₆	20	3	2⅞	4-16d	6-16d	2-10dx1½	450	4570	2705	3725	3220	3775	—	—
											2.00	20.33	12.03	16.57	14.32	16.79	—	—
	LBV2.56/20	—	14	2⁹⁄₁₆	20	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPI320	✓	12	2⁹⁄₁₆	20	2½	2⁹⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WMI320	✓	12	2⁹⁄₁₆	20	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
2½ x 22	HIT322	—	16	2⁹⁄₁₆	22	3	2⅞	4-16d	6-16d	2-10dx1½	450	4570	2705	3725	3220	3775	—	—
											2.00	20.33	12.03	16.57	14.32	16.79	—	—
	LBV2.56/22	—	14	2⁹⁄₁₆	22	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPI322	✓	12	2⁹⁄₁₆	22	2½	2⁹⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	HWI322	✓	11	2⁹⁄₁₆	22	4	2½	4-16d	—	4-10dx1½	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
2 ½ x 24	HIT324	—	16	2⁹⁄₁₆	24	3	2⅞	4-16d	6-16d	2-10dx1½	450	4570	2705	3725	3220	3775	—	—
											2.00	20.33	12.03	16.57	14.32	16.79	—	—
	LBV2.56/24	—	14	2⁹⁄₁₆	24	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPI324	✓	12	2⁹⁄₁₆	24	2½	2⁹⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
2½ x 26	HIT326	—	16	2⁹⁄₁₆	26	3	2⅞	4-16d	6-16d	2-10dx1½	450	4570	2705	3725	3220	3775	—	—
											2.00	20.33	12.03	16.57	14.32	16.79	—	—
	LBV2.56/26	—	14	2⁹⁄₁₆	26	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPI326	✓	12	2⁹⁄₁₆	26	2½	2⁹⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
2½ x 28	LBV2.56/28	—	14	2⁹⁄₁₆	28	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPI328	✓	12	2⁹⁄₁₆	28	2½	2⁹⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
2½ x 30	LBV2.56/30	—	14	2⁹⁄₁₆	30	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPI330	✓	12	2⁹⁄₁₆	30	2½	2⁹⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
3 x 9¼	LBV3.12/9.25	—	14	3⅛	9¼	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPI29.25-2	✓	12	3⅛	9¼	2½	2⁹⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM29.25-2	✓	12	3⅛	9¼	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96

1. When I-joist is used as a header, all header fasteners must be 10dx1½. See foonotes on pages 119 and 122 for reduction values when flange material is less than 1½" thick.
2. See pages 118-125 for specific notes on individual model types.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
3 x 9½	LT2-159	—	18	3⅛	9½	2	1⅝	4-10d	2-10d	2-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT29.5-2	—	16	3⅛	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV3.12/9.5	—	14	3⅛	9½	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP29.5-2	✓	12	3⅛	9½	2½	2¾₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM29.5-2	✓	12	3⅛	9½	2½	3¾	2-16d DPLX	—		—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
3 x 11¼	LBV3.12-11.25	—	14	3⅛	11¼	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP211.25-2	✓	12	3⅛	11¼	2½	2¾₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM211.25-2	✓	12	3⅛	11¼	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
3 x 11⅞	LT2-151188	—	18	3⅛	11⅞	2	1⅝	4-10d	2-10d	2-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT211.88-2	—	16	3⅛	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV3.12/11.88	—	14	3⅛	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP211.88-2	✓	12	3⅛	11⅞	2½	2¾₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM211.88-2	✓	12	3⅛	11⅞	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
3 x 14	LBV3.12/14	—	14	3⅛	14	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
3 x 16	LBV3.12/16	—	14	3⅛	16	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
3½ x 7¼	LBV3.56/7.25	—	14	3⁹⁄₁₆	7¼	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPU3.56/7.25	✓	12	3⁹⁄₁₆	7¼	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	1665	6390	6390	6825	7085	5980	—	—
											7.41	28.43	28.43	30.36	31.52	26.60	—	—
3½ x 9½	ITS3.56/9.5	✓[3]	18	3⅝	9⁷⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT359	✓[3]	18	3⁹⁄₁₆	9½	2	1⅝	4-10d	2-10d	2-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT49.5	✓[3]	16	3⁹⁄₁₆	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
NEW	BA3.56/9.5 (MIN)	—	14	3⁹⁄₁₆	9½	3	2½	6-16d	10-16d	2-10dx1½	435	4990	4370	5835	5385	5820	2420	—
											1.94	22.2	19.44	25.96	23.95	25.89	10.77	—
NEW	BA3.56/9.5 (MAX)	✓	14	3⁹⁄₁₆	9½	3	2½	6-16d	10-16d	8-10dx1½	1960	5940	4370	6490	7075	6185	—	—
											8.72	26.42	19.44	28.87	31.47	27.51	—	—
	LBV3.56/9.5	—	14	3⁹⁄₁₆	9½	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	HB3.56/9.5	✓	10	3⁹⁄₁₆	9½	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI49.5	✓	12	3⁹⁄₁₆	9½	2½	2⁵⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	HW49.5	✓	11	3⁹⁄₁₆	9½	2½	2½	4-16d	—	2-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	HWU3.56/9.5	✓	10	3⁹⁄₁₆	9½	3¼	2½	4-16d	4-16d	6-10d	1775	10170	8875	10170	8325	8925	—	—
											7.90	45.24	39.48	45.24	37.03	39.70	—	—
	GLTV3.59	✓	7	3⁹⁄₁₆	9½	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV3.59	✓	7	3⁹⁄₁₆	9½	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL3.62/9.5	✓	3	3⁹⁄₁₆	9½	4	3	—	6-16d	6-16d	2155	13245	6775	15850	15855	—	—	—
											9.59	58.92	30.14	70.51	70.53	—	—	—
	WM3.56/9.5	✓	12	3⁹⁄₁₆	9½	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96

1. When I-joist is used as a header, all header fasteners must be 10dx1½. See foonotes on pages 119 and 122 for reduction values when flange material is less than 1½" thick.
2. See pages 118-125 for specific notes on individual model types.
3. For 16 and 18 gauge, 3½" wide I-joist hangers, web stiffeners are required when the factored reaction is greater than 2330 lbs. (10.36 kN).

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header		Joist	Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
3½ x 11⅞	ITS3.56/11.88	✓[3]	18	3⅝	11 13/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT351188	✓[3]	18	3 9/16	11⅞	2	1⅝	4-10d	2-10d	2-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT411.88	✓[3]	16	3 9/16	11⅞	2½	2 5/16	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	BA3.56/11.88 (Min)	—	14	3 9/16	11⅞	3	2½	6-16d	10-16d	2-10dx1½	435	4990	4370	5835	5385	5820	2420	—
											1.94	22.20	19.44	25.96	23.95	25.89	10.77	—
	BA3.56/11.88 (Max)	✓	14	3 9/16	11⅞	3	2½	6-16d	10-16d	8-10dx1½	1960	5940	4370	6490	7075	6185	—	—
											8.72	26.42	19.44	28.87	31.47	27.51	—	—
	LBV3.56/11.88	—	14	3 9/16	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	B3.56/11.88	✓	12	3 9/16	11⅞	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB3.56/11.88	✓	10	3 9/16	11⅞	3½	2½	6-16d	16-16d	10-16dx2½	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI411.88	✓	12	3 9/16	11⅞	2½	2 3/16	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WPU3.56/11.88	✓	12	3 9/16	11⅞	3	2 5/16	3-16d	4-16d	6-10dx1½	1665	6390	6390	6825	7085	5980	—	—
											7.41	28.43	28.43	30.36	31.52	26.60	—	—
	HWI411.88	✓	11	3 9/16	11⅞	2½	2½	4-16d	—	2-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	HWU3.56/11.88	✓	10	3 9/16	11⅞	3¼	2½	4-16d	4-16d	6-10d	1775	10170	8875	10170	8325	8925	—	—
											7.90	45.24	39.48	45.24	37.03	39.70	—	—
	GLTV3.511	✓	7	3 9/16	11⅞	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV3.511	✓	7	3 9/16	11⅞	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL3.62/11.88	✓	3	3⅝	11⅞	4	3	—	6-16d	6-16d	2155	13245	6775	15850	15855	—	—	—
											9.59	58.92	30.14	70.51	70.53	—	—	—
	WM3.56/11.88	✓	12	3 9/16	11⅞	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
3½ x 14	ITS3.56/14	✓[3]	18	3⅝	13 15/16	2	1 7/16	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT3514	✓[3]	18	3 9/16	14	2	1⅝	4-10d	2-10d	2-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT414	✓[3]	16	3 9/16	14	2½	2 5/16	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	BA3.56/14 (Min)	—	14	3 9/16	14	3	2½	6-16d	10-16d	2-10dx1½	435	4990	4370	5835	5385	5820	2420	—
											1.94	22.20	19.44	25.96	23.95	25.89	10.77	—
	BA3.56/14 (Max)	✓	14	3 9/16	14	3	2½	6-16d	10-16d	8-10dx1½	1960	5940	4370	6490	7075	6185	—	—
											8.72	26.42	19.44	28.87	31.47	27.51	—	—
	LBV3.56/14	—	14	3 9/16	14	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	B3.56/14	✓	12	3 9/16	14	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB3.56/14	✓	10	3 9/16	14	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI414	✓	12	3 9/16	14	2½	2 3/16	2-16d DPLX	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WPU3.56/14	✓	12	3 9/16	14	3	2 5/16	3-16d	4-16d	6-10dx1½	1665	6390	6390	6825	7085	5980	—	—
											7.41	28.43	28.43	30.36	31.52	26.60	—	—
	HWI414	✓	11	3 9/16	14	2½	2½	4-16d	—	2-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	HWU3.56/14	✓	10	3 9/16	14	3¼	2½	4-16d	4-16d	6-10d	1775	10170	8875	10170	8325	8925	—	—
											7.90	45.24	39.48	45.24	37.03	39.70	—	—
	GLTV3.514	✓	7	3 9/16	14	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—

1. When I-joist is used as a header, all header fasteners must be 10dx1½. See foonotes on pages 119 and 122 for reduction values when flange material is less than 1½" thick.
2. See pages 118-125 for specific notes on individual model types.
3. For 16 and 18 gauge, 3½" wide I-joist hangers, web stiffeners are required when the factored reaction is greater than 2330 lbs. (10.36 kN).

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
3½ x 14 *(cont.)*	HGLTV3.514	✓	7	3⁹⁄₁₆	14	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL3.62/14	✓	3	3⅝	14	4	3	—	6-16d	6-16d	2155	13245	6775	15850	15855	—	—	—
											9.59	58.92	30.14	70.51	70.53	—	—	—
	WMI414	✓	12	3⁹⁄₁₆	14	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
3½ x 16	ITS3.56/16	✓[3]	18	3⅝	15¹⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	175	2235	1690	2280	2005	2615	1375	—
											0.78	9.94	7.52	10.14	8.92	11.63	6.12	—
	LT3516	✓[3]	18	3⁹⁄₁₆	16	2	1⅜	4-10d	2-10d	2-#8x1¼ WS	105	2625	1725	2560	2480	2620	1695	—
											0.47	11.68	7.67	11.39	11.03	11.65	7.54	—
	MIT416	✓[3]	16	3⁹⁄₁₆	16	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	BA3.56/16 (Min)	—	14	3⁹⁄₁₆	16	3	2½	6-16d	10-16d	2-10dx1½	435	4990	4370	5835	5385	5820	2420	—
											1.94	22.20	19.44	25.96	23.95	25.89	10.77	—
	BA3.56/16 (Max)	✓	14	3⁹⁄₁₆	16	3	2½	6-16d	10-16d	8-10dx1½	1960	5940	4370	6490	7075	6185	—	—
											8.72	26.42	19.44	28.87	31.47	27.51	—	—
	B3.56/16	✓	12	3⁹⁄₁₆	16	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB3.56/16	✓	10	3⁹⁄₁₆	16	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI416	✓	12	3⁹⁄₁₆	16	2½	2⁵⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WPU3.56/16	✓	12	3⁹⁄₁₆	16	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	1665	6390	6390	6825	7085	5980	—	—
											7.41	28.43	28.43	30.36	31.52	26.60	—	—
	HWI416	✓	11	3⁹⁄₁₆	16	2½	2½	4-16d	—	2-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	HWU3.56/16	✓	10	3⁹⁄₁₆	16	3¼	2½	4-16d	4-16d	6-10d	1775	10170	8875	10170	8325	8925	—	—
											7.90	45.24	39.48	45.24	37.03	39.70	—	—
	GLTV3.516	✓	7	3⁹⁄₁₆	16	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV3.516	✓	7	3⁹⁄₁₆	16	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL3.62/16	✓	3	3⅝	16	4	3	—	6-16d	6-16d	2155	13245	6775	15850	15855	—	—	—
											9.59	58.92	30.14	70.51	70.53	—	—	—
	WMI416	✓	12	3⁹⁄₁₆	16	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
3½ x 18	MIT418	✓[3]	16	3⁹⁄₁₆	18	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	HIT418	✓[3]	16	3⁹⁄₁₆	18	3	2⅜	4-16d	6-16d	2-10dx1½	450	4570	2705	3725	3220	3775	—	—
											2.00	20.33	12.03	16.57	14.32	16.79	—	—
	LBV3.56/18	—	14	3⁹⁄₁₆	18	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	HB3.56/18	✓	10	3⁹⁄₁₆	18	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI418	✓	12	3⁹⁄₁₆	18	2½	2⁵⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WPU3.56/18	✓	12	3⁹⁄₁₆	18	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	1665	6390	6390	6825	7085	5980	—	—
											7.41	28.43	28.43	30.36	31.52	26.60	—	—
	HWI418	✓	11	3⁹⁄₁₆	18	2½	2½	4-16d	—	2-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	HWU3.56/18	✓	10	3⁹⁄₁₆	18	3¼	2½	4-16d	4-16d	6-10d	1775	10170	8875	10170	8325	8925	—	—
											7.90	45.24	39.48	45.24	37.03	39.70	—	—
	GLTV3.518	✓	7	3⁹⁄₁₆	18	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV3.518	✓	7	3⁹⁄₁₆	18	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL3.62/18	✓	3	3⁹⁄₁₆	18	5	3	—	12-16d	12-16d	3255	17635	11490	21600	20915	—	—	—
											14.48	78.45	51.11	96.09	93.04	—	—	—
	WMI418	✓	12	3⁹⁄₁₆	18	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96

1. When I-joist is used as a header, all header fasteners must be 10dx1½. See foonotes on pages 119 and 122 for reduction values when flange material is less than 1½" thick.
2. See pages 118-125 for specific notes on individual model types.
3. For 16 and 18 gauge, 3½" wide I-joist hangers, web stiffeners are required when the factored reaction is greater than 2330 lbs. (10.36 kN).

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
3½ x 18¾	GLTV3.56/18.75	✓	7	3⁹⁄₁₆	18¾	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV3.56/18.75	✓	7	3⁹⁄₁₆	18¾	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL3.62/18.75	✓	3	3⁹⁄₁₆	18¾	5	3	—	12-16d	12-16d	3255	17635	11490	21600	20915	—	—	—
											14.48	78.45	51.11	96.09	93.04	—	—	—
3½ x 20	MIT420	✓[3]	16	3⁹⁄₁₆	20	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	HIT420	✓[3]	16	3⁹⁄₁₆	20	3	2⅜	4-16d	6-16d	2-10dx1½	450	4570	2705	3725	3220	3775	—	—
											2.00	20.33	12.03	16.57	14.32	16.79	—	—
	LBV3.56/20	—	14	3⁹⁄₁₆	20	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	HB3.56/20	✓	10	3⁹⁄₁₆	20	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI420	✓	12	3⁹⁄₁₆	20	2½	2⁵⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WPU3.56/20	✓	12	3⁹⁄₁₆	20	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	595	6390	6390	6825	7085	5980	—	—
											2.65	28.43	28.43	30.36	31.52	26.60	—	—
	HWI420	✓	11	3⁹⁄₁₆	20	2½	2½	4-16d	—	2-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	GLTV3.520	✓	7	3⁹⁄₁₆	20	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV3.520	✓	7	3⁹⁄₁₆	20	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	WMI420	✓	12	3⁹⁄₁₆	20	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
3½ x 22	HIT422	✓[3]	16	3⁹⁄₁₆	22	3	2⅜	4-16d	6-16d	2-10dx1½	450	4570	2705	3725	3220	3775	—	—
											2.00	20.33	12.03	16.57	14.32	16.79	—	—
	LBV3.56/22	—	14	3⁹⁄₁₆	22	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	HB3.56/22	✓	10	3⁹⁄₁₆	22	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI422	✓	12	3⁹⁄₁₆	22	2½	2⁵⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WPU3.56/22	✓	12	3⁹⁄₁₆	22	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	595	6390	6390	6825	7085	5980	—	—
											2.65	28.43	28.43	30.36	31.52	26.60	—	—
	HWI422	✓	11	3⁹⁄₁₆	22	2½	2½	4-16d	—	4-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
3½ x 24	HIT424	✓[3]	16	3⁹⁄₁₆	24	3	2⅜	4-16d	6-16d	2-10dx1½	450	4570	2705	3725	3220	3775	—	—
											2.00	20.33	12.03	16.57	14.32	16.79	—	—
	LBV3.56/24	—	14	3⁹⁄₁₆	24	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	HB3.56/24	✓	10	3⁹⁄₁₆	24	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI424	✓	12	3⁹⁄₁₆	24	2½	2⁵⁄₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WPU3.56/24	✓	12	3⁹⁄₁₆	24	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	595	6390	6390	6825	7085	5980	—	—
											2.65	28.43	28.43	30.36	31.52	26.60	—	—
	HWI424	✓	11	3⁹⁄₁₆	24	2½	2½	4-16d	—	4-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
3½ x 26	HIT426	✓[3]	16	3⁹⁄₁₆	26	3	2⅜	4-16d	6-16d	2-10dx1½	450	4570	2705	3725	3220	3775	—	—
											2.00	20.33	12.03	16.57	14.32	16.79	—	—
	LBV3.56/26	—	14	3⁹⁄₁₆	26	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	HB3.56/26	✓	10	3⁹⁄₁₆	26	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—

1. When I-joist is used as a header, all header fasteners must be 10dx1½. See foonotes on pages 119 and 122 for reduction values when flange material is less than 1½" thick.
2. See pages 118-125 for specific notes on individual model types.
3. For 16 and 18 gauge, 3½" wide I-joist hangers, web stiffeners are required when the factored reaction is greater than 2330 lbs. (10.36 kN).

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
3½ x 26 *(cont.)*	WPI426	✓	12	3⁹⁄₁₆	26	2½	2¾₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WPU3.56/26	✓	12	3⁹⁄₁₆	26	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	595	6390	6390	6825	7085	5980	—	—
											2.65	28.43	28.43	30.36	31.52	26.60	—	—
	HWI426	✓	11	3⁹⁄₁₆	26	2½	2½	4-16d	—	4-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
3½ x 28	LBV3.56/28	—	14	3⁹⁄₁₆	28	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	HB3.56/28	✓	10	3⁹⁄₁₆	28	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI428	✓	12	3⁹⁄₁₆	28	2½	2¾₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WPU3.56/28	✓	12	3⁹⁄₁₆	28	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	595	6390	6390	6825	7085	5980	—	—
											2.65	28.43	28.43	30.36	31.52	26.60	—	—
	HWI428	✓	11	3⁹⁄₁₆	28	2½	2½	4-16d	—	4-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
3½ x 30	LBV3.56/30	—	14	3⁹⁄₁₆	30	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	HB3.56/30	✓	10	3⁹⁄₁₆	30	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI430	✓	12	3⁹⁄₁₆	30	2½	2¾₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	HWI430	✓	11	3⁹⁄₁₆	30	2½	2½	4-16d	—	4-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
3½ x 32	WPI432	✓	12	3⁹⁄₁₆	32	2½	2¾₁₆	2-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	HWI432	✓	11	3⁹⁄₁₆	32	2½	2½	4-16d	—	4-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
4 x 9½	LBV4.12/9.5	—	14	4⅛	9½	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
4 x 11⅞	LBV4.12/11.88	—	14	4⅛	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
4 x 14	LBV4.12/14	—	14	4⅛	14	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
4 x 16	LBV4.12/16	—	14	4⅛	16	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
4⅛ x 9½	MIT4.28/9.5	—	16	4³⁄₃₂	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV4.28/9.5	—	14	4³⁄₃₂	9½	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
4⅛ x 11⅞	MIT4.28/11.88	—	16	4³⁄₃₂	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV4.28/11.88	—	14	4³⁄₃₂	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
4⅛ x 14	MIT4.28/14	—	16	4³⁄₃₂	14	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV4.28/14	—	14	4³⁄₃₂	14	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
4⅛ x 16	LBV4.28/16	—	14	4³⁄₃₂	16	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
4⅝ x 9½	MIT359.5-2	—	16	4¾	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV4.75/9.5	—	14	4¾	9½	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP359.5-2	✓	12	4¾	9½	2½	2⁵⁄₁₆	3-16d	—	2-10d	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—

1. When I-joist is used as a header, all header fasteners must be 10dx1½. See foonotes on pages 119 and 122 for reduction values when flange material is less than 1½" thick.
2. See pages 118-125 for specific notes on individual model types.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
4⅝ x 11⅞	MIT3511.88-2	—	16	4¾	11⅞	2½	2½	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV4.75/11.88	—	14	4¾	11⅞	2½	2⁵⁄₁₆	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP3511.88-2	✓	12	4¾	11⅞	2½	2½	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM3511.88-2	✓	12	4¾	11⅞	2½	2⁵⁄₁₆	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
4⅝ x 14	MIT3514-2	—	16	4¾	14	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV4.75/14	—	14	4¾	14	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP3514-2	✓	12	4¾	14	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM3514-2	✓	12	4¾	14	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
4⅝ x 16	MIT4.75/16	—	16	4¾	16	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV4.75/16	—	14	4¾	16	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP3516-2	✓	12	4¾	16	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM3516-2	✓	12	4¾	16	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
4⅝ x 18	LBV4.75/18	—	14	4¾	18	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP3518-2	✓	12	4¾	18	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM3518-2	✓	12	4¾	18	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
4⅝ x 20	LBV4.75/20	—	14	4¾	20	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WP3520-2	✓	12	4¾	20	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	WM3520-2	✓	12	4¾	20	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
5 x 9½	MIT39.5-2	—	16	5⅛	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV5.12/9.5	—	14	5⅛	9½	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPI39.5-2	✓	12	5⅛	9½	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
5 x 11⅞	MIT311.88-2	—	16	5⅛	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV5.12/11.88	✓	14	5⅛	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPI311.88-2	—	12	5⅛	11⅞	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
5 x 14	MIT314-2	—	16	5⅛	14	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV5.12/14	—	14	5⅛	14	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	WPI314.2	✓	12	5⅛	14	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
5 x 16	MIT5.12/16	—	16	5⅛	16	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	375	3490	2420	3550	3025	3465	1900	—
											1.67	15.52	10.77	15.79	13.46	15.41	8.45	—
	LBV5.12/16	—	14	5⅛	16	2½	2½	6-16d	4-16d	2-10dx1½	435	3905	3125	3905	4410	4630	2200	—
											1.94	17.37	13.90	17.37	19.62	20.60	9.79	—
	HB5.12/16	✓	10	5⅛	16	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI316-2	✓	12	5⅛	16	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—

1. When I-joist is used as a header, all header fasteners must be 10dx1½. See footnotes on pages 119 and 122 for reduction values when flange material is less than 1½" thick.
2. See pages 118-125 for specific notes on individual model types.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
5 x 18	B5.12/18	✓	12	5⅛	18	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB5.12/18	✓	10	5⅛	18	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI318-2	✓	12	5⅛	18	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
5 x 20	B5.12/20	✓	12	5⅛	20	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB5.12/20	✓	10	5⅛	20	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI320-2	✓	12	5⅛	20	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
5 x 22	B5.12/22	✓	12	5⅛	22	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB5.12/22	✓	10	5⅛	22	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI322-2	✓	12	5⅛	22	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
5 x 24	B5.12/24	✓	12	5⅛	24	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB5.12/24	✓	10	5⅛	24	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
5 x 26	HB5.12/26	✓	10	5⅛	26	3½	3	6-16d	8-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI326-2	✓	12	5⅛	26	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
5 x 28	B5.12/28	✓	12	5⅛	28	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB5.12/28	✓	10	5⅛	28	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
5 x 30	B5.12/30	✓	12	5⅛	30	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB5.12/30	✓	10	5⅛	30	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
5¼ x 7¼	WPU5.50/7.25	✓	12	5½	7¼	3	2⁵⁄₁₆	3-16d	4-16d	6-10d	1665	6390	6390	6825	7085	5980	—	—
											7.41	28.43	28.43	30.36	31.52	26.60	—	—
5¼ x 9¼	HB5.50/9.25	✓	10	5½	9¼	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	HWU5.50/9.25	✓	10	5½	9¼	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV5.50/9.25	✓	7	5⁹⁄₁₆	9¼	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
5¼ x 9½	HB5.50/9.5	✓	10	5½	9½	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WP5.50/9.5	✓	12	5½	9½	2½	2⁵⁄₁₆	3-16d	-	2-10d	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	HWU5.50/9.5	✓	10	5½	9½	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV5.59	✓	7	5⁹⁄₁₆	9½	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV5.59	✓	7	5⁹⁄₁₆	9½	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL5.37/9.5	✓	3	5⅜	9½	4	2¾	—	6-16d	6-16d	2155	13245	6775	15850	15855	—	—	—
											9.59	58.92	30.14	70.51	70.53	—	—	—
	WM5.50/9.5	✓	12	5½	9½	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
5¼ x 11¼	HB5.50/11.25	✓	10	5½	11¼	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	HWU5.50/11.25	✓	10	5½	11¼	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV5.50/11.25	✓	7	5⁹⁄₁₆	11¼	5	2⅞	4-16d	6-16d	6-10d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—

See pages 118-125 for specific notes on individual model types.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
5¼ x 11⅞	HB5.50/11.88	✓	10	5½	11⅞	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WP5.50/11.88	✓	12	5½	11⅞	2½	2⁵⁄₁₆	3-16d	—	2-10d	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	HWU5.50/11.88	✓	10	5½	11⅞	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV5.511	✓	7	5⁹⁄₁₆	11⅞	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV5.511	✓	7	5⁹⁄₁₆	11⅞	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL5.37/11.88	✓	3	5⅜	11⅞	5	2¾	—	12-16d	12-16d	3255	17635	11490	21600	20915	—	—	—
											14.48	78.45	51.11	96.09	93.04	—	—	—
	WM5.50/11.88	✓	12	5½	11⅞	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
5¼ x 14	HB5.50/14	✓	10	5½	14	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	HWU5.50/14	✓	10	5½	14	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV5.514	✓	7	5⁹⁄₁₆	14	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV5.514	✓	7	5⁹⁄₁₆	14	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL5.37/14	✓	3	5⅜	14	5	2¾	—	12-16d	12-16d	3255	17635	11490	21600	20915	—	—	—
											14.48	78.45	51.11	96.09	93.04	—	—	—
5¼ x 16	GLTV5.516	✓	7	5⁹⁄₁₆	16	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV5.516	✓	7	5⁹⁄₁₆	16	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL5.37/16	✓	⅜	5⅜	16	6	2⅝	—	10-16d	12-16d	4305	23730	13025	29000	27350	—	—	—
											19.15	105.56	57.94	129.00	121.66	—	—	—
5¼ x 18	HB5.50/18	✓	10	5½	18	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	HWU5.50/18	✓	10	5½	18	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV5.518	✓	7	5⁹⁄₁₆	18	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV5.518	✓	7	5⁹⁄₁₆	18	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL5.37/18	✓	⅜	5⅜	18	6	2⅝	—	10-16d	12-16d	4305	23730	13025	29000	27350	—	—	—
											19.15	105.56	57.94	129.00	121.66	—	—	—
5¼ x 18¾	GLTV5.50/18.75	✓	7	5½	18¾	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV5.50/18.75	✓	7	5½	18¾	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL5.37/18.75	✓	⅜	5⅜	18¾	6	2⅝	—	10-16d	12-16d	4305	23730	13025	29000	27350	—	—	—
											19.15	105.56	57.94	129.00	121.66	—	—	—
5¼ x 20	HB5.50/20	✓	10	5½	20	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	HW5.50/20	✓	11	5½	20	2½	2½	4-16d	—	2-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	HWU5.50/20	✓	10	5½	20	3¼	2½	4-16d	4-16d	6-10d	1490	8250	8250	8250	8250	8250	—	—
											6.63	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV5.520	✓	7	5⁹⁄₁₆	20	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV5.520	✓	7	5⁹⁄₁₆	20	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
7 x 7¼	HWU7.12/7.25	✓	10	7⅛	7¼	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—

See pages 118-125 for specific notes on individual model types.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
7 x 9¼	HB7.12/9.25	✓	10	7⅛	9¼	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI49.25-2	✓	12	7⅛	9¼	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	HWU7.12/9.25	✓	10	7⅛	9¼	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV49.25-2	✓	7	7⅛	9¼	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
7 x 9½	B7.12/9.5	✓	12	7⅛	9½	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB7.12/9.5	✓	10	7⅛	9½	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI49.5-2	✓	12	7⅛	9½	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	HWU7.12/9.5	✓	10	7⅛	9½	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV49.5-2	✓	7	7⅛	9½	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	SCL7.25/9.5	✓	3	7¼	9½	4	2¾	—	6-16d	6-16d	2155	13245	6775	15845	15855	—	—	—
											9.59	58.92	30.14	70.48	70.53	—	—	—
	WMI49.5-2	✓	12	7⅛	9½	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
7 x 11¼	HB7.12/11.25	✓	10	7⅛	11¼	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI411.25-2	✓	12	7⅛	11¼	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	HWU7.12/11.25	✓	10	7⅛	11¼	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV411.25-2	✓	7	7⅛	11¼	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV411.25-2	✓	7	7⅛	11¼	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	WMI411.25-2	✓	12	7⅛	11¼	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
7 x 11⅞	B7.12/11.88	✓	12	7⅛	11⅞	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB7.12/11.88	✓	10	7⅛	11⅞	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI411.88-2	✓	12	7⅛	11⅞	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	HWU7.12/11.88	✓	10	7⅛	11⅞	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV411.88-2	✓	7	7⅛	11⅞	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV411.88-2	✓	7	7⅛	11⅞	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL7.25/11.88	✓	3	7¼	11⅞	5	2¾	—	12-16d	12-16d	3255	17635	11490	21600	20915	—	—	—
											14.48	78.45	51.11	96.09	93.04	—	—	—
	WMI411.88-2	✓	12	7⅛	11⅞	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
7 x 14	B7.12/14	✓	12	7⅛	14	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB7.12/14	✓	10	7⅛	14	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI414-2	✓	12	7⅛	14	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	HWU7.12/14	✓	10	7⅛	14	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV414-2	✓	7	7⅛	14	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—

See pages 118-125 for specific notes on individual model types.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
7 x 14 *(cont.)*	HGLTV414-2	✓	7	7⅛	14	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL7.25/14	✓	⅜	7¼	14	5	2¾	—	12-16d	12-16d	3255	17635	11490	21600	20915	—	—	—
											14.48	78.45	51.11	96.09	93.04	—	—	—
	WMI414-2	✓	12	7⅛	14	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
7 x 16	B7.12/16	✓	12	7⅛	16	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB7.12/16	✓	10	7⅛	16	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	WPI416-2	✓	12	7⅛	16	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	4430	3855	5950	5430	5980	—	—
											—	19.71	17.15	26.47	24.15	26.60	—	—
	HWU7.12/16	✓	10	7⅛	16	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV416-2	✓	7	7⅛	16	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV416-2	✓	7	7⅛	16	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL7.25/16	✓	⅜	7¼	16	5	2¾	—	10-16d	12-16d	4305	23730	13025	29000	27350	—	—	—
											19.15	105.56	57.94	129.00	121.66	—	—	—
	WMI416-2	✓	12	7⅛	16	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
7 x 18	B7.12/18	✓	12	7⅛	18	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB7.12/18	✓	10	7⅛	18	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	HWI418-2	✓	11	7⅛	18	2½	2½	4-16d	—	2-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	HWU7.12/18	✓	10	7⅛	18	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV418-2	✓	7	7⅛	18	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV418-2	✓	7	7⅛	18	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
	SCL7.25/18	✓	⅜	7¼	18	6	2⅝	—	10-16d	12-16d	4305	23730	13025	29000	27350	—	—	—
											19.15	105.56	57.94	129.00	121.66	—	—	—
	WMI418-2	✓	12	7⅛	18	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	6060
											—	—	—	—	—	—	—	26.96
7 x 18¾	GLTV418.75-2	✓	7	7⅛	18¾	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	SCL7.25/18.75	✓	⅜	7⅛	18¾	6	2⅝	—	10-16d	12-16d	4305	23730	13025	29000	27350	—	—	—
											19.15	105.56	57.94	129.00	121.66	—	—	—
7 x 20	B7.12/20	✓	12	7⅛	20	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB7.12/20	✓	10	7⅛	20	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	HWI420-2	✓	11	7⅛	20	2½	2½	4-16d	—	2-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	HWU7.12/18	✓	10	7⅛	20	3¼	2½	4-16d	4-16d	6-10d	1775	8250	8250	8250	8250	8250	—	—
											7.90	36.70	36.70	36.70	36.70	36.70	—	—
	GLTV420-2	✓	7	7⅛	20	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV420-2	✓	7	7⅛	20	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
7 x 22	B7.12/22	✓	12	7⅛	22	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB7.12/22	✓	10	7⅛	22	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	HWI422-2	✓	11	7⅛	22	2½	2½	4-16d	—	4-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	GLTV422-2	✓	7	7⅛	22	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV7.12/22	✓	7	7⅛	22	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—

See pages 118-125 for specific notes on individual model types.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions (in)				Fasteners			Factored Resistance							
								Header			Uplift (K_D=1.15)	Normal (K_D = 1.00)						
				W	H	B	TF	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	Masonry
											lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
											kN	kN	kN	kN	kN	kN	kN	kN
7 x 24	B7.12/24	✓	12	7⅛	24	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB7.12/24	✓	10	7⅛	24	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	HWI424-2	✓	11	7⅛	24	2½	2½	4-16d	—	4-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	GLTV424-2	✓	7	7⅛	24	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV7.12/24	✓	7	7⅛	24	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
7 x 26	B7.12/26	✓	12	7⅛	26	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB7.12/26	✓	10	7⅛	26	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	HWI426-2	✓	11	7⅛	26	2½	2½	4-16d	—	6-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	GLTV426-2	✓	7	7⅛	26	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV426-2	✓	7	7⅛	26	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
7 x 28	B7.12/28	✓	12	7⅛	28	2½	2½	6-16d	8-16d	6-16d	1650	5940	3910	6490	5230	6185	—	—
											7.34	26.42	17.39	28.87	23.27	27.51	—	—
	HB7.12/28	✓	10	7⅛	28	3½	3	6-16d	16-16d	10-16d	3555	9335	5945	9525	9240	10475	—	—
											15.81	41.53	26.45	42.37	41.10	46.60	—	—
	HWI428-2	✓	11	7⅛	28	2½	2½	4-16d	—	6-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	GLTV428-2	✓	7	7⅛	28	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV428-2	✓	7	7⅛	28	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
7 x 30	HWI430-2	✓	11	7⅛	30	2½	2½	4-16d	—	6-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	GLTV430-2	✓	7	7⅛	30	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV430-2	✓	7	7⅛	30	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—
7 x 32	HWI432-2	✓	11	7⅛	32	2½	2½	4-16d	—	6-10d	—	6900	5285	7695	5810	6870	—	—
											—	30.69	23.51	34.23	25.85	30.56	—	—
	GLTV432-2	✓	7	7⅛	32	5	2⅞	4-16d	6-16d	6-16d	2145	10455	7470	10890	10745	8590	—	—
											9.54	46.51	33.23	48.44	47.80	38.21	—	—
	HGLTV432-2	✓	7	7⅛	32	6	2⅞	6-16d	12-16d	6-16d	2145	13070	9830	15365	11325	13795	—	—
											9.54	58.14	43.73	68.35	50.38	61.37	—	—

See pages 118-125 for specific notes on individual model types.

THAI *I-Joist & Structural Composite Lumber Hangers*

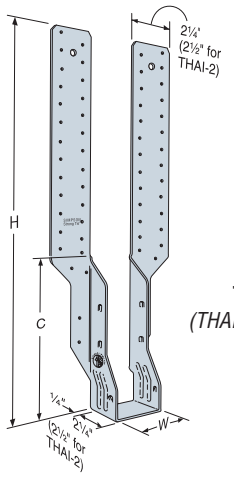
Designed for I-joists, the THAI has extra long straps and can be field-formed to give height adjustability and top flange hanger convenience. Positive angle nailing helps eliminate splitting of the I-joist's bottom flange.

MATERIAL: THAI-2–14 gauge; all others–18 gauge

FINISH: Galvanized

INSTALLATION:

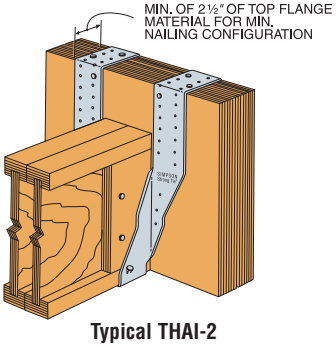
- THAI-2 must be factory-ordered for hanger width needed. See table for allowable widths.
- Use all specified fasteners. Verify that the header can take the required fasteners specified in the table.
- Web stiffeners are required for all I-joists used with these hangers.
- When a total of 20 face nails are used in THAI straps, or 30 face nails are used in THAI-2 straps, the maximum factored resistance is achieved.
- 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".



THAI
(THAI-2 similar)

Joist Dimensions (in)		Model No.	Hanger Dimensions (in)		
Width	Depth		W[1]	H	C
1½	9¼ - 14"	THAI222	1 9/16	22 7/8	9 3/8
1¾	9¼ - 14"	THAI1.81/22	1 13/16	22¾	9¼
2	9¼ - 14"	THAI2.06/22	2 1/16	22 5/8	9 1/8
2¼ to 2 5/16	9¼ - 14"	THAI3522	2 5/16	22½	9
2½	9¼ - 14"	THAI322	2 9/16	22 3/8	8 7/8
3½	9¼ - 14"	THAI422	3 9/16	21 7/8	8 3/8
3 to 5¼	9¼ - 14"	THAI-2	3 1/8 to 5 5/16	21 11/16	8 13/16

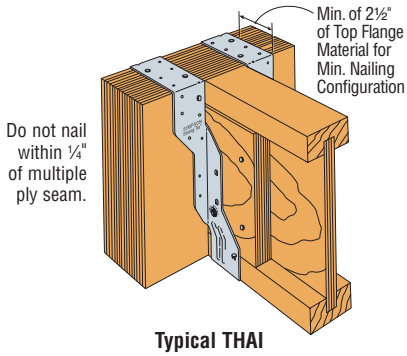
1. The W dimension should be ordered at 1/16" to 1/8" greater than the joist width.



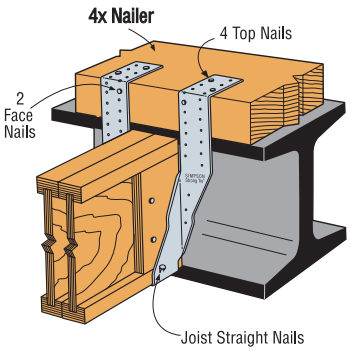
Typical THAI-2 Installation

Nailing Option	Fasteners			Factored Resistance			
	Header		Joist	Uplift (K_D =1.15)	D.Fir-L	S-P-F	LVL
	Top	Face			Normal	Normal	Normal
					(K_D =1.00)	(K_D =1.00)	(K_D =1.00)
				lbs	lbs	lbs	lbs
				kN	kN	kN	kN
THAI Minimum	4-10dx1½	2-10dx1½	2-10dx1½	—	2035	1735	2595
				—	9.05	7.72	11.54
	4-10d	2-10d	2-10dx1½	—	3000	2385	2810
				—	13.35	10.61	12.50
THAI Maximum	—	20-10d	2-10dx1½	410	3025	2150	3025
				1.82	13.46	9.56	13.46
THAI-2 Minimum	4-10d	2-10d	2-10dx1½	—	2800	2800	2800
				—	12.46	12.46	12.46
THAI-2 Maximum	—	30-10d	2-10dx1½	410	6090	4325	6090
				1.82	27.09	19.24	27.09

1. Uplift loads have been increased 15% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. The minimum header depth to achieve the maximum nail configuration is 16".
3. 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 S-P-F column.
4. Factored uplift resistances shown are for D.Fir-L. Multiply tablulated resistances x 0.71 for either SPF joist or header.
5. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information



Typical THAI Installation with Minimum Nailing Configuration



Typical THAI Minimum Nailing Configuration on a 4x Nailer

LSU/LSSU/LSSUI *Light Slopeable/Skewable U Hangers for I-Joists and SCL*

SIMPSON Strong-Tie®

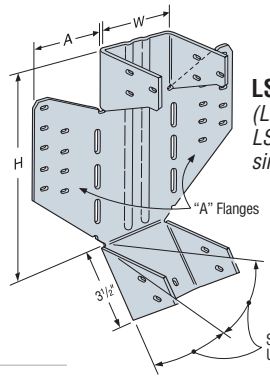
This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

This series attach joists or rafters to headers, sloped up or down, and skewed left or right, up to 45°.

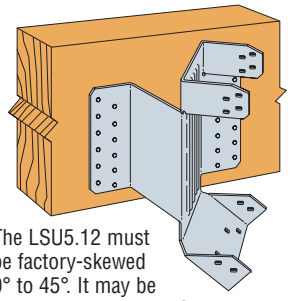
MATERIAL: See table **FINISH**: Galvanized

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***.
- 10dx1½" nails cannot be substituted for specified face nails for skewed or sloped and skewed combinations.



LSSU410 *(LSSU210-2, LSSUH310 similar)*

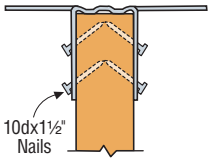


The LSU5.12 must be factory-skewed 0° to 45°. It may be field-sloped to 45°. *(LSU4.12, LSU4.28 and LSU3510-2 similar)*

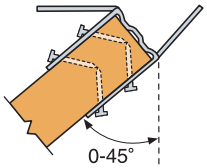
Hanger shown skewed right

LSU and LSSU INSTALLATION SEQUENCE

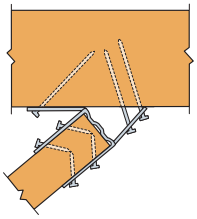
(For Skewed or Sloped/Skewed Applications)



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



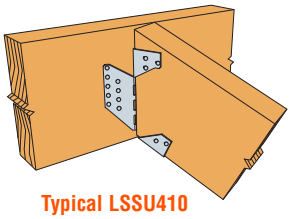
STEP 2
Skew flange from 0-45°. Bend other flange back along centerline of slots until it meets the header. Bend one time only.



STEP 3
Attach hanger to the carrying member, acute angle side first. Install nails at an angle.

Actual Joist Width (in)	Model No.	Ga	Dimensions (in) W	H	A	Fasteners Header	Joist	Factored Resistance D.Fir-L Uplift (K_D=1.15) lbs / kN	D.Fir-L Normal (K_D=1.00) lbs / kN	S-P-F Uplift (K_D=1.15) lbs / kN	S-P-F Normal (K_D=1.00) lbs / kN
SLOPED ONLY HANGERS											
1½	LSSU210	18	1⁹⁄₁₆	8½	1⁵⁄₈	10-10d	7-10dx1½	1240 / 5.52	3090 / 13.75	1130 / 5.03	2325 / 10.34
1¾	LSSUI25	18	1¹³⁄₁₆	8½	1½	10-10d	7-10dx1½	1240 / 5.52	3090 / 13.75	1130 / 5.03	2325 / 10.34
2	LSSUI2.06	18	2¹⁄₁₆	8½	1¾	10-10d	7-10dx1½	1240 / 5.52	3090 / 13.75	1130 / 5.03	2325 / 10.34
2¹⁄₁₆	LSSU2.1	18	2⅛	8½	1¾	10-10d	7-10dx1½	1240 / 5.52	3090 / 13.75	1130 / 5.03	2325 / 10.34
2¼ - 2⁵⁄₁₆	LSSUI35	18	2⁵⁄₁₆	8½	1⁵⁄₈	10-10d	7-10dx1½	1240 / 5.52	3090 / 13.75	1130 / 5.03	2325 / 10.34
2½	LSSUH310	16	2⁹⁄₁₆	8½	3⅛	18-16d	12-10dx1½	1625 / 7.23	3675 / 16.35	1155 / 5.14	2780 / 12.37
3	LSSU210-2	16	3⅛	8½	2⅞	18-16d	12-10dx1½	1625 / 7.23	3675 / 16.35	1155 / 5.14	2780 / 12.37
3½	LSSU410	16	3⁹⁄₁₆	8½	2⅝	18-16d	12-10dx1½	1625 / 7.23	4520 / 20.11	1155 / 5.14	3210 / 14.28
4	LSU4.12	14	4⅛	9	2¼	24-16d	16-10dx1½	1960 / 8.72	3810 / 16.95	1395 / 6.21	2705 / 12.03
4⅛	LSU4.28	14	4¼	9	2⅜	24-16d	16-10dx1½	1960 / 8.72	3810 / 16.95	1395 / 6.21	2705 / 12.03
4½ - 4¾	LSU3510-2	14	4¾	8⅞	3⅝	24-16d	16-10dx1½	1960 / 8.72	3810 / 16.95	1395 / 6.21	2705 / 12.03
5	LSU5.12	14	5⅛	9	2¼	24-16d	16-10dx1½	1285 / 5.72	4755 / 21.15	910 / 4.05	2770 / 12.32
SKEWED HANGERS OR SLOPED AND SKEWED HANGERS											
1½	LSSU210	18	1⁹⁄₁₆	8½	1⁵⁄₈	9-10d	7-10dx1½	1240 / 5.52	2090 / 9.30	910 / 4.05	1485 / 6.61
1¾	LSSUI25	18	1¹³⁄₁₆	8½	1½	9-10d	7-10dx1½	1240 / 5.52	2090 / 9.30	910 / 4.05	1485 / 6.61
2	LSSUI2.06	18	2¹⁄₁₆	8½	1¾	9-10d	7-10dx1½	1240 / 5.52	2090 / 9.30	910 / 4.05	1485 / 6.61
2¹⁄₁₆	LSSU2.1	18	2⅛	8½	1¾	9-10d	7-10dx1½	1240 / 5.52	2090 / 9.30	910 / 4.05	1485 / 6.61
2¼ - 2⁵⁄₁₆	LSSUI35	18	2⁵⁄₁₆	8½	1⁵⁄₈	9-10d	7-10dx1½	1240 / 5.52	2090 / 9.30	910 / 4.05	1485 / 6.61
2½	LSSUH310	16	2⁹⁄₁₆	8½	3⅛	14-16d	12-10dx1½	1625 / 7.23	2345 / 10.43	1155 / 5.14	1665 / 7.41
3	LSSU210-2	16	3⅛	8½	2⅞	14-16d	12-10dx1½	1625 / 7.23	2345 / 10.43	1155 / 5.14	1665 / 7.41
3½	LSSU410	16	3⁹⁄₁₆	8½	2⅝	14-16d	12-10dx1½	1625 / 7.23	2345 / 10.43	1155 / 5.14	1665 / 7.41
4	LSU4.12	14	4⅛	9	2¼	24-16d	16-10dx1½	1960 / 8.72	2450 / 10.90	1395 / 6.21	2030 / 9.03
4⅛	LSU4.28	14	4¼	9	2⅜	24-16d	16-10dx1½	1960 / 8.72	2450 / 10.90	1395 / 6.21	2030 / 9.03
4½ - 4¾	LSU3510-2	14	4¾	8⅞	3⅝	24-16d	16-10dx1½	1960 / 8.72	2450 / 10.90	1395 / 6.21	2030 / 9.03
5	LSU5.12	14	5⅛	9	2¼	24-16d	16-10dx1½	1285 / 5.72	2600 / 11.57	910 / 4.05	1845 / 8.21

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.



Typical LSSU410 Installation

1. Factored uplift resistances include a 15% increase for earthquake or wind loading; no further increase is allowed; reduce where other loads govern.
2. LSU3510-2, LSU4.12, LSU4.28 and LSU5.12 skew option must be factory-ordered.
3. Minimum 11" joist height for LSU3510-2, LSU4.12, LSU4.28 and LSU5.12; 9½" for all others.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

SUR/SUL/HSUR/HSUL *Skewed 45° Hangers for I-Joist and SCL*

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, 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.

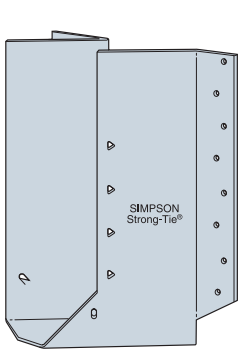
The full range of 45° skewed hangers feature obround nail holes on the acute side allowing nails to be easily installed parallel to the header and joist. Installation is further simplified with no required bevel cuts.

MATERIAL: See table

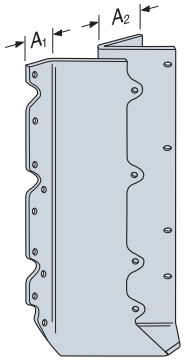
FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, pages 14-17.

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.
- Web stiffeners are required for I-joist applications for all hangers requiring more than two joist fasteners or where the hanger does not overlap the top flange of the joist.
- Fill all round and obround nail holes with specified fasteners to achieve table values. Where noted, triangle holes in the joist flange may be filled for additional uplift capacity *(see Footnote 2).*

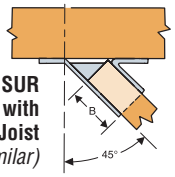
OPTIONS: • These hangers will accommodate a 40° to 50° skew.
- Available with the A_2 flange turned in on 2-2x and 4x models only *(see illustration).* For example, specify HSURC410, HSULC410, SURC210-2, or SULC210-2.



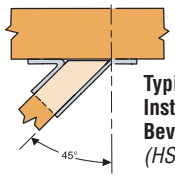
SUL2.56/11



HSUR



Typical SUR Installation with Square Cut Joist *(HSUR similar)*



Typical SUL Installation with Bevel Cut Joist *(HSUL similar)*

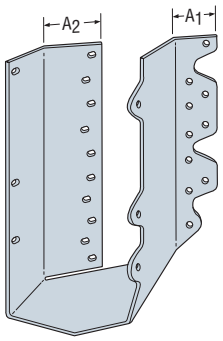
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Actual Joist Size (in)	Model No.	Ga	Dimensions (in)					Fasteners		Factored Resistance			
										D.Fir-L		S-P-F	
			W	H	B	A_1	A_2	Header	Joist	Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)
										lbs	lbs	lbs	lbs
										kN	kN	kN	kN
1½ x 9¼-9½	SUR/L210	16	1 9/16	8⅛	2	1⅛	1 5/16	10-16d	10-10dx1½	2085	3820	1480	2710
										9.27	16.99	6.58	12.05
1½ x 11¼-16	SUR/L214	16	1 9/16	10	2	1⅛	1 5/16	12-16d	12-10dx1½	2690	4585	2175	3255
										11.97	20.40	9.67	14.48
1¾ x 9¼-9½	SUR/L1.81/9	16	1 13/16	9	3	1⅝	2 5/16	12-16d	2-10dx1½	275	3140	195	2220
										1.22	13.97	0.87	9.88
1¾ x 11¼-11⅞	SUR/L1.81/11	16	1 13/16	11	3	1⅝	2 5/16	16-16d	2-10dx1½	275	3140	195	2220
										1.22	13.97	0.87	9.88
1¾ x 14-16	SUR/L1.81/14	16	1 13/16	13¾	3	1⅝	2 5/16	20-16d	2-10dx1½	275	3140	195	2220
										1.22	13.97	0.87	9.88
2 x 9½	SUR/L2.06/9	16	2 1/16	9 1/16	3 3/16	1⅝	2⅛	14-16d	2-10dx1½	385	3950	385	2805
										1.71	17.57	1.71	12.48
2 x 11⅞	SUR/L2.06/11	16	2 1/16	11¼	3 3/16	1⅝	2⅛	16-16d	2-10dx1½	385	3950	385	2805
										1.71	17.57	1.71	12.48
2 x 14-16	SUR/L2.06/14	16	2 1/16	13⅝	3 3/16	1⅝	2⅛	18-16d	2-10dx1½	385	3950	385	2805
										1.71	17.57	1.71	12.48
2 1/16 x 9½	SUR/L2.1/9	16	2⅛	9 1/16	3 3/16	1 9/16	2⅛	14-16d	2-10dx1½	385	3950	385	2805
										1.71	17.57	1.71	12.48
2 1/16 x 11⅞	SUR/L2.1/11	16	2⅛	11 3/16	3 3/16	1 9/16	2⅛	16-16d	2-10dx1½	385	3950	385	2805
										1.71	17.57	1.71	12.48
2 1/16 x 14-16	SUR/L2.1/14	16	2⅛	13 9/16	3 3/16	1 9/16	2⅛	18-16d	2-10dx1½	385	3950	385	2805
										1.71	17.57	1.71	12.48
2¼-2 5/16 x 9½	SUR/L2.37/9	16	2⅜	8 15/16	3 3/16	1 5/16	2⅛	14-16d	2-10dx1½	385	3950	385	2805
										1.71	17.57	1.71	12.48
2¼-2 5/16 x 11⅞	SUR/L2.37/11	16	2⅜	11 3/16	3 3/16	1 5/16	2⅛	16-16d	2-10dx1½	385	3950	385	2805
										1.71	17.57	1.71	12.48
2¼-2 5/16 x 14-16	SUR/L2.37/14	16	2⅜	13 7/16	3 3/16	1 5/16	2⅛	18-16d	2-10dx1½	385	3950	385	2805
										1.71	17.57	1.71	12.48
2½ x 9¼-9½	SUR/L2.56/9	16	2 9/16	8 13/16	3 3/16	1⅛	2⅛	14-16d	2-10dx1½	385	3950	385	2805
										1.71	17.57	1.71	12.48
2½-2 9/16 x 11¼-11⅞	SUR/L2.56/11	16	2 9/16	11 3/16	3 3/16	1⅛	2⅛	16-16d	2-10dx1½	385	3950	385	2805
										1.71	17.57	1.71	12.48
2½ x 14-16	SUR/L2.56/14	16	2 9/16	13 5/16	3 3/16	1⅛	2⅛	18-16d	2-10dx1½	385	3950	385	2805
										1.71	17.57	1.71	12.48

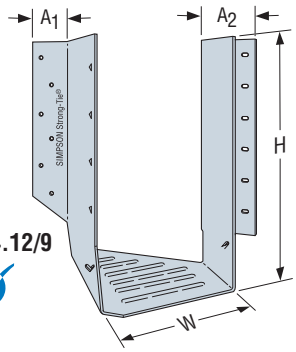
1. Factored uplift resistances have been increased by 15% for earthquake or wind loading with no further increase allowed; reduce for other load durations as required by code.
2. Triangle holes may be filled *(requires web stiffeners)* with 10dx1½" nails for additional uplift.
   – SUR/SUL 9 and 11 inch and all HSUR/HSUL models have four additional holes. The factored uplift resistance is 1345 lbs (5.98 kN) D.Fir-L and 965 lbs (4.29 kN) S-P-F.
   – SUR/SUL 14 inch models have an additional six holes. The factored uplift resistance is 1795 lbs (7.98 kN) D.Fir-L and 1385 lbs (6.16 kN) S-P-F.
3. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

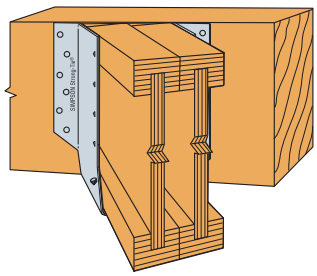
SUR/SUL/HSUR/HSUL *Skewed 45° Hangers for I-Joist and SCL*

HSULC
Available for 2-2x and 4x models 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 (in)	Model No.	Ga	Dimensions (in)					Fasteners		Factored Resistance			
										D.Fir-L		S-P-F	
			W	H	B	A_1	A_2	Header	Joist	Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)
										lbs	lbs	lbs	lbs
										kN	kN	kN	kN
3 x 9¼-14	SUR/L210-2	16	3⅛	8 11⁄16	2⅝	1 7⁄16	2⅜	14-16d	6-16dx2½	1695	4065	1540	2875
										7.54	18.08	6.85	12.81
	HSUR/L210-2	14	3⅛	8 11⁄16	2 7⁄16	1¼	2 7⁄16	20-16d	6-16dx2½	1840	5270	1540	3745
										8.18	23.44	6.85	16.66
3 x 14-20	SUR/L214-2	16	3⅛	12 11⁄16	2½	1 7⁄16	2⅛	18-16d	8-16dx2½	2265	4095	2090	2895
										10.08	18.22	9.30	12.90
	HSUR/L214-2	14	3⅛	12 11⁄16	2 7⁄16	1¼	2 3⁄16	26-16d	8-16dx2½	2455	6875	2095	4880
										10.92	30.58	9.32	21.71
3½ x 9¼-14	SUR/L410	16	3 9⁄16	8½	2⅝	1	2⅜	14-16d	6-16d	1695	4065	1540	2875
										7.54	18.08	6.85	12.81
	HSUR/L410	14	3 9⁄16	8½	2 7⁄16	1	2 3⁄16	20-16d	6-16d	1840	5270	1540	3745
										8.18	23.44	6.85	16.66
3½ x 14-20	SUR/L414	16	3 9⁄16	12½	2⅝	1	2⅜	18-16d	8-16d	2265	4095	2090	2895
										10.08	18.22	9.30	12.90
	HSUR/L414	14	3 9⁄16	12½	2 7⁄16	1	2 3⁄16	26-16d	8-16d	2455	6875	2095	4880
										10.92	30.58	9.32	21.71
4 x 9½	HSUR/L4.12/9	14	4⅛	9	3	1 7⁄16	2⅜	12-16d	2-10dx1½	275	2995	195	2350
										1.22	13.34	0.87	10.47
4 x 11⅞	HSUR/L4.12/11	14	4⅛	11⅞	3	1 7⁄16	2⅜	16-16d	2-10dx1½	275	4190	195	2965
										1.22	18.64	0.87	13.21
4 x 14	HSUR/L4.12/14	14	4⅛	13¾	3	1 7⁄16	2⅜	20-16d	2-10dx1½	275	4190	195	2965
										1.22	18.64	0.87	13.21
4 x 16	HSUR/L4.12/16	14	4⅛	15¾	3	1 7⁄16	2⅜	24-16d	2-10dx1½	275	4190	195	2965
										1.22	18.64	0.87	13.21
4⅛ x 9½	HSUR/L4.28/9	14	4 5⁄16	9	2¾	1 7⁄16	2⅜	12-16d	2-10dx1½	275	2995	195	2350
										1.22	13.34	0.87	10.47
4⅛ x 11⅞-16	HSUR/L4.28/11	14	4 5⁄16	11⅞	2¾	1 7⁄16	2⅜	16-16d	2-10dx1½	275	4190	195	2965
										1.22	18.64	0.87	13.21
4⅝ x 9½	HSUR/L4.75/9	14	4¾	8 15⁄16	2¾	1 7⁄16	2⅜	12-16d	2-10dx1½	275	2995	195	2350
										1.22	13.34	0.87	10.47
4⅝ x 11⅞	HSUR/L4.75/11	14	4¾	10 15⁄16	2¾	1 7⁄16	2⅜	16-16d	2-10dx1½	275	4190	195	2965
										1.22	18.64	0.87	13.21
4⅝ x 14	HSUR/L4.75/14	14	4¾	13¾	2¾	1 7⁄16	2⅜	20-16d	2-10dx1½	275	4190	195	2965
										1.22	18.64	0.87	13.21
4⅝ x 16	HSUR/L4.75/16	14	4¾	15¾	2¾	1 7⁄16	2⅜	24-16d	2-10dx1½	275	4190	195	2965
										1.22	18.64	0.87	13.21
5 x 9½	HSUR/L5.12/9	14	5⅛	9	2 13⁄16	1 7⁄16	2⅜	12-16d	2-10dx1½	275	2995	195	2350
										1.22	13.34	0.87	10.47
5 x 11⅞	HSUR/L5.12/11	14	5⅛	11	2 13⁄16	1 7⁄16	2⅜	16-16d	2-10dx1½	275	4190	195	2965
										1.22	18.64	0.87	13.21
5 x 14	HSUR/L5.12/14	14	5⅛	13¾	2 13⁄16	1 7⁄16	2⅜	20-16d	2-10dx1½	275	4190	195	2965
										1.22	18.64	0.87	13.21
5 x 16	HSUR/L5.12/16	14	5⅛	15¾	2 13⁄16	1 7⁄16	2⅜	24-16d	2-10dx1½	275	4190	195	2965
										1.22	18.64	0.87	13.21

See footnotes on page 144

HHSUQ *Heavy Severe Skew Hanger*

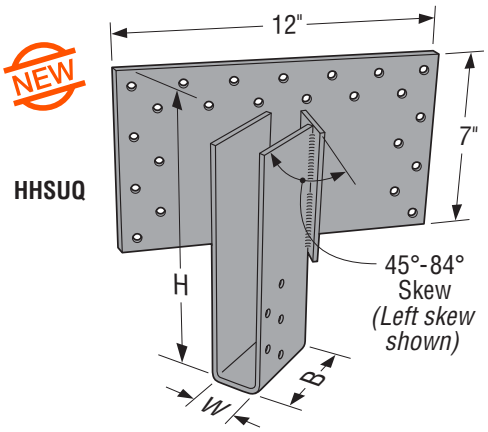
The new HHSUQ is a high-load, face-mount hanger designed to accommodate severe skews (45°-84°), enabling a greater range of installation applications. Fastening the HHSUQ with Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws makes installation fast and easy, while eliminating the inconvenience of bolted applications.

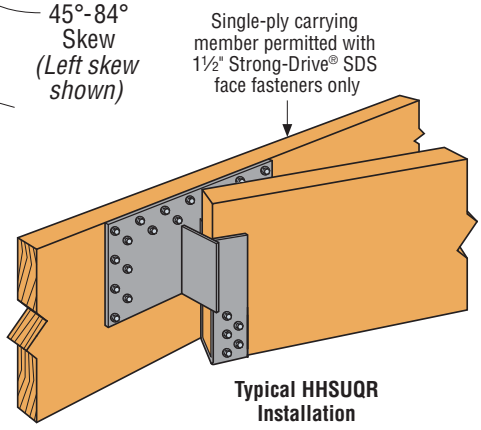
MATERIAL: Back plate—3 gauge; stirrup—7 gauge

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 end may be square cut or bevel cut.
- Strong-Drive SDS Heavy-Duty Connector screws supplied for all round holes.
- All multiple members must be fastened together to act as a single unit.
- When Strong-Drive SDS Heavy-Duty Connector screws are installed through metal truss plates the application must be approved by the Truss Designer. Pre-drilling is required using a 5⁄32" bit.

TO ORDER: • Specify left or right skew and the skew angle (degrees)





Typical HHSUQR Installation

Model No.	Dimensions (in)			Fasteners		Factored Resistance			
						D.Fir-L		S-P-F	
	W	H	B	Header	Joist	Uplift (K_D=1.15)	Normal (K_D=1.00)	Uplift (K_D=1.15)	Normal (K_D=1.00)
						lbs	lbs	lbs	lbs
						kN	kN	kN	kN
HHSUQ1.81/7-SDS	1 13⁄16	7¼	3½	23-¼"x3" SDS	5-¼"x1½" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ1.81/9-SDS	1 13⁄16	9½	3½	23-¼"x3" SDS	5-¼"x1½" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ1.81/11-SDS	1 13⁄16	11⅞	3½	23-¼"x3" SDS	5-¼"x1½" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ1.81/14-SDS	1 13⁄16	14	3½	23-¼"x3" SDS	5-¼"x1½" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ48-SDS	3⅝	7¼	3½	23-¼"x3" SDS	5-¼"x3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ410-SDS	3⅝	9¼	3½	23-¼"x3" SDS	5-¼"x3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ412-SDS	3⅝	11¼	3½	23-¼"x3" SDS	5-¼"x3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ414-SDS	3⅝	13¼	3½	23-¼"x3" SDS	5-¼"x3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60

1. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed. Reduce where other load durations govern.
2. Strong-Drive® SDS Heavy-Duty Connector screws that penetrate all plies of the supporting girder *(screws must penetrate a minimum of 1" into the last ply of the truss)* may also be used to transfer the load through all of the plies of the supporting girder. When Strong-Drive SDS Heavy-Duty Connector screws do not penetrate all plies of the supporting girder, supplemental Strong-Drive SDS Heavy-Duty Connector 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 Strong-Drive SDS header fasteners may be replaced with 4½" or 6" long Strong-Drive SDS Heavy-Duty Connector screws with no reduction in capacity.
3. Resistances shown are based on a minimum 2-ply 2x8 carrying member. For single 2x carrying members, replace the 3" long Strong-Drive SDS Heavy-Duty Connector screws with 1½" long Strong-Drive SDS Heavy-Duty Connector screws and reduce the factored normal resistances to 3820 lbs (16.99 kN) D.Fir-L and 2750 lbs (12.23 kN) S-P-F. The tabulated uplift resistances do not change.
4. Girders must be adequately laterally braced to prevent excessive displacement due to secondary torsional stresses.
5. As per 12.2.2.5 CSA O86-14, the carrying member must be evaluated using a reduced cross sectional area at the hanger location. The reduction in area is equal to seven (7) ¼" diameter x 3" long holes (1½" long for ¼"x1½" Strong-Drive SDS Heavy-Duty Connector screw).

MSC *Multiple Seat Connector*

SIMPSON Strong-Tie®

The MSC supports the ridge and two valleys for roof construction. Ideal for dormer roof applications.

MATERIAL: Top Flange – 3 gauge;
MSC1.81, MSC2, MSC4. Stirrups – 11 gauge;
MSC5 stirrups – 7 gauge.

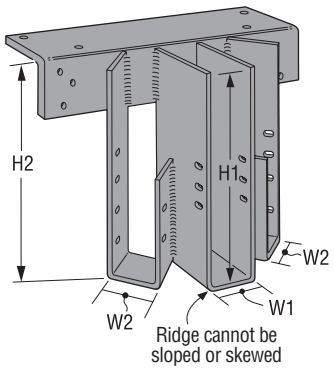
FINISH: Simpson Strong-Tie® gray paint.

INSTALLATION:

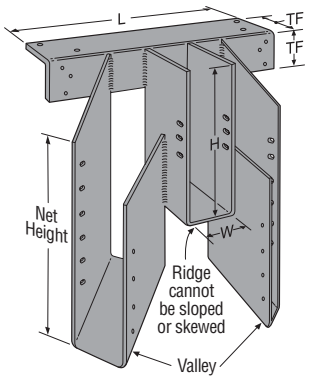
- Distribute the total load evenly about the centerline to avoid eccentric loading.
- Fasten all built-up members together as one unit.
- Net height will be calculated based on specified valley member depth and slope by the factory unless noted otherwise.

SLOPED AND/OR SKEWED VALLEYS

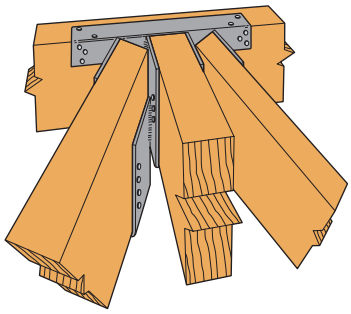
- The valley stirrups can be sloped 45° and skewed 25° to 45° *(MSC5 skewed 20° to 40°)*.
- The total design capacity of the hanger is split between the ridge (20%) and each valley (40%).
- For two valley connections with no ridge member, divide the total capacity by two for each valley load.



MSC with Valley Skewed 45° and Sloped 0°



MSC with Valley Sloped and Skewed 45°



Typical MSC Installation

Model No.	Dimensions (in)				Fasteners		Valleys		Factored Resistance (K_D = 1.00)								
									D.Fir-L			S-P-F			LVL[7] (G = 0.50)		
	W	H (Min)	TF	L	Header	Joist	Max. Skew	Max. Slope	Valley	Ridge	Total	Valley	Ridge	Total	Valley	Ridge	Total
									lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
									kN	kN	kN	kN	kN	kN	kN	kN	kN
MSC2	1⁹⁄₁₆	5½	2⅞	12	10-16d	18-10dx1½	45°	0°	3085	1545	7715	2335	1170	5840	4150	2075	10375
									13.72	6.87	34.32	10.39	5.20	25.98	18.46	9.23	46.15
						26-10dx1½		45°	2450	1225	6120	1855	925	4635	3290	1645	8225
									10.90	5.45	27.22	8.25	4.11	20.62	14.64	7.32	36.59
MSC1.81	1¹³⁄₁₆	5½	2⅞	12	10-16d	18-10dx1½	45°	0°	3085	1545	7715	2335	1170	5840	4150	2075	10375
									13.72	6.87	34.32	10.39	5.20	25.98	18.46	9.23	46.15
						26-10dx1½		45°	2450	1225	6120	1855	925	4635	3290	1645	8225
									10.90	5.45	27.22	8.25	4.11	20.62	14.64	7.32	36.59
MSC4	3⁹⁄₁₆	7½	2⅞	18	10-16d	18-10d	45°	0°	5460	2730	13650	4135	2070	10340	5460	2730	13650
									24.29	12.14	60.72	18.39	9.21	46.00	24.29	12.14	60.72
						26-10d		45°	5460	2730	13650	4135	2070	10340	5460	2730	13650
									24.29	12.14	60.72	18.39	9.21	46.00	24.29	12.14	60.72
MSC5	5¼	9½	2⅞	26	13-16d	18-16d	45°	0°	10565	5280	26410	7990	3995	19975	10565	5280	26410
									47.00	23.49	117.48	35.54	17.77	88.86	47.00	23.49	117.48
						26-16d		45°	9130	4565	22825	6905	3450	17260	9130	4565	22825
									40.61	20.31	101.53	30.72	15.35	76.78	40.61	20.31	101.53

1. Factored resistances shown for each valley.
2. Other valley-ridge load distributions are allowed provided the sum of all three members is distributed symmetrically about the centre of the hanger and combined do not exceed the total resistance.
3. MSC4 is also available in 3⅛" Glulam width.
4. MSC5 is also available in widths up to 5½".
5. MSC1.81 and MSC2 are available in saddle configurations. (e.g. MSCD1.81)
6. For the MSC5 with all three members sloped to 45° (max.) multiply the tabulated resistance x 0.64. This connection requires 30-16d joist nails.
7. Factored resistances shown for LVL assume ϕF_{cp} = 1092 psi (7.53 MPa).
8. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

HRC/HHRC *Hip Ridge Connectors*

SIMPSON Strong-Tie®

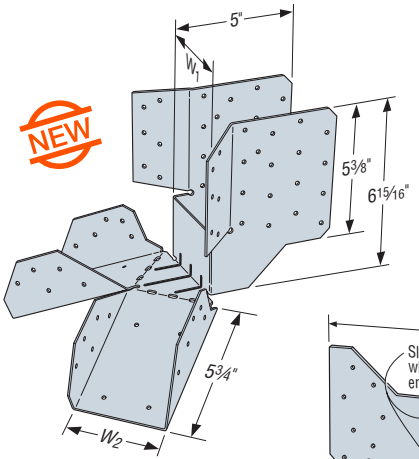
The HRC series are field slopeable connectors that attach hip roof beams to the end of a ridge beam. The HRC may be sloped downward a maximum of 45°.

MATERIAL: HRC1.81—16 gauge;
HRC44—14 gaugel; HHRC—12 gauge

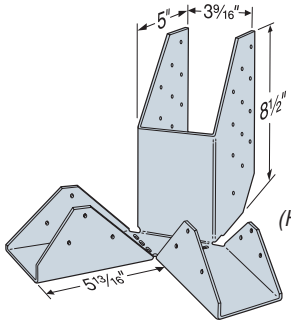
FINISH: Galvanized

INSTALLATION:

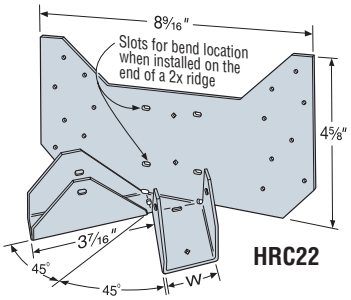
- Use all specified fasteners. See General Notes.
- On end of ridge—use optional diamond holes on HRC1.81 to secure the HRC. Bend face flanges on HRC1.81 back flush with ridge, and complete nailing.
- HRC1.81 on face of ridge—adjust to correct height and install nails.
- Double bevel-cut hip members to achieve full bearing capacity.



HHRC44
(others similar)



HRC44
(HRC42 similar)



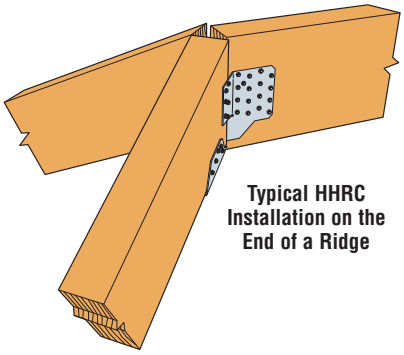
HRC22

HRC Factored Resistances

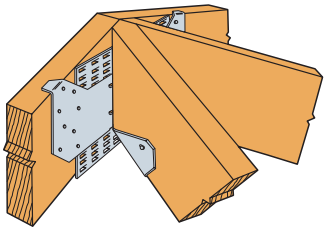
Model No.	Member Size (in)		Fasteners		Factored Resistance			
					D.Fir-L		S-P-F	
	W	Ridge	Carrying Member	Each Hip	Uplift (K_D=1.15)	Down (K_D=1.00)	Uplift (K_D=1.15)	Down (K_D=1.00)
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
HRC1.81	1 13/16	2x or 1¾" wide	16-10dx 1½"	2-10dx1½	445	1340	400	950
					1.98	5.96	1.78	4.23
HRC44	3 9/16	4x	24-16d	6-16d	790	2625	560	2035
					3.51	11.68	2.49	9.05

1. Factored resistances shown are for each hip. Total resistance carried by the connector is double this number.
2. Factored uplift resistances include a 15% increase for earthquake or wind loading; no further increase allowed; reduce where other loads govern.
3. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

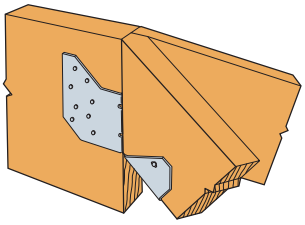
NEW



Typical HHRC Installation on the End of a Ridge



Optional Installation for HRC1.81 only



Typical HRC Installation on the End of a Ridge

HHRC Factored Resistances

Model No.	Member Width (in)		Dimensions (in)		Fasteners		Factored Resistance per Hip			
							D.Fir-L		S-P-F	
	Ridge	Hip	W_1	W_2	Ridge	Each Hip	Uplift (K_D=1.15)	Normal (K_D=1.00)	Uplift (K_D=1.15)	Normal (K_D=1.00)
							lbs	lbs	lbs	lbs
							kN	kN	kN	kN
NEW HHRC44	3½	3½	5 5/8	3 5/8	40-SD#10x2½	22-SD#10x2½	3365	4185	2390	2970
							14.97	18.62	10.63	13.21
NEW HHRC5.37/3.56	5¼	3½	5 5/8	3 5/8	40-SD#10x2½	22-SD#10x2½	3930	4205	2790	2985
							17.48	18.71	12.41	13.28
NEW HHRC64	5½	3½	5 5/8	3 5/8	40-SD#10x2½	22-SD#10x2½	3930	4205	2790	2985
							17.48	18.71	12.41	13.28

1. Factored resistances shown are per hip, the total load carried by the connector is double this number. Load must be equally distributed to both hips.
2. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed. Reduce where other load durations govern.
3. Factored resistances shown are applicable for roof slopes up to and including 45° (12:12).
4. Do not attach HHRC to columns or studs.
5. **SCREWS:** SD#10x2½" (SD10212) = 0.161" dia. x 2½" long

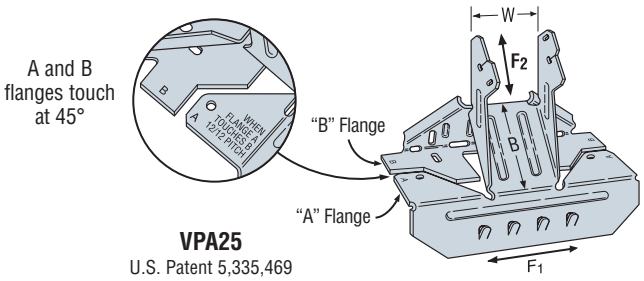
VPA *Variable Pitch Connector*

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.

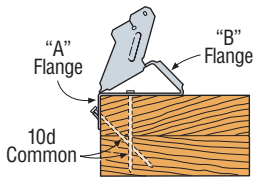


VPA25
U.S. Patent 5,335,469

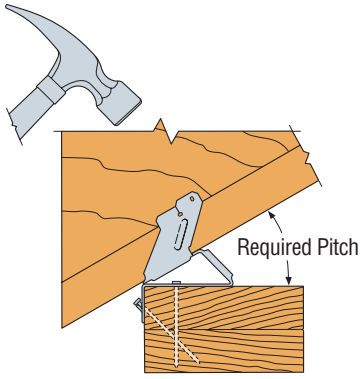
Model No.	Actual Joist Width (in)	W (in)	Fasteners		Factored Resistance							
			Carrying Member	Carried Member	D.Fir-L				S-P-F			
					Wind/Earthquake (K_D=1.15)			Normal (K_D=1.00)	Wind/Earthquake (K_D=1.15)			Normal (K_D=1.00)
					Uplift	F_1	F_2		Uplift	F_1	F_2	
					lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
					kN	kN	kN	kN	kN	kN	kN	kN
VPA2	1½	1⁹⁄₁₆	8-10d	2-10dx1½	405	695	405	1695	370	615	370	1555
					1.80	3.09	1.80	7.54	1.65	2.74	1.65	6.92
VPA25	1¾	1¹³⁄₁₆	8-10d	2-10dx1½	405	695	405	1695	370	615	370	1555
					1.80	3.09	1.80	7.54	1.65	2.74	1.65	6.92
VPA2.06	2	2¹⁄₁₆	9-10d	2-10dx1½	405	695	405	2050	370	615	370	1855
					1.80	3.09	1.80	9.12	1.65	2.74	1.65	8.25
VPA2.1	2¹⁄₁₆	2⅛	9-10d	2-10dx1½	405	695	405	2050	370	615	370	1855
					1.80	3.09	1.80	9.12	1.65	2.74	1.65	8.25
VPA35	2¼ - 2⁵⁄₁₆	2⁵⁄₁₆	9-10d	2-10dx1½	405	695	405	2050	370	615	370	1855
					1.80	3.09	1.80	9.12	1.65	2.74	1.65	8.25
VPA3	2½	2⁹⁄₁₆	9-10d	2-10dx1½	405	695	405	2050	370	615	370	1855
					1.80	3.09	1.80	9.12	1.65	2.74	1.65	8.25
VPA4	3½	3⁹⁄₁₆	11-10d	2-10dx1½	405	695	405	2050	370	615	370	1855
					1.80	3.09	1.80	9.12	1.65	2.74	1.65	8.25

1. Factored uplift and lateral resistances have been increased 15% for earthquake or wind loading; no further increase is allowed.
2. Resistances may not be increased for short-term load duration.
3. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

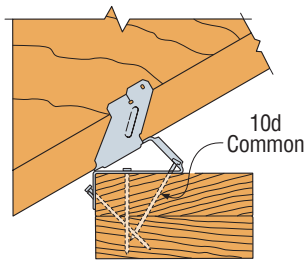
VPA INSTALLATION SEQUENCE



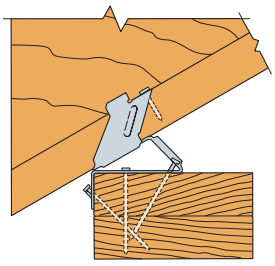
STEP 1
Install top nails and face PAN nails in "A" flange to outside wall top plate.



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.

SIMPSON Strong-Tie®

HCP *Hip Corner Plates*

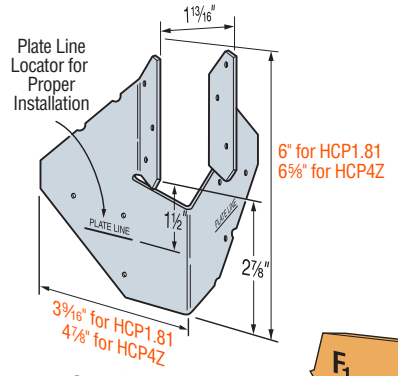
The HCP connects a rafter or joist to double top plates at a 45° angle.

MATERIAL: 18 gauge **FINISH**: Galvanized

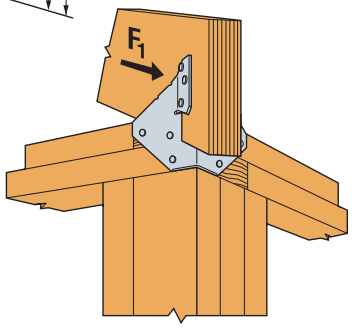
INSTALLATION: • Use all specified fasteners. See General Notes.
- Attach HCP to double top plates; birdsmouth not required for table loads.
- Install rafter and complete nailing. Rafter may be sloped to 45°.

Model No.	Hip Size (in)	Fasteners		Factored Resistance			
				D.Fir-L		S-P-F	
		To Hip	To Plates	Uplift (K_D = 1.15)	F_1 (K_D = 1.00)	Uplift (K_D = 1.15)	F_1 (K_D = 1.00)
				lbs	lbs	lbs	lbs
				kN	kN	kN	kN
HCP1.81	1¾	6-10dx1½	6-10dx1½	1020	355	890	325
				4.54	1.58	3.96	1.45
HCP4Z	3½	8-10d	8-10d	1485	435	1300	310
				6.61	1.94	5.78	1.38

1. The HCP can be installed on the inside and the outside of the wall with a flat bottom chord truss and achieve twice the factored resistance.
2. Factored uplift resistances include a 15% increase for earthquake or wind loading; no further increase allowed; reduce where other loads govern.
3. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.



HCP1.81
(HCP4Z similar)
U.S. Patent
5,380,115



Typical HCP Installation

DU/DHU/DHUTF *Drywall Hanger*

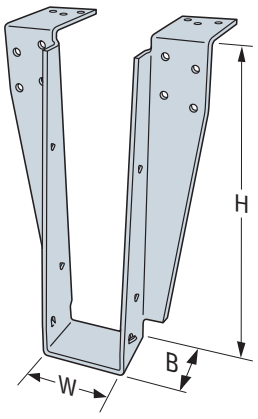
The new DU/DHU face-mount and the DHUTF top-mount hangers are designed to carry joist floor loads to a wood stud wall through two layers of ⅝" gypsum board (drywall). These hangers install after the drywall is in place. The hangers come in sizes that accommodate most joists used in multi-family construction including I-joists and trusses.

MATERIAL: DU—14 gauge; DHU and DHUTF—12 gauge

FINISH: Galvanized

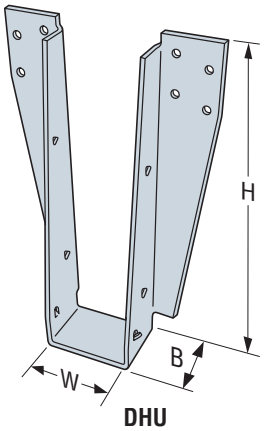
INSTALLATION:
- Use all specified fasteners. See General Notes.
- Install with Simpson Strong-Tie® ¼"x3½" Strong-Drive® SDS Heavy-Duty Connector screws, which are provided with the hanger.
- Drywall is installed first.
- DU and DHU are mounted with top of hanger flush with top of wall and tight to the 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 tabulated values.



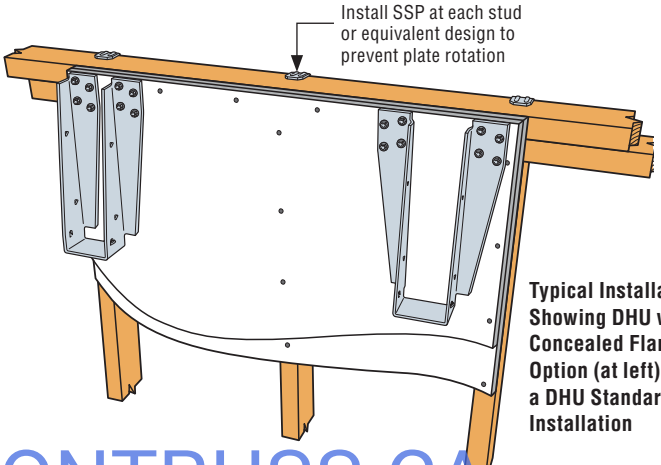
DHUTF
(Patent Pending)

NEW



DHU
(DU similar)
(Patent Pending)

Model	Gauge	B	Fasteners		
			Joist	Face	Top
DU	14	2	(2) 10dx1½"	(4) ¼"x3½" SDS	—
DHU	12	2.5	(2) 10dx1½"	(8) ¼"x3½" SDS	—
DHUTF	12	2.5	(2) 10dx1½"	(8) ¼"x3½" SDS	(6) 10dx1½"



Typical Installation Showing DHU with Concealed Flange Option (at left) and a DHU Standard Installation

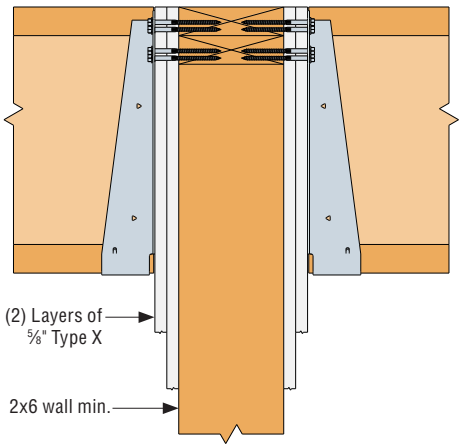
DU/DHU/DHUTF *Drywall Hanger*

SIMPSON Strong-Tie®

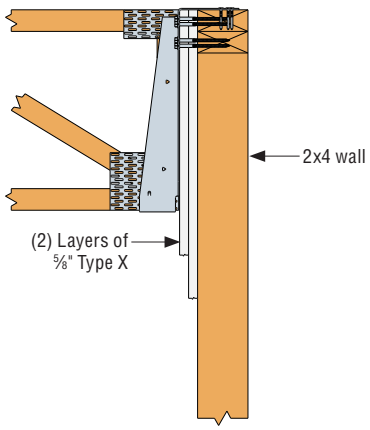
Model	Condition	Factored Resistance			
		D.Fir-L		S-P-F	
		Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)
		lbs	lbs	lbs	lbs
		kN	kN	kN	kN
DU	Over (1) layer 5/8" drywall	125	1605	125	1605
		0.56	7.14	0.56	7.14
	Over (2) layers 5/8" drywall	125	2090	125	1845
		0.56	9.30	0.56	8.21
	Two-sided over (2) layers 5/8" drywall (minimum 2x6 wall)	125	1780	125	1780
		0.56	7.92	0.56	7.92
	Over (1) layer structural sheathing and (2) layers 5/8" drywall	125	1845	125	1845
		0.56	8.21	0.56	8.21
DHU DHUTF	Over (1) layer 5/8" drywall	125	1990	125	1670
		0.56	8.85	0.56	7.43
	Over (2) layers 5/8" drywall	125	2310	125	2295
		0.56	10.28	0.56	10.21
	Two-sided over (2) layers 5/8" drywall (minimum 2x6 wall)	125	1780	125	1780
		0.56	7.92	0.56	7.92
	Over (1) layer structural sheathing and (2) layers 5/8" drywall	125	2420	125	2030
		0.56	10.77	0.56	9.03

1. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed. Reduce where other load durations govern.
2. Triangle nail holes may be filled with four (4) additional 10dx1 1/2" nails to achieve a factored uplift resistance of 1290 lbs (5.74 kN). When I-joists are used, web stiffeners are required. Note that the double top plates must be anchored to the studs/framing to accommodate the uplift load.
3. Factored resistances assume 5/8" Type X gypsum board attached per NBC. Wall assembly must consist of a minimum of 2-2x4 top plates with studs spaced no greater than 16" o/c.
4. Capacities shown for use over one (1) layer of structural sheathing are based on 5/8" thick OSB, DF plywood or CSP. For thinner panels use the lower of this value or the other applicable values in the table.

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

STRONG-DRIVE® SDW TRUSS-PLY *Screw*

SIMPSON Strong-Tie®

The Strong-Drive® SDW Truss-Ply screw is a 0.22" diameter, high-strength structural wood screw specifically designed for fastening together multi-ply wood members such as plated trusses, engineered-lumber products and solid-sawn lumber. The Strong-Drive SDW Truss-Ply screw installs easily with no pre-drilling and is available in optimized lengths for fastening 2, 3 and 4-ply trusses or 1¾" structural composite lumber (SCL). The Strong-Drive SDW Truss-Ply screw enables single-side fastening, while still allowing concurrent loading on both sides of the assembly.

- 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

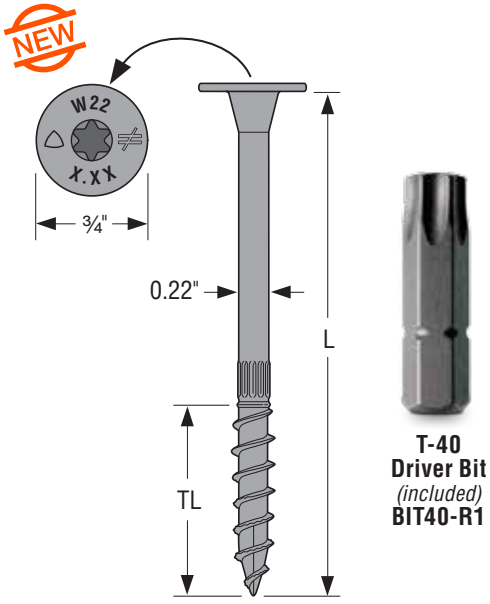
MATERIAL: Heat-treated carbon steel

FINISH: Black E-coat™

WARNING: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, the Strong-Drive SDW Truss-Ply screws should only be used in dry, interior and non-corrosive environments.

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

- Strong-Drive SDW Truss-Ply 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. Strong-Drive SDW Truss-Ply screws may be installed through metal truss plates as approved by the Truss Designer *(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.



Strong-Drive® SDW TRUSS-PLY Screw

U.S. Patents 5,897,280; 7,101,133; and patent pending

T-40 Driver Bit *(included)* **BIT40-R1**

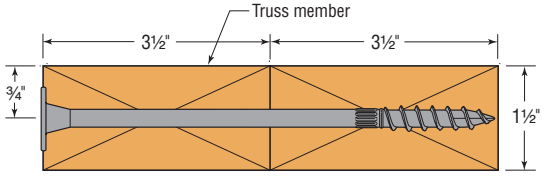
NOTES TO THE DESIGNER:

1. Factored lateral and withdrawal resistances are based on testing per ICC-ES AC233 and section 12.11 of CSA O86-14.
2. Factored lateral resistances may be increased 15% for short-term load duration ($K_D = 1.15$). For load durations other than standard or short-term, see 5.3.2 of CSA O86-14 for reduction values.
3. Fastener spacing, end and edge distances shall conform to Table 12.9.2.1 CSA O86-14 using a diameter value of 0.30" *(see table on page 153).*
4. Maximum fastener spacing is recommended not to exceed 24" on-centre except as approved by a qualified Designer.
5. Structural composite lumber (SCL) is laminated veneer lumber (LVL), parallel strand lumber (PSL) or laminated strand lumber (LSL). Verify the effective specific gravity (SG) with structural composite lumber manufacturer for selection of tabulated values.
6. Factored resistances are based on the capacity of the Simpson Strong-Tie® Strong-Drive SDW22 Truss-Ply fasteners. The capacity of the multi-ply assembly must be checked by a qualified Designer using the reduced cross-sectional area per 12.2.2.5 CSA 086-14.
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".
8. For more information see F-SDWCAN.

Factored Lateral Resistance for 3x2 and 4x2 Parallel-Chord Trusses

Assembly	Model No.	Nominal Length (in)	Side Member Thickness (in)	Factored Lateral Resistance ($K_D = 1.00$)	
				D.Fir-L	S-P-F
				lbs	lbs
				kN	kN
2-ply 3x2 PCT	SDW22500	5	2½	405	290
				1.80	1.29
2-ply 4x2 PCT	SDW22634	6¾	3½	405	290
				1.80	1.29

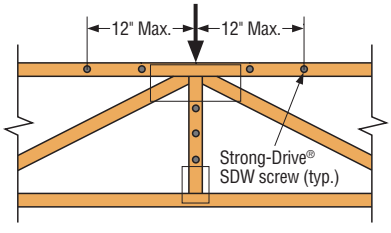
1. To transfer uniform loads applied to simply supported spans on assembly top chord:
   a. Space screws as required to transfer half the load into the supporting truss.
   b. Minimum screw spacing shall be 4" o.c.
2. To transfer concentrated loads applied to simply supported spans on an assembly top chord or vertical web:
   a. Concentrated loads must be applied at the panel joints.
   b. Screws to be installed within 12" of the concentrated load on top-chord assembly
3. Gap between the trusses shall not exceed ⅛" o.c.
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. Strong-Drive® SDW Truss-Ply screws shall not be installed in areas where lumber wane exceeds ¼".
6. Truss members must be evaluated using a reduced cross-sectional area due to the 0.22" diameter Strong-Drive SDW Truss-Ply screw.
7. Other configurations acceptable as long as approved by Truss Designer.



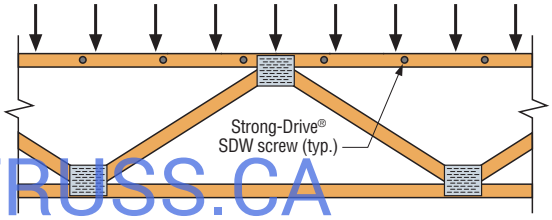
Strong-Drive® SDW TRUSS-PLY Screw Position in 2-Ply 4x2 Truss

(2-ply 3x2 similar)

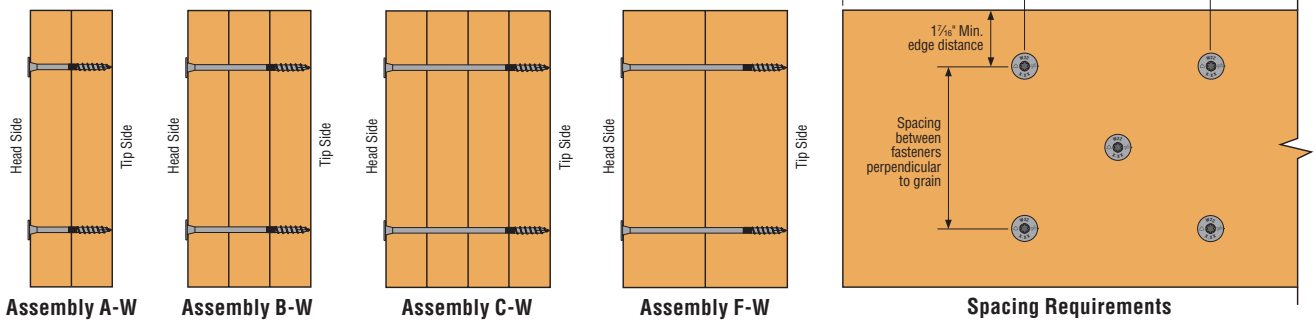
Concentrated Load



Uniform Load



STRONG-DRIVE® SDW TRUSS-PLY *Screw*



Assembly A-W | Assembly B-W | Assembly C-W | Assembly F-W | Spacing Requirements *(See table below)*

Sideloaded Multi-Ply Truss Assemblies – Factored Uniform Load Applied to Outer Ply

Multiple Members		Nominal Length (in)	Loaded Side	Maximum Factored Uniform Load Applied to Outer Ply											
				D.Fir-L						S-P-F					
				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	Component			2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows
				plf	plf	plf	plf	plf	plf	plf	plf	plf	plf	plf	plf
				kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m
A-W	2-ply 2x Truss	3	Head	1340	2010	1005	1508	670	1005	1160	1740	870	1305	580	870
				19.55	29.33	14.66	22.00	9.78	14.66	16.93	25.39	12.69	19.04	8.46	12.69
			Tip	1220	1830	915	1373	610	915	1040	1560	780	1170	520	780
				17.80	26.70	13.35	20.03	8.90	13.35	15.17	22.76	11.38	17.07	7.59	11.38
B-W	3-ply 2x Truss	4⅝	Head	1364	2046	1023	1535	682	1023	1214	1822	911	1366	607	911
				19.91	29.86	14.93	22.39	9.95	14.93	17.72	26.58	13.29	19.93	8.86	13.29
			Tip	1229	1844	922	1383	615	922	1094	1642	821	1231	547	821
				17.94	26.91	13.45	20.18	8.97	13.45	15.97	23.95	11.98	17.96	7.98	11.98
C-W	4-ply 2x Truss	6	Head	1213	1820	910	1365	607	910	1080	1620	810	1215	540	810
				17.70	26.55	13.28	19.92	8.85	13.28	15.76	23.64	11.82	17.73	7.88	11.82
			Tip	1093	1640	820	1230	547	820	973	1460	730	1095	487	730
				15.95	23.93	11.96	17.95	7.98	11.96	14.20	21.30	10.65	15.98	7.10	10.65
		6⅜	Head	1213	1820	910	1365	607	910	1080	1620	810	1215	540	810
				17.70	26.55	13.28	19.92	8.85	13.28	15.76	23.64	11.82	17.73	7.88	11.82
			Tip	1093	1640	820	1230	547	820	973	1460	730	1095	487	730
				15.95	23.93	11.96	17.95	7.98	11.96	14.20	21.30	10.65	15.98	7.10	10.65

Sideloaded Multi-Ply SCL Assemblies – Factored Uniform Load Applied

Multiple Members		Nominal Length (in)	Loaded Side	Maximum Factored Uniform Load Applied to Outer Ply											
				SCL (SG = 0.5)						SCL (SG = 0.42)					
				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	Component			2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows
				plf	plf	plf	plf	plf	plf	plf	plf	plf	plf	plf	plf
				kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m
A-W	2-ply 1¾" SCL	3⅜	Head	1560	2340	1170	1755	780	1170	1300	1950	975	1463	650	975
				22.76	34.14	17.07	25.61	11.38	17.07	18.97	28.45	14.23	21.34	9.48	14.23
			Tip	1360	2040	1020	1530	680	1020	1140	1710	855	1283	570	855
				19.84	29.76	14.88	22.32	9.92	14.88	16.63	24.95	12.48	18.71	8.32	12.48
B-W	3-ply 1¾" SCL	5	Head	1484	2226	1113	1670	742	1113	1289	1934	967	1451	645	967
				21.66	32.48	16.24	24.36	10.83	16.24	18.81	28.22	14.11	21.16	9.41	14.11
			Tip	1244	1867	933	1400	622	933	1094	1642	821	1231	547	821
				18.16	27.23	13.62	20.43	9.08	13.62	15.97	23.95	11.98	17.96	7.98	11.98
C-W	4-ply 1¾" SCL	6¾	Head	1320	1980	990	1485	660	990	1147	1720	860	1290	573	860
				19.26	28.89	14.44	21.67	9.63	14.44	16.73	25.10	12.55	18.82	8.37	12.55
			Tip	1107	1660	830	1245	553	830	973	1460	730	1095	487	730
				16.15	24.22	12.11	18.17	8.07	12.11	14.20	21.30	10.65	15.98	7.10	10.65
F-W	2-ply 3½" SCL	6¾	Head	2280	3420	1710	2565	1140	1710	2020	3030	1515	2273	1010	1515
				33.27	49.90	24.95	37.43	16.63	24.95	29.47	44.21	22.10	33.16	14.74	22.10
			Tip	2280	3420	1710	2565	1140	1710	1960	2940	1470	2205	980	1470
				33.27	49.90	24.95	37.43	16.63	24.95	28.60	42.90	21.45	32.17	14.30	21.45

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 capacity is exceeded.
   (Example: a 4-ply D.Fir-L truss assembly with a head side load of 1300 plf and tip side load of 1200 plf may be fastened together with 3 rows of 6" Strong-Drive® SDW Truss-Ply screws @ 16" o.c.)
3. When hangers are installed on tip side, hanger face fasteners must be a minimum of 3" long.
4. Hanger load spacing on the multi-ply assembly should not exceed 24" o.c. for side-loaded members unless approved by the Designer.

Spacing Requirements *(See diagram above)*

Geometry	Minimum Dimensions (in)	
	D.Fir-L	S-P-F
a - Spacing parallel to grain	6	5
b - End distance parallel to grain	6	6
c - Spacing perpendicular to grain	3	2½
d - Edge distance perpendicular to grain	1⁷⁄₁₆	1⁷⁄₁₆

1. Additional screws may be staggered diagonally between rows.

LUL/LUS/LJS/HUS/HHUS/HGUS *Standard & Double Shear Joist Hangers*

SIMPSON Strong-Tie®

VALUE ENGINEERED

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

Most 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. *(Do not bend or remove tabs)*

Double shear hangers range from the light capacity LUS hangers to the highest capacity HGUS hangers. For medium load truss applications, the HUS offers a lower cost alternative and easier installation than the HGUS hangers, while providing greater load capacity and bearing than the LUS.

MATERIAL: See tables below and on page 155

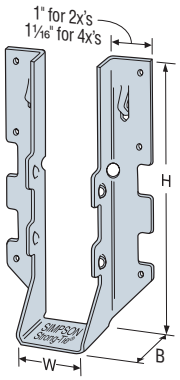
FINISH: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, pages 14-17.

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 tabulated resistances *(except LUL)*.
- Where 16d commons are specified, 10d commons may be used at 0.83 of the tabulated factored resistance.
- Not designed for welded or nailer applications.
- With 3x carrying members, use 16dx2½" nails into the header and 16d commons into the joist with no reduction in resistance. With 2x carrying members, use 10dx1½" nails into the header and 10d commons into the joist, and reduce the resistance to 0.64 of the table value.

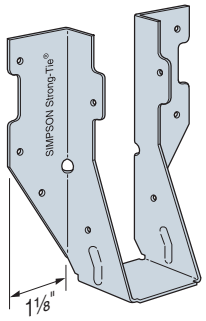
OPTIONS: • LUS and LUL hangers cannot be modified.
- HUS hangers available with the header flanges turned in for 2-2x (3⅛") and 4x only, with no load reduction. See HUSC Concealed Flange illustration.
- Concealed flanges are not available for HGUS.
- Other sizes available; consult your Simpson Strong-Tie representative.
- See hanger options on page 230.

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.

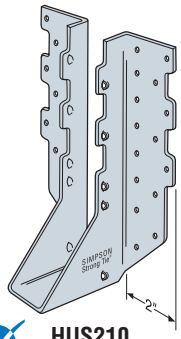
These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.



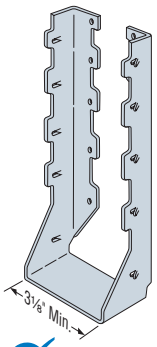
LUS28



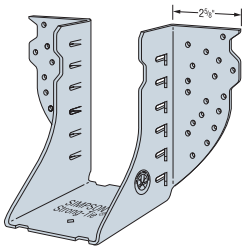
LU26L



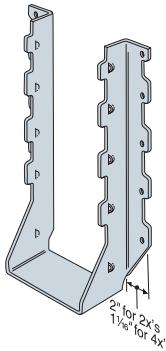
HUS210
(HUS26, HUS28, and HHUS similar)



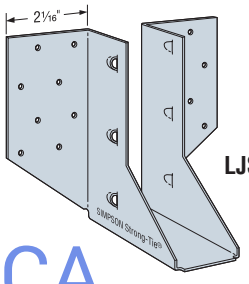
HUSC
Concealed Flanges
(not available for HHUS, HGUS and HUS2x)



HGUS28-2



HUS412



LJS26DS

Model No.	Ga	Dimensions (in) W	H	B	d_e[3]	Fasteners Header	Joist	Factored Resistance D.Fir-L Uplift (K_D = 1.15) lbs / kN	D.Fir-L Normal (K_D = 1.00) lbs / kN	S-P-F Uplift (K_D = 1.15) lbs / kN	S-P-F Normal (K_D = 1.00) lbs / kN
SINGLE 2x SIZES											
LUS24	18	1 9/16	3 1/8	1 3/4	2 1/4	4-10d	2-10d	710 / 3.16	1625 / 7.23	645 / 2.87	1155 / 5.14
LU24L	22	1 9/16	3	1 5/8	2 11/16	4-10d	2-10dx1½	360 / 1.60	1020 / 4.54	320 / 1.42	725 / 3.22
LU26L	22	1 9/16	5	1 5/8	4 5/8	6-10d	4-10dx1½	720 / 3.20	1605 / 7.14	645 / 2.87	1140 / 5.07
LUS26	18	1 9/16	4 3/4	1 3/4	3 3/4	4-10d	4-10d	1420 / 6.32	2170 / 9.65	1290 / 5.74	1630 / 7.25
HUS26	16	1 5/8	5 3/8	3	3 15/16	14-16d	6-16d	2705 / 11.30	4940 / 21.97	2065 / 9.20	3875 / 17.24
LJS26DS	18	1 9/16	5	3½	4 5/8	16-16d	6-16d	2055 / 9.14	4265 / 18.97	1460 / 6.49	4115 / 18.31
HGUS26	12	1 5/8	5 3/8	5	4 1/8	20-16d	8-16d	2685 / 11.96	6625 / 29.51	2685 / 11.96	5700 / 25.35
LU28L	20	1 9/16	6 3/4	1 5/8	5 7/8	8-10d	6-10dx1½	1140 / 5.07	2185 / 9.72	1020 / 4.54	1550 / 6.89
LUS28	18	1 9/16	6 5/8	1 3/4	3 3/4	6-10d	4-10d	1420 / 6.32	2520 / 11.21	1290 / 5.74	1790 / 7.96
HUS28	16	1 5/8	7 1/16	3	6 1/16	22-16d	8-16d	3605 / 16.04	5365 / 23.86	2675 / 11.90	4345 / 19.33
HGUS28	12	1 5/8	7 1/8	5	6 1/8	36-16d	12-16d	3310 / 14.74	7675 / 34.19	3310 / 14.74	6900 / 30.73
LU210L	20	1 9/16	8	1 5/8	7 5/8	10-10d	6-10dx1½	1140 / 5.07	2495 / 11.10	1020 / 4.54	1770 / 7.87
LUS210	18	1 9/16	7 13/16	1 3/4	3 7/8	8-10d	4-10d	1420 / 6.32	2785 / 12.39	1290 / 5.74	2210 / 9.83

See footnotes on page 155.

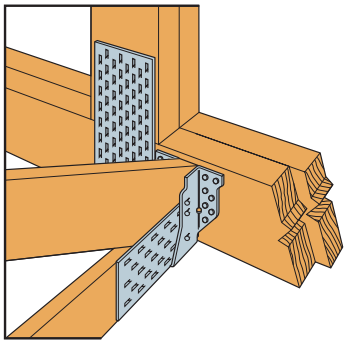
FACE MOUNT HANGERS

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.

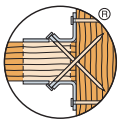
These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

Model No.	Ga	Dimensions (in)				Fasteners		Factored Resistance			
								D.Fir-L		S-P-F	
								Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)
		W	H	B	d_e[3]	Header	Joist	lbs kN	lbs kN	lbs kN	lbs kN
DOUBLE 2x SIZES											
LUS24-2	18	3⅛	3⅛	2	1½	4-16d	2-16d	835 3.71	2020 8.99	590 2.62	1435 6.38
LUS26-2	18	3⅛	4⅞	2	4	4-16d	4-16d	1720 7.65	2595 11.54	1545 6.87	1920 8.54
HHUS26-2	14	3⁵⁄₁₆	5⅜	3	3¹⁵⁄₁₆	14-16d	6-16d	2850 12.68	7335 32.63	2065 9.20	5205 23.15
HGUS26-2	12	3⁵⁄₁₆	5⁷⁄₁₆	4	4⅛	20-16d	8-16d	4385 19.51	8950 39.81	3110 13.83	6355 28.27
LUS28-2	18	3⅛	7	2	4	6-16d	4-16d	1720 7.65	3325 14.79	1545 6.87	2575 11.45
HHUS28-2	14	3⁵⁄₁₆	7⁵⁄₁₆	3	6⅛	22-16d	8-16d	3765 16.75	8940 39.77	2675 11.90	6345 28.22
HGUS28-2	12	3⁵⁄₁₆	7³⁄₁₆	4	6⅛	36-16d	12-16d	6070 27.00	12980 57.74	4310 19.17	9215 40.99
LUS210-2	18	3⅛	9	2	6	8-16d	6-16d	2580 11.48	4500 20.02	2320 10.32	3195 14.21
HHUS210-2	14	3⁵⁄₁₆	9³⁄₁₆	3	8	30-16d	10-16d	4745 21.11	9660 42.97	4310 19.17	7000 31.14
HGUS210-2	12	3⁵⁄₁₆	9³⁄₁₆	4	8⅛	46-16d	16-16d	6840 30.43	14645 65.14	4855 21.60	10400 46.26
TRIPLE 2x SIZES											
HGUS26-3	12	4¹⁵⁄₁₆	5½	4	4⅛	20-16d	8-16d	4385 19.51	8950 39.81	3110 13.83	6355 28.27
HGUS28-3	12	4¹⁵⁄₁₆	7¼	4	6⅜	36-16d	12-16d	6070 27.00	12980 57.74	4310 19.17	9215 40.99
HHUS210-3	14	4¹¹⁄₁₆	9	3	7¹⁵⁄₁₆	30-16d	10-16d	4745 21.11	10545 46.91	4310 19.17	7485 33.29
HGUS210-3	12	4¹⁵⁄₁₆	9¼	4	8⅜	46-16d	16-16d	6840 30.43	14645 65.14	4855 21.60	10400 46.26
QUADRUPLE 2x SIZES											
HGUS26-4	12	6⁹⁄₁₆	5⁷⁄₁₆	4	4⅛	20-16d	8-16d	4385 19.51	8950 39.81	3110 13.83	6355 28.27
HGUS28-4	12	6⁹⁄₁₆	7³⁄₁₆	4	6⅛	36-16d	12-16d	6070 27.00	12980 57.74	4310 19.17	9215 40.99
HHUS210-4	14	6⅛	8⅞	3	7¹³⁄₁₆	30-16d	10-16d	4745 21.11	10545 46.91	4310 19.17	7485 33.29
HGUS210-4	12	6⁹⁄₁₆	9³⁄₁₆	4	8⅛	46-16d	16-16d	6840 30.43	14645 65.14	4855 21.60	10400 46.26
HGUS212-4	12	6⁹⁄₁₆	10⅝	4	10⅛	56-16d	20-16d	7640 33.98	14995 66.70	5425 24.13	10645 47.35
HGUS214-4	12	6⁹⁄₁₆	12⅝	4	11⅛	66-16d	22-16d	10130 45.06	16400 72.95	7195 32.00	11645 51.80
4x SIZES											
LUS46	18	3⁹⁄₁₆	4¾	2	3⁷⁄₁₆	4-16d	4-16d	1720 7.65	2595 11.54	1545 6.87	1920 8.54
HHUS46	14	3⅝	5¼	3	3¹⁵⁄₁₆	14-16d	6-16d	2540 11.30	7335 32.63	2065 9.20	5205 23.15
HGUS46	12	3⅝	5¼	4	4¹⁄₁₆	20-16d	8-16d	4385 19.51	8950 39.81	3110 13.83	6355 28.27
LUS48	18	3⁹⁄₁₆	6¾	2	3⁷⁄₁₆	6-16d	4-16d	1720 7.65	3325 14.79	1545 6.87	2575 11.45
HHUS48	14	3⅝	7⅛	3	6⅛	22-16d	8-16d	3765 16.75	8940 39.77	2675 11.90	6345 28.22
HGUS48	12	3⅝	7¹⁄₁₆	4	6¹⁄₁₆	36-16d	12-16d	6070 27.00	12980 57.74	4310 19.17	9215 40.99
LUS410	18	3⁹⁄₁₆	8¾	2	5⁹⁄₁₆	8-16d	6-16d	2580 11.48	4500 20.02	2320 10.32	3195 14.21
HGUS410	12	3⅝	9	4	8¹⁄₁₆	46-16d	16-16d	6840 30.43	14645 65.14	4855 21.60	10400 46.26
HGUS412	12	3⅝	10⁷⁄₁₆	4	10¹⁄₁₆	56-16d	20-16d	7640 33.98	14995 66.70	5425 24.13	10645 47.35
HGUS414	12	3⅝	12⁷⁄₁₆	4	11¹⁄₁₆	66-16d	22-16d	10130 45.06	16400 72.95	7195 32.00	11645 51.80

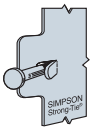


Typical HUS26 Installation

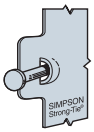
(Truss Designer to provide fastener quantity for connecting multiple members together)



Double Shear Nailing Top View



Double Shear Nailing Side View Do not bend tab back



Dome Double Shear Nailing prevents tabs breaking off *(available on some models)*

U.S. Patent 5,603,580

1. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed.
2. Designer must ensure that hanger is compatible with truss when reduced heel height is used.
3. d_e is the distance from the bearing seat to the top joist nail.
4. Resistances shown require a minimum 2-ply girder truss. For fastening to single-ply truss request technical bulletin T-N10FORTRUSS and/or see installation notes.
5. **NAILS:** 16d = 0.162" dia. x 3½" long. See pages 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 factored resistances *(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.

MATERIAL: 16 gauge

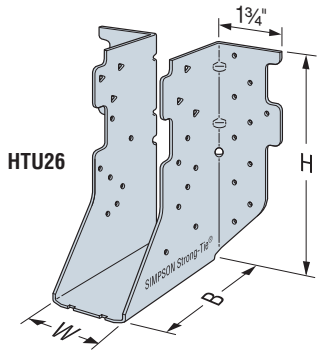
FINISH: Galvanized

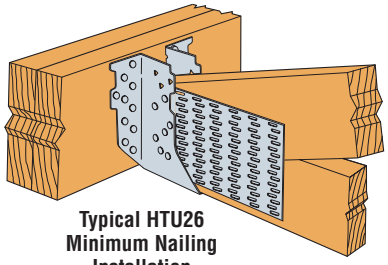
INSTALLATION:

- 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.

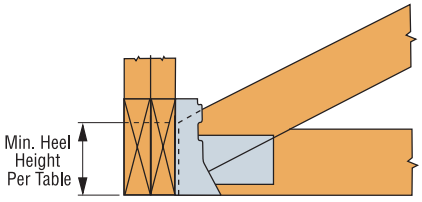
OPTIONS:

- See Hanger Options on page 230 for skew options.

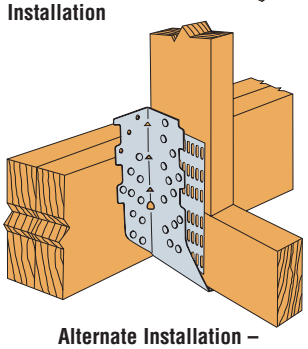




Typical HTU26 Minimum Nailing Installation



HTU Installation for Standard Allowable Loads



Alternate Installation – HTU28 installed on 2x6 carrying member
(HTU210 similar)

Standard Installation

Model No.	Min. Heel Height (in)	Dimensions (in)			Fasteners		Factored Resistance			
							D.Fir-L		S-P-F	
		W	H	B	Header	Joist	Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)
							lbs	lbs	lbs	lbs
							kN	kN	kN	kN
SINGLE 2x SIZES										
HTU26	3½	1⅝	5⁷⁄₁₆	3½	20-16d	11-10dx1½	1370	4990	975	3145
							6.09	22.20	4.34	13.99
HTU26 (Min)	3⅞	1⅝	5⁷⁄₁₆	3½	20-16d	14-10dx1½	2350	5240	1670	3300
							10.45	23.31	7.43	14.68
HTU26 (Max)	5½	1⅝	5⁷⁄₁₆	3½	20-16d	20-10dx1½	2925	6565	2075	4660
							13.01	29.20	9.23	20.73
HTU28 (Min)	3⅞	1⅝	7¹⁄₁₆	3½	26-16d	14-10dx1½	2325	6380	1650	4530
							10.34	28.38	7.34	20.15
HTU28 (Max)	7¼	1⅝	7¹⁄₁₆	3½	26-16d	26-10dx1½	4035	8900	2865	6320
							17.95	39.59	12.74	28.11
HTU210 (Min)	3⅞	1⅝	9¹⁄₁₆	3½	32-16d	14-10dx1½	2510	7135	1780	5065
							11.17	31.74	7.92	22.53
HTU210 (Max)	9¼	1⅝	9¹⁄₁₆	3½	32-16d	32-10dx1½	6245	9820	4435	6970
							27.78	43.68	19.73	31.00
DOUBLE 2x SIZES										
HTU26-2 (Min)	3⅞	3⁵⁄₁₆	5⁷⁄₁₆	3½	20-16d	14-10d	2430	6275	1725	4035
							10.81	27.91	7.67	17.95
HTU26-2 (Max)	5½	3⁵⁄₁₆	5⁷⁄₁₆	3½	20-16d	20-10d	3495	7195	2480	5110
							15.55	32.00	11.03	22.73
HTU28-2 (Min)	3⅞	3⁵⁄₁₆	7¹⁄₁₆	3½	26-16d	14-10d	2460	6920	1745	4915
							10.94	30.78	7.76	21.86
HTU28-2 (Max)	7¼	3⁵⁄₁₆	7¹⁄₁₆	3½	26-16d	26-10d	5590	9790	3970	6950
							24.87	43.55	17.66	30.92
HTU210-2 (Min)	3⅞	3⁵⁄₁₆	9¹⁄₁₆	3½	32-16d	14-10d	2470	7730	1755	5490
							10.99	34.38	7.81	24.42
HTU210-2 (Max)	9¼	3⁵⁄₁₆	9¹⁄₁₆	3½	32-16d	32-10d	7585	11955	5385	8490
							33.74	53.18	23.95	37.77

1. Minimum heel heights required for tabulated values are based on a minimum 2:12 roof pitch.
2. Factored uplift resistances has been increased 15% for wind or earthquake; reduce where other loads govern.
3. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

HTU *Face Mount Truss Hangers*

SIMPSON Strong-Tie®

Alternate Installation for 2-2x4 and 2-2x6 Headers

Model No.	Min. Heel Height (in)	Minimum Header Size	Fasteners		Factored Resistance			
					D.Fir-L		S-P-F	
			Header	Joist	Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
HTU26 (Min)	3⅞	2-2x4	10-16d	14-10dx1½	1740	3340	1235	2370
					7.74	14.86	5.49	10.54
HTU26 (Max)	5½	2-2x4	10-16d	20-10dx1½	2470	4015	1755	2850
					10.99	17.86	7.81	12.68
HTU28 (Max)	3⅞	2-2x6	20-16d	26-10dx1½	4150	6395	2945	4540
					18.46	28.45	13.10	20.19
HTU210 (Max)	7¼	2-2x6	20-16d	32-10dx1½	4150	6395	2945	4540
					18.46	28.45	13.10	20.19

See table footnotes on page 156.

THAR/L422 *Adjustable Truss Hangers*

Designed for 4x2 floor trusses and 4x beams, the THAR/L422 has a standard skew of 45 degrees. Straps must be bent for top flange installation. PAN nailing helps eliminate splitting of 4x2 truss bottom chords.

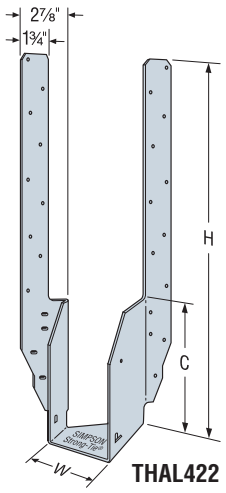
MATERIAL: 16 gauge

FINISH: Galvanized

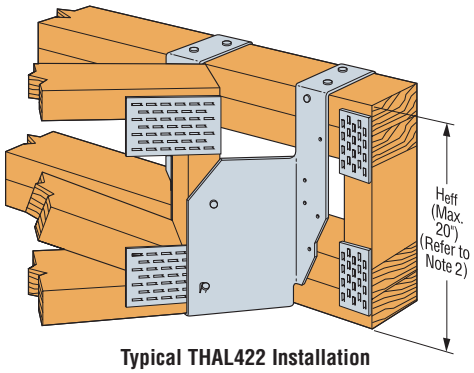
INSTALLATION: Use all specified fasteners. See General Notes.

Two different installation methods may be used:

- Maximum Nailing—A minimum of four top and 12 face nails must be used. Straps must be field-formed over the header a minimum of 2½". Install 10dx1½" nails into carried member PAN nail holes and 10d common nail into round nail hole. Install 10d common nails into carrying member.
- Minimum Nailing—A minimum of four top and 2 face nails must be used. Straps must be field-formed over the header a minimum of 2½". Install nails as detailed above. For single 4x carrying members, use 10dx1½" nails and refer to the table for reduced values.



THAL422



Typical THAL422 Installation with Minimum Nailing on a Floor Truss with Double 4x2 Top Chord

Model No.	Dimensions (in)			Minimum Carrying Member	Effective Height H_{eff} (in)	Fasteners				Factored Resistance			
						Header		Joist		D.Fir-L		S-P-F	
	W	H	C			Top	Face	Straight	Slant	Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)
										lbs	lbs	lbs	lbs
										kN	kN	kN	kN
THAR/L422 (Min)	3⅝	22⅝	8	Single 4x2	9 min.	4-10dx1½	2-10dx1½	1-10dx1½	2-10dx1½	—	1445	—	1025
										—	6.44	—	4.56
				Double 4x2	9 to 12	4-10d	2-10d	1-10d	2-10dx1½	—	2215	—	1575
										—	9.87	—	7.01
					> 12	4-10d	2-10d	1-10d	2-10dx1½	—	1695	—	1205
										—	7.55	—	5.36
THAR/L422 (Max)	3⅝	22⅝	8	Double 4x2	9 min.	4-10d	8-10d	1-10d	2-10dx1½	585	2585	415	1835
										2.61	11.51	1.85	8.16

1. Factored uplift resistances have been increased 15% for wind or earthquake loading with no further increase allowed.
2. 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.
3. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

THA/THAC *Adjustable Truss Hangers*

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, 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.

The THA218-2, THA222-2, THA418, THA422, and THA426 models have added nail holes in the straps to ease top-flange installation and provide more nail hole options for meeting top and face nailing requirements.

MATERIAL: See table

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, pages 14-17.

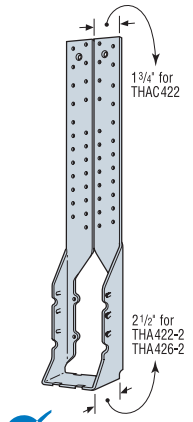
INSTALLATION: • Use all specified fasteners. See General Notes.

Two different installation methods may be used:

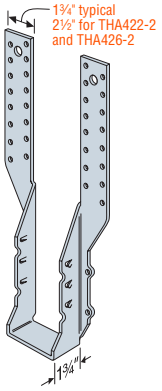
- **Top-Flange Installation**—The straps must be field formed over the header a minimum of 2½" for the THA29, 1½" for the THA213 and THA413, and 2" for all others. Install top and face nails according to the table. Top nails shall not be within ¼" from the edge of the top flange members.

  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.
- Uplift—Lowest face nails must be filled to achieve uplift resistances.

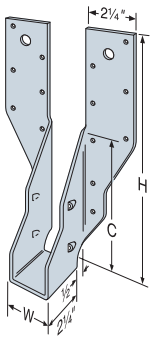
OPTIONS: • THA hangers available with the header flanges turned in for 3⅝" *(except THA413)* and larger, with no load reduction – order THAC hanger.



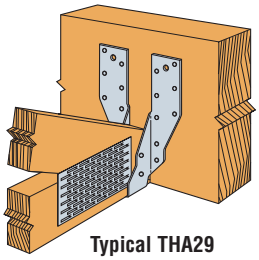
THAC422



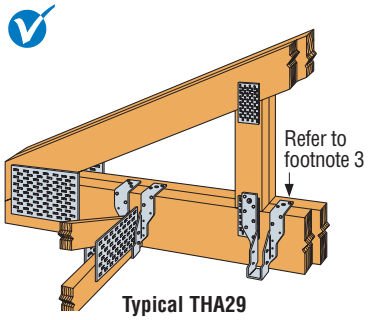
THA418



THA29

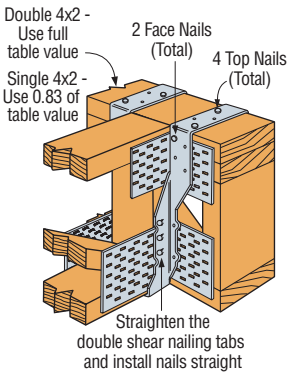


Typical THA29 Face-Mount Installation

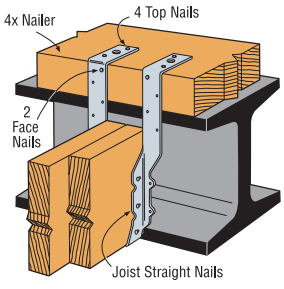


Typical THA29 Top-Flange Installation

Min. Joist Size	Model No.	Ga	Dimensions (in)			Fasteners				Factored Resistance			
						Header		Joist		D.Fir-L		S-P-F	
			W	H	C	Top	Face	Straight	Slant	Uplift (K_D=1.15) lbs kN	Normal (K_D=1.00) lbs kN	Uplift (K_D=1.15) lbs kN	Normal (K_D=1.00) lbs kN
TOP-FLANGE INSTALLATION													
2x4	THA29	18	1⅝	9 11/16	5⅛	4-10d	4-10d	—	4-10d	1050 4.67	3450 15.35	750 3.34	2720 12.10
2x6	THA213	18	1⅝	13 5/16	5½	4-10d	2-10d	4-10dx1½	—	— —	2225 9.90	— —	1760 7.83
	THA218	18	1⅝	17 3/16	5½	4-10d	2-10d	4-10dx1½	—	— —	2225 9.90	— —	1760 7.83
2-2x10	THA218-2	16	3⅛	17 11/16	8	4-16d	2-16d	6-16dx2½	—	— —	2675 11.90	— —	2405 10.70
	THA222-2	16	3⅛	22 3/16	8	4-16d	2-16d	6-16dx2½	—	— —	2675 11.90	— —	2405 10.70
4x6	THA413	18	3⅝	13 5/16	4½	4-10d	2-10d	4-10d	—	— —	2225 9.90	— —	1655 7.36
4x10	THA418	16	3⅝	17½	7⅞	4-16d	2-16d	6-16d	—	— —	2675 11.90	— —	2405 10.70
4x2 Truss	THA422	16	3⅝	22	7⅞	4-16d	2-16d	6-16d	—	— —	2675 11.90	— —	2405 10.70
	THA426	14	3⅝	26	7⅞	4-16d	4-16d	6-16d	—	— —	3590 15.97	— —	2660 11.83
2-4x2 Truss	THA422-2	14	7¼	22 11/16	9¾	4-16d	4-16d	6-16d	—	— —	4605 20.48	— —	3225 14.35
	THA426-2	14	7¼	26 1/16	9¾	4-16d	4-16d	6-16d	—	— —	4605 20.48	— —	3225 14.35



Typical THA422 Top-Flange Installation on a 4x2 Floor Truss



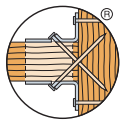
Typical THA Top-Flange Nailing Configuration on a 4x Nailer *(except THA29)*

1. Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce for other load durations as required by code.
2. For single 4x2 top chord carrying members, THA 4x hangers can be used with 10dx1½" nails and a reduced resistance to 0.83 of the table value. Values are based on hanger installations at panel points.
3. For the THA2X models, one strap may be installed vertically according to the face mount nailing requirements and the other strap wrapped over the top chord according to the top flange nailing requirements *(see drawing above)* and achieve full tabulated top-flange installation downloads.
4. **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 pages 22-23 for other nail sizes and information.

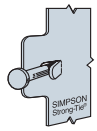
THA/THAC *Adjustable Truss Hangers*

SIMPSON Strong-Tie®

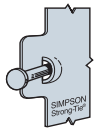
Min. Joist Size	Model No.	Ga	Dimensions (in)			Fasteners				Factored Resistance			
						Header		Joist		D.Fir-L		S-P-F	
			W	H	C	Top	Face	Straight	Slant	Uplift (K_D=1.15) lbs / kN	Normal (K_D=1.00) lbs / kN	Uplift (K_D=1.15) lbs / kN	Normal (K_D=1.00) lbs / kN
FACE-MOUNT INSTALLATION													
2x4	THA29	18	1⅝	9 11/16	5⅛	—	16-10d	—	4-10d	1050 / 4.67	3440 / 15.30	750 / 3.34	2455 / 10.92
2x6	THA213	18	1⅝	13 5/16	5½	—	14-10d	—	4-10d	1420 / 6.32	2785 / 12.39	1290 / 5.74	2210 / 9.83
	THA218	18	1⅝	17 3/16	5½	—	18-10d	—	4-10d	1420 / 6.32	2785 / 12.39	1290 / 5.74	2210 / 9.83
2-2x10	THA218-2	16	3⅛	17 11/16	8	—	16-16d	—	6-16d	2540 / 11.30	4765 / 21.20	1805 / 8.03	3385 / 15.06
	THA222-2	16	3⅛	22 3/16	8	—	22-16d	—	6-16d	2540 / 11.30	5550 / 24.69	1805 / 8.03	4150 / 18.46
4x6	THA413	18	3⅝	13 5/16	4½	—	14-10d	—	4-10d	1420 / 6.32	3555 / 15.81	1290 / 5.74	2525 / 11.23
4x10	THA418	16	3⅝	17½	7⅞	—	16-16d	—	6-16d	2540 / 11.30	4765 / 21.20	1805 / 8.03	3385 / 15.06
4x2 Truss	THA422	16	3⅝	22	7⅞	—	22-16d	—	6-16d	2540 / 11.30	5850 / 26.02	1805 / 8.03	4150 / 18.46
	THA426	14	3⅝	26	7⅞	—	30-16d	—	6-16d	2540 / 11.30	6295 / 28.00	1805 / 8.03	4545 / 20.22
2-4x2 Truss	THA422-2	14	7¼	22 11/16	9¾	—	30-16d	—	6-16d	2845 / 12.66	7715 / 34.32	2585 / 11.50	5475 / 24.35
	THA426-2	14	7¼	26 1/16	9¾	—	38-16d	—	6-16d	2845 / 12.66	7715 / 34.32	2585 / 11.50	5475 / 24.35



Double Shear Nailing Top View



Double Shear Nailing Side View Do not bend tab back



Dome Double Shear Nailing prevents tabs breaking off *(available on some models)*

U.S. Patent 5,603,580

See footnotes on page 158.

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 2x6 girder bottom chords and uses our Strong-Drive® SDS Heavy-Duty Connector screws for easy installation with minimal fasteners.

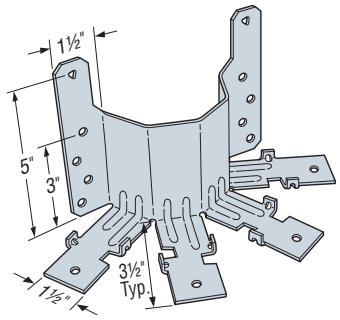
FEATURES:

- The THJM hangers are designed for installation with ¼"x3" Strong-Drive SDS Heavy-Duty Connector 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.

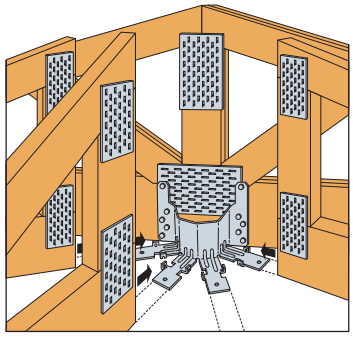
MATERIAL: 12 gauge **FINISH:** Galvanized

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

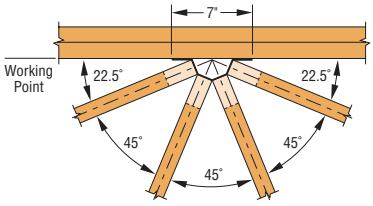
- Each carried jack truss requires one ¼"x3" Strong-Drive SDS Heavy-Duty Connector screw installed into the bottom chord through the bottom of the hanger seat.
- Fill all round and triangular holes.
- Strong-Drive® SDS Heavy-Duty Connector screws driven through truss plates must be approved by the Truss Designer. Pre-drilling using a 5/32" bit is required.



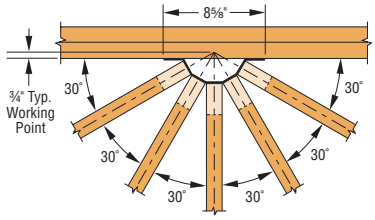
THJM2-4-SDS3
(THJM2-5-SDS3 similar)
U.S. Patent Pending



Typical THJM Installation



THJM2-4-SDS3
Top View Installation



THJM2-5-SDS3
Top View Installation

Model No.	Fasteners		Factored Resistance			
			D.Fir-L		S-P-F	
	Header	Joist (Total)	Uplift (K_D=1.15) lbs / kN	Normal (K_D=1.00) lbs / kN	Uplift (K_D=1.15) lbs / kN	Normal (K_D=1.00) lbs / kN
THJM2-4-SDS3	10-¼"x3" SDS	4-¼"x3" SDS	890 / 3.96	4565 / 20.31	640 / 2.85	3290 / 14.64
THJM2-5-SDS3	10-¼"x3" SDS	5-¼"x3" SDS	970 / 4.31	5250 / 23.35	700 / 3.11	3905 / 17.37

1. Factored resistances shown are for all carried members combined. The load on any single member shall not exceed 25% of the tabulated factored resistace for THJM2-4 or 20% for THJM2-5.
2. Factored uplift resistances are only applicable to short term load duration. This connector cannot be used to resist uplift due to other load durations *(for example: cantilever construction)*.
3. A minimum 2-ply header is required to achieve the factored resistances shown.
4. For single-ply headers, use ¼"x1½" Strong-Drive® SDS Heavy-Duty Connector screw into the header and multiply the tabulated normal resistances x 0.80. Tabulated factored uplift resistances still apply.

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.

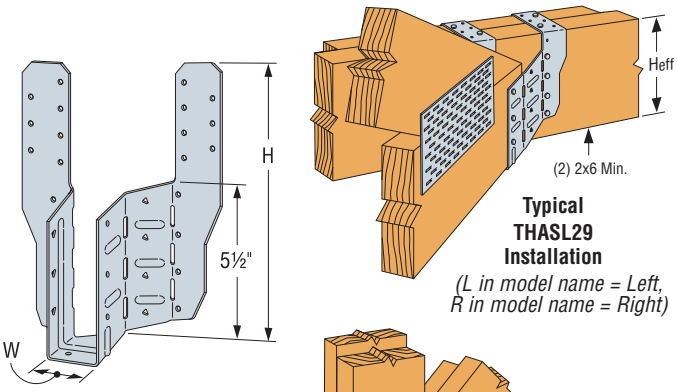
FEATURES:

- The new 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 Connector screws.

MATERIAL: 16 gauge **FINISH**: Galvanized

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

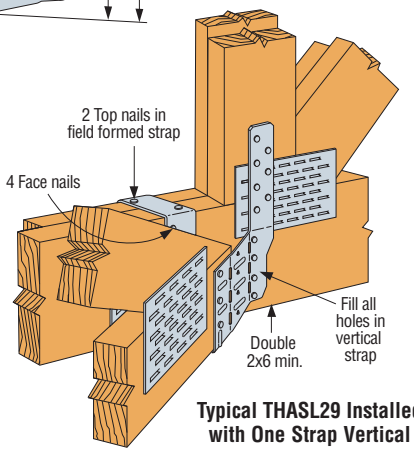
- Product is factory skewed to 22½° and may be field skewed from 22½° to 75°. See Installation Sequence below for skews greater than 22½°.
- For 22½° skew installations, fill all triangle holes. Triangle holes do not need to be filled for skews greater than 22½°.
- For all installations, fill the fastener 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. Capacities must be reduced as noted in the table footnotes.
- THASR/L422—For face-mount installations, install the carrying member fasteners into the lowest holes.



THASL29

Typical THASL29 Installation

(L in model name = Left, R in model name = Right)



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.

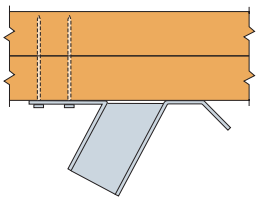
These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

Min Carried Member	Model No.	Dimensions (in) W	Dimensions (in) H	Min. H_{eff} (in)	Skew Angle (degrees)	Fasteners: Header Top	Fasteners: Header Face	Fasteners: Joist	Factored Resistance: D.Fir-L Uplift (K_D=1.15) lbs / kN	Factored Resistance: D.Fir-L Normal (K_D=1.00) lbs / kN	Factored Resistance: S-P-F Uplift (K_D=1.15) lbs / kN	Factored Resistance: S-P-F Normal (K_D=1.00) lbs / kN
TOP-FLANGE INSTALLATION												
2x Truss	THASR/L29	1⅜	9⅞	5½	22½	4-10d	8-10d	7-10dx1½	1315 5.85	2850 12.68	935 4.16	2020 8.99
					23 to 45	4-10d	8-10d	4-10dx1½	635 2.82	2145 9.54	450 2.00	1520 6.76
					46 to 75	4-10d	8-10d	4-10dx1½	590 2.62	2145 9.54	420 1.87	1520 6.76
2-2x Truss	THASR/L29-2	3⅛	9⅞	5½	22½	4-10d	8-10d	8-10d	1360 6.05	2380 10.59	965 4.29	1690 7.52
					23 to 45	4-10d	8-10d	5-10d	425 1.89	1870 8.32	300 1.33	1325 5.89
					46 to 75	4-10d	8-10d	5-10d	375 1.67	1870 8.32	270 1.20	1325 5.89
4x Truss	THASR/L422	3⅝	22	8	22½	4-10d	4-10d	8-10d	— —	1605 7.14	— —	1140 5.07
					23 to 45	4-10d	4-10d	5-10d	— —	1345 5.98	— —	955 4.25
					46 to 75	4-10d	4-10d	5-10d	— —	1080 4.80	— —	770 3.43
FACE-MOUNT INSTALLATION												
4x Truss	THASR/L422	3⅝	22	5½	22½	—	8-10d	8-10d	— —	1170 5.20	— —	830 3.69
					23 to 45	—	8-10d	5-10d	— —	1050 4.67	— —	745 3.31
					46 to 75	—	8-10d	5-10d	— —	1050 4.67	— —	745 3.31

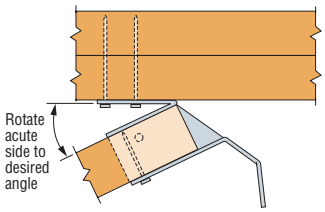
1. Uplift resistances have been increased 15% for wind or earthquake loading with no further increase permitted. Reduce where other load durations govern.
2. Minimum carried truss *(joist)* heel height shall be 4½".
3. H_{eff} is the distance from the top of the hanger bearing seat to the top of the carried member *(header)*.
4. For tabulated top-flange capacities, the straps must be wrapped over the header a minimum of 2". Factored download resistances for the THASR/L29 and THASR/L29-2 with one or both straps installed vertically *(with all holes filled)* are 86% of the tabulated values. Factored uplift resistances are 100% of the tabulated values.
5. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

THASR/L *Adjustable/Skewable Truss Hangers*

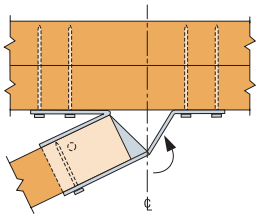
INSTALLATION SEQUENCE FOR SKEWS > 22½°



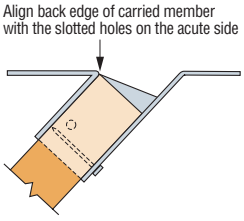
Step 1: Install acute side top and/or face header fasteners.



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.

For 22½° skew installations fill all triangle holes.

THJU *Truss Hip/Jack Hanger*

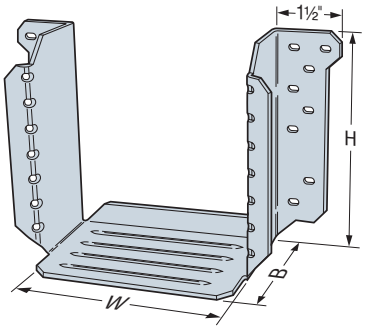
The THJU hip/jack hanger offers the most flexibility and ease of installation without sacrificing performance. The U-shaped hanger works for right and left hand hips and can be ordered to fit a range of hip skews *(up to 67½ degrees)* as well as various single and 2-ply hip/jack combinations. Also can 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.

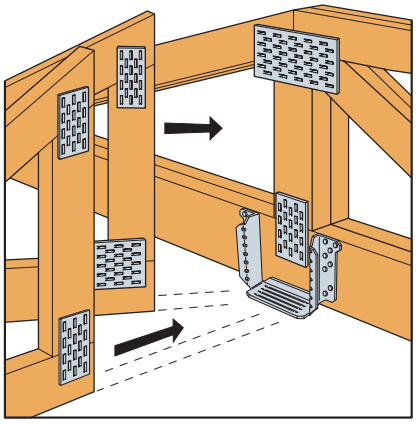
MATERIAL: 12 gauge **FINISH:** Galvanized

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

OPTIONS: Other seat widths available. See Hanger Options on page 230 for more information.



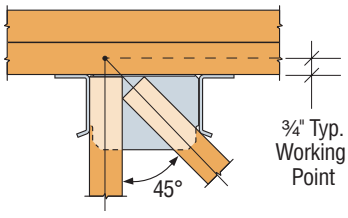
THJU26



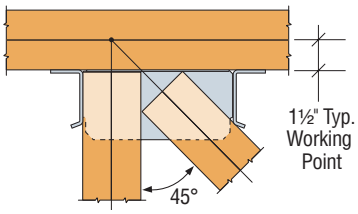
Typical THJU26 Installation

Model No.	Min. Heel Height (in)	Dimensions (in) W	H	B	Fasteners Header	Hip	Jack	Factored Resistance D.Fir-L Uplift (K_D=1.15) lbs / kN	D.Fir-L Normal (K_D=1.00) lbs / kN	S-P-F Uplift (K_D=1.15) lbs / kN	S-P-F Normal (K_D=1.00) lbs / kN
THJU26	3½	5⅛	5⅜	3½	16-10d	4-10d	4-10d	1045 / 4.65	2675 / 11.90	745 / 3.31	1915 / 8.52
	5½				16-10d	7-10d	7-10d	1825 / 8.12	3280 / 14.59	1310 / 5.83	2350 / 10.45
THJU26-W	3½	8⅛	5⅜	3½	16-10d	4-10d	4-10d	990 / 4.40	2550 / 11.34	705 / 3.14	1825 / 8.12
	5½				16-10d	7-10d	7-10d	1730 / 7.70	2550 / 11.34	1240 / 5.52	1825 / 8.12

1. For full capacity, 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.
2. Tabulated values are the total factored 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 total factored resistances.
3. Factored uplift resistances have been increased 15% for wind or earthquake loading with no further increase permitted, reduce where other loads govern.
4. For single 2x jacks, 10dx1½" nails may be substituted for the specified 10d commons with no reduction in capacity.
5. For single ply 2x headers use 10dx1½" nails into the header and multiply the tabulated factored resistances by 0.77.
6. **NAILS:** 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.



THJU26 Top View Right Hand Hip Installation



THJU26-W Top View 2-Ply Hip/2-Ply Jack Installation

LTHJA26/THJA26 *Truss Hip/ Jack Hangers*

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

The LTHJA26 is the lighter capacity version of the THJA26. The LTHJA26 is designed for the common 8 foot hip girder setback. Consult with truss engineer or refer to truss engineering for actual demand load information.

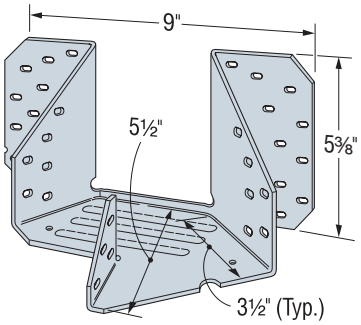
MATERIAL: LTHJA26—18 gauge; THJA26—14 gauge

FINISH: Galvanized

INSTALLATION:

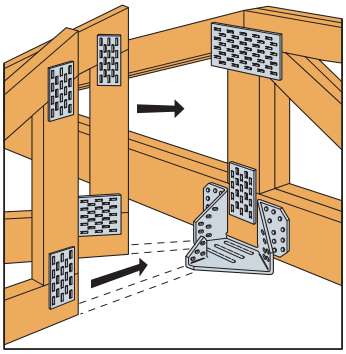
- Use all specified fasteners. See General Notes.
- All multiple members must be fastened together to act as a single unit.
- 10dx1½" nails must be installed into bottom of hip members through bottom of hanger seat for factored resistances (LTHJA26).

OPTIONS: These hangers can not be modified.

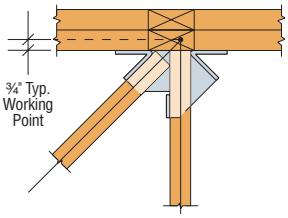


LTHJA26
(THJA26 similar)

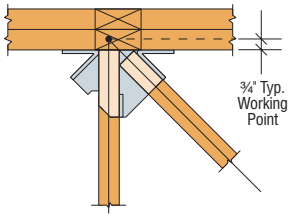
U.S. Patent 5,253,465 and other Patent Pending



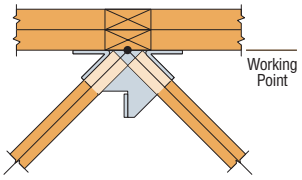
Typical LTHJA26 Installation



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: Carrying Member	Fasteners: Hip[2] (each)	Fasteners: Jack	Carried Member	Factored Resistance: D.Fir-L Uplift (K_D=1.15) lbs / kN	D.Fir-L Normal (K_D=1.00) lbs / kN	S-P-F Uplift (K_D=1.15) lbs / kN	S-P-F Normal (K_D=1.00) lbs / kN
LTHJA26	Side Hip & Center Jack	20-10d	7-10dx1½	4-10dx1½	Jack	120 / 0.53	400 / 1.78	85 / 0.38	285 / 1.27
					Hip	360 / 1.60	1205 / 5.37	260 / 1.16	860 / 3.83
					Total	480 / 2.14	1605 / 7.15	345 / 1.54	1145 / 5.10
	Double (Terminal Hip)	20-10d	7-10dx1½	—	Hip (each)	550 / 2.45	1040 / 4.63	395 / 1.76	745 / 3.32
					Total	1100 / 4.90	2080 / 9.27	790 / 3.52	1490 / 6.64
THJA26	Side Hip & Center Jack	20-16d	6-10dx1½	4-10dx1½	Hip	1365 / 6.08	3810 / 16.97	960 / 4.28	2890 / 12.87
					Jack	455 / 2.03	1270 / 5.66	320 / 1.43	965 / 4.30
					Total	1820 / 8.11	5080 / 22.63	1280 / 5.70	3855 / 17.17
	Double (Terminal Hip)	20-16d	6-10dx1½	—	Hip (each)	910 / 4.05	2540 / 11.31	640 / 2.85	1925 / 8.59
					Total	1820 / 8.11	5080 / 22.63	1280 / 5.70	3850 / 17.17

1. Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other loads govern.
2. For LTHJA26, one 10dx1½" nail must be installed into bottom of each hip member through bottom of hanger seat.
3. With single 2x carrying members, use 10dx1½" nails and use 0.77 of the table value for LTHJA26 and 0.64 for THJA26.
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. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

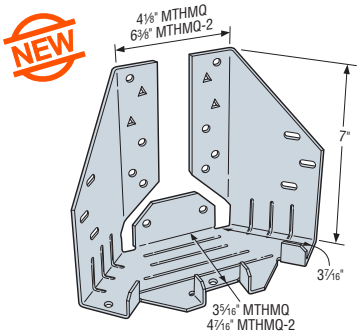
MTHMQ *Multiple Truss Hangers*

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 Heavy-Duty Connector screws for easier installation.

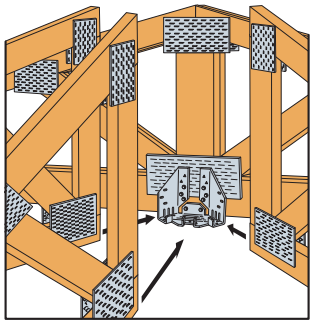
MATERIAL: 12 gauge **FINISH:** Galvanized (G90)

INSTALLATION: • Use all specified fasteners.

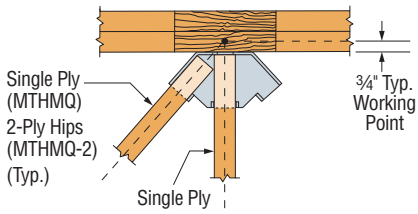
- MTHMQ–for 2x6 header do not fill upper four holes; for 2x8 header fill all holes.
- MTHMQ2–for 2x6 header do not fill upper six holes; for 2x8 header do not fill lower triangle holes.
- With single ply 2x carrying members, use ¼"x1½" Strong-Drive SDS Heavy-Duty Connector screws and reduce capacity x 0.68.
- When Strong-Drive SDS Heavy-Duty Connector screws are installed through metal truss plates pre-drilling using a 5/32" bit is required.
- All multiple members must be fastened together to as one unit.



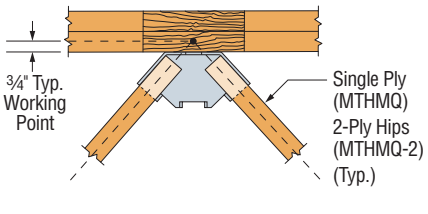
MTHMQ-SDS3
(MTHMQ-2-SDS3 similar)



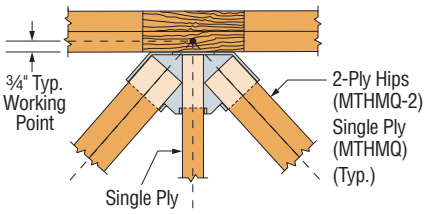
Typical MTHMQ Min. Installation at Panel Point



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)*

Model No.	Header	Fasteners			Factored Resistance											
					D.Fir-L						S-P-F					
					Uplift (K_D=1.15)			Down (K_D=1.00)			Uplift (K_D=1.15)			Down (K_D=1.00)		
		Carrying Member	Hip	Jack	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total
					lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
					kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN
MTHMQ	2-ply 2x6	10-¼"x3" SDS	4-¼"x3" SDS	1-¼"x3" SDS	785	265	1050	3075	1025	4100	565	190	755	2215	735	2950
					3.49	1.18	4.67	13.68	4.56	18.24	2.51	0.85	3.36	9.85	3.27	13.12
	2-ply 2x8	14-¼"x3" SDS	4-¼"x3" SDS	1-¼"x3" SDS	785	265	1050	4245	1415	5660	565	190	755	3055	1020	4075
					3.49	1.18	4.67	18.88	6.29	25.18	2.51	0.85	3.36	13.59	4.54	18.13
MTHMQ-2	2-ply 2x6	10-¼"x3" SDS	5-¼"x3" SDS	1-¼"x3" SDS	1255	415	1670	3785	1265	5050	900	300	1200	2725	910	3635
					5.58	1.85	7.43	16.84	5.63	22.46	4.00	1.33	5.34	12.12	4.05	16.17
	2-ply 2x8	14-¼"x3" SDS	5-¼"x3" SDS	1-¼"x3" SDS	1255	415	1670	4375	1460	5835	900	300	1200	3150	1050	4200
					5.58	1.85	7.43	19.46	6.49	25.96	4.00	1.33	5.34	14.01	4.67	18.68

Terminal Type Installation *(Three-Member Connection)*

Model No.	Header	Fasteners			Factored Resistance											
					D.Fir-L						S-P-F					
					Uplift (K_D=1.15)			Down (K_D=1.00)			Uplift (K_D=1.15)			Down (K_D=1.00)		
		Carrying Member	Hips (Total)	Jack	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total
					lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
					kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN
MTHMQ	2-ply 2x6	10-¼"x3" SDS	8-¼"x3" SDS	1-¼"x3" SDS	775	390	1940	2295	1150	5740	560	275	1395	1655	825	4130
					3.45	1.73	8.63	10.21	5.12	25.53	2.49	1.22	6.21	7.36	3.67	18.37
	2-ply 2x8	14-¼"x3" SDS	8-¼"x3" SDS	1-¼"x3" SDS	775	390	1940	3025	1510	7560	560	275	1395	2175	1090	5440
					3.45	1.73	8.63	13.46	6.72	33.63	2.49	1.22	6.21	9.68	4.85	24.20
MTHMQ-2	2-ply 2x6	10-¼"x3" SDS	10-¼"x3" SDS	1-¼"x3" SDS	1070	530	2670	2815	1410	7040	770	385	1925	2030	1010	5070
					4.76	2.36	11.88	12.52	6.27	31.32	3.43	1.71	8.56	9.03	4.49	22.55
	2-ply 2x8	14-¼"x3" SDS	10-¼"x3" SDS	1-¼"x3" SDS	1070	530	2670	3635	1815	9085	770	385	1925	2615	1310	6540
					4.76	2.36	11.88	16.17	8.07	40.41	3.43	1.71	8.56	11.63	5.83	29.09

1. Factored uplift resistances have been increased 15% for short term loading, no further increase is permitted.
2. A minimum 2-ply 2x carrying member is required for the tabulated resistances. With single ply 2x carrying members use ¼"x1½" Strong-Drive® SDS Heavy-Duty Connector screws into the carrying member and multiply the tabulated Down capacities x 0.68.
3. Tabulated Two-Member Connection capacities assume that 75% of the total load is distributed to the hip and 25% to the jack. It is permitted to distribute between 65% and 85% of the total load to the hip and the remaining load to the jack. The combined hip and jack loads may not exceed the total published factored resistances.
4. For terminal hips with no centre jack, divide the total factored resistance by 2 to deterimine the factored resistance for each hip.
5. Tablulated Three-Member connection capacities assume that each hip carries 40% of the total load and the jack carries 20%. Other hip/jack load distributions are permitted if the sum of all three carried members does not exceed the total load and the hips are equally loaded.
6. When Strong-Drive SDS Heavy-Duty Connector screws are installed through metal truss plates, the application must be approved by the Truss Designer. Pre-drilling using a 5/32" bit is required.
7. As per 12.2.2.5 CSA 086-14, the carrying member must be evaluated using a reduced cross sectional area at the hanger location. The reduction in area shall be based on seven (7) 1" diameter holes on a 2x8 bottom chord and five (5) ¼" diameter holes on a 2x6 bottom chord.

HTHMQ *Heavy Multiple Truss Hangers*

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:

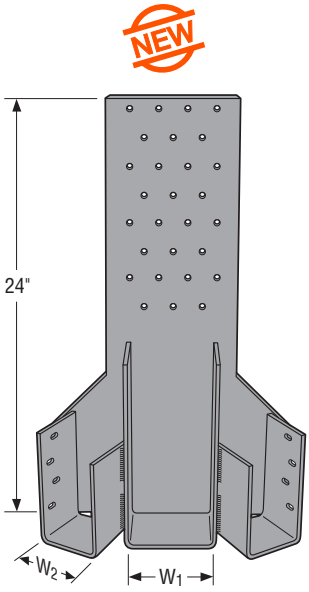
- Available in various stirrup widths to accommodate various lumber types and multiple ply trusses
- Installed with Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws that eliminate the inconvenience of bolted installation
- Enables 2-3 member connection for a broader range of structural designs

MATERIAL: Back plate—3 gauge; stirrup—7 gauge

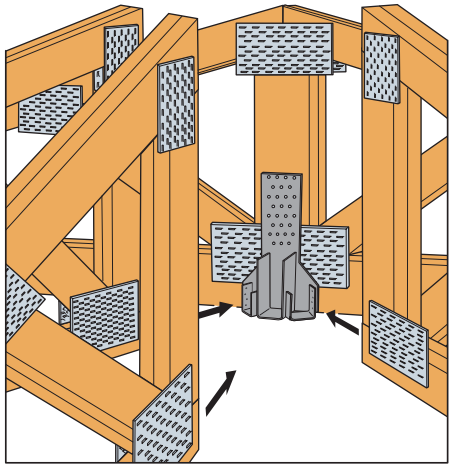
FINISH: Simpson Strong-Tie® gray paint

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

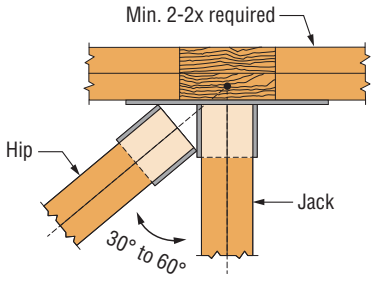
- Strong-Drive SDS Heavy-Duty Connector screws supplied for all round and obround holes.
- All multiple members must be fastened together to act as a single unit.
- Shall be attached to a minimum 2-ply girder truss.
- Girders must be adequately laterally braced to prevent excessive displacement due to secondary torsional stresses.
- Maximum girder bottom chord depth is 2x10.
- Must be installed centred on a minimum 2x8 girder vertical web.
- See below for different installation options.



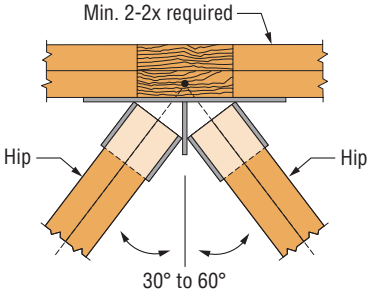
HTHMQ



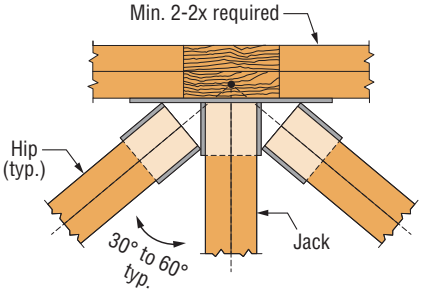
Typical HTHMQ Installation



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)		Hip Skew Angle	Fasteners		
	W_1	W_2		Header	Hips (Total)	Jack
HTHMQ-SDS	1⅝ - 4 15/16	1⅝	30°-60°	34-¼"x3" SDS	8-¼"x1½" SDS	4-¼"x1½" SDS
HTHMQ-2-SDS	1⅝ - 4 15/16	3 5/16	30°-60°	34-¼"x3" SDS	8-¼"x2½" SDS	4-¼"x1½" SDS
HTHMQN-SDS	—	1⅝	30°-60°	34-¼"x3" SDS	8-¼"x1½" SDS	4-¼"x1½" SDS
HGHMQN-2-SDS	—	3 5/16	30°-60°	34-¼"x3" SDS	8-¼"x2½" SDS	4-¼"x1½" SDS
HTHMQR/L-SDS	1⅝ - 4 15/16	1⅝	30°-60°	34-¼"x3" SDS	8-¼"x1½" SDS	4-¼"x1½" SDS
HTHMQR/L-2-SDS	1⅝ - 4 15/16	3 5/16	30°-60°	34-¼"x3" SDS	8-¼"x2½" SDS	4-¼"x1½" SDS

HTHMQ *Heavy Multiple Truss Hangers*

Model No.	Factored Resistance – Joist Bearing											
	D.Fir-L						S-P-F					
	Uplift (K_D=1.15)			Down (K_D=1.00)			Uplift (K_D=1.15)			Down (K_D=1.00)		
	Hip (ea)	Jack	Total	Hip (ea)	Jack	Total	Hip (ea)	Jack	Total	Hip (ea)	Jack	Total
	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN
HTHMQ-SDS	2005	1005	5015	5820	2910	14550	1445	720	3610	4735	2365	11835
	8.92	4.47	22.31	25.89	12.94	64.72	6.43	3.20	16.06	21.06	10.52	52.65
HTHMQ-2-SDS	2005	1005	5015	6750	3375	16875	1445	720	3610	5845	2920	14610
	8.92	4.47	22.31	30.03	15.01	75.07	6.43	3.20	16.06	26.00	12.99	64.99
HTHMQN-SDS	1295	—	2590	5820	—	11640	935	—	1870	4735	—	9470
	5.76	—	11.52	25.89	—	51.78	4.16	—	8.32	21.06	—	42.13
HGHMQN-2-SDS	1295	—	2590	6820	—	13640	935	—	1870	4910	—	9820
	5.76	—	11.52	30.34	—	60.68	4.16	—	8.32	21.84	—	43.68
HTHMQR/L-SDS	2140	715	2855	5820	1940	7760	2000	665	2665	4735	1580	6315
	9.52	3.18	12.70	25.89	8.63	34.52	8.90	2.96	11.85	21.06	7.03	28.09
HTHMQR/L-2-SDS	2715	905	3620	10140	3380	13520	2015	670	2685	8190	2730	10920
	12.08	4.03	16.10	45.11	15.04	60.14	8.96	2.98	11.94	36.43	12.14	48.58

See footnotes below.

Model No.	Factored Resistance – End Grain Bearing											
	D.Fir-L						S-P-F					
	Uplift (K_D=1.15)			Down (K_D=1.00)			Uplift (K_D=1.15)			Down (K_D=1.00)		
	Hip (ea)	Jack	Total	Hip (ea)	Jack	Total	Hip (ea)	Jack	Total	Hip (ea)	Jack	Total
	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN
HTHMQ-SDS	1070	535	2675	6750	3375	16875	1000	500	2500	5845	2920	14610
	4.76	2.38	11.90	30.03	15.01	75.07	4.45	2.22	11.12	26.00	12.99	64.99
HTHMQ-2-SDS	1355	680	3390	6750	3375	16875	1265	630	3160	5845	2920	14610
	6.03	3.02	15.08	30.03	15.01	75.07	5.63	2.80	14.06	26.00	12.99	64.99
HTHMQN-SDS	1070	—	2140	6820	—	13640	935	—	1870	4910	—	9820
	4.76	—	9.52	30.34	—	60.68	4.16	—	8.32	21.84	—	43.68
HGHMQN-2-SDS	1295	—	2590	6820	—	13640	935	—	1870	4910	—	9820
	5.76	—	11.52	30.34	—	60.68	4.16	—	8.32	21.84	—	43.68
HTHMQR/L-SDS	1070	355	1425	10140	3380	13520	1000	335	1335	8215	2735	10950
	4.76	1.58	6.34	45.11	15.04	60.14	4.45	1.49	5.94	36.54	12.17	48.71
HTHMQR/L-2-SDS	1355	450	1805	10140	3380	13520	1265	420	1685	8215	2735	10950
	6.03	2.00	8.03	45.11	15.04	60.14	5.63	1.87	7.50	36.54	12.17	48.71

1. Uplift resistances have been increased 15% for wind or earthquake loading with no further increase allowed.
2. Specify W_2 where applicable and Hip Skew Angle.
3. Connector must be installed centered on minimum 2x8 girder vertical web.
4. A minimum 2-ply carrying member is required for the tabulated loads.
5. Carrying truss plies must be adequately fastened together as determiend by Designer.
6. Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws are permitted to be installed through metal truss plates as approved by the Truss Designer (pre-drilling required through the plate using a maximum of 5⁄32" bit).
7. Tabulated resistances for three-member configurations assume that each hip carries 40% of the total load and the jack carries 20% of the total load. Tabulated resistances for single hip-jack configurations assume that 75% of the total load is distributed to the hip and 25% to the jack.
8. Joist bearing assumes the bottom chord of the truss is sitting in the hanger seat where Q_r/A_b and Q_r'/A_b' = 812 psi D.Fir-L and 615 psi S-P-F. See 6.5.4 and 7.5.9 TPIC 2014.
9. End grain bearing assumes a vertical web is sitting in the hanger seat.

CGH *Corner Girder Hangers*

The CGH is a multi-purpose connector used for connecting hip and jack trusses to bottom chords of girder trusses at a 45° skew.

MATERIAL: Face plate – 3 gauge; Stirrups – 11 gauge

FINISH: Simpson Strong-Tie® gray paint

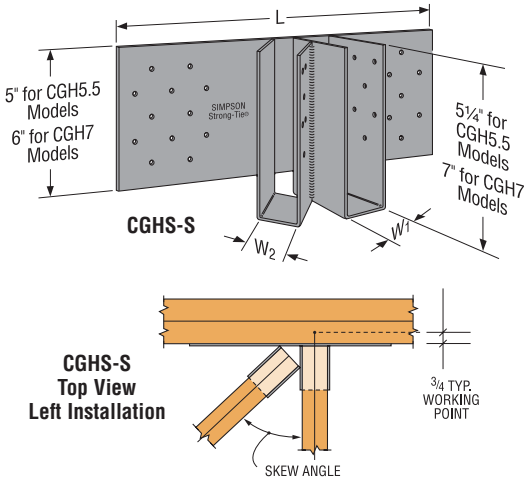
INSTALLATION:

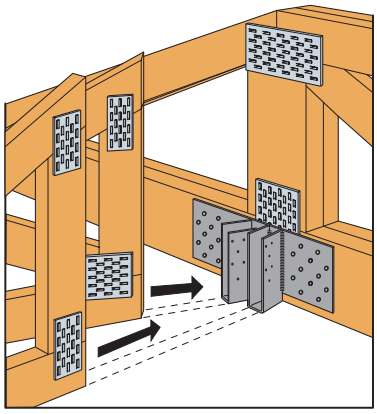
- Use all specified fasteners.
- All multiple members must be fastened together to act as a single unit.
- When using single ply hip or jack trusses, fasten the member to the connector with 10dx1½" nails.

TO ORDER:

- Specify left or right hip skew.

OPTIONS: None





CGHS-S Left Installation

Model No.	Dimensions (in)			Fasteners			Factored Resistance			
							D.Fir-L		S-P-F	
	W_1	W_2	L	Header	Hip	Jack	Uplift (K_D=1.15) lbs / kN	Normal (K_D=1.00) lbs / kN	Uplift (K_D=1.15) lbs / kN	Normal (K_D=1.00) lbs / kN
CGH5.5SS	1⅝	1⅝	14	24-16d	4-10dx1½	4-10dx1½	1180 / 5.26	5205 / 23.18	1035 / 4.61	3695 / 16.46
CGH5.5SD	1⅝	3¼	15							
CGH5.5DS	3¼	1⅝	16							
CGH5.5DD	3¼	3¼	17							
CGH7SS	1⅝	1⅝	14	24-16d	6-10dx1½	6-10dx1½	1765 / 7.86	7820 / 34.83	1555 / 6.93	5550 / 24.72
CGH7SD	1⅝	3¼	15							
CGH7DS	3¼	1⅝	16							
CGH7DD	3¼	3¼	17							

1. Factored uplift resistances have been increased 15% for short term loading, and are for each connecting member. Reduce where other loads govern.
2. The factored normal resistances are based on the combined load from both connecting members.
3. For single ply hips or jacks verify that the 3" bearing length does not govern.
4. Factored uplift resistances shown are for each joist.
5. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

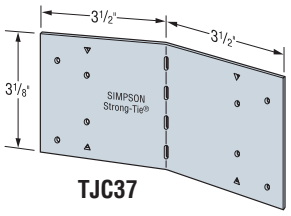
TJC37 *Jack Truss Connector*

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.

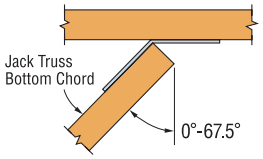
MATERIAL: 16 gauge **FINISH**: Galvanized

INSTALLATION: • Use all specified fasteners; see General Notes.

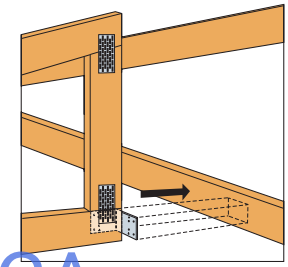
- Can be installed filling round holes only, or filling round and triangle holes for maximum values.
- To reduce the potential for splitting, install the TJC37 with a minimum 3/16" edge distance on the chord members *(must be centered on 2x4 chords)*.
- Position the jack truss on the inside of the bend 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 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.



TJC37



Top View Installation



Typical TJC37 Installation

Model No.	Fasteners		Factored Resistance (K_D=1.00)					
			D.Fir-L			S-P-F		
	Carrying Member	Carried Member	0°	1°-60°	61°-67.5°	0°	1°-60°	61°-67.5°
			lbs / kN	lbs / kN	lbs / kN	lbs / kN	lbs / kN	lbs / kN
TJC37 (Min)	4-8dx1½	4-8dx1½	495 / 2.20	495 / 2.20	495 / 2.20	350 / 1.56	350 / 1.56	350 / 1.56
TJC37 (Max)	6-8dx1½	6-8dx1½	950 / 4.23	795 / 3.54	650 / 2.90	675 / 3.00	565 / 2.51	465 / 2.07

1. No load duration increase is permitted for short-term loading (K_D = 1.15).
2. Factored resistances are for uplift and downward directions.
3. **NAILS:** 8dx1½ = 0.131" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

HHSUQ *Heavy Severe Skew Truss Hangers*

SIMPSON Strong-Tie®

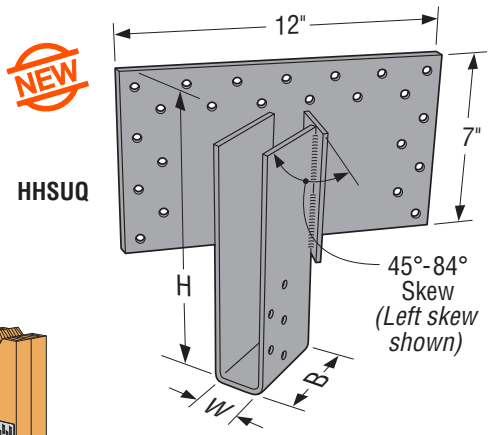
The new HHSUQ is a high-load, face-mount, truss-to-truss hanger designed to accommodate severe skews (45°-84°) enabling a greater range of installation applications. Fastening the HHSUQ with Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws makes installation fast and easy, while eliminating the inconvenience of bolted applications.

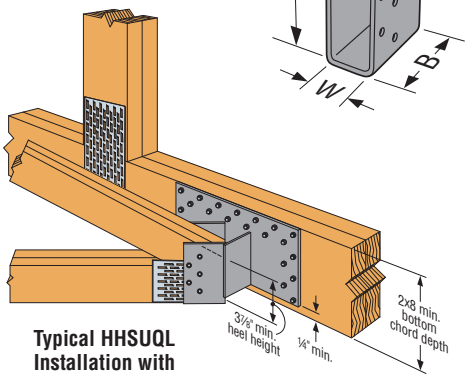
MATERIAL: Back plate—3 gauge; stirrup—7 gauge

FINISH: Simpson Strong-Tie® gray paint

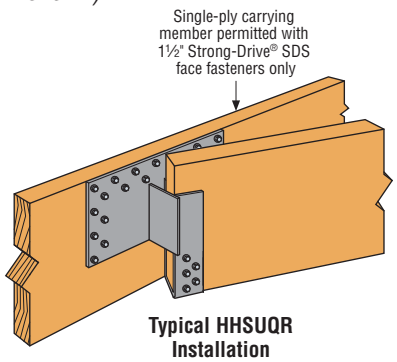
INSTALLATION: • Use all specified fasteners. See General Notes.
- Illustrations below show left and right skews HHSUQR/L *(HHSUQR = skewed right; HHSUQL = skewed left)*.
- The joist/truss end may be square cut or bevel cut with a 3⅞" minimum heel height.
- Strong-Drive SDS Heavy-Duty Connector screws supplied for all round holes.
- All multiple members must be fastened together to act as a single unit.
- When Strong-Drive SDS Heavy-Duty Connector screws are installed through metal truss plates the application must be approved by the Truss Designer. Pre-drilling is required using a 5/32" bit.

TO ORDER: • Specify left or right skew and the skew angle (degrees).





Typical HHSUQL Installation with Min. Heel Height



Typical HHSUQR Installation

Model No.	Dimensions (in)			Fasteners		Factored Resistance			
						D.Fir-L		S-P-F	
						Uplift	Normal	Uplift	Normal
						(K_D=1.15)	(K_D=1.00)	(K_D=1.15)	(K_D=1.00)
	W	H	B	Header	Joist	lbs	lbs	lbs	lbs
						kN	kN	kN	kN
HHSUQ28-SDS	1⅝	7¼	3½	23-¼"x3" SDS	5-¼"x1½" SDS	1890	5530	1360	5400
						8.41	24.60	6.05	24.02
HHSUQ210-SDS	1⅝	9¼	3½	23-¼"x3" SDS	5-¼"x1½" SDS	1890	5530	1360	5400
						8.41	24.60	6.05	24.02
HHSUQ212-SDS	1⅝	11¼	3½	23-¼"x3" SDS	5-¼"x1½" SDS	1890	5530	1360	5400
						8.41	24.60	6.05	24.02
HHSUQ28-2-SDS	3⅝	7¼	3½	23-¼"x3" SDS	5-¼"x3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ210-2-SDS	3⅝	9¼	3½	23-¼"x3" SDS	5-¼"x3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ212-2-SDS	3⅝	11¼	3½	23-¼"x3" SDS	5-¼"x3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ48-SDS	3⅝	7¼	3½	23-¼"x3" SDS	5-¼"x3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ410-SDS	3⅝	9¼	3½	23-¼"x3" SDS	5-¼"x3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ412-SDS	3⅝	11¼	3½	23-¼"x3" SDS	5-¼"x3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ414-SDS	3⅝	13¼	3½	23-¼"x3" SDS	5-¼"x3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60

1. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed. Reduce where other load durations govern.
2. Strong-Drive® SDS Heavy-Duty Connector screws that penetrate all plies of the supporting girder *(screws must penetrate a minimum of 1" into the last ply of the truss)* may also be used to transfer the load through all of the plies of the supporting girder. When Strong-Drive SDS Heavy-Duty Connector screws do not penetrate all plies of the supporting girder, supplemental Strong-Drive SDS Heavy-Duty Connector 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 Strong-Drive SDS header fasteners may be replaced with 4½" or 6" long Strong-Drive® SDS Heavy-Duty Connector screws with no reduction in capacity.
3. Resistances shown are based on a minimum 2-ply 2x8 carrying member. For single 2x carrying members, replace the 3" long Strong-Drive SDS Heavy-Duty Connector screws with 1½" long Strong-Drive® SDS Heavy-Duty Connector screws and reduce the factored normal resistances to 3820 lbs (16.99 kN) D.Fir-L and 2750 lbs (12.23 kN) S-P-F. The tabulated uplift resistances do not change.
4. Girders must be adequately laterally braced to prevent excessive displacement due to secondary torsional stresses.
5. As per 12.2.2.5 CSA O86-14, the carrying member must be evaluated using a reduced cross sectional area at the hanger location. The reduction in area is equal to seven (7) ¼" diameter x 3" long holes (1½" long for ¼"x1½" Strong-Drive SDS Heavy-Duty Connector screw).

THGQ/THGQH/HTHGQ *SCL and Truss Girder Hangers*

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, 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 Heavy-Duty Connector 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 Strong-Drive® SDS Heavy-Duty Connector screws.

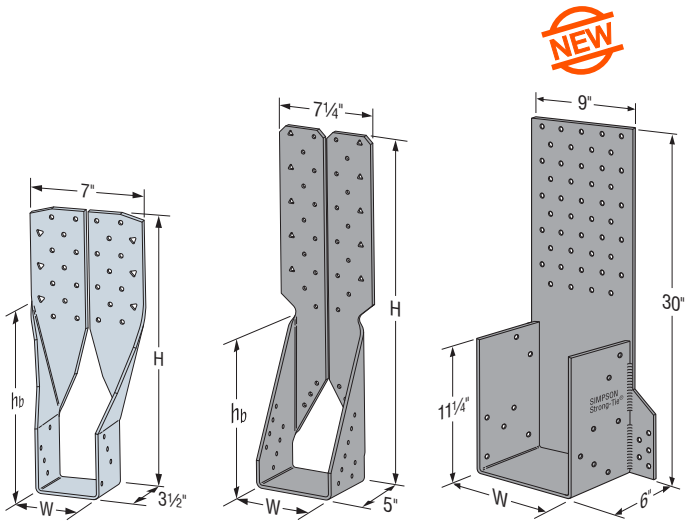
MATERIAL: THGQ—7 gauge, THGQH/HTHGQ—3 gauge

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 (minimum values), or filling round and triangle holes for maximum values.
- Strong-Drive SDS Heavy-Duty Connector screws supplied for all round and triangle holes. Installation may not require use of all Strong-Drive SDS Heavy-Duty Connector 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.
- Strong-Drive SDS Heavy-Duty Connector screws driven through truss plates must be approved by the Designer. Pre-drilling using a 5⁄32" bit is required.

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 230-231.

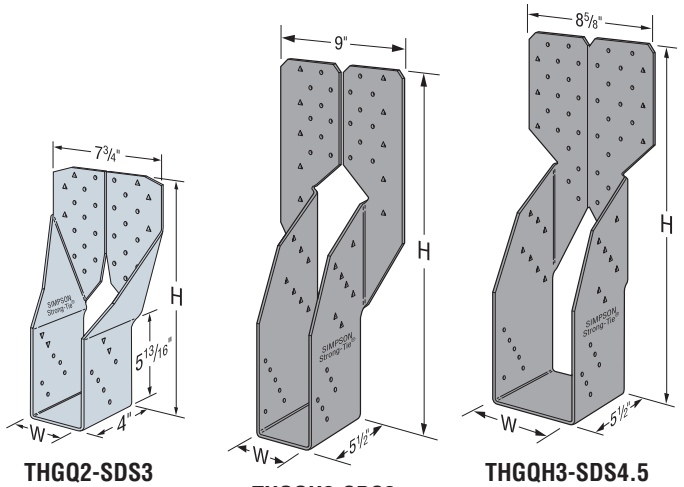


THGQ3.62 *(others similar)*

THGQH5.50 *(others similar)*

HTHGQ *(others similar)*

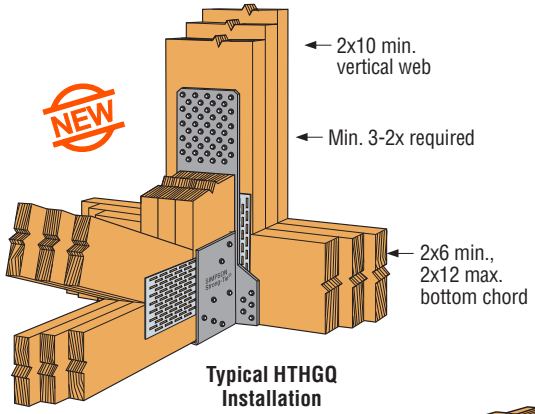
U.S. Patent Pending



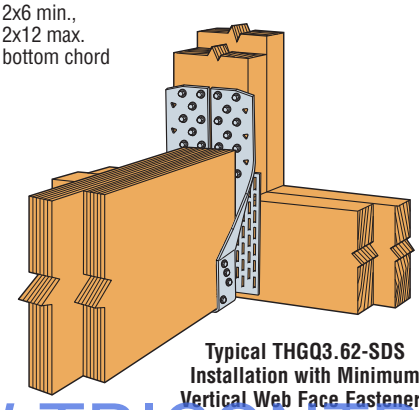
THGQ2-SDS3 *(THGQ3-SDS4.5 similar)*

THGQH2-SDS3

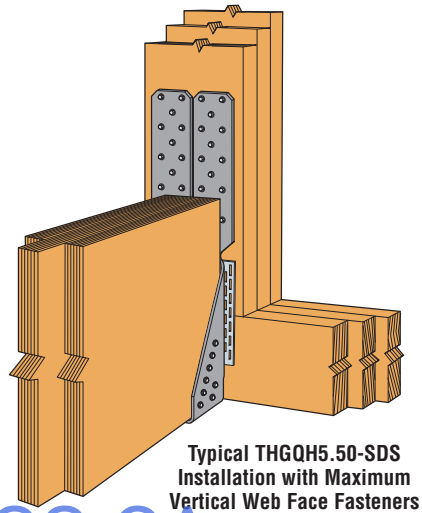
THGQH3-SDS4.5 *(THGQH4-SDS6 similar)*



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 and Truss Girder Hangers*

SIMPSON Strong-Tie®

Model No.	Dimensions (in) W	Dimensions (in) H	Max. Girder Truss B.C. Depth	Min. Vert Web Size	Fasteners Header	Fasteners Joist	Factored Resistance D.Fir-L Uplift (K_D=1.15) lbs / kN	Factored Resistance D.Fir-L Normal (K_D=1.00) lbs / kN	Factored Resistance S-P-F Uplift (K_D=1.15) lbs / kN	Factored Resistance S-P-F Normal (K_D=1.00) lbs / kN
MULTI-PLY TRUSS SIZES										
THGQ2-SDS3 (Min)	3⁵⁄₁₆	16	2x6	2x8	22-¼x3 SDS	10-¼x3 SDS	5205 23.15	11655 51.85	3750 16.68	8395 37.34
THGQ2-SDS3 (Max)				2x10	28-¼x3 SDS	14-¼x3 SDS	6555 29.16	18055 80.32	4720 21.00	13000 57.83
THGQH2-SDS3 (Min)		25	2x10	2x8	18-¼x3 SDS	14-¼x3 SDS	5790 25.76	12555 55.85	4170 18.55	9040 40.21
THGQH2-SDS3 (Max)				2x10	28-¼x3 SDS	26-¼x3 SDS	14190 63.12	18455 82.10	10215 45.44	13285 59.10
NEW HTHGQ2-SDS4.5		30	2x12	2x10	55-¼x4½ SDS	14-¼x3 SDS	7420 33.01	26375 117.33	5345 23.78	19320 85.94
THGQ3-SDS4.5 (Min)	4¹⁵⁄₁₆	16	2x6	2x8	22-¼x4½ SDS	10-¼x4½ SDS	5205 23.15	11655 51.85	3750 16.68	8395 37.34
THGQ3-SDS4.5 (Max)				2x10	28-¼x4½ SDS	14-¼x4½ SDS	6555 29.16	17760 79.00	4720 21.00	12785 56.87
THGQH3-SDS4.5 (Min)		25	2x10	2x10	32-¼x4½ SDS	14-¼x4½ SDS	5790 25.76	17860 79.45	4170 18.55	12860 57.21
THGQH3-SDS4.5 (Max)				2x12	38-¼x4½ SDS	26-¼x4½ SDS	14190 63.12	21055 93.66	10215 45.44	15160 67.44
NEW HTHGQ3-SDS4.5		30	2x12	2x10	55-¼x4½ SDS	14-¼x3 SDS	7420 33.01	33685 149.84	5345 23.78	24850 110.54
THGQH4-SDS6 (Min)	6⁹⁄₁₆	25	2x12	2x10	34-¼x6 SDS	14-¼x6 SDS	5790 25.76	17860 79.45	4170 18.55	12860 57.21
THGQH4-SDS6 (Max)				2x12	40-¼x6 SDS	26-¼x6 SDS	14190 63.12	24870 110.63	10215 45.44	17905 79.65
NEW HTHGQ4-SDS4.5		30	2x12	2x10	55-¼x4½ SDS	14-¼x3 SDS	7420 33.01	33930 150.93	5345 23.78	28400 126.33
NEW HTHGQ5-SDS4.5	8⅛	30	2x12	2x10	55-¼x4½ SDS	14-¼x3 SDS	7420 33.01	33930 150.93	5345 23.78	28400 126.33
STRUCTURAL COMPOSITE LUMBER (SCL) SIZES										
NEW THGQ3.62-SDS3 (Min)	3⅝	16¹⁄₁₆	2x6	2x8	22-¼x3 SDS	8-¼x3 SDS	4725 21.02	9510 42.30	3400 15.12	6850 30.47
NEW THGQ3.62-SDS3 (Max)				2x10	28-¼x3 SDS	8-¼x3 SDS	4725 21.02	12815 57.01	3400 15.12	9225 41.04
NEW THGQH3.62-SDS3 (Min)		24½	2x8	2x6	26-¼x3 SDS	18-¼x3 SDS	6640 29.54	16540 73.58	4780 21.26	11910 52.98
NEW THGQH3.62-SDS3 (Max)				2x8	36-¼x3 SDS	18-¼x3 SDS	6640 29.54	17695 78.71	4780 21.26	12740 56.67
NEW THGQ5.50-SDS4.5 (Min)	5½	17¼	2x8	2x8	24-¼x4½ SDS	8-¼x4½ SDS	4725 21.02	10945 48.69	3400 15.12	7880 35.05
NEW THGQ5.50-SDS4.5 (Max)				2x10	32-¼x4½ SDS	8-¼x4½ SDS	4725 21.02	12570 55.92	3400 15.12	9050 40.26
NEW THGQH5.50-SDS4.5 (Min)		25	2x10	2x6	28-¼x4½ SDS	16-¼x4½ SDS	5900 26.25	17415 77.47	4250 18.91	12535 55.76
NEW THGQH5.50-SDS4.5 (Max)				2x8	38-¼x4½ SDS	16-¼x4½ SDS	5900 26.25	25155 111.90	4250 18.91	18110 80.56
NEW THGQH7.25-SDS6 (Min)	7¼	24½	2x10	2x8	28-¼x6 SDS	16-¼x6 SDS	5900 26.25	19750 87.86	4250 18.91	14220 63.26
NEW THGQH7.25-SDS6 (Max)				2x12	46-¼x6 SDS	16-¼x6 SDS	5900 26.25	26660 118.59	4250 18.91	19195 85.39

1. Factored uplift resistances have been increased 15% for short term load duration no further incrase is permitted.
2. A minimum 3-ply girder truss (header) is required for all HTHGQ sizes.
3. Minimum bottom chord depth of the joist shall be 2x6.
4. When end grain bearing is used with HTHGQ models, the factored normal resistances are 33930 lbs (150.93 kN) D.Fir-L and 28400 lbs (126.33 kN) S-P-F. The factored uplift resistances are 5300 lbs (23.57 kN) D.Fir-L and 3815 lbs (16.97 kN) S-P-F.
5. Designer must ensure that the girder truss is capable of supporting the applied loads based on the reduced cross sectional area from the ¼" diameter fasteners.
6. Strong-Drive SDS Heavy-Duty Connector screws that penetrate all plies of the supporting girder a minimum of 1" into the last ply may also be used to transfer the load between plies of the supporting girder. When Strong-Drive SDS Heavy-Duty Connector screws do not penetrate all plies supplemental Strong-Drive SDS Heavy-Duty Connector screws may be required to transfer the load to thee truss plies not penetrated by the face fasteners, as determined by the Designer.
7. All truss sizes assume Q_r'/A_b and Q_r'/A_b' = 812 psi D.Fir-L and 615 psi S-P-F for bearing capacities. See 6.5.4 and 7.5.9 TPIC 2014.

THGB/THGBH/THGW *Truss Girder Hangers*

High-capacity, welded hangers for multi-ply girder trusses. Two models offer higher design load values and optional installation with the Strong-Drive® SDS Heavy-Duty Connector screw.

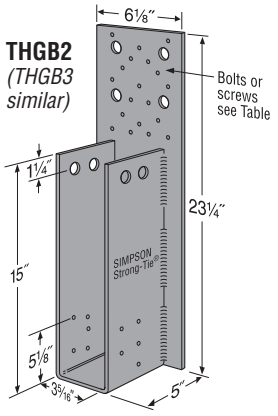
MATERIAL: 3 gauge **FINISH:** Simpson Strong-Tie® gray paint

DESIGN: • Vertical web on supporting girder truss must be 2x8 (min.) for 4-bolt and 6-bolt applications and 2x12 for 8-bolt applications per 5.3.8.2 CSA O86-14.
- Designer must ensure that vertical web member supporting hanger is capable of resisting applied loads based on net cross sectional area.
- ¼"x3" Strong-Drive SDS Heavy-Duty Connector screw must be attached to a minimum 2-ply header (3").
- Joist bearing assumes Q_r/A_b and Q_r'/A_b' = 812 psi D.Fir-L and 615 psi S-P-F. See 6.5.4 and 7.5.9 TPIC 2014.
- Maximum bottom chord depth on header shall be 11⅞" .
- To achieve the tabulated uplift resistances the maximum bottom chord depth of the joist shall be 7¼".

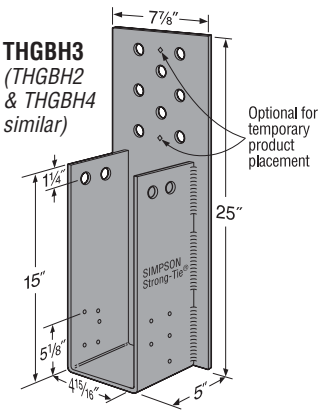
INSTALLATION: • Use all specified fasteners.
- All multiple members must be fastened together to act as a single unit.

OPTIONS: • See Hanger Options, page 230.

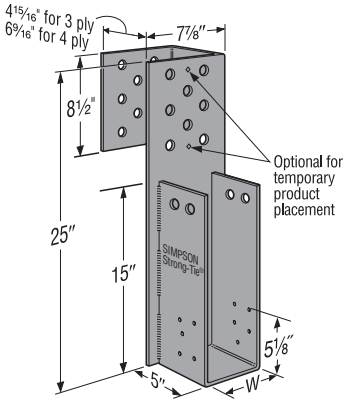
THGB2 *(THGB3 similar)*



THGBH3 *(THGBH2 & THGBH4 similar)*

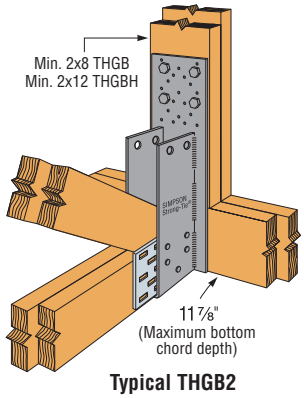


Model No.	Width (in)	Fasteners		Minimum Header Thickness (in)	Factored Resistance			
					D.Fir-L		S-P-F	
		Joist	Header		Uplift (K_D=1.15) lbs kN	Normal (K_D=1.00) lbs kN	Uplift (K_D=1.15) lbs kN	Normal (K_D=1.00) lbs kN
THGB2	3⁵⁄₁₆	10-10d & 2-¾" MB	4-¾" MB	3	5175 / 23.02	8290 / 36.88	4085 / 18.17	6545 / 29.11
				4½	5175 / 23.02	12435 / 55.32	4085 / 18.17	9815 / 43.66
				6	5175 / 23.02	13615 / 60.56	4085 / 18.17	10750 / 47.82
			19-¼"x3" SDS	3	5175 / 23.02	13805 / 61.41	4085 / 18.17	9940 / 44.22
THGBH2	3⁵⁄₁₆	10-10d & 2-¾" MB	8-¾" MB	3	5175 / 23.02	12435 / 55.32	4085 / 18.17	9815 / 43.66
				4½	5175 / 23.02	14385 / 63.99	4085 / 18.17	11355 / 50.51
				6	5175 / 23.02	14385 / 63.99	4085 / 18.17	11355 / 50.51
THGB3	4¹⁵⁄₁₆	10-10d & 2-¾" MB	4-¾" MB	3	7760 / 34.52	8290 / 36.88	6125 / 27.25	6545 / 29.11
				4½	7760 / 34.52	12435 / 55.32	6125 / 27.25	9815 / 43.66
				6	7760 / 34.52	13615 / 60.56	6125 / 27.25	10750 / 47.82
			19-¼"x3" SDS	3	7760 / 34.52	13805 / 61.41	6125 / 27.25	9940 / 44.22
THGBH3	4¹⁵⁄₁₆	10-10d & 2-¾" MB	8-¾" MB	3	7760 / 34.52	12435 / 55.32	6125 / 27.25	9815 / 43.66
				4½	7760 / 34.52	18390 / 81.81	6125 / 27.25	14520 / 64.59
				6	7760 / 34.52	18605 / 82.76	6125 / 27.25	14690 / 65.35
THGW3-3	4¹⁵⁄₁₆	10-10d & 2-¾" MB	6-¾" MB	4½[3]	7760 / 34.52	18650 / 82.96	6125 / 27.25	14725 / 65.50
THGW3-4				6[3]	7760 / 34.52	20830 / 92.66	6125 / 27.25	16065 / 71.46
THGBH4	6⁹⁄₁₆	10-10d & 2-¾" MB	8-¾" MB	3	8850 / 39.37	12435 / 55.32	8170 / 36.34	9815 / 43.66
				4½	8850 / 39.37	18650 / 82.96	8170 / 36.34	14725 / 65.50
				6	8850 / 39.37	21865 / 97.26	8170 / 36.34	17265 / 76.80
THGW4-3	6⁹⁄₁₆	10-10d & 2-¾" MB	6-¾" MB	4½[3]	8850 / 39.37	18650 / 82.96	8170 / 36.34	14725 / 65.50
THGW4-4				6[3]	8850 / 39.37	24870 / 110.63	8170 / 36.34	19630 / 87.32

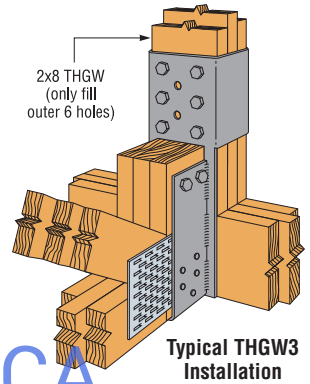


THGW3

U.S. Patent 6,230,466



Typical THGB2 Installation



Typical THGW3 Installation

1. Uplift resistances have been increased 15% for wind or earthquake loading with no further increase allowed.
2. When using 10-10d nails only on carried member, uplift resistance is 2945 lbs. (13.10 kN) for D.Fir-L and 2590 lbs (11.52 kN) for S-P-F.
3. THGW is sized to fit the header thickness shown.
4. **NAILS:** 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.

THGBV/THGBHV/THGWV *SCL-to-Truss Girder Hangers*

SIMPSON Strong-Tie®

An extension of the THGB/THGBH/THGW series, these high-capacity, welded hangers are designed for attaching multi-ply structural composite lumber (SCL) beams to girder trusses. Two models offer higher design values and optional installation with the Strong-Drive® SDS Heavy-Duty Connector screws. 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 design flexibility for a variety of SCL-to-truss connections.

MATERIAL: 3 gauge **FINISH:** Simpson Strong-Tie® gray paint

DESIGN: • Vertical web on supporting girder truss must be 2x8 (min.) for 4-bolt and 6-bolt applications and 2x12 for 8-bolt applications per 5.3.8.2 CSA O86-14.

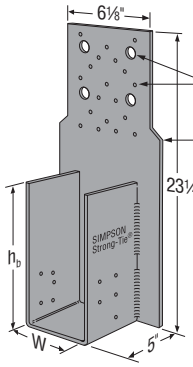
- Designer must ensure that vertical web member supporting hanger is capable of resisting applied loads based on net cross sectional area.
- ¼"x3" Strong-Drive SDS Heavy-Duty Connector screws must be attached to a minimum 2-ply header (3").
- Maximum bottom chord depth on header shall be 11⅞" .

INSTALLATION:

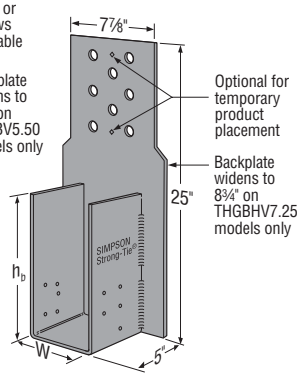
- Use all specified fasteners.
- All multiple members must be fastened together to act as a single unit.

OPTIONS: • See Hanger Options, page 230.

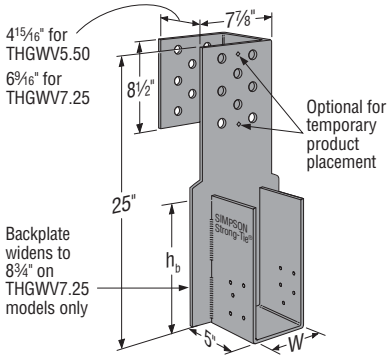
Joist Dimensions (in)		Model No.	Hanger Dimensions (in)	
Width	Depth		W	h_b
3½	9¼ - 14	THGBV3.62/9	3⅝	9
		THGBHV3.62/9		
	11¼ - 20	THGBV3.62/11		11
		THGBHV3.62/11		
5¼	9¼ - 14	THGBV5.50/9	5½	9
		THGBHV5.50/9		
		THGWV5.50/9		
	11¼ - 20	THGBV5.50/11		11
		THGBHV5.50/11		
		THGWV5.50/11		
7	9¼ - 14	THGBHV7.25/9	7¼	9
		THGWV7.25/9		
	11¼ - 20	THGBHV7.25/11		11
		THGWV7.25/11		



THGBV

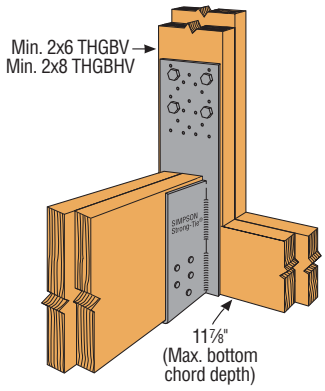


THGBHV

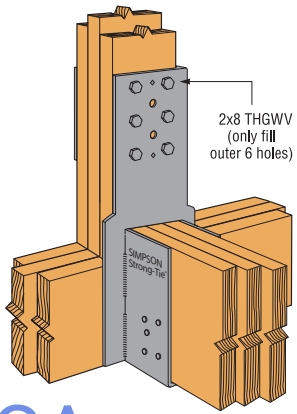


THGWV

Model No.	Width (in)	Fasteners		Minimum Header Thickness (in)	Factored Resistance			
					D.Fir-L		S-P-F	
		Joist	Header		Uplift (K_D=1.15)	Normal (K_D=1.00)	Uplift (K_D=1.15)	Normal (K_D=1.00)
					lbs kN	lbs kN	lbs kN	lbs kN
THGBV3.62/9 THGBV3.62/11	3⅝	10-10d	4-¾" MB	3	2945 13.10	8290 36.88	2590 11.52	6545 29.11
				4½	2945 13.10	12435 55.32	2590 11.52	9815 43.66
				6	2945 13.10	13615 60.56	2590 11.52	10750 47.82
			19-¼"x3" SDS	3	2945 13.10	13805 61.41	2590 11.52	9940 44.22
THGBHV3.62/9 THGBHV3.62/11	3⅝	10-10d	8-¾" MB	3	2945 13.10	12435 55.32	2590 11.52	9815 43.66
				4½	2945 13.10	14385 63.99	2590 11.52	11355 50.51
				6	2945 13.10	14385 63.99	2590 11.52	11355 50.51
THGBV5.50/9 THGBV5.50/11	5½	10-10d	4-¾" MB	3	2945 13.10	8290 36.88	2590 11.52	6545 29.11
				4½	2945 13.10	12435 55.32	2590 11.52	9815 43.66
				6	2945 13.10	13615 60.56	2590 11.52	10750 47.82
			19-¼"x3" SDS	3	2945 13.10	13805 61.41	2590 11.52	9940 44.22
THGBHV5.50/9 THGBHV5.50/11	5½	10-10d	8-¾" MB	3	2945 13.10	12435 55.32	2590 11.52	9815 43.66
				4½	2945 13.10	18390 81.81	2590 11.52	14520 64.59
				6	2945 13.10	18605 82.76	2590 11.52	14690 65.35
THGWV5.50/9 THGWV5.50/11	5½	10-10d	6-¾" MB	4½[2]	2945 13.10	18650 82.96	2590 11.52	14725 65.50
THGBHV7.25/9 THGBHV7.25/11	7¼	10-10d	8-¾" MB	3	2945 13.10	12435 55.32	2590 11.52	9815 43.66
				4½	2945 13.10	18650 82.96	2590 11.52	14725 65.50
				6	2945 13.10	21865 97.26	2590 11.52	17265 76.80
THGWV7.25/9 THGWV7.25/11	7¼	10-10d	6-¾" MB	6[2]	2945 13.10	24870 110.63	2590 11.52	19630 87.32



Typical THGBV3.62/9 Installation



Typical THGWV Installation

1. Uplift resistances have been increased 15% for wind or earthquake loading with no further increase allowed.
2. THGWV is sized to fit the header thickness shown.
3. **NAILS:** 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.

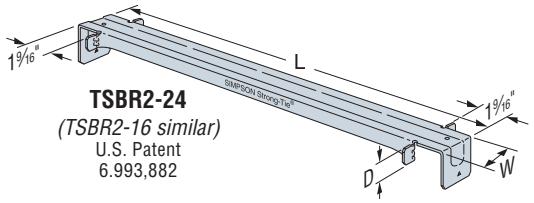
TSBR *Truss Spacer-Restraint*

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 BCSI-08. 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.

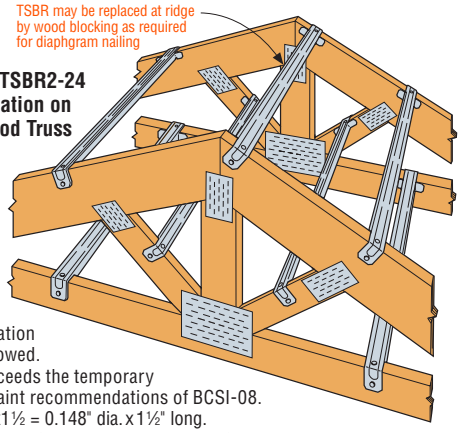
FEATURES: • Enables the quick and accurate spacing of trusses without measuring or adjusting
- Helps meet prescriptive temporary bracing recommendations of the BCSI-08
- Easily "grabs" onto the truss – may be put in place with one hand
- Stays in place during sheathing, saving time and making the roof 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 BCSI-08. For more information see the Simpson Strong-Tie *Wood Truss Bracing and Restraint Guide* (F-TSBRTBD22).
- Fill all round and triangular holes.



TSBR2-24
(TSBR2-16 similar)
U.S. Patent
6.993,882



Typical TSBR2-24 Installation on 2x Wood Truss

Model No.	Dimensions (in)			Fasteners	Factored Resistance (K_D=1.15)			
					D.Fir-L		S-P-F	
	L	W	D		Compression	Tension	Compression	Tension
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
TSBR2-16	17½	1¼	1¼	4-10dx1½	885	740	630	525
					3.94	3.29	2.80	2.34
TSBR2-24	25½	1¾	1	4-10dx1½	685	625	485	445
					3.05	2.78	2.16	1.98

1. No load duration increase allowed.
2. Meets or exceeds the temporary lateral restraint recommendations of BCSI-08.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

TBD22 *Diagonal Brace*

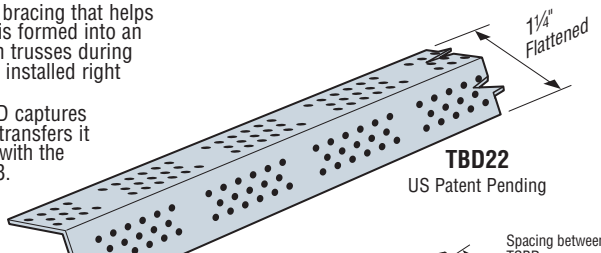
The TBD22 diagonal truss brace offers a time-saving subsitute for 2x4 diagonal bracing that helps meet the recommendations of BCSI-08. The TBD travels in a box like a flat strap, and is formed into an A-shape as it is pulled from the carton to provide rigidity and prevent sagging between trusses during 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 TSB truss spacer/bracer 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 BCSI-08.

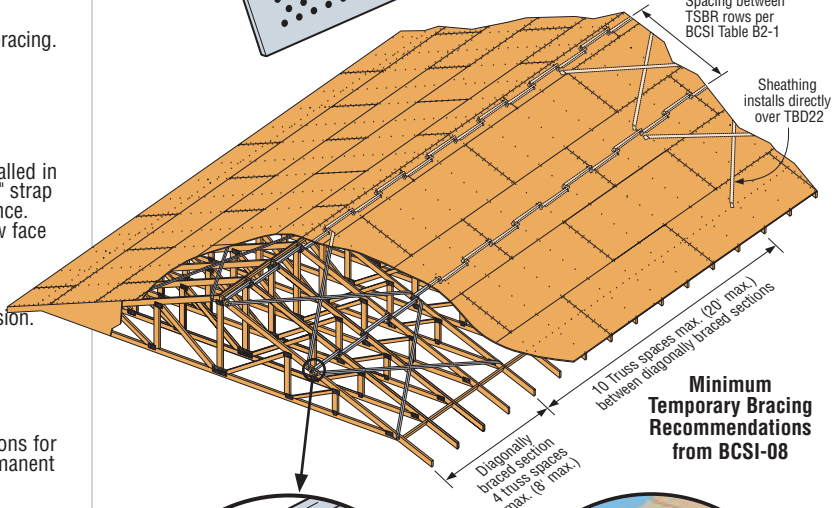
FEATURES: • Helps meet prescriptive temporary bracing recommendations of the BCSI-08.
- Rigid A-shape design virtually eliminates sagging between trusses spaced 16"-24" on center.
- Can be sheathed over after installation, no need to remove bracing.
- Dimpled nailing grid allows installation with standard 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 BCSI-08 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.



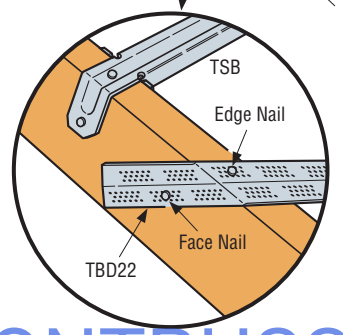
TBD22
US Patent Pending



Minimum Temporary Bracing Recommendations from BCSI-08

Model No.	Fasteners		Factored Tensile Resistance (K_D=1.15)	
	Strap Ends	Intermediate Trusses	D.Fir-L	S-P-F
			lbs	lbs
			kN	kN
TBD22 (Min)	1-10dx1½ in face and 1-10dx1½ in edge	1-10dx1½	680	615
			3.02	2.74
TBD22 (Max)	2-10dx1½ in face and 1-10dx1½ in edge	1-10dx1½	895	820
			3.98	3.65

1. Factored resistances have been increased for construction and wind loading with no further increase allowed.
2. Minimum nailing meets or exceeds the temporary bracing recommendations of BCSI-08.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.



Typical TBD22 Top Chord Installation with Minimum Nailing

TBD22 Dispenser Detail

VTCR *Single-Sided Valley Truss Clip*

SIMPSON Strong-Tie®

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, 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.

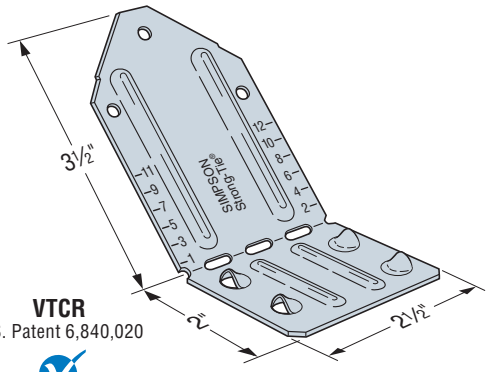
- Single-sided for new construction or retrofit applications – can be installed after the valley truss is set in place
- Accommodates pitches from 0/12 to 12/12
- Can be installed with either beveled or non-beveled bottom chords
- Installs with nails or Simpson Strong-Tie® Strong-Drive® SD Connector screws

MATERIAL: 18 gauge
FINISH: Galvanized


Designed for Connectors

INSTALLATION:

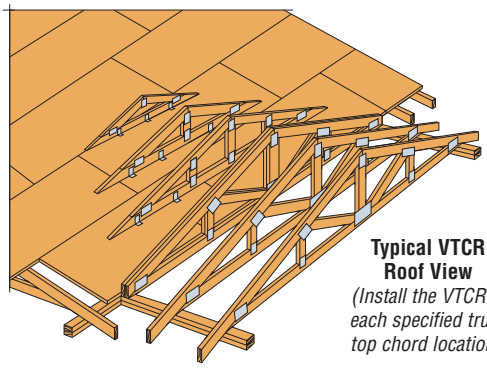
- The dome holes assist in installing the fasteners into the supporting framing at approximately 45°.
- Install VTCR at all valley truss/common truss intersections.
- VTCR must be installed directly over roof sheathing between 7/16" and 5/8" thick.



VTCR
U.S. Patent 6,840,020

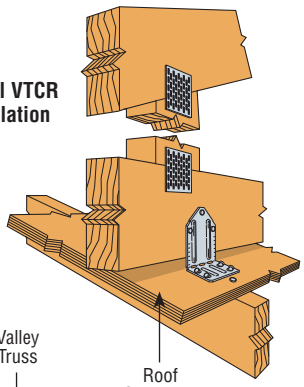
Model No.	Fasteners		Factored Resistance			
			D.Fir-L		S-P-F	
	Supporting Framing	Valley Truss	Uplift (K_D=1.15) lbs / kN	Normal (K_D=1.00) lbs / kN	Uplift (K_D=1.15) lbs / kN	Normal (K_D=1.00) lbs / kN
VTCR	4-10d	3-10dx1½	220 / 0.98	595 / 2.65	160 / 0.71	595 / 2.65
	4-SD#9x2½	3-SD#9x1½	575 / 2.56	595 / 2.65	405 / 1.80	595 / 2.65

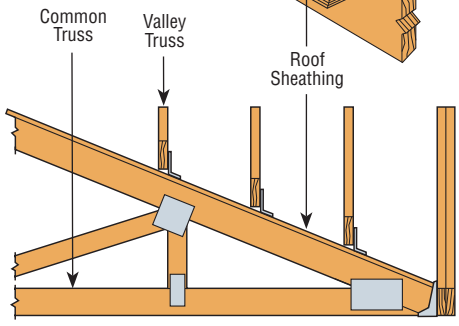
1. Factored uplift resistances have been increased 15% for wind loads. No further increase is permitted.
2. Factored normal resistance assume continuous bearing of the valley truss bottom chord along the roof sheathing. For applications where the supporting framing is less than 24" o/c, the tabulated normal resistances shall be linearly reduced.
3. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.
4. **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

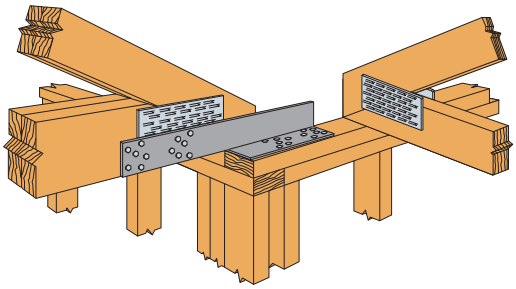
DSC *Drag Strut Connector*

The DSC Drag Strut Connector transfers diaphragm shear forces to the shearwalls. The DSC2 is a smaller, lighter version that installs with fewer screws.

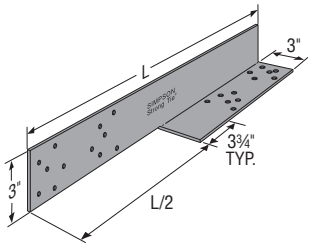
MATERIAL: DSC2—7 gauge, DSC5—3 gauge
FINISH: DSC2—Galvanized
DSC5—Simpson Strong-Tie® gray paint

INSTALLATION:

- Use all specified fasteners; see General Notes.
- Strong-Drive® SDS Heavy-Duty Connector screws are provided.



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	Factored Resistance (K_D=1.15)			
			D.Fir-L		S-P-F	
			Compression lbs / kN	Tension lbs / kN	Compression lbs / kN	Tension lbs / kN
DSC2R/L-SDS3	16	20-¼"x3" SDS	3740 / 16.66	6530 / 29.09	2695 / 12.00	4700 / 20.94
DSC5R/L-SDS3	21	24-¼"x3" SDS	6495 / 28.93	10630 / 47.35	4675 / 20.82	7655 / 34.10

1. Factored resistances have been increased 15% for earthquake and wind loading with no further increase allowed.
2. Lag screws will not generate the tabulated factored resistances.
3. Strong-Drive® SDS Heavy-Duty Connector screws minimum penetration is 2¾", minimum end distance is 2½" and minimum edge distance is 5/8" for full load values.
4. Installation of Strong-Drive SDS Heavy-Duty Connector through truss plates must be approved by the truss engineer. Pre-drilling is required.

GBC *Gable Brace Connector*

SIMPSON Strong-Tie®

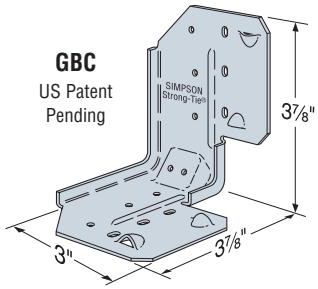
This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

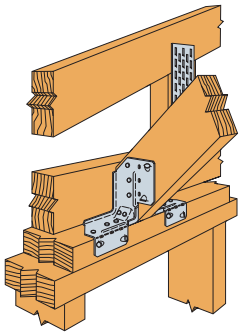
The GBC provides improved anchorage of gable bracing to the exterior wall. Installation flexibility for brace angle. GBC has tension and compression capacities.

MATERIAL: 16 gauge **FINISH:** Galvanized

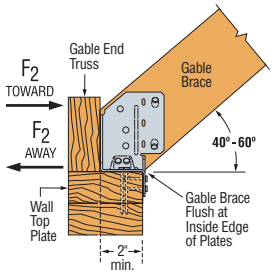
INSTALLATION:

- Use all specified fasteners. See General Notes.
- The GBC must be installed in pairs to achieve full load capacity.





Typical GBC Installation



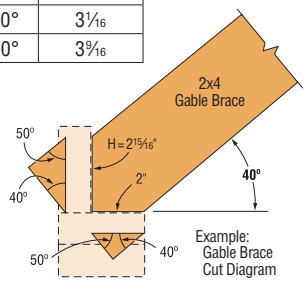
Typical Sloped Installation

Model No.	Qty Req'd	Fasteners per Connector		Perpendicular to Endwall (F_2) Factored Resistance (K_D=1.15)							
				D.Fir-L				S-P-F			
				Toward Anchors		Away from Anchors		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°
				lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
				kN	kN	kN	kN	kN	kN	kN	kN
GBC	2	5-8dx1½	7-8d	945	830	695	610	665	580	490	425
				4.21	3.70	3.10	2.72	2.96	2.58	2.18	1.89

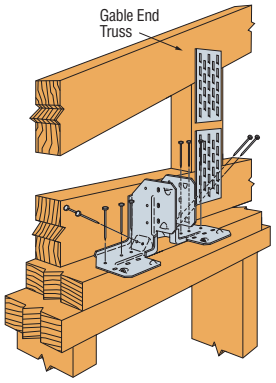
1. For 1¾ x 3½ (or larger) LVL gable brace, the factored resistance at 40° to 45° is 945 lbs (4.21 kN) towards the anchors and 970 lbs (4.32 kN) away from the anchors.
2. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce where other loads govern.
3. Use a minimum 2x4 gable brace.
4. **NAILS:** 8d = 0.131" dia. x 2½" long, 8dx1½ = 0.131" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

GBC INSTALLATION SEQUENCE

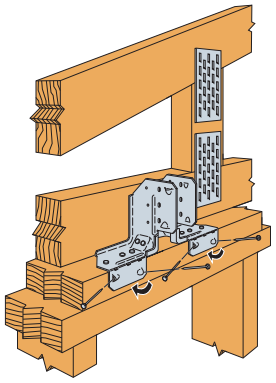
Slope	H Dimension
40°	2 15/16
50°	3 1/16
60°	3 3/16



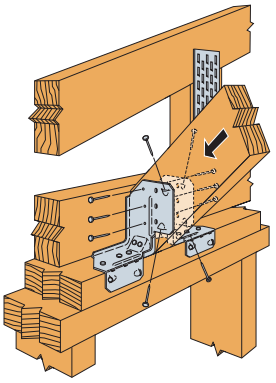
STEP 1
Double angle cut the gable brace to sit flat on the wall double top plate and flush against the gable end truss for 2x4 top plate. The double angle cuts should form a 90° angle on the end of the gable brace.



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.

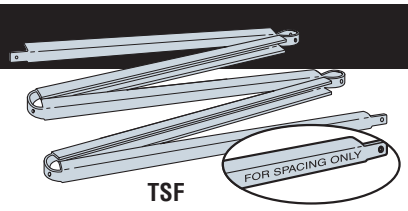
TSF *Truss Spacer*

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.

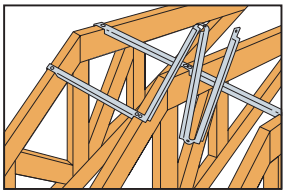
MATERIAL: 24 gauge
FINISH: Galvanized
INSTALLATION:

- 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.

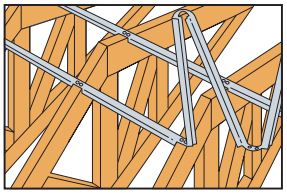
Model No.	Dimensions		
	W	O.C. Spacing	Total Length
TSF2-16	1½	16	8'
TSF2-24	1½	24	10'



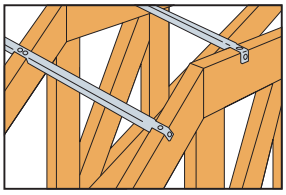
TSF



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.

CP CRUSH PLATES *Bearing Enhancers*

The CP transfers load from the truss or girder to plates for bearing limited conditions. Replaces nail-on scabs or in some cases, an additional ply when needed for bearing.

MATERIAL: See table

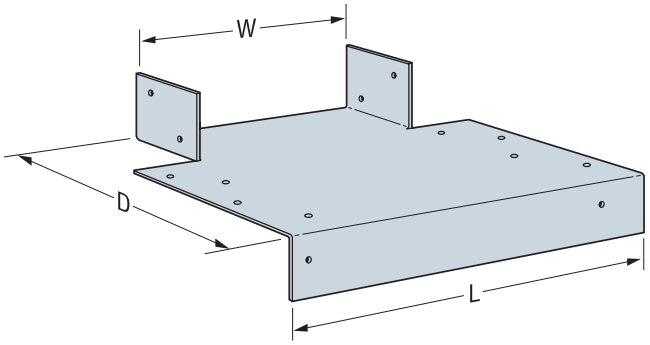
FINISH: Galvanized

DESIGN:

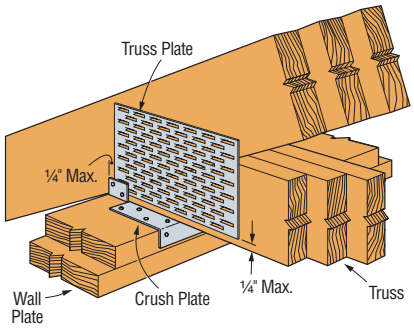
- Factored resistances are in accordance with CSA 086-14 assuming Q_r/A_b and Q_r'/A_b' = 812 psi for D.Fir-L and 615 psi for S-P-F. See sections 6.5.4 and 7.5.9 TPIC 2014 when compression loads are applied to both sides of truss chord members at bearing locations.

INSTALLATION: • Use all specified fasteners.

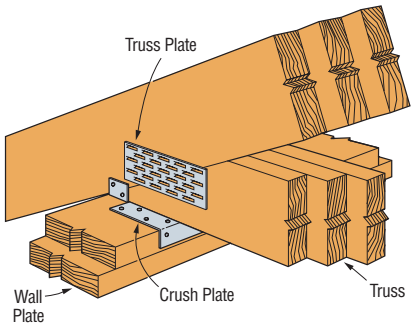
- For Case 1, truss plates must be located a maximum of ¼" from the underside of the truss chord and a maximum of ¼" from the edge of the wall plates in accordance with the reinforcing requirements of 7.5.9 TPIC 2014.



Model No.	Ga	Wall Plate	Dimensions (in)			Fasteners		Factored Resistance			
								D.Fir-L		S-P-F	
								Uplift	Bearing	Uplift	Bearing
								(K_D=1.15)	(K_D=1.00)	(K_D=1.15)	(K_D=1.00)
								lbs	lbs	lbs	lbs
			W	D	L	Wall Plate	Truss	kN	kN	kN	kN
CASE 1 (Truss Plate Reinforcement)											
CP1-4	20	2x4	1⅝	3½	4½	6-10d	4-10dx1½	225	5965	225	4515
								1.00	26.57	1.00	20.11
CP2-4	16		3¼	3½	5¾	6-10d	4-10dx1½	225	11390	225	9030
								1.00	53.14	1.00	40.22
CP3-4	16		4¾	3½	7½	6-10d	4-10dx1½	225	17895	225	13545
								1.00	79.71	1.00	60.33
CP4-4	12		6½	3½	9½	6-10d	4-10dx1½	225	23860	225	18065
								1.00	106.28	1.00	80.47
CP1-6	20	2x6	1⅝	5½	4½	10-10d	4-10dx1½	225	9370	225	7095
								1.00	41.47	1.00	31.60
CP2-6	16		3¼	5½	5¾	10-10d	4-10dx1½	225	18740	225	14190
								1.00	83.47	1.00	63.21
CP3-6	16		4¾	5½	7½	10-10d	4-10dx1½	225	28110	225	21285
								1.00	125.21	1.00	94.81
CP4-6	12		6½	5½	9½	10-10d	4-10dx1½	225	37495	225	28390
								1.00	167.02	1.00	126.46
CASE 2 (No Reinforcement)											
CP1-4	20	2x4	1⅝	3½	4½	6-10d	4-10dx1½	225	4685	225	3550
								1.00	20.87	1.00	15.81
CP2-4	16		3¼	3½	5¾	6-10d	4-10dx1½	225	9370	225	7100
								1.00	41.74	1.00	31.63
CP3-4	16		4¾	3½	7½	6-10d	4-10dx1½	225	14055	225	10650
								1.00	62.61	1.00	47.44
CP4-4	12		6½	3½	9½	6-10d	4-10dx1½	225	18750	225	14195
								1.00	83.52	1.00	63.23
CP1-6	20	2x6	1⅝	5½	4½	10-10d	4-10dx1½	225	7365	225	5575
								1.00	32.81	1.00	24.83
CP2-6	16		3¼	5½	5¾	10-10d	4-10dx1½	225	14730	225	11150
								1.00	65.61	1.00	49.67
CP3-6	16		4¾	5½	7½	10-10d	4-10dx1½	225	22095	225	16725
								1.00	98.42	1.00	74.50
CP4-6	12		6½	5½	9½	10-10d	4-10dx1½	225	29460	225	22305
								1.00	131.22	1.00	99.35



Case 1



Case 2

1. Factored bearing resistances assume wall plate and truss are the same species. For a mixed species system use S-P-F values.
2. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

TBE *Truss Bearing Enhancers*

One size works with any number of girder plys. 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.

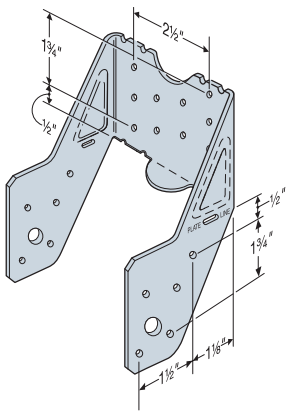
The table lists factored resistances for TBE4 used on 2x4 and TBE6 used on 2x6 top plates. The tables give the different resistances calculated for TBE with and without wood bearing. See page 177 for Alternate Installation.

MATERIAL: 18 gauge

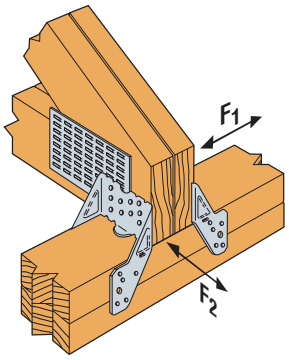
FINISH: Galvanized. See Corrosion Information, pages 14-17.

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.
- Do not use TBEs in end-grain-bearing applications.



TBE4
(TBE6 similar)
U.S. Patent 5,109,646
Canada Patent 2,044,440



Two TBE installed with two ply girder truss

TBE FASTENER SCHEDULE

Model No.	Truss Plys	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 pages 22-23 for other nail sizes and information.

Model No.	No. of Truss Plies	Fasteners		TBE Only Factored Resistance				Combined TBE and Wood Bearing Factored Resistance	
		Truss	Plate	Uplift (K_D=1.15)	Normal (K_D=1.00)	Lateral (K_D=1.15) F1	Lateral (K_D=1.15) F2	Normal (K_D=1.00)	TBL[6]
				lbs kN	lbs kN	lbs kN	lbs kN	lbs kN	in
D.Fir-L									
TBE4	1	20-10dx1½	20-10dx1½	1605 7.14	3540 15.75	655 2.91	1415 6.29	7800 34.70	6.41
	2	20-10d	20-10d	1605 7.14	3660 16.28	655 2.91	1415 6.29	12180 54.18	5.00
	3	20-10d	20-10d	1605 7.14	3660 16.28	655 2.91	1415 6.29	16445 73.15	4.50
	4	20-10d	20-10d	1605 7.14	3660 16.28	655 2.91	1415 6.29	20705 92.10	4.25
TBE6	1	20-10dx1½	20-10dx1½	1760 7.83	3540 15.75	490 2.18	1745 7.76	10235 45.53	8.41
	2	20-10d	20-10d	1760 7.83	3860 17.17	490 2.18	1745 7.76	17250 76.73	7.09
	3	20-10d	20-10d	1760 7.83	3860 17.17	490 2.18	1745 7.76	23945 106.52	6.56
	4	20-10d	20-10d	1760 7.83	3860 17.17	490 2.18	1745 7.76	30640 136.30	6.29
S-P-F									
TBE4	1	20-10dx1½	20-10dx1½	1605 7.14	3220 14.32	615 2.74	1415 6.29	6445 28.67	6.99
	2	20-10d	20-10d	1605 7.14	3440 15.30	615 2.74	1415 6.29	9890 43.99	5.37
	3	20-10d	20-10d	1605 7.14	3440 15.30	615 2.74	1415 6.29	13120 58.36	4.74
	4	20-10d	20-10d	1605 7.14	3440 15.30	615 2.74	1415 6.29	16345 72.71	4.43
TBE6	1	20-10dx1½	20-10dx1½	1760 7.83	3220 14.32	490 2.18	1585 7.05	8290 36.88	8.99
	2	20-10d	20-10d	1760 7.83	3540 15.75	490 2.18	1585 7.05	13680 60.85	7.42
	3	20-10d	20-10d	1760 7.83	3540 15.75	490 2.18	1585 7.05	18750 83.41	6.78
	4	20-10d	20-10d	1760 7.83	3540 15.75	490 2.18	1585 7.05	23820 105.96	6.46

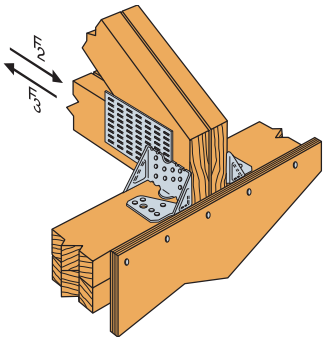
1. Factored resistances are for two TBE's only. Wood factored bearing resistance may be added as shown in the table.
2. Factored bearing resistances shown assume Q_r/A_b and Q_r'/A_b' = 812 psi (5.60 MPa) for D.Fir-L and 614 psi (4.24 MPa) for S-P-F. See section 6.5.4 TPIC 2014 for required bearing reinforcement when compression loads are applied to both sides of truss member.
3. Factored uplift resistances have been increased 15% for short term load duration with no further increase allowed; reduce resistances by 15% for standard term load duration.
4. Factored resistances are determined by nail shear calculations or tests of the metal connectors. The attached wood members must be designed to withstand the loads imposed by the nails.
5. Use lower of top plate or wood truss species.
6. Total bearing length, TBL, equals the plate width plus simulated bearing length provided by the TBE. TBE4 = 3½" plate width; TBE6 = 5½" plate width.

TBE *Truss Bearing Enhancers*

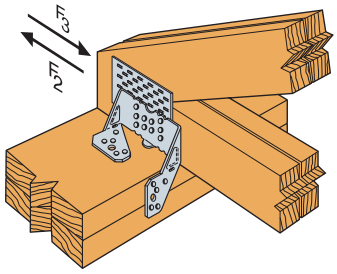
ALTERNATE INSTALLATION *(See illustrations at right)*

Model No.	Alternate Installation Factored Resistance							
	D.Fir-L (K_D=1.15)				S-P-F (K_D=1.15)			
	Uplift	F_1	F_2	F_3	Uplift	F_1	F_2	F_3
	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
	kN	kN	kN	kN	kN	kN	kN	kN
TBE4	1605	490	1415	490	1280	370	1005	350
	7.14	2.18	6.29	2.18	5.69	1.65	4.47	1.56
TBE6	1760	490	1415	490	1280	370	1005	350
	7.83	2.18	6.29	2.18	5.69	1.65	4.47	1.56

1. Alternate Installation Factored Normal Resistances are 0.60 of the TBE only tabulated resistances on page 176.
2. TBL values do not apply to Alternate Installation.
3. See table 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

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

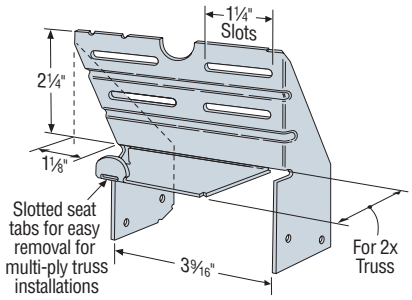
INSTALLATION: • Use all specified fasteners. See General Notes.

- Drive 10d nails into the truss at the inside end of the slotted holes *(inside end is towards the centre 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)*.

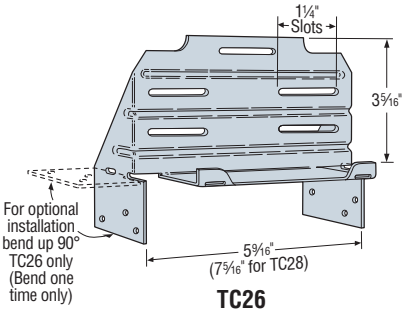
Optional TC Installation

- 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.

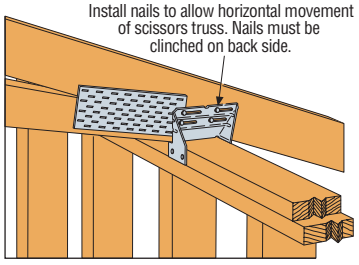
Model	Fasteners		Factored Uplift Resistance (K_D=1.15)	
	Truss	Wall Plates	D.Fir-L	S-P-F
			lbs	lbs
			kN	kN
TC24	4-10d	4-10d	605	430
			2.69	1.91
TC26	5-10d	6-10d	1015	720
			4.51	3.20
TC28	5-10d	6-10d	1015	720
			4.51	3.20



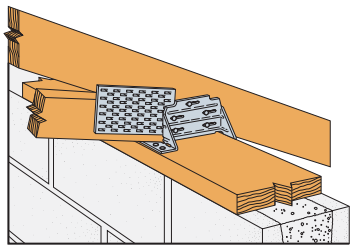
TC24
U.S. Patent 4,932,173



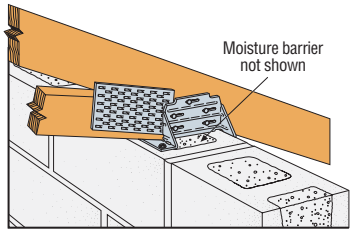
TC26
(TC28 similar)



Typical TC24 Installation



Optional TC26 Installation for Grouted Concrete Block using a Wood Nailer
(8", 10", 12" Wall Installation similar)



Optional TC26 Installation for Grouted Concrete Block using Titen Screws

OPTIONAL TC INSTALLATION TABLE

Model	Fasteners		Factored Uplift Resistance (K_D=1.15)	
	Truss	Wall Plates	D.Fir-L	S-P-F
			lbs	lbs
			kN	kN
TC26	5-10dx1½	6-10dx1½	810	660
			3.60	2.94
	5-10d	6-10d	930	660
			4.14	2.94

1. Factored resistances have been increased 15% for earthquake or wind loading; no further increase allowed; reduce where other loads govern.
2. Grout strength is 15 MPa 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. TC26 fastened to grouted concrete block with 6 - ⅜" x 2¼" Titen® screws has a factored uplift resistance of 275 lbs (1.22 kN).
6. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

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.

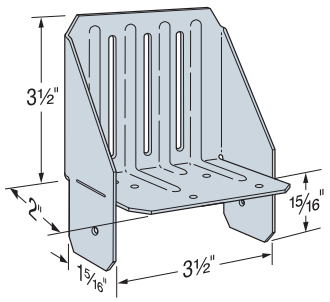
MATERIAL: 18 gauge **FINISH**: Galvanized

INSTALLATION: • Use all specified fasteners; see General Notes.

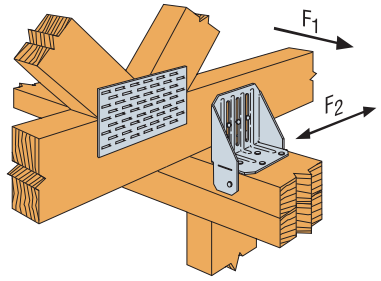
- The HTC has a 2½" slot to accommodate truss movement
- This connector has high lateral capacity.
- The S/HTC is available for steel truss applications.

Model No.	Dimensions	Fasteners		Factored Resistance (K_D=1.15)			
	Top Plate	Base	Slot	Without Gap[2]		With 1¼" Gap[3]	
				F_1	F_2	F_1	F_2
				lbs	lbs	lbs	lbs
				kN	kN	kN	kN
D.Fir-L							
HTC4	2x4 Plate	6-10d	3-10d	735	445	145	470
				3.27	1.98	0.65	2.09
	2x6 Plate	6-10d	3-10d	910	465	265	460
				4.05	2.07	1.18	2.05
S-P-F							
HTC4	2x4 Plate	6-10d	3-10d	530	315	105	340
				2.36	1.40	0.47	1.51
	2x6 Plate	6-10d	3-10d	650	330	190	330
				2.90	1.47	0.85	1.47

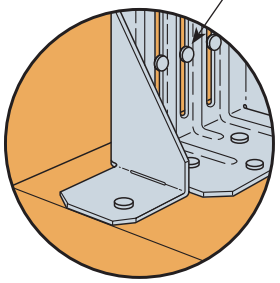
1. Factored resistances have been increased 15% for wind or earthquake loading with no further increase allowed. Reduce where other load durations govern.
2. Truss or rafter must be bearing on top plate to achieve factored resistances under "Without Gap."
3. Installed with maximum 1¼" space between rafter or truss and top plate, use values under "With 1¼" Gap." Where resistances are not required, space is not limited to 1¼".
4. **NAILS:** 10d = 0.148" dia. x 3" long. See pages 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*

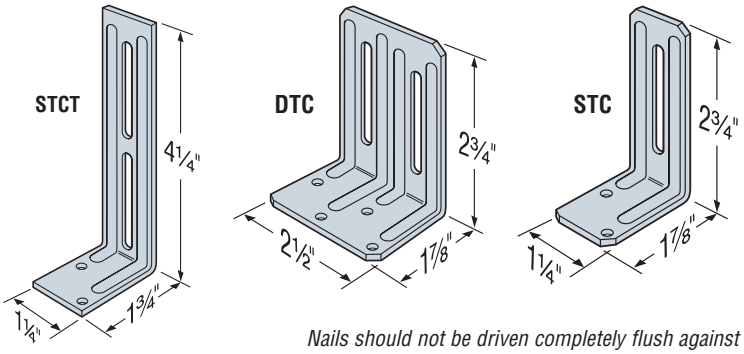
For alignment control between a roof truss and nonbearing walls; the 1½" slot permits vertical truss chord movement when loads are applied.

MATERIAL: 18 gauge.

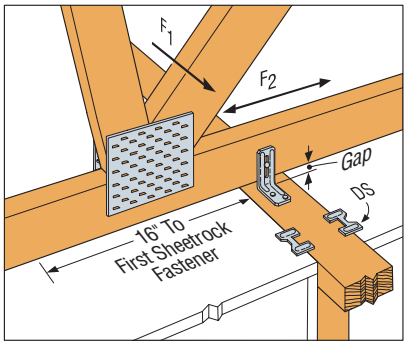
FINISH: Galvanized

INSTALLATION: • Use all specified fasteners; see General Notes.

- Use STC or DTC depending on required resistances. 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.
- Not intended for floor applications.



Nails should not be driven completely flush against the connector, to allow vertical truss movement.



Typical STC Installation with DS

Allow 1/16" gap between nailhead and truss clip to help prevent squeaking

Model No.	Dimensions (in)		Fasteners		Factored Resistance (K_D=1.15)							
					D.Fir-L				S-P-F			
					Without Gap[2]		¼" Max Gap		Without Gap[2]		¼" Max Gap	
	Plate Base	Vertical Leg	Base	Slot	F_1	F_2	F_1	F_2	F_1	F_2	F_1	F_2
					lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
					kN	kN	kN	kN	kN	kN	kN	kN
STC	1¼ x 1⅞	1¼ x 2¾	2-8d	1-8d	155	85	70	60	110	60	50	45
					0.69	0.38	0.31	0.27	0.49	0.27	0.22	0.20
STCT	1¼ x 1¾	1¼ x 4¼	2-8d	1-8d	—	—	—	—	—	—	—	—
					—	—	—	—	—	—	—	—
DTC	2½ x 1⅞	2½ x 2¾	4-8d	2-8d	240	395	155	250	170	280	110	175
					1.07	1.76	0.69	1.11	0.76	1.25	0.49	0.78

1. Factored resistances may not be increased for short-term loading.
2. Truss or rafter must be bearing on top plate to achieve the factored resistances under "Without Gap."
3. Installed with maximum ¼" space between rafter or truss and top plate under "With ¼ Gap." Where resistances are not required, space is not limited to ¼".
4. **NAILS:** 8d = 0.131" dia. x 2½" long. See pages 22-23 for other nail sizes and information.

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 Heavy-Duty Connector screws for easy installation and removal, and superior shear and withdrawal strength during lifting.

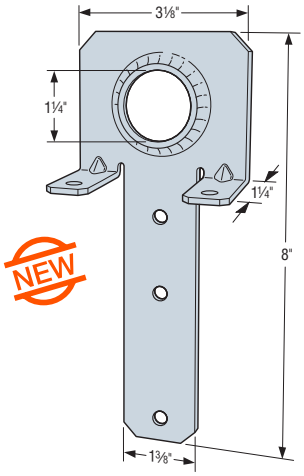
FEATURES:

- Attaches easily to wood members using Strong-Drive SDS Heavy-Duty Connector screws *(sold separately)*
- May be used alone or in pairs for increased load
- Tested in multiple load directions for versatility

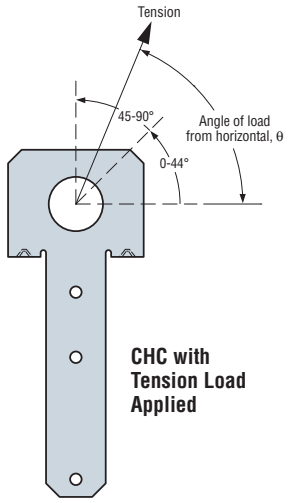
MATERIAL: 12 gauge **FINISH:** Galvanized

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.



CHC
Patent pending



CHC with Tension Load Applied

Single Part Safe Working Loads

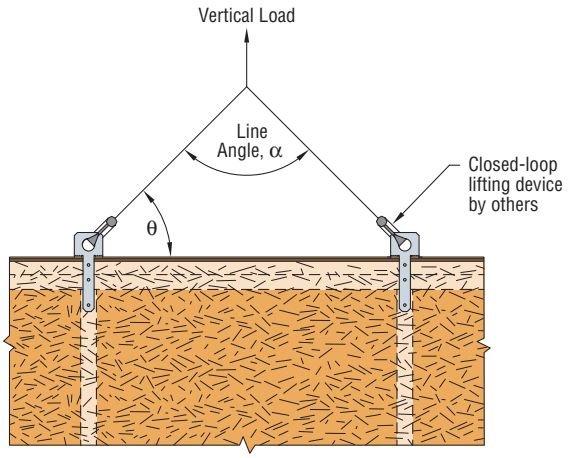
Model No.	Fasteners[4]		Angle from Horizontal, θ	D.Fir-L/ S-P-F
	Top	Face		
CHC	2-¼"x3" SDS	3-¼"x3" SDS	0-44	610
			45-90	975

1. Safe working 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. Safe working 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 conjunction 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.

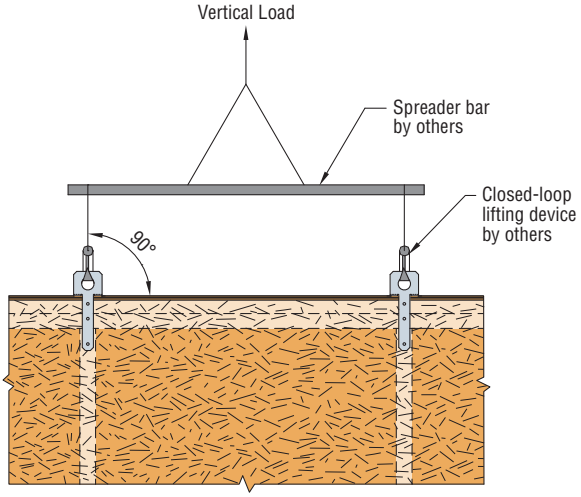
Safe Working Loads for Two Parts

Model No.	Type of Connection	Angle from Horizontal, θ	Line Angle, α	D.Fir-L/ S-P-F
CHC	1	30	120	610
		45	90	1380
		60	60	1690
	2	90	—	1950

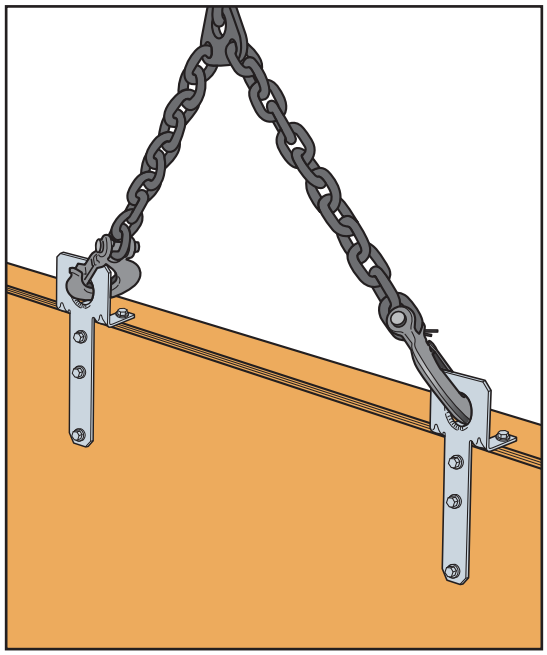
See footnotes above.



1 Typical CHC Installation with Angular Loading



2 Typical CHC Installation with Spreader Bar



Typical CHC Installation Using Two Parts

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.

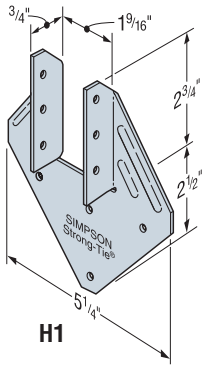
- H10AR – The heavy-duty design of the H10A available with a 2" wide throat to accommodate rough lumber
- H10A-2 – The H10A design with a 3" throat for double 2x members
- H2ASS, H2.5ASS and H10ASS – Popular ties now available in stainless steel.

MATERIAL: See table.

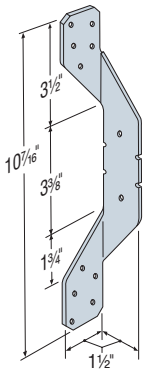
FINISH: Galvanized. H7Z and H11Z—ZMAX® coating. Some models available in stainless steel or ZMAX; see Corrosion Information, pages 14-17 or visit ***www.strongtie.com***.

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

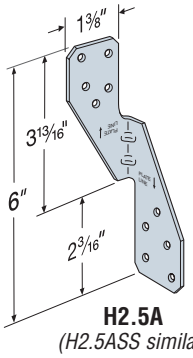
- H1 can be installed with flanges facing inward *(reverse of H1 installation drawing; number 1).*
- H2.5T, H3, H4, H5 and H6 ties are shipped in equal quantities of right and left versions *(right versions shown).*
- Hurricane ties do not replace solid blocking.
- When installing ties on plated trusses *(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.



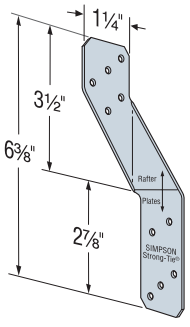
H1



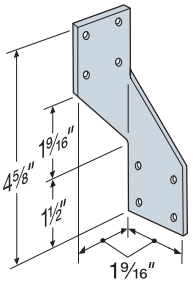
H2A
(H2ASS similar)



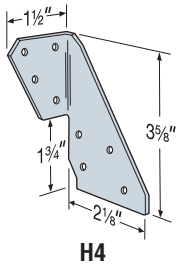
H2.5A
(H2.5ASS similar)



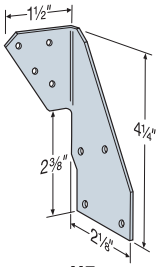
H2.5T



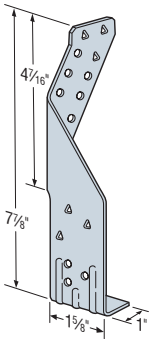
H3



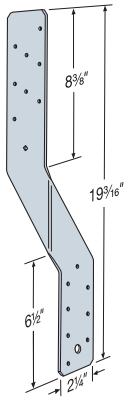
H4



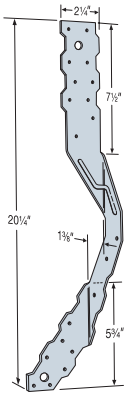
H5



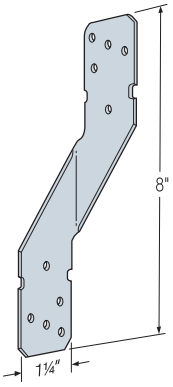
TSP



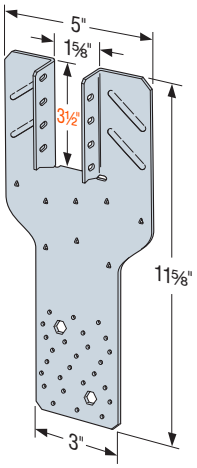
H6



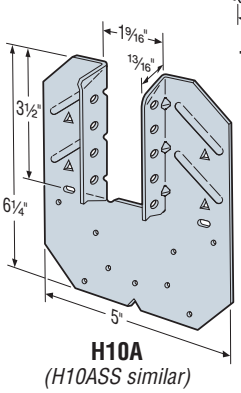
H7Z



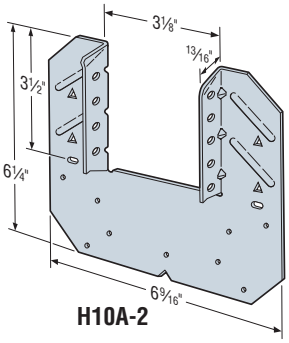
H8



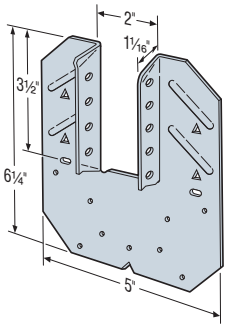
H10S



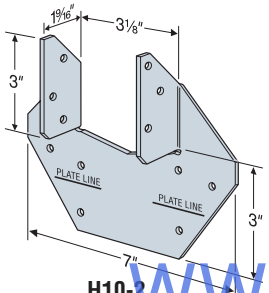
H10A
(H10ASS similar)



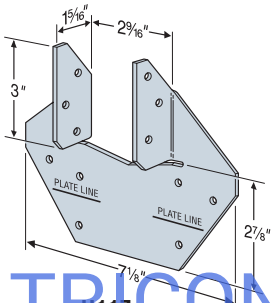
H10A-2



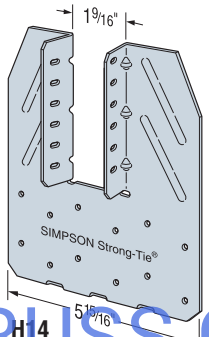
H10AR



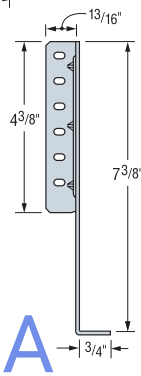
H10-2



H11Z



H14



H14 Profile

H/TSP *Seismic & Hurricane Ties*

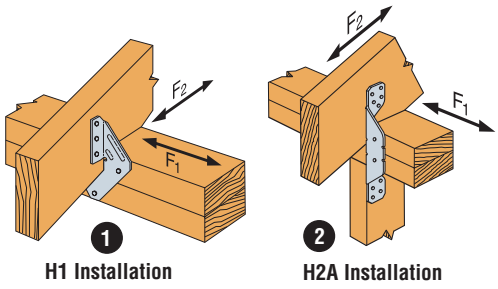
SIMPSON Strong-Tie®

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 Connector screw. See page 24 for more information.

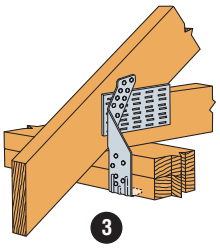
Model No.	Ga	Fasteners			Factored Resistance (K_D = 1.15)					
					D.Fir-L			S-P-F		
					Uplift	Lateral		Uplift	Lateral	
		To Rafters/ Truss	To Plates	To Studs		F_1	F_2		F_1	F_2
					lbs	lbs	lbs	lbs	lbs	lbs
					kN	kN	kN	kN	kN	kN
H1	18	6-8dx1½	4-8d	—	740	685	300	680	485	215
					3.29	3.05	1.33	3.02	2.16	0.96
H2A	18	5-8dx1½	2-8dx1½	5-8dx1½	830	220	75	590	155	55
					3.69	0.98	0.33	2.62	0.69	0.24
H2.5A	18	5-8d	5-8d	—	805	160	160	755	160	160
					3.58	0.71	0.71	3.36	0.71	0.71
H2.5T	18	5-8d	5-8d	—	835	175	210	740	160	210
					3.71	0.78	0.93	3.29	0.71	0.93
H3	18	4-8d	4-8d	—	740	180	265	615	125	190
					3.29	0.80	1.18	2.74	0.56	0.85
H4	20	4-8d	4-8d	—	510	180	235	440	130	165
					2.27	0.80	1.05	1.96	0.58	0.73
H5	18	4-8d	4-8d	—	685	180	305	500	130	215
					3.05	0.80	1.36	2.22	0.58	0.96
H6	16	—	8-8d	8-8d	1585	1085	—	1125	770	—
					7.05	4.83	—	5.00	3.43	—
H7Z	16	4-8d	2-8d	8-8d	1390	670	—	990	475	—
					6.18	2.98	—	4.40	2.11	—
H8[3]	18	5-10dx1½	5-10dx1½	—	1120	—	—	1025	—	—
					4.98	—	—	4.56	—	—
H10A[9]	18	9-10dx1½	9-10dx1½	—	1735	795	410	1505	565	290
					7.72	3.54	1.82	6.69	2.51	1.29
NEW H10AR	18	9-10d x 1½	9-10d x 1½	—	1485	690	430	1220	570	305
					6.61	3.07	1.91	5.43	2.54	1.36
NEW H10A-2	18	9-10d x 1½	9-10d x 1½	—	1835	1275	430	1645	880	305
					8.16	5.67	1.91	7.32	3.91	1.36
H10S[7,8]	18	8-8dx1½	8-8dx1½	8-8d	1465	795	315	1040	565	225
					6.52	3.54	1.40	4.63	2.51	1.00
H10-2	18	6-10d	6-10d	—	1070	760	555	760	540	395
					4.76	3.38	2.47	3.38	2.40	1.76
H11Z	18	6-16dx2½	6-16dx2½	—	1095	920	545	780	655	390
					4.87	4.09	2.42	3.47	2.91	1.73
H14	18	[1] 12-8dx1½	13-8d	—	2390	855	320	1805	610	230
					10.63	3.80	1.42	8.03	2.71	1.02
		[2] 12-8dx1½	15-8d	—	2390	855	320	1805	610	230
					10.63	3.80	1.42	8.03	2.71	1.02
TSP	16	9-10dx1½	6-10dx1½	—	1295	440	—	920	310	—
					5.76	1.96	—	4.09	1.38	—
		9-10dx1½	6-10d	—	1560	440	—	1105	310	—
					6.94	1.96	—	4.92	1.38	—

1. Factored resistances have been increased 15% for short term loading. No further increase is allowed.
2. Factored resistances are for one anchor. A minimum rafter thickness of 2½" must be used when framing anchors are installed on the same side of the plate *(exception: H2.5A)*.
3. H8 factored uplift resistances for stud-to-bottom plate installations are 595 lbs. (2.65 kN) for D.Fir-L and 390 lbs. (1.74 kN) for S-P-F.
4. When cross-grain bending or cross-grain tension cannot be avoided, mechanical reinforcement to resist such forces should be considered.
5. Hurricane ties are shown installed on the outside of the wall for clarity. Installation on the inside of the wall is acceptable *(see General Instuctions for the Installer notes on pages 20-21)*. For a continuous load path, connections at the top and bottom of the wall must be on the same side of the wall *(see technical bulletin T-HTIECONPATH)*.
6. Factored resistances 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.
7. H10S can have the stud offset a maximum of 1" from the rafter *(centre to centre)* for a reduced uplift of 1435 lbs (6.38 kN) D.Fir-L and 1015 lbs (4.51 kN) S-P-F.
8. H10S nails to plates are optional for uplift but required for lateral loads.
9. H10A may be field-bent up to a slope of 6/12. Multiply the tabulated uplift value x 0.75. Full tabulated lateral resistances apply.
10. **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 pages 22-23 for other nail sizes and information.

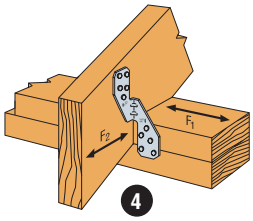


1 H1 Installation

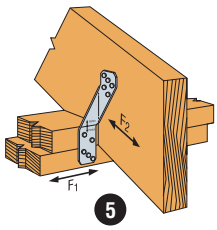
2 H2A Installation



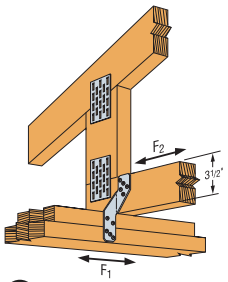
3 TSP Installation



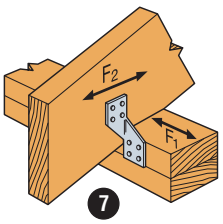
4 H2.5A Installation
(Nails into both top plates)



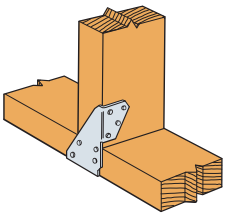
5 H2.5T Installation
(Nails into both top plates)



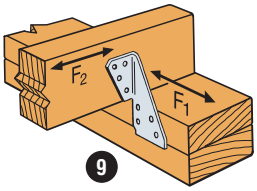
6 H2.5T Installation



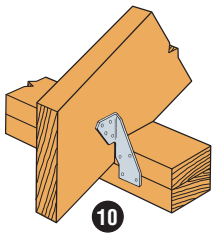
7 H3 Installation
(Nails into upper top plate)



8 H4 Installation



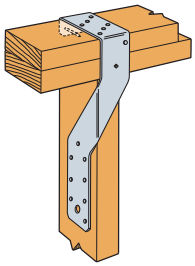
9 H4 Installation
(Nails into upper top plate)



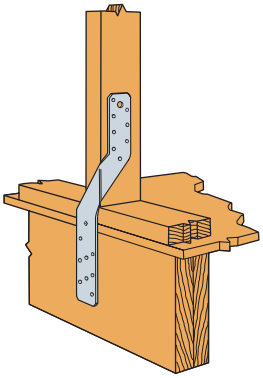
10 H5 Installation
(Nails into both top plates)

H/TSP *Seismic & Hurricane Ties*

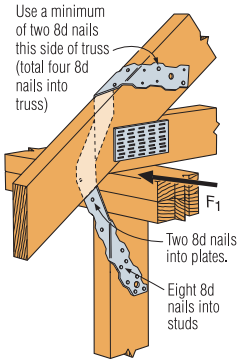
SIMPSON Strong-Tie®



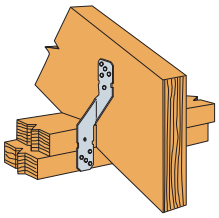
11 H6 Stud to Top Plate Installation



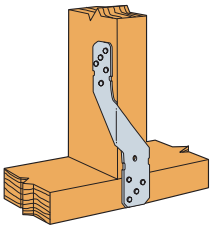
12 H6 Stud to Band Joist Installation



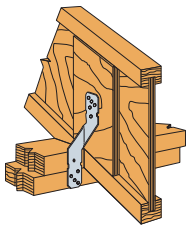
13 H7Z Installation



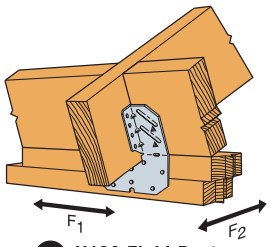
14 H8 attaching rafter to double top plates



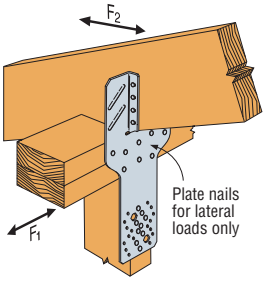
15 H8 attaching stud to sill *(4-8d into plate, 5-8d into stud)*



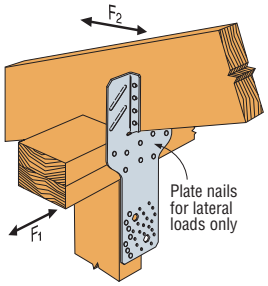
16 H8 attaching I-joist to double top plates



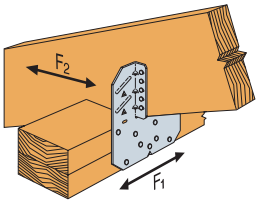
17 H10A Field-Bent Installation



18 H10SInstallation

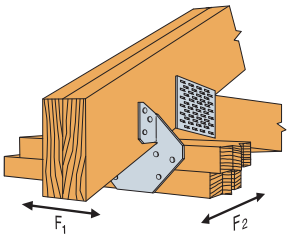


19 H10S Installation with stud offset

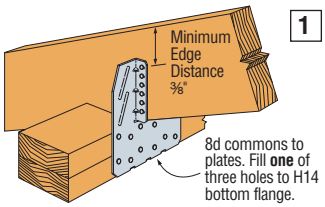


20 H10A Installation

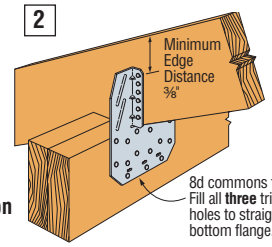
H10A optional positive angle nailing connects shear blocking to rafter. Use 8d common nails. Slot allows maximum field-bending up to a pitch of 6/12, use 75% of the table uplift value; bend one time only.



21 H10-2 Installation *(H11Z similar)*

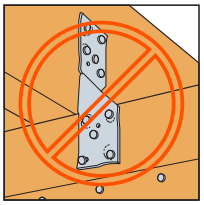


22 H14 Installation to double top plates



23 H14 Installation to double 2x header

AVOID A MISINSTALLATION



Do not make your own holes or overdrive nails!

Considerations for Hurricane Tie Selection

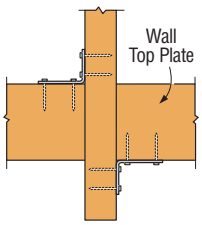
1. What is the uplift load?
2. What is the parallel-to-plate load?
3. What is the perpendicular-to-plate load?
4. What is the species of wood used for the rafter and the top plates? *(Select the load table based on the lowest performing species of wood.)*
5. Will the hurricane tie be nailed into both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

> Factored resistances for more than one direction for a single connection cannot be added together. A design load which can be divided into components in the directions given must be evaluated as follows:
>
> Factored Uplift / Uplift Resistance + Factored Parallel to Plate / Parallel to Plate Resistance + Factored Perpendicular to Plate / Perpendicular to Plate Resistance < 1.0.
>
> The three terms in the unity equation are due to possible directions that exist to generate force on a hurricane tie. The actual number of terms used in the equation for each condition is dependant on designer's method of calculating wind forces and the utilization of the tie in the structural system.

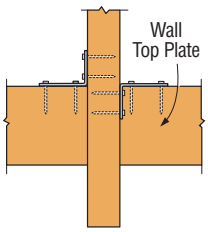
7. Select hurricane tie based on performance, application, installed cost and ease of installation.

Hurricane Tie Installations to Achieve Twice the Capacity (Top View)

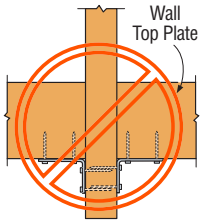
Both connectors shall be same model.



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.

H *Seismic & Hurricane Ties*

The H connector series provides wind and seismic ties for trusses and rafters. 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 H16-2 series has a presloped seat of 5:12, for double trusses.

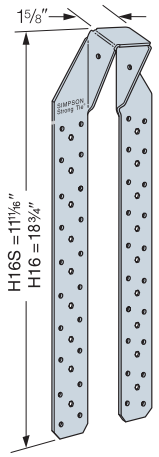
The HGA10 attaches to gable trusses and provides good lateral wind resistance. The HS24 attaches the bottom chord of a truss or rafter at pitches from 0:12 to 4:12 to double 2x4 top plates. Double shear nailing allows for higher lateral resistance.

MATERIAL: See table

FINISH: Galvanized. Some models available in stainless steel or ZMAX®; see Corrosion Information, pages 14-17.

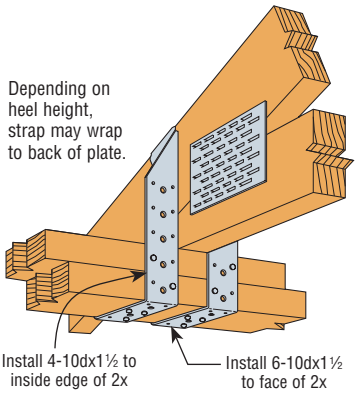
INSTALLATION: • Use all specified fasteners. See General Notes.

- HS24 requires slant nailing only when bottom chord of truss or rafter has no slope.
- Hurricane Ties do not replace solid blocking.
- HGA10KT comes with SDS screws provided.



H16 and H16S

Presloped at 5:12. Truss/rafter pitch of 3:12 to 7:12 is acceptable



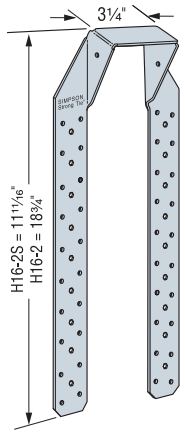
H16 Installation

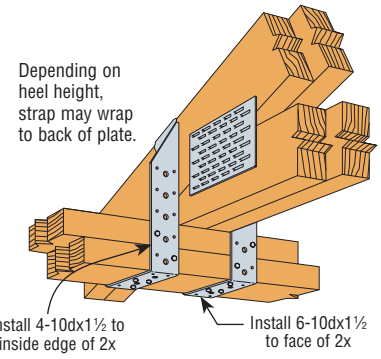
Model No.	Ga	Fasteners		Factored Resistance (K_D = 1.15)					
				D.Fir-L			S-P-F		
		To Rafters/ Truss	To Plates	Uplift	Lateral		Uplift	Lateral	
					F_1	F_2		F_1	F_2
				lbs	lbs	lbs	lbs	lbs	lbs
				kN	kN	kN	kN	kN	kN
HGA10KT[2]	14	4-SDS ¼"x1½"	4-SDS ¼"x3"	750	1604	1615	660	1410	1420
				3.34	7.14	7.19	2.94	6.28	6.32
HS24[4]	18	8-8dx1½ & 2-8d slant	8-8d	1145	1210	1600	805	860	1135
				5.10	5.38	7.12	3.59	3.83	5.05
H16	18	2-10dx1½	10-10dx1½	1870	—	—	1330	—	—
				8.32	—	—	5.92	—	—
H16S	18	2-10dx1½	10-10dx1½	1870	—	—	1330	—	—
				8.32	—	—	5.92	—	—
H16-2	18	2-10dx1½	10-10dx1½	1870	—	—	1330	—	—
				8.32	—	—	5.92	—	—
H16-2S	18	2-10dx1½	10-10dx1½	1870	—	—	1330	—	—
				8.32	—	—	5.92	—	—

1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed.
2. Factored F_2 resistances shown are for loading applied into the connector. For loading applied away from the connector the factored resistances are 1020 lbs (4.54 kN) for D.Fir-L and 425 lbs (1.89 kN) for S-P-F.
3. When cross-grain bending or cross-grain tension cannot be avoided, mechanical reinforcement to resist such forces should be considered.
4. HS24 factored resistances without slant nailing are 885 lbs (3.94 kN) D.Fir-L and 630 lbs (2.80 kN) S-P-F for uplift, 985 lbs (4.38 kN) D.Fir-L 700 lbs (3.11 kN) S-P-F for F_1, 930 lbs (4.14 kN) D.Fir-L and 655 lbs (2.91 kN) S-P-F for F_2.
5. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long, 8d = 0.131" dia. x 2½" long, 8dx1½ = 0.131" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

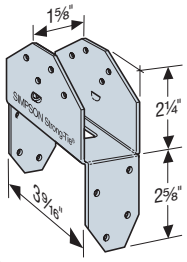
H16-2 and H16-2S

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



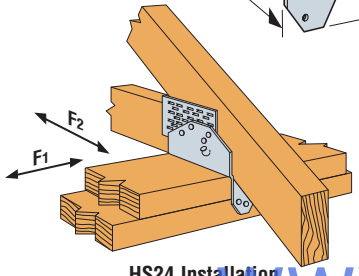


H16-2 Installation

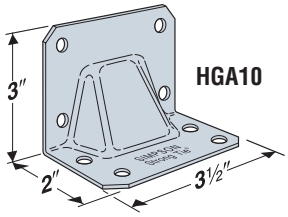


HS24

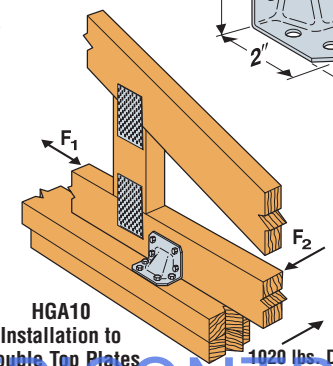
U.S. Patents 5,603,580



HS24 Installation

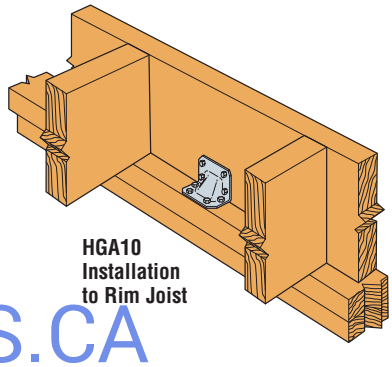


HGA10



HGA10 Installation to Double Top Plates

1020 lbs. D.Fir-L
425 lbs. S-P-F



HGA10 Installation to Rim Joist

LGT/MGT/VGT *Girder Tiedowns*

The LGT, MGT and VGT are girder tiedowns for moderate to high load 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.

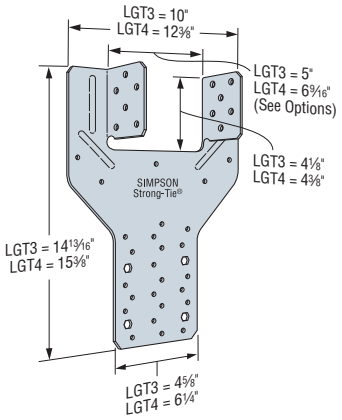
The Variable Girder Tiedown (VGT) is a higher capacity alternative to the LGT and MGT for girder trusses. It attaches with Strong-Drive® SDS Heavy-Duty Connector screws to the side of truss and features a predeflected crescent washer that allows it to accommodate top chord pitches up to 8:12. The VGT is also available with one flange concealed for attachment to trusses with no overhang.

MATERIAL: VGT—7 gauge, LGT2—14 gauge, MGT, LGT3, LGT4—12 gauge

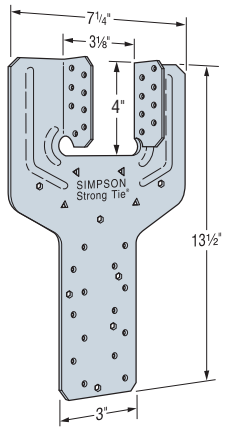
FINISH: Galvanized

INSTALLATION:
- Before installing fasteners, ensure LGT3-SDS2.5 makes complete contact with bottom of truss.
- Strong-Drive SDS Heavy-Duty Connector screws included with LGT3, LGT4 and VGT series.
- Strong-Drive SDS Heavy-Duty Connector screws driven through truss plates must be approved by the Truss Designer. Pre-drilling using a 5/32" bit is required.
- 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 and LGT4-SDS3—The four large hexagon holes are intended for CMU and concrete applications.
- See page 204 for masonry applications.

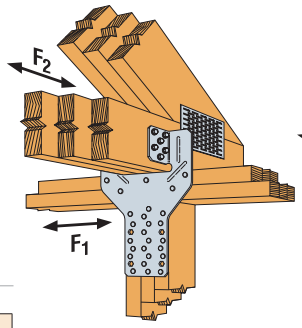
OPTIONS: LGT3 and LGT4 are available with reduced widths of W = 4 13/16" and W = 6 3/8" — order as LGT3N-SDS2.5 and LGT4N-SDS3.



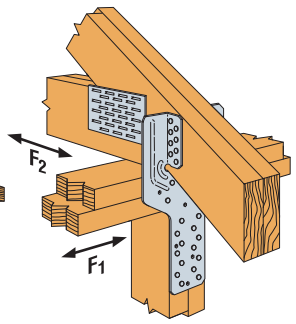
LGT3-SDS2.5
(LGT4-SDS3 similar)



LGT2



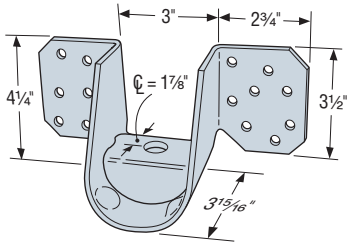
Typical LGT3-SDS2.5 Installation



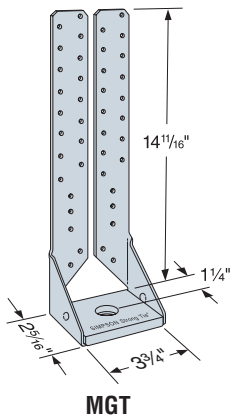
Typical LGT2 Installation

Model No.	Qty.	No. of Plies	Fasteners		Factored Resistance (K_D = 1.15)	
			Studs or Anchor	Girder Truss	D.Fir-L	S-P-F
					lbs	lbs
					kN	kN
LGT2	1	2 ply	14-10d	16-10d	3670	2605
					16.33	11.59
LGT3-SDS2.5	1	3 ply	26-10d	12-¼"x2½" SDS	6415	4930
					28.54	21.93
LGT4-SDS3	1	4 ply	30-10d	16-¼"x3" SDS	6030	3980
					26.82	17.70
MGT	1	2 ply min.	1-⅝" Dia.	22-10d	5610	3985
					24.96	17.73
VGT	1	2 ply min.	1-⅝" Dia.	16-¼"x3" SDS	8600	6195
					38.26	27.56
	2	2 ply min.	2-⅝" Dia.	32-¼"x3" SDS	11690	8420
					52.00	37.46
VGTR/L	1	2 ply min.	1-⅝" Dia.	16-¼"x3" SDS	3475	2505
					15.46	11.14
	2	2 ply min.	2-⅝" Dia.	32-¼"x3" SDS	6950	5010
					30.92	22.29

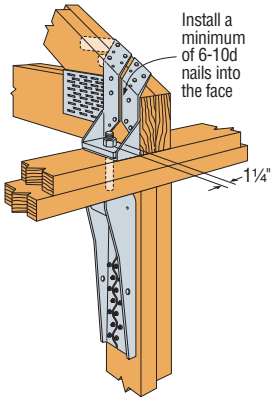
1. Attached members must be designed to resist the factored loads.
2. Factored resistances have been increased 15% for uplift with no further increase allowed. Reduce where other loads govern.
3. Additional anchorage products to be designed by others.
4. MGT can be installed with straps vertical for full table load provided 26-10d nails are installed to either a solid header or minimum double 2x6 web.
5. LGT3-SDS2.5—F_1 factored resistances are 1335 lbs (5.94 kN) for D.Fir-L and 945 lbs (4.20 kN) for S-P-F. F_2 factored resistances are 670 lbs (2.98 kN) for D.Fir-L and 475 lbs (2.11 kN) for S-P-F.
6. LGT2—F_1 factored resistances are 1170 lbs (5.20 kN) for D.Fir-L and 830 lbs (3.69 kN) for S-P-F. F_2 factored resistances are 285 lbs (1.27 kN) for D.Fir-L and 200 lbs (0.89 kN) for S-P-F.
7. **NAILS:** 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.



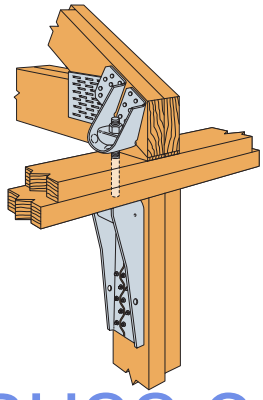
VGT



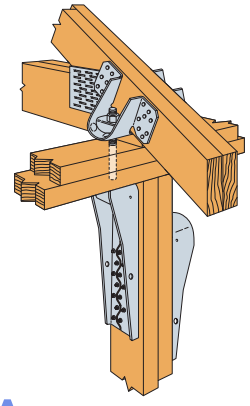
MGT



Typical MGT Installation with HDU5



Typical VGTR Single Installation with HDU4



Typical VGT Double Installation with HDU5s

HGT *Heavy Girder Tiedowns*

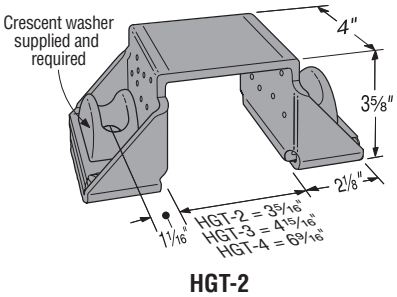
The HGT - Heavy Girder Tie-Down offers the highest uplift capacity for girders and can be installed on trusses and beams with top chord slopes from 3:12 to 8:12.

MATERIAL: 7 gauge

FINISH: Simpson Strong-Tie® gray paint

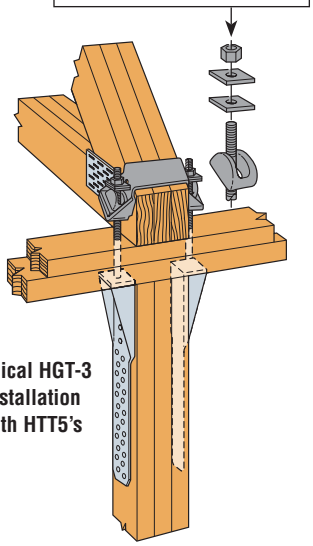
INSTALLATION:

- Install two LBP⅝ washers on top of each crescent washer. LBP⅝ washers are not included with HGT and must be ordered separately. Crescent washers come with the HGT.
- Anchorage from HGT to holdown below shall be with ⅝" diameter ASTM A307 Grade A bolts or threaded rod.
- See page 205 for masonry or concrete installations.



HGT-2
(HGT-3, HGT-4 similar)

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.



Typical HGT-3 Installation with HTT5's

Model No.	Qty.	No. of Plies	O.C. Dimension Between Anchors (in)	Fasteners		Factored Uplift Resistance (K_D = 1.15)	
				Anchor Bolts	Girder Truss	D.Fir-L	S-P-F
						lbs	lbs
						kN	kN
HGT-2	1	2 ply	5¹¹⁄₁₆	2-⅝" ϕ	16-10d	12140	9280
						54.00	41.28
HGT-3	1	3 ply	7⁵⁄₁₆	2-⅝" ϕ	16-10d	12140	9280
						54.00	41.28
HGT-4	1	4 ply	9	2-⅝" ϕ	16-10d	12140	9280
						54.00	41.28

1. Factored resistances have been increased 15% for earthquake or wind load. Reduce where other load durations govern.
2. Attached members must be designed to resist the applied loads.
3. Anchorage must be designed by others.
4. **NAILS:** 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.

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 Heavy-Duty Connector screws. Strong-Drive SDS Heavy-Duty Connector screws with a double-barrier coating finish are included with HTSQ straps in a ZMAX® coating. For stainless-steel HTSQ straps, stainless-steel Strong-Drive SDS Heavy-Duty Connector screws are provided.

FEATURES:

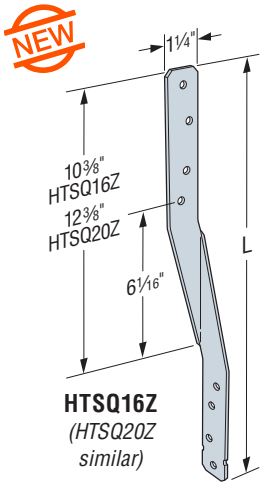
- Quicker and more consistent installation than bolts
- Better fastener withdrawal resistance than nails
- Corrosion resistance finish options

MATERIAL: 14 gauge

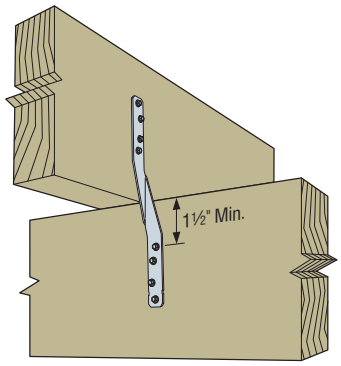
FINISH: ZMAX® coating or stainless steel.

INSTALLATION:

- Use all specified fasteners.



HTSQ16Z
(HTSQ20Z similar)

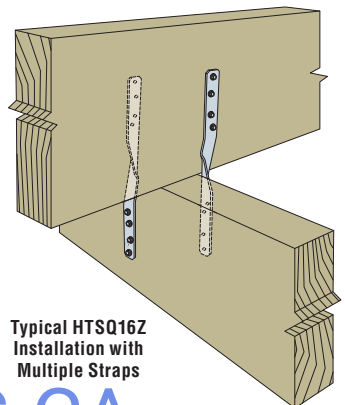


Typical HTSQ16Z Installation

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.	L (in.)	Fasteners Total	Factored Resistance			
			D.Fir-L		S-P-F	
			(K_D=1.00)	(K_D=1.15)	(K_D=1.00)	(K_D=1.15)
			lbs	lbs	lbs	lbs
			kN	kN	kN	kN
HTSQ16Z-SDS	16	8-¼"x1½" SDS	1500	1725	1215	1395
			1.36	1.56	0.96	1.09
HTSQ20Z-SDS	20	8-¼"x1½" SDS	1500	1725	1370	1575
			2.36	2.71	2.16	2.47

1. Factored resistances have been increased 15% for short term load duration. No further increase is permitted.
2. Install four fasteners into each member to achieve full capacity. HTSQ20 has two (2) extra holes per side to allow for installation flexibility.
3. Factored resistances shown are for one part.



Typical HTSQ16Z Installation with Multiple Straps

TS/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. TS twist straps come with an equal number of left and right hand units in each carton.

MATERIAL: LTS–18 gauge; MTS–16 gauge; HTS–14 gauge; TS–16 gauge

FINISH: Galvanized. Some products available in stainless steel and ZMAX®; see Corrosion Information, pages 14-17.

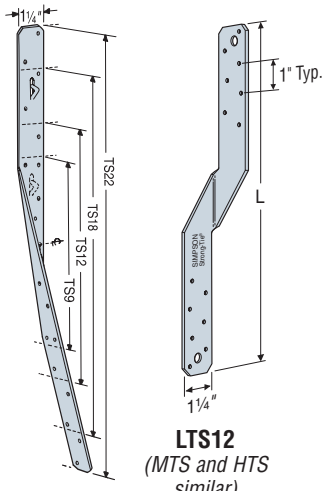
INSTALLATION: Use all specified fasteners. See General Notes.

- TS should be installed in pairs to reduce eccentricity.
- When LTS/MTS is installed as Truss-to-Top Plate tie, install 3–10dx1½" nails to the u/s of the plate and 3–10dx1½" nails into the edge of the double top 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.

These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

Model No.	L (in)	Fasteners (Total)	Factored Resistance (K_D = 1.15) D.Fir-L	Factored Resistance (K_D = 1.15) S-P-F
			lbs	lbs
			kN	kN
TS9	9	8-16d	1125	1040
			5.00	4.63
TS12	11⅝	10-16d	1410	1300
			6.27	5.78
TS18	17¾	14-16d	1970	1820
			8.76	8.10
TS22	21⅝	18-16d	2125	2125
			9.45	9.45
LTS12	12	12-10dx1½	1015	720
			4.52	3.20
LTS16	16	12-10dx1½	1015	720
			4.52	3.20
LTS18	18	12-10dx1½	1015	720
			4.52	3.20
LTS20	20	12-10dx1½	1015	720
			4.52	3.20
MTS12	12	14-10dx1½	1570	1180
			6.98	5.25
MTS16	16	14-10dx1½	1570	1180
			6.98	5.25
MTS18	18	14-10dx1½	1570	1180
			6.98	5.25
MTS20	20	14-10dx1½	1570	1180
			6.98	5.25
MTS30	30	14-10dx1½	1570	1180
			6.98	5.25
MTS24C	24	14-10dx1½	1570	1180
			6.98	5.25
MTS30C	30	14-10dx1½	1570	1180
			6.98	5.25
HTS16	16	16-10dx1½	2050	1455
			9.12	6.47
HTS20	20	24-10dx1½	2050	1455
			9.12	6.47
HTS24	24	24-10dx1½	2050	1455
			9.12	6.47
HTS28	28	24-10dx1½	2050	1455
			9.12	6.47
HTS30	30	24-10dx1½	2050	1455
			9.12	6.47
HTS30C	30	24-10dx1½	2050	1455
			9.12	6.47

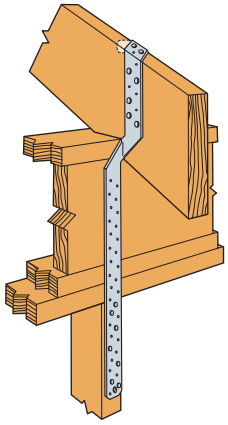


TS

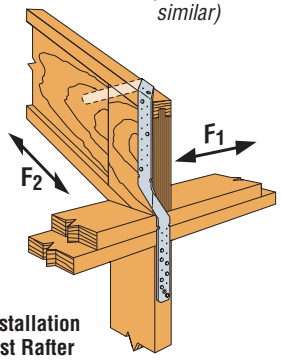
LTS12 *(MTS and HTS similar)*

MTS30 *(HTS30 similar)*

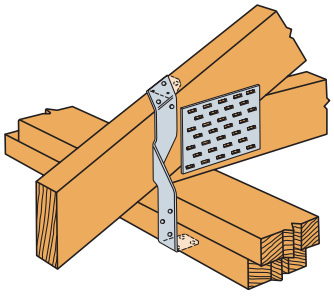
MTS30C *(HTS30C similar)*



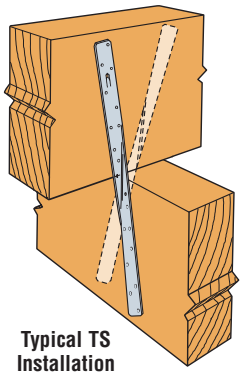
Typical MTS30 Installation



MTS30 Installation with I-joist Rafter



LTS/MTS Installation as a Truss-to-Top Plate Tie *(See note 7)*



Typical TS Installation

1. LTS12 thru LTS20, MTS16 through MTS30, HTS24 through HTS30C *(except HTS30)* have additional nail holes.
2. Install half of the fasteners on each end of strap to achieve maximum factored resistance.
3. Factored resistances have been increased 15% for earthquake or wind loading; no further increase allowed; reduce where other loads govern.
4. All straps except the MTS30 and HTS30 have the twist in the centre of the strap.
5. Twist straps do not have to be wrapped over the truss to achieve the load.
6. Optional nail holes are provided on some straps.
7. When used as a truss-to-top plate tie multiply the tabulated values by 0.95 for LTS and 0.74 for MTS. HTS cannot be used in this application.
8. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

CS/CMST/CMSTC *Coiled Straps*

SIMPSON Strong-Tie®

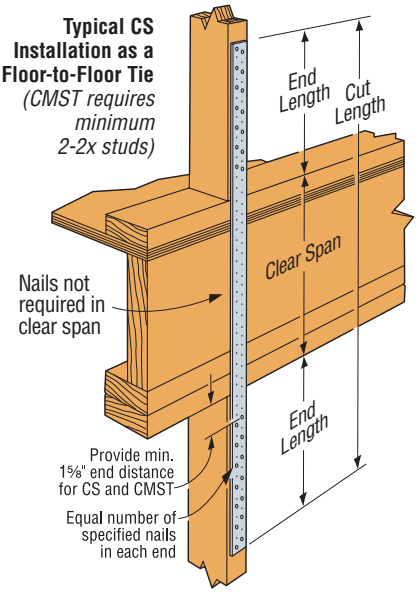
CMSTC provides nail slots for easy installation and coined edges for safe handling. CS are continuous utility straps which can be cut to length on the job site. Packaged in lightweight *(about 40 pounds)* cartons.

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, pages 14-17.

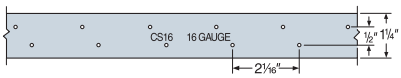
INSTALLATION:

- 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 factored resistances and the nails required to obtain them. Fewer nails may be used; reduce the factored resistance as shown in footnotes.
- CMST only–Use every other triangle 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, request to technical bulletin T-CMST.

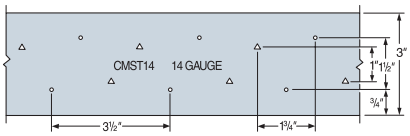
Typical CS Installation as a Floor-to-Floor Tie *(CMST requires minimum 2-2x studs)*



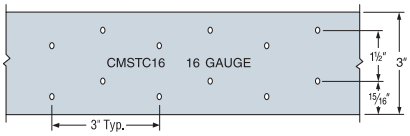
Gauge stamped on part for easy identification



CS16 Hole Pattern
(all other CS straps similar)



CMST14 Hole Pattern
(CMST12 similar)



CMSTC16 Hole Pattern

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			Fasteners (Total)	Factored Tensile Resistance			
						D.Fir-L		S-P-F	
		Total Coil Length (ft)	End Length (in)	Cut Length (in)		(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)
						lbs	lbs	lbs	lbs
						kN	kN	kN	kN
CS22	22	300	10	clear span + 20	16-8d	1140	1140	1075	1140
						5.07	5.07	4.78	5.07
CS20	20	250	12	clear span + 24	18-8d	1390	1390	1295	1390
						6.18	6.18	5.76	6.18
CS18	18	200	12	clear span + 24	20-8d	1745	1850	1620	1850
						7.76	8.23	7.21	8.23
CS16	16	150	14	clear span + 28	24-8d	2305	2305	2155	2305
						10.25	10.25	9.59	10.25
CMSTC16		54	20	clear span + 40	46-10d	5685	5845	5195	5845
						25.29	26.00	23.11	26.00
CS14	14	100	22	clear span + 44	34-8d	3360	3360	3090	3360
						14.95	14.95	13.75	14.95
CMST14		52½	31	clear span + 62	66-10d	8430	8430	7455	8430
						37.50	37.50	33.16	37.50
CMST12	12	40	43	clear span + 86	94-10d	11995	11995	10615	11995
						53.36	53.36	47.22	53.36

1. Factored resistances shown are the lesser of the steel tensile strength (T_f) or the lateral nail value (N_f).
2. Use half of the required nails in each member being connected to achieve the listed resistances.
3. Calculate the connector value for a reduced number of nails as follows: Factored Resistance = $\frac{\text{No. of Nails Used}}{\text{No. of Nails in Table}}$ x Table Value

   Example: CS14 on D.Fir-L with 30 nails total. *(Half of the nails in each member being connected)* Factored Resistance = $\frac{\text{30 Nails (Used)}}{\text{34 Nails (Table)}}$ x 3360 lbs = 2965 lbs
4. **NAILS:** 10d = 0.148" dia. x 3" long, 8d = 0.131" dia. x 2½" long. See pages 22-23 for other nail sizes and information.

HRS/HST/ST/PS/LSTA/LSTI/MST/MSTA/MSTC/MSTI *Strap Ties*

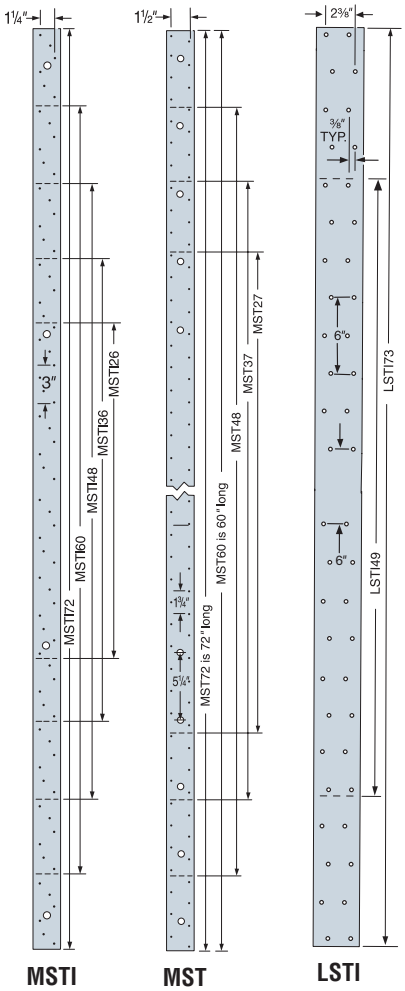
HRS, a heavy 12 gauge strap tie, provides greater support in construction and repair of home projects. Straight lines and chamfered edges for better appearance. The MSTC series has countersunk nail slots for a lower nailing profile. Coined edges ensure safer handling.

Install strap ties where wall plates are cut, at wall intersections, and as ridge ties. LSTA and MSTA straps are engineered for use on 1½" members. The 3" centre-to-centre nail spacing reduces the possibility of splitting. The LSTI light strap ties are suitable where gun-nailing is necessary through diaphragm decking and wood chord open web trusses.

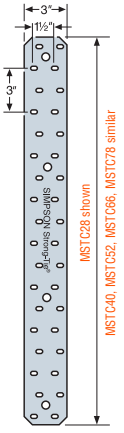
FINISH: HST—Simpson Strong-Tie® gray paint; PS—HDG; all others—galvanized. Some products are available in stainless steel or ZMAX® coating; see Corrosion Information, pages 14-17.

INSTALLATION: Use all specified fasteners. See General Notes.

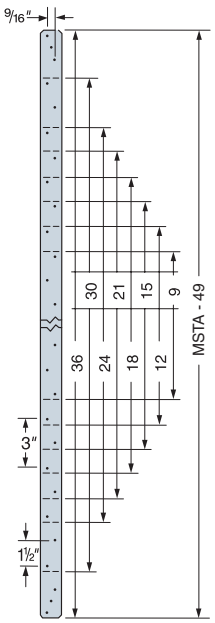
OPTIONS: Special sizes can be made to order. Contact Simpson Strong-Tie for longer lengths.



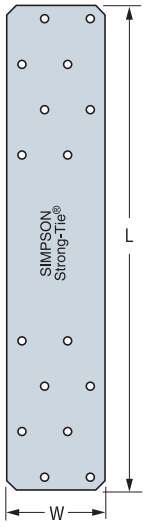
MSTI **MST** **LSTI**



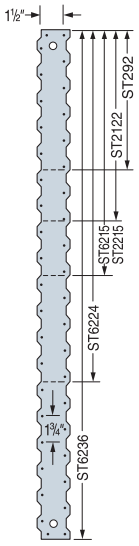
MSTC28



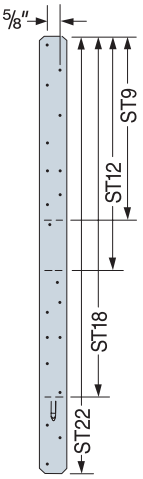
LSTA and MSTA
(Pilot holes not shown)



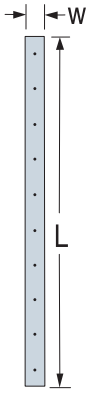
HRS416Z



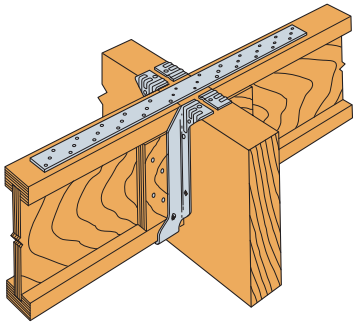
ST



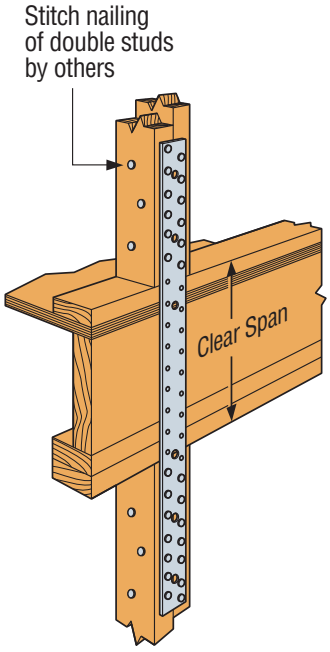
ST9, ST12, ST18, ST22



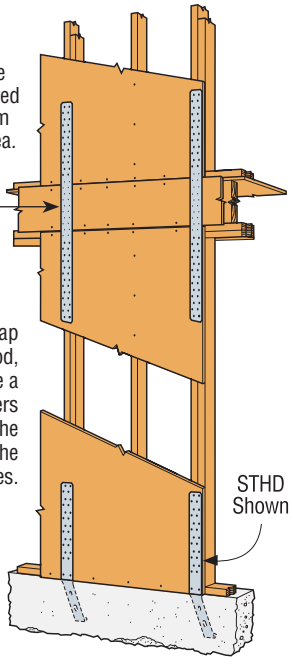
ST2115



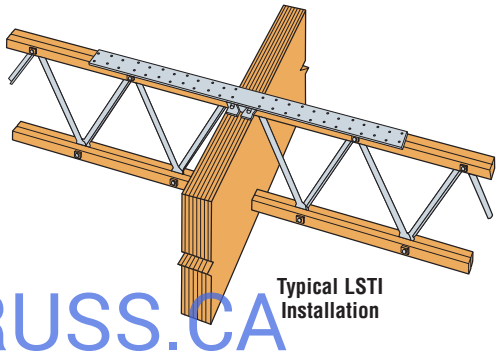
Typical MSTI Installation
(MIT hanger shown)
LSTI similar



Floor-to-Floor Tie Installation showing a Clear Span



Typical Detail with Strap Installed Over Sheathing



Typical LSTI Installation

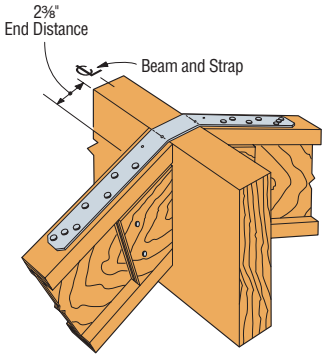
HRS/HST/ST/PS/LSTA/LSTI/MST/MSTA/MSTC/MSTI *Strap Ties*

SIMPSON Strong-Tie®

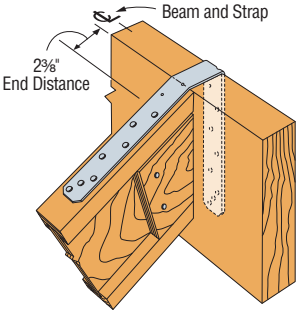
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

Model No.	Ga	Dimensions (in)		Fasteners (Total)	Factored Tensile Resistance			
					D.Fir-L		S-P-F	
		W	L		(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
LSTA9	20	1¼	9	6-10d	600	690	555	635
					2.67	3.07	2.47	2.82
LSTA12		1¼	12	8-10d	800	920	735	845
					3.56	4.09	3.27	3.76
LSTA15		1¼	15	10-10d	1000	1150	920	1060
					4.45	5.12	4.09	4.72
LSTA18		1¼	18	12-10d	1200	1380	1105	1270
					5.34	6.14	4.92	5.65
LSTA21		1¼	21	14-10d	1400	1610	1290	1485
					6.23	7.16	5.74	6.61
LSTA24		1¼	24	16-10d	1600	1840	1475	1695
					7.12	8.19	6.56	7.54
ST292		2 1/16	9 5/16	8-8d	585	675	535	615
					2.60	3.00	2.38	2.74
ST2122		2 1/16	12 13/16	12-8d	940	1085	865	995
					4.18	4.83	3.85	4.43
ST2115		¾	16 5/16	8-8d	670	770	615	710
					2.98	3.43	2.74	3.16
ST2215		2 1/16	16 5/16	16-8d	1335	1540	1235	1420
					5.94	6.85	5.49	6.32
LSTA30	18	1¼	30	20-10d	2235	2465	2075	2385
					9.94	10.97	9.23	10.61
LSTA36		1¼	36	24-10d	2465	2465	2465	2465
					10.97	10.97	10.97	10.97
LSTI49		3¾	49	32-10dx1½	3115	3580	2852	3280
					13.86	15.93	12.69	14.59
LSTI73		3¾	73	48-10dx1½	4670	5370	4280	4920
					20.77	23.89	19.04	21.89
MSTA9		1¼	9	6-10d	670	770	625	715
					2.98	3.43	2.78	3.18
MSTA12		1¼	12	8-10d	895	1030	830	955
					3.98	4.58	3.69	4.25
MSTA15		1¼	15	10-10d	1120	1285	1040	1195
					4.98	5.72	4.63	5.32
MSTA18		1¼	18	12-10d	1340	1545	1245	1430
					5.96	6.87	5.54	6.36
MSTA21		1¼	21	14-10d	1565	1800	1455	1670
					6.96	8.01	6.47	7.43
MSTA24		1¼	24	16-10d	1790	2060	1660	1910
					7.96	9.16	7.38	8.50
MSTA30	16	1¼	30	20-10d	2470	2840	2260	2595
					10.99	12.63	10.05	11.54
MSTA36		1¼	36	24-10d	2965	3070	2710	3070
					13.19	13.66	12.06	13.66
MSTA49		1¼	49	28-8d	2725	2725	2545	2725
					12.12	12.12	11.32	12.12
ST6215		2 1/16	16 5/16	16-8d	1405	1615	1300	1500
					6.25	7.18	5.78	6.67
ST6224		2 1/16	23 5/16	24-8d	2305	2650	2155	2475
					10.25	11.79	9.59	11.01
ST9		1¼	9	6-8d	525	605	490	560
					2.34	2.69	2.18	2.49
ST12		1¼	11⅞	8-8d	700	805	650	750
					3.11	3.58	2.89	3.34
ST18		1¼	17¾	12-8d	1050	1210	975	1125
					4.67	5.38	4.34	5.00
ST22		1¼	21⅝	18-8d	1580	1790	1465	1685
					7.03	7.96	6.52	7.50



Typical LSTA Installation
(hanger not shown)
Bend strap one time only



Typical LSTA Installation
(hanger not shown)
Bend strap one time only

1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed.
2. Use half of the nails in each member being connected to achieve the listed resistances.
3. For overlap splice details, refer to T-CMST.
4. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long, 8d = 0.131" dia. x 2½" long. See pages 22-23 for other nail sizes and information.

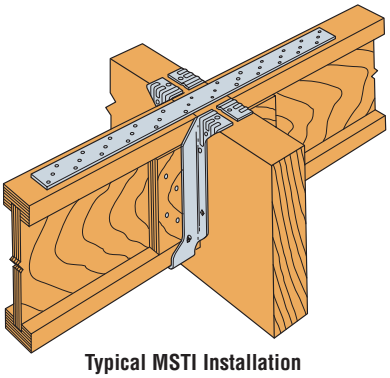
HRS/HST/ST/PS/LSTA/LSTI/MST/MSTA/MSTC/MSTI *Strap Ties*

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 Connector screw. See page 24 for more information.

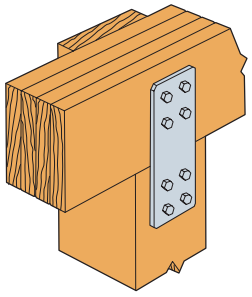
Model No.	Ga	Dimensions (in)		Fasteners (Total)	Factored Tensile Resistance			
					D.Fir-L		S-P-F	
		W	L		(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
MSTC28	16	3	28¼	32-10d	3955	4545	3615	4155
					17.59	20.22	16.08	18.48
MSTC40		3	40¼	48-10d	5930	6820	5420	6235
					26.38	30.34	24.11	27.74
MSTC52		3	52¼	54-10d	6670	6940	6100	6940
					29.67	30.87	27.14	30.87
MSTC66	14	3	65¾	66-10d	8515	8565	7455	8565
					37.88	38.10	33.16	38.10
MSTC78		3	77¾	66-10d	8515	8565	7455	8565
					37.88	38.10	33.16	38.10
ST6236		2 1/16	33 13/16	36-8d	3735	4295	3270	3760
					16.61	19.11	14.55	16.73
MSTI26	12	2 1/16	26	22-10dx1½	2825	3250	2475	2850
					12.57	14.46	11.01	12.68
MSTI36		2 1/16	36	32-10dx1½	4110	4725	3600	4140
					18.28	21.02	16.01	18.42
MSTI48		2 1/16	48	44-10dx1½	5650	6500	4955	5695
					25.13	28.91	22.04	25.33
MSTI60		2 1/16	60	56-10dx1½	7195	7360	6305	7250
					32.01	32.74	28.05	32.25
MSTI72		2 1/16	72	68-10dx1½	7360	7360	7240	7360
					32.74	32.74	32.21	32.74
MST27		2 1/16	27	26-8d	2685	3090	2355	2710
					11.94	13.75	10.48	12.06
MST37		2 1/16	37½	38-8d	3930	4515	3440	3960
					17.48	20.08	15.30	17.62
MST48		2 1/16	48	50-8d	5170	5945	4530	5210
					23.00	26.45	20.15	23.18
HRS416Z		3¼	16	16-SDS ¼"x1½"	2400	2760	2120	2440
					10.68	12.28	9.43	10.85
MST60	10	2 1/16	60	64-8d	6620	7610	5800	6670
					29.45	33.85	25.80	29.67
MST72		2 1/16	72	78-8d	8065	9135	7065	8125
					35.88	40.64	31.43	36.14



Typical MSTI Installation
(MIT hanger shown)
LSTI similar

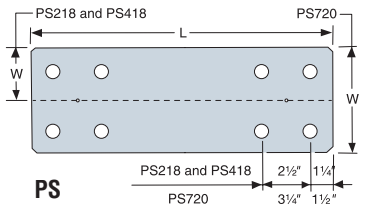
1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed.
2. Use half of the nails in each member being connected to achieve the listed resistances.
3. For overlap splice details, refer to T-CMST.
4. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long, 8d = 0.131" dia. x 2½" long. See pages 22-23 for other nail sizes and information.

Model No.	Ga	Dimensions (in)		Fasteners (Total)	T_r[1]
		W	L		lbs
					kN
PS218	7	2	18	4-¾" MB	8315
					36.99
PS418		4	18	4-¾" MB	21325
					94.86
PS720		6¾	20	8-½" MB	35985
					160.08
HST2		2½	21¼	6-⅝" MB	12670
					56.36
HST5		5	21¼	12-⅝" MB	25375
					112.88
HST3	3	3	25¼	6-¾" MB	20520
					91.28
HST6		6	25¼	12-¾" MB	41035
					182.54

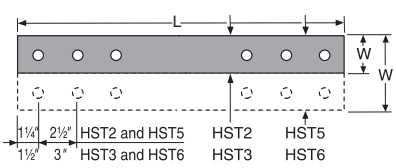


Typical PS720 Installation

1. T_r is the factored tensile resistance of the strap in accordance with CSA S136-12. The capacity of the strap, used in a connection, must be verified by the Designer using the lower of the strap capacity or the fastener capacity per the applicable CSA standard.



PS



HST

HRS/HST/ST/PS/LSTA/LSTI/MST/MSTA/MSTC/MSTI *Strap Ties*

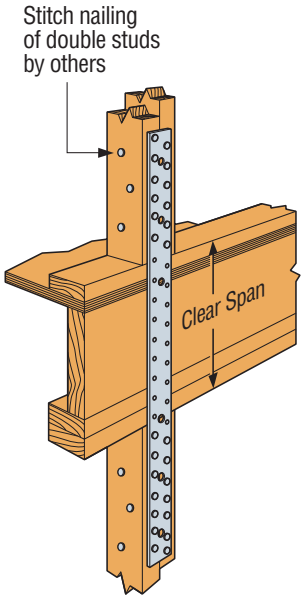
SIMPSON Strong-Tie®

These products are approved for installation with the Strong-Drive® SD Connector screw.
See page 24 for more information.

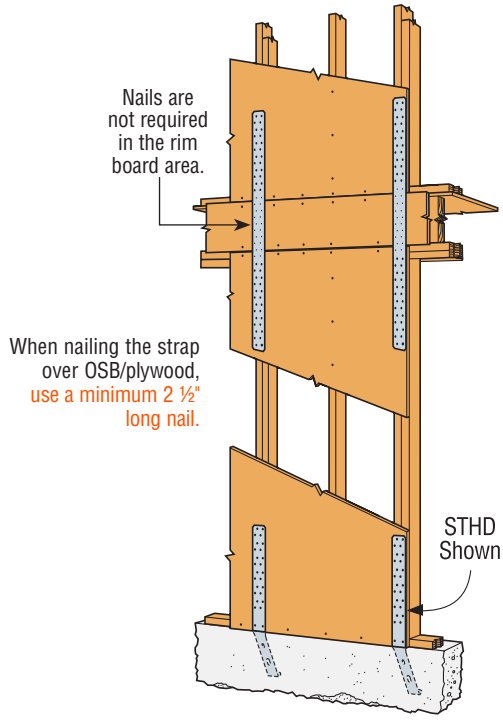
Floor-to-Floor Clear Span Table

Model No.	Clear Span (in)	Fasteners (Total)	Factored Tensile Resistance			
			D.Fir-L		S-P-F	
			(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)
			lbs	lbs	lbs	lbs
			kN	kN	kN	kN
MSTA49	16	38-8d	2725	2725	2725	2725
			12.12	12.12	12.12	12.12
	18	36-8d	2725	2725	2725	2725
			12.12	12.12	12.12	12.12
MSTC28	16	12-10d	1480	1705	1355	1560
			6.58	7.58	6.03	6.94
	18	8-10d	990	1135	905	1040
			4.40	5.05	4.03	4.63
MSTC40	16	28-10d	3460	3980	3160	3635
			15.39	17.70	14.06	16.17
	18	24-10d	2965	3410	2710	3115
			13.19	15.17	12.06	13.86
MSTC52	16	44-10d	5435	6250	4970	5715
			24.18	27.80	22.11	25.42
	18	40-10d	4940	5685	4515	5195
			21.98	25.29	20.08	23.11
MSTC66	16	60-10d	7740	8565	6775	7790
			34.43	38.10	30.14	34.65
	18	60-10d	7740	8565	6775	7790
			34.43	38.10	30.14	34.65
MSTC78	16	66-10d	8515	8565	7455	8565
			37.88	38.10	33.16	38.10
	18	66-10d	8515	8565	7455	8565
			37.88	38.10	33.16	38.10
MST37	16	20-8d	2065	2375	1810	2085
			9.19	10.56	8.05	9.27
	18	18-8d	1860	2140	1630	1875
			8.27	9.52	7.25	8.34
MST48	16	32-8d	3310	3805	2900	3335
			14.72	16.93	12.90	14.84
	18	30-8d	3100	3570	2720	3125
			13.79	15.88	12.10	13.90
MST60	16	46-8d	4755	5470	4170	4795
			21.15	24.33	18.55	21.33
	18	44-8d	4550	5235	3985	4585
			20.24	23.29	17.73	20.40
MST72	16	60-8d	6205	6520	5435	6250
			27.60	29.00	24.18	27.80
	18	58-8d	6000	6520	5255	6045
			26.69	29.00	23.38	26.89

1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed.
2. Use half of the required nails in each member being connected to achieve the listed resistances.
3. When nailing the strap over OSB/plywood, use a minimum 2 ½" long nail.
4. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long.
See pages 22-23 for other nail sizes and information.



Floor-to-Floor Tie Installation showing a Clear Span



Typical Detail with Strap Installed Over Sheathing

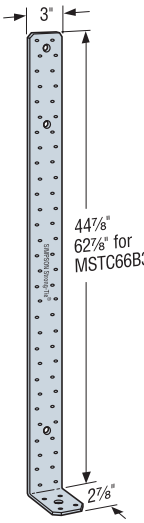
MSTC48B3/MSTC66B3 *Pre-Bent Straps*

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.

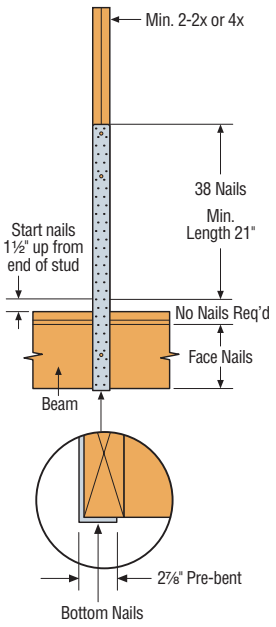
MATERIAL: 14 gauge **FINISH:** Galvanized

Model No.	Minimum Beam Size (in)		Fasteners			Factored Tensile Resistance ($K_D = 1.15$)	
	Width	Depth	Beam Face	Beam Bottom	Studs/ Post	D.Fir-L	S-P-F
						lbs	lbs
						kN	kN
MSTC48B3	3	9¼	12-10d	4-10d	38-10d	5440	3860
						24.20	17.17
MSTC66B3	3½	11¼	14-10d	4-10d	38-10d	5230	3715
						23.27	16.53

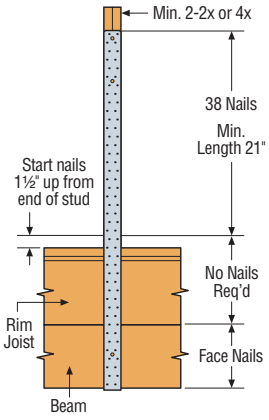
1. Factored resistances have been increased 15% for earthquake or wind loading. No further increase is permitted. Reduce where other load durations govern.
2. Nails in studs/post shall be installed symmetrically. Nails may be installed over the entire length of the strap.
3. The 3" wide beam may be double 2x members.
4. Straps installed over sheathing up to ½" thick can achieve 85% of the tabulated values.
5. **NAILS:** 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.



MSTC48B3



MSTC48B3 Installation with no Rim Joist



MSTC66B3 Installation with Rim Joist

PWF24 *Strap Tie*

The PWF24 is a galvanized metal strap manufactured specifically for connecting preservative-treated wood foundation walls to the floor system. This strap exceeds the prescriptive requirements of CSA S406-14 *"Construction of Preserved Wood Foundations."*

MATERIAL: 20 gauge

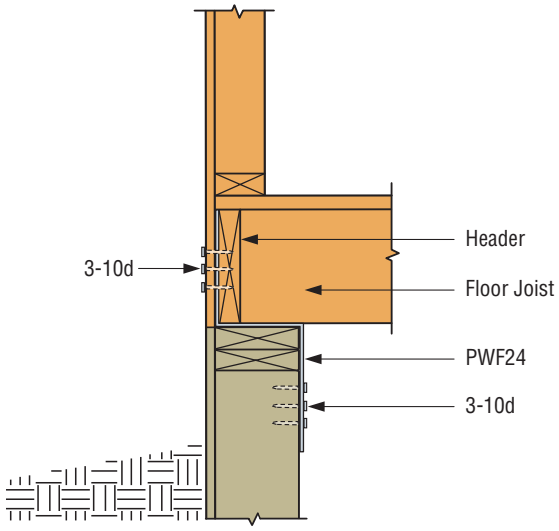
FINISH: Galvanized

INSTALLATION: • All fasteners shall be hot dipped galvanized.
- See CSA S406-14.
- For installations in interior-dry applications with CCA-treated lumber only.

Model No.	Dimensions (in)		Total Fasteners
	W	L	
PWF24	1½	24	6-10d

1. Install 3 nails into the stud and 3 nails into the rim board.
2. **NAILS:** 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.

PWF24



Typical PWF24 Installation

A Angles and Z Clips

Z2 clips secure 2x4 flat blocking between joists or trusses to support sheathing.

MATERIAL: Z clips—see table. 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, pages 14-17.

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.
- F_1 direction is loading into the part.

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.

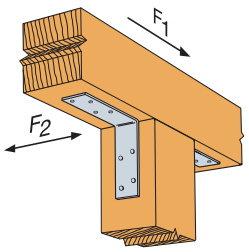
These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

Model No.	Dimensions (in)			Fasteners				Factored Resistance (K_D = 1.15)			
				Base		Post		D.Fir-L		S-P-F	
	W_1	W_2	L	Bolts	Nails	Bolts	Nails	F_1	F_2	F_1	F_2
								lbs	lbs	lbs	lbs
								kN	kN	kN	kN
A21	2	1½	1⅜	—	2-10dx1½	—	2-10dx1½	405	260	335	185
								1.80	1.16	1.49	0.82
A23	2	1½	2¾	—	4-10dx1½	—	4-10dx1½	815	715	725	510
								3.63	3.18	3.23	2.27
A33	3	3	1½	—	4-10d	—	4-10d	1175	570	930	405
								5.23	2.54	4.14	1.80
A44	4⁹⁄₁₆	4⅜	1½	—	4-10d	—	4-10d	1175	485	930	345
								5.23	2.16	4.14	1.53
A66	5⅞	5⅞	1½	2-⅜" MB	3-10d	2-⅜" MB	3-10d	—	—	—	—
								—	—	—	—
A88	8	8	2	3-⅜" MB	4-10d	3-⅜" MB	4-10d	—	—	—	—
								—	—	—	—
A24	3⅞	2	2½	1-½" MB	—	1-½" MB	2-10d	—	—	—	—
								—	—	—	—
A311	11	3⅝	2	1-½" MB	—	1-½" MB	4-10d	—	—	—	—
								—	—	—	—

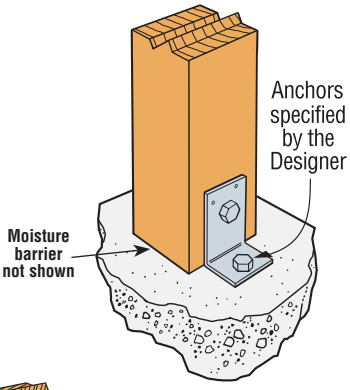
1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other loads govern.
2. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long, 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.

Model No.	Ga	Dimensions (in)				Fasteners[1] Total	Factored Resistance (K_D = 1.00)	
		W_1	H	B	TF		D.Fir-L	S-P-F
							lbs	lbs
							kN	kN
Z2	20	2⁵⁄₁₆	1½	1⅜	1⅜	4-10dx1½	740	525
							3.29	2.34
Z4	12	1½	3½	2⅛	1¾	2-16d	765	545
							3.40	2.42
Z6	12	1½	5⅜	2	1⅜	2-16d	790	560
							3.51	2.49
Z28	28	2⁵⁄₁₆	1½	1⅜	1⅜	10dx1½	—	—
							—	—
Z38	28	2⁵⁄₁₆	2½	1⅜	1⅜	10dx1½	—	—
							—	—
Z44	12	2½	3½	2	1⅜	4-16d	1420	1010
							6.32	4.49

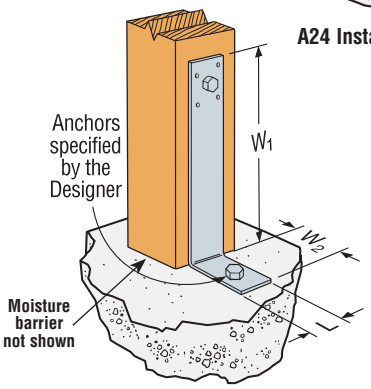
1. Z28 and Z38 do not have nail holes. Fastener quantity and type shall be per Designer.
2. Z4 and Z6 resistances apply with a nail into the top and a nail into the seat.
3. Factored resistances for Z clips cannot be increased for short term loading.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.



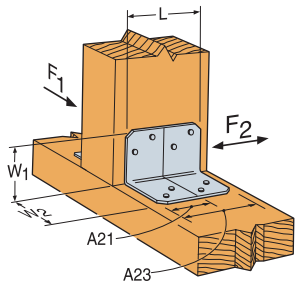
A44 Installation
(A33 similar)



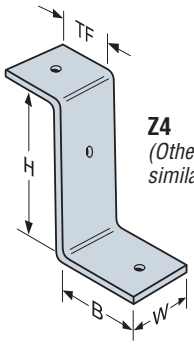
A24 Installation



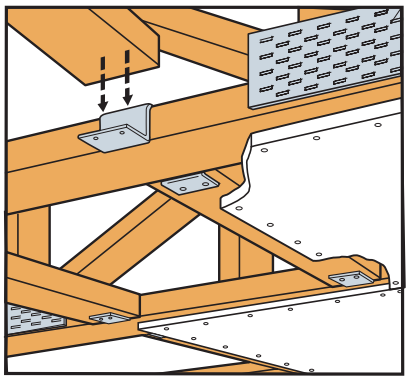
A311 Installation



A21/A23 Installation



Z4
(Others similar)



Typical Z2 Installation

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 and the min/max nailing option allows for design flexibility.

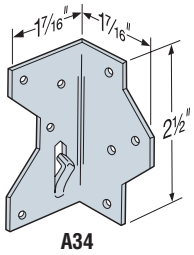
The LTP4 Lateral Tie Plate transfers shear forces for top plate-to-rim joist or blocking connections. Nail holes are spaced to prevent wood splitting for single and double top plate applications. May be installed over plywood sheathing.

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.

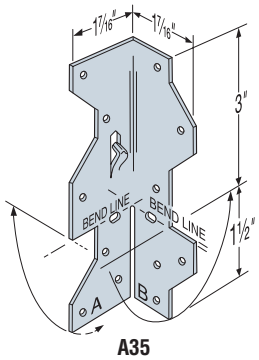
MATERIAL: LTP4/LTP5—20 gauge; all others—18 gauge

FINISH: Galvanized. Some products available in stainless steel or ZMAX®; see Corrosion Information, pages 14-17.

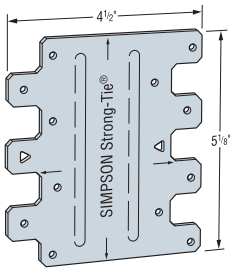
INSTALLATION: • Use all specified fasteners. See General Notes.
• A35–Bend one time only.



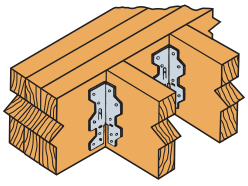
A34

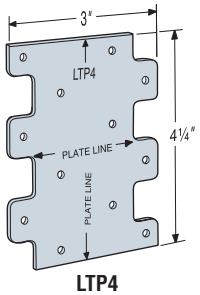


A35



LTP5


Ceiling Joists to Beam



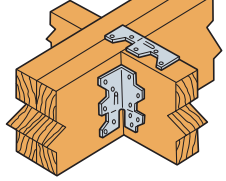
LTP4

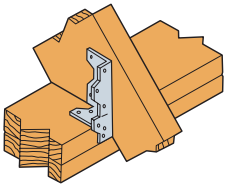
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

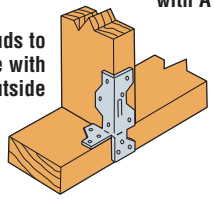
These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

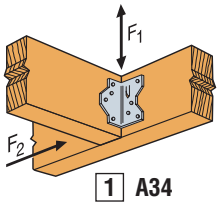
Model No.	Type of Connection	Fasteners Total	Direction of Load	Factored Resistance D.Fir-L (K_D = 1.00) lbs / kN	Factored Resistance D.Fir-L (K_D = 1.15) lbs / kN	Factored Resistance S-P-F (K_D = 1.00) lbs / kN	Factored Resistance S-P-F (K_D = 1.15) lbs / kN
A34	1	8-8dx1½	F_1	630 / 2.80	665 / 2.96	475 / 2.11	475 / 2.11
			F_2	630 / 2.80	640 / 2.85	455 / 2.02	455 / 2.02
A35	2	9-8dx1½	A_1, E	475 / 2.11	545 / 2.42	430 / 1.91	440 / 1.96
			C_1	290 / 1.29	290 / 1.29	205 / 0.91	205 / 0.91
	3	12-8dx1½	A_2	475 / 2.11	545 / 2.42	375 / 1.67	430 / 1.91
			C_2	475 / 2.11	505 / 2.25	355 / 1.58	355 / 1.58
			D	315 / 1.40	365 / 1.62	225 / 1.00	260 / 1.16
	4	12-8dx1½	F_1	950 / 4.23	955 / 4.25	675 / 3.00	675 / 3.00
			F_2	920 / 4.09	920 / 4.09	650 / 2.89	650 / 2.89
LTP4	5	12-8dx1½	G	815 / 3.63	815 / 3.63	580 / 2.58	580 / 2.58
			H	835 / 3.71	835 / 3.71	595 / 2.65	595 / 2.65
LTP5	6	12-8dx1½	G	875 / 3.89	875 / 3.89	620 / 2.76	620 / 2.76
			H	865 / 3.85	865 / 3.85	615 / 2.74	615 / 2.74

1. Factored resistances 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 ½" plywood sheathing with no reduction in capacity.
4. LTP5 can be installed over ½" plywood sheathing and achieve 0.89 of the tabulated values for loads in the H direction. For load in the G direction, full tabulated values can be achieved.
5. **NAILS:** 8dx1½ = 0.131" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

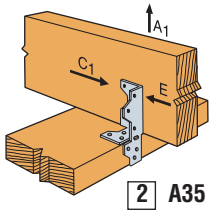

Joists to Beams


Joists to Plate with A Leg Inside

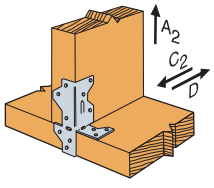

Studs to Plate with B Leg Outside



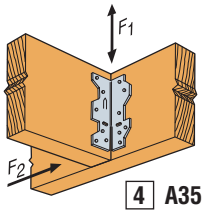
1 A34



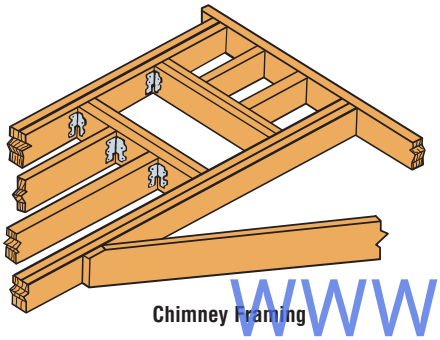
2 A35

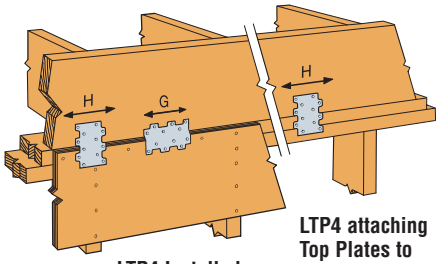


3 A35



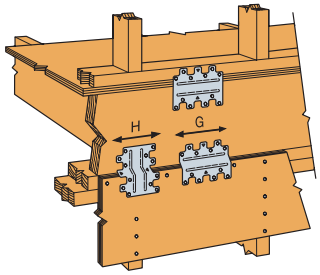
4 A35


Chimney Framing



5 LTP4 Installed over Plywood Sheathing

LTP4 attaching Top Plates to Rim Joist



6 LTP5 Installed over Plywood Sheathing

L/LS/GA *Reinforcing and Skewable Angles*

SIMPSON Strong-Tie®

L–Staggered nail pattern reduces the possibility for splitting.
LS–Field-adjustable 0° to 135° angles.

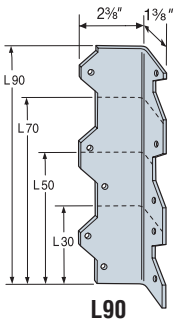
The GA Gusset Angles' embossed bend section provides added strength.

MATERIAL: L—16 gauge; GA and LS—18 gauge

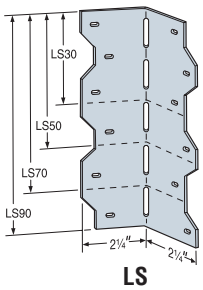
FINISH: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, pages 14-17.

INSTALLATION:

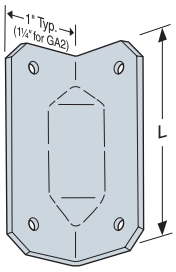
- Use all specified fasteners; see General Notes.
- LS–field skewable; bend one time only.
- Joist must be constrained against rotation *(for example, with solid blocking)* when using a single LS per connection.
- Nail the L angle's wider leg into the joist to ensure table values and allow correct nailing.



L90



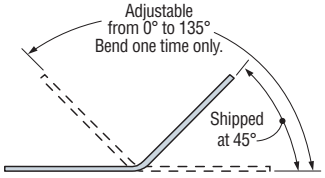
LS



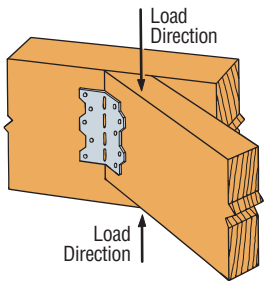
GA1
(GA2 similar)

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.

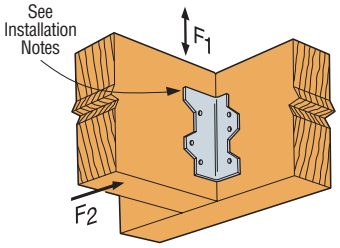
Model No.	L (in)	Fasteners Total	Factored Resistance			
			D.Fir-L		S-P-F	
			(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)
			lbs	lbs	lbs	lbs
			kN	kN	kN	kN
GA1	2¾	4-10dx1½	305	350	215	245
			1.36	1.56	0.96	1.09
GA2	3¼	6-10dx1½	530	610	485	555
			2.36	2.71	2.16	2.47
L30	3	4-10dx1½	360	360	275	315
			1.60	1.60	1.22	1.40
		4-10d	420	480	390	445
			1.87	2.14	1.73	1.98
L50	5	6-10d	625	720	580	670
			2.78	3.20	2.58	2.98
		6-SD#9x1½"	685	785	585	675
			3.05	3.49	2.60	3.00
		6-SD#9x2½"	830	830	585	675
			3.69	3.69	2.60	3.00
L70	7	8-10d	835	960	775	890
			3.71	4.27	3.45	3.96
		8-SD#9x1½"	910	1050	835	960
			4.05	4.67	3.71	4.27
		8-SD#9x2½"	1290	1480	1115	1280
			5.74	6.58	4.96	5.69
L90	9	10-10d	1045	1200	970	1115
			4.65	5.34	4.31	4.96
		10-SD#9x1½"	1140	1310	1045	1200
			5.07	5.83	4.65	5.34
		10-SD#9x2½"	1610	1850	1450	1670
			7.16	8.23	6.45	7.43
LS30	3⅜	6-10dx1½	475	475	365	415
			2.11	2.11	1.62	1.85
		6-10d	540	555	385	415
			2.40	2.47	1.71	1.85
LS50	4⅞	8-10dx1½	720	800	625	720
			3.20	3.56	2.78	3.20
		8-10d	770	890	670	720
			3.43	3.96	2.98	3.20
LS70	6⅜	10-10dx1½	900	1035	700	805
			4.00	4.60	3.11	3.58
		10-10d	965	1090	775	805
			4.29	4.85	3.45	3.58
LS90	7⅞	12-10dx1½	1080	1240	980	1125
			4.80	5.52	4.36	5.00
		12-10d	1160	1330	1010	1125
			5.16	5.92	4.49	5.00



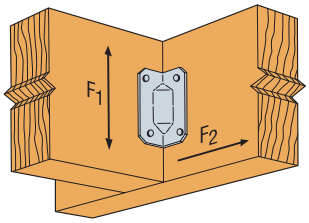
LS Top View



Typical LS70 Installation



Typical L50 Installation



Typical GA Installation

1. GA resistances are for both F1 or F2 direction. L and LS resistances are for F1 direction only.
2. Factored resistances shown are for one part.
3. L50, L70 and L90 may be installed using 10dx1½" nails. Multiply the tablulated 10d resistances x 0.92.
4. **NAILS:** 10d = 0.148" dia. x 3" long,10dx1½ = 0.148" x 1½" long. See pages 22-23 for other nail sizes and information.
5. **SCREWS:** SD#9x1½" = 0.131" dia. x 1½ long (SD9112) SD#9x2½" = 0.131" dia. x 2½" long (SD9212)

HL *Heavy Angles and Gussets*

Versatile angle gussets and heavy angles promote standardization and construction economy, and are compatible with Strong-Tie structural hardware.

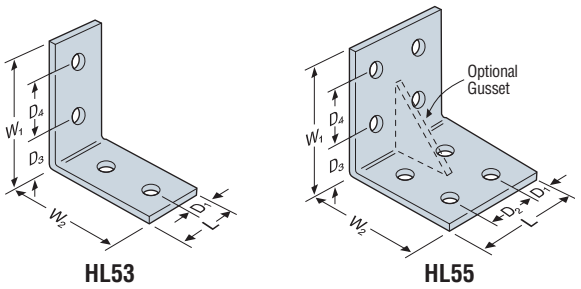
FINISH: HL33, 35, 53, 55—Galvanized; others Simpson Strong-Tie® gray paint *(including all parts with gussets)*. May be ordered in HDG.

OPTIONS: Gussets may be added to HL models when L ≥ 5" *(specify G after model number, as in HL46G)*.

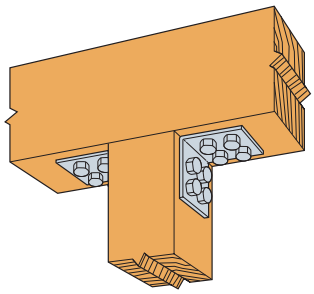
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Ga	Dimensions (in)						Bolts (Total)	
		W_1 & W_2	L	D_1	D_2	D_3	D_4	Qty.	Dia.
HL33	7	3¼	2½	1¼	—	2	—	2	½
HL35	7	3¼	5	1¼	2½	2	—	4	½
HL53	7	5¾	2½	1¼	—	2	2½	4	½
HL55	7	5¾	5	1¼	2½	2	2½	8	½
HL43	3	4¼	3	1½	—	2¾	—	2	¾
HL46	3	4¼	6	1½	3	2¾	—	4	¾
HL73	3	7¼	3	1½	—	2¾	3	4	¾
HL76	3	7¼	6	1½	3	2¾	3	8	¾

1. Connectors are not load rated.



HL53 HL55



Typical HL55 Installation

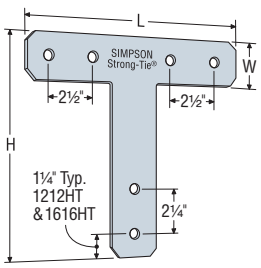
T and L *Strap Ties*

FINISH: Galvanized. See Corrosion Information, pages 14-17.

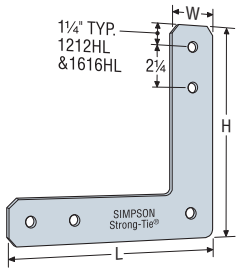
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Ga	Dimensions (in)			Fasteners		
		L	H	W	Nails	Bolts	
						Qty.	Dia.
55L	16	4¾	4¾	1¼	5-10d	—	—
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
1212HL	7	12	12	2½	—	4	⅝
1616HL	7	16	16	2½	—	4	⅝
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
1212HT	7	12	12	2½	—	6	⅝
1616HT	7	16	16	2½	—	6	⅝

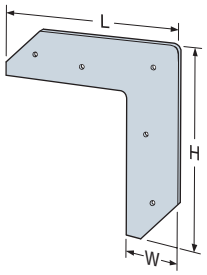
1. Connectors are not load-rated.
2. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.



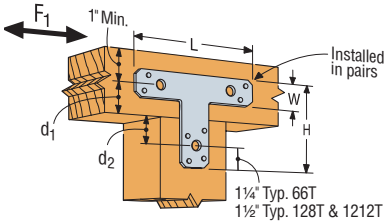
1212HT



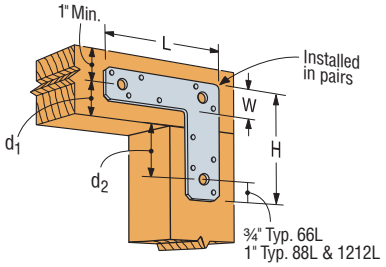
1212HL



55L



Typical T Installation



Typical L Installation

RBC *Roof Boundary Clip*

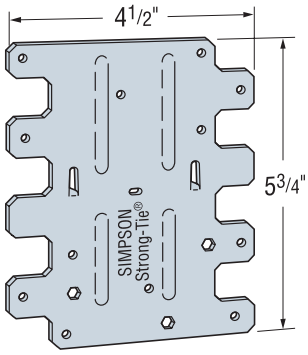
The RBC Roof Boundary Clip is designed to aid installation and transfer shear loads between the roof diaphragm and wall. The locator tabs make proper location of the clip easy. The RBC can be used on wood or masonry walls and will handle roof pitches from 0/12 to 12/12.

MATERIAL: 20 gauge

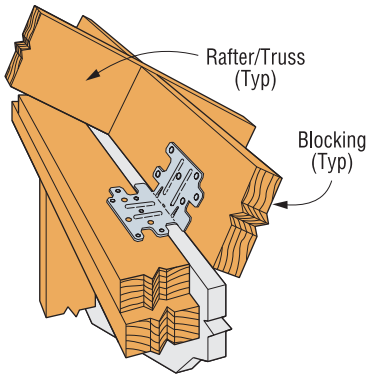
FINISH: Galvanized

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.
- Titen® screws are not recommended for exposed exterior applications or wet service conditions.
- See page 32 for more information on Titen screws.



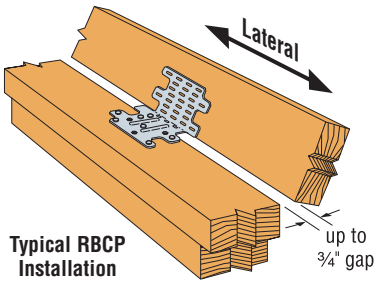
RBC
U.S. Patent 7,293,390



Typical RBC Installation Over 1" Foamboard[5]

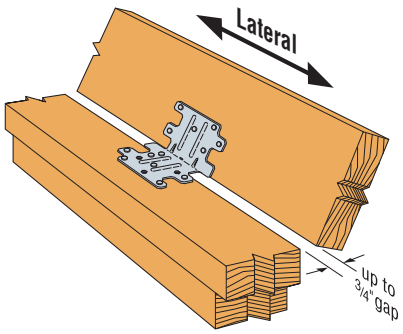
Model No.	Type of Connection	Bending Angle	Fasteners		Factored Resistance (K_D = 1.15)	
			To Wall	To Blocking	D.Fir-L	S-P-F
					lbs	lbs
					kN	kN
RBC	1	45° to 90°	6-10dx1½	6-10dx1½	660	465
					2.94	2.07
	2	< 30°	6-10dx1½	6-10dx1½	645	460
					2.87	2.05
		30° to 45°	6-10dx1½	6-10dx1½	685	485
					3.05	2.16
	3	0° to 45°	3-¼x2¼ Titen	6-10dx1½	575	410
					2.56	1.82

1. Factored resistances 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 value.
3. Factored resistances have been increased 15% 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 factored resistance of 650 lbs. (2.89 kN) in a parallel to wall load direction for D.Fir-L. For S-P-F, the value is 460 lbs (2.05 kN).
6. RBC may be installed over ½" structural sheathing using 10dx1½ nails with no reduction in capacity.
7. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

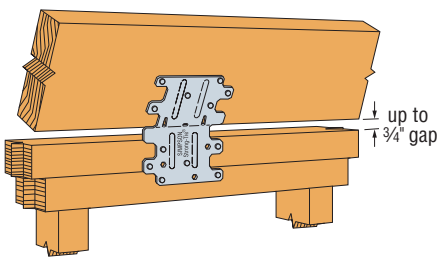


Typical RBCP Installation
U.S. Patent 7,549,262

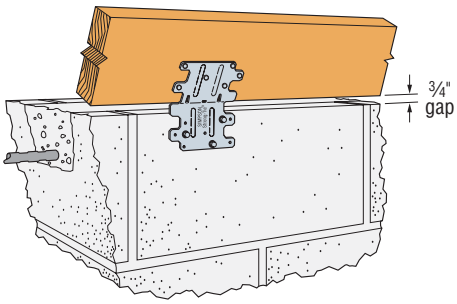
The RBC is available with prongs into one side (RBCP) for pre-attachment of the part to a block at the truss plant. Refer to technical bulletin T-RBCP for more information.



1 Typical RBC Installation



2 Typical RBC Installation



3 Typical RBC Installation to CMU Block

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

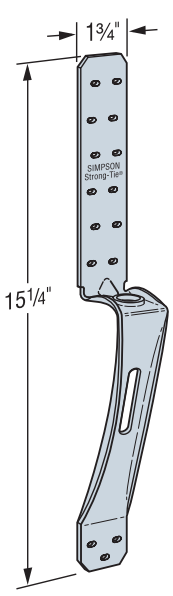
FINISH: Galvanized

INSTALLATION:

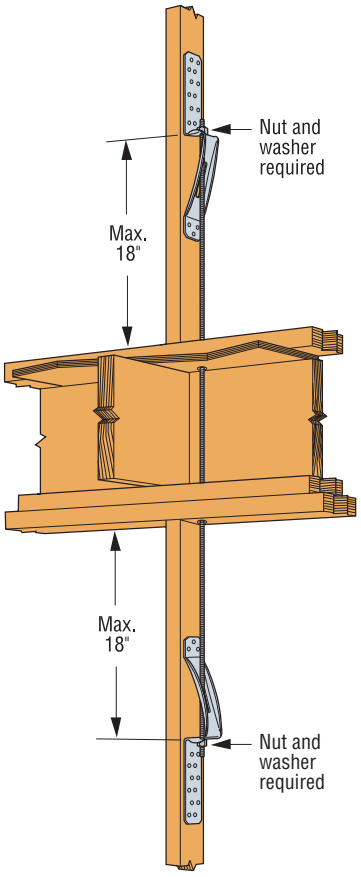
- Can be used on a single 2x stud.
- Threaded rod, washers and nuts are not supplied with the FSC.
- Use ⅜" threaded rod grade A307 or better, with matching nuts and cut washers.
- FSC may be installed a maximum of 18" from the sill or top plates.
- Drill ½" to ¾" diameter hole through the plates for 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 capacity.

Model No.	Ga	Fasteners		Factored Tensile Resistance (K_D = 1.15)	
		Stud	Anchor	D.Fir-L	S-P-F
				lbs	lbs
				kN	kN
FSC	12	15-10dx1½	⅜" ATR	2520	1790
				11.22	7.96

1. The factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other loads govern.
2. Resistances are based on a minimum lumber thickness of 1½".
3. Standard cut washer is required with the ⅜" all thread rod.
4. FSC's shall be offset no more than 3" horizontally from each other.
5. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long.
   See pages 22-23 for other nail sizes and information.



FSC
Patent Pending



Typical FSC Installation

DSP/SSP/SP/SPH/RSP4/TSP *Stud Plate Ties*

This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

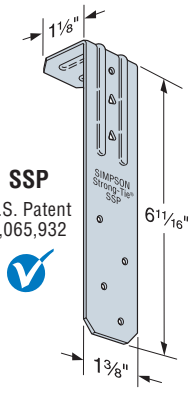
The Stud Plate Tie series offers various solutions for connecting the stud to the top and bottom plates. All models can be used to make a connection to either the top or bottom plate, and several are suitable for double top plates and studs.

MATERIAL: DSP/SSP/SPH—18 gauge; TSP—16 gauge; all others—20 gauge

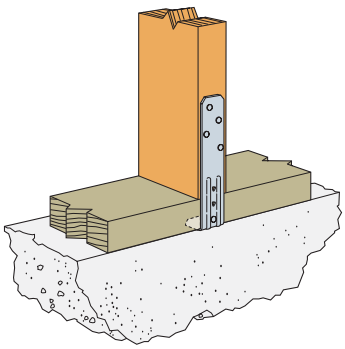
FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, pages 14-17.

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—one of the 10d common stud nails is driven at a 45° angle through the stud into the plate.



SSP
U.S. Patent 7,065,932



Typical SSP Installed to Sill Plate

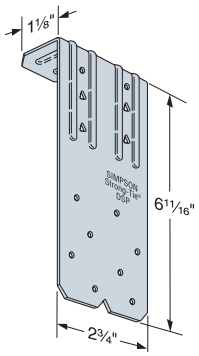
DSP/SSP/SP/SPH/RSP4/TSP *Stud Plate Ties*

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.

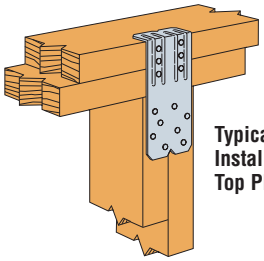
These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

Model No.	Stud	Plate Width	Dimensions (in) W	Dimensions (in) L	Fasteners: Studs	Fasteners: Double Top Plate	Fasteners: Single Sill Plate	Factored Resistance (K_D = 1.15) D.Fir-L: Double Top Plate	D.Fir-L: Single Sill Plate	S-P-F: Double Top Plate	S-P-F: Single Sill Plate
								lbs	lbs	lbs	lbs
								kN	kN	kN	kN
Connector Type											
RSP4	2x	—	2⅛	4½	4-8dx1½	4-8dx1½	4-8dx1½	670	595	600	535
								2.98	2.65	2.67	2.38
SSP	2x	—	1⅜	6¹¹⁄₁₆	4-10dx1½	3-10dx1½	1-10dx1½	570	535	570	535
								2.54	2.38	2.54	2.38
					4-10d	3-10d	1-10d	710	690	710	690
								3.16	3.07	3.16	3.07
SP1	2x	—	3½	5¹⁄₁₆	6-10d	—	4-10d	—	810	—	740
								—	3.60	—	3.29
SP2	2x	—	3½	6⅝	6-10d	6-10d	—	1220	—	1110	—
								5.43	—	4.94	—
DSP	2-2x	—	2¾	6¹¹⁄₁₆	8-10dx1½	6-10dx1½	2-10dx1½	1270	890	1270	890
								5.65	3.96	5.65	3.96
					8-10d	6-10d	2-10d	1550	985	1550	985
								6.90	4.38	6.90	4.38
TSP	—	—	1½	7⅞	6-10dx1½	—	3-10dx1½	—	765	—	685
								—	3.40	—	3.05
					9-10dx1½	6-10dx1½	—	1325	—	940	—
								5.89	—	4.18	—
					9-10dx1½	6-10dx1½	—	1455	—	1030	—
								6.47	—	4.58	—
SP4	2x	4x	3⁹⁄₁₆	7¼	6-10dx1½	—	—	1135	—	915	—
								5.05	—	4.07	—
SPH4	2x	4x	3⁹⁄₁₆	8¾	12-10dx1½	—	—	2450	2010	1815	1430
								10.90	8.94	8.07	6.36
SP6	2x	6x	5⁹⁄₁₆	7¾	6-10dx1½	—	—	1135	—	915	—
								5.05	—	4.07	—
SPH6	2x	6x	5⁹⁄₁₆	9¼	12-10dx1½	—	—	2450	2010	1815	1430
								10.90	8.94	8.07	6.36
SP8	2x	8x	7⁹⁄₁₆	8⁹⁄₁₆	6-10dx1½	-—	—	1135	—	915	—
								5.05	—	4.07	—
SPH8	2x	8x	7⁹⁄₁₆	8⅜	12-10dx1½	—	—	2450	2010	1815	1430
								10.90	8.94	8.07	6.36

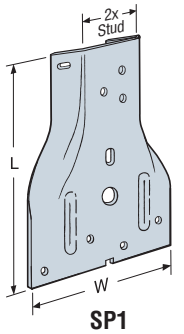
1. Factored resistances have been increased 15% for short term loading; no further increase is allowed. Reduce values by 15% for standard term loading.
2. RSP4 factored lateral resistance is 345 lbs (1.53 kN) D-Fir-L and 245 lbs (1.09 kN) S-P-F for F_1 direction. The factored resistance in the F_2 direction is 175 lbs (0.78 kN) D.Fir-L and 125 lbs (0.51 kN) S-P-F. These values apply to both single and double plate applications.
3. When cross-grain bending or cross-grain tension cannot be avoided, mechanical reinforcement to resist such forces should be considered.
4. Tabulated values for SP4, SPH4, SP6, SPH6, SP8 and SPH8 assume loads are applied through the centre of the stud or plates *(concentric loading)*. For applications where the load is applied to the connector through one side of the stud or plates *(eccentric loading)* multiply the tabulated values by 0.50.
5. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long, 8dx1½ = 0.131" dia. x 1½" long. See pages 22-23 for other nail sizes and information.



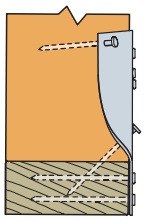
DSP
U.S. Patent 7,065,932



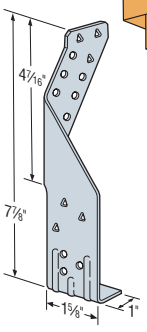
Typical DSP Installed to Top Plate



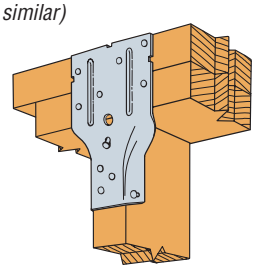
SP1
(SP2 similar)



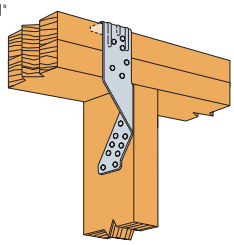
SP1 Nailing Profile



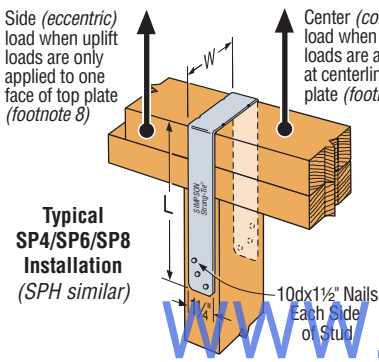
TSP



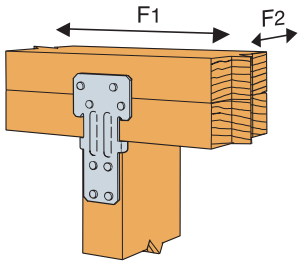
Typical SP2 Installation



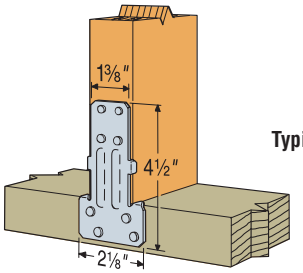
Typical TSP Installed to Top Plate



Typical SP4/SP6/SP8 Installation
(SPH similar)



Typical RSP4 Stud to Double Top Plate
(See footnote 2)

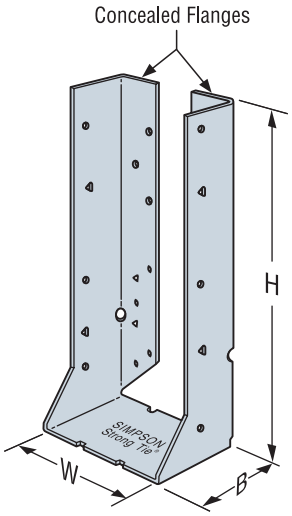


Typical RSP4 Stud to Single Bottom Plate
U.S. Patent 5,697,725

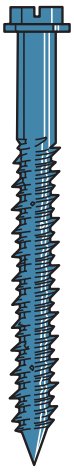
HU/HUC *Hangers*

HU and HUC products are heavy duty face mount joist hangers.
MATERIAL: 14 gauge
FINISH: Galvanized, ZMAX® and stainless steel available
INSTALLATION: • These hangers are attached to the concrete or grout-filled CMU walls using ¼" hex head Titen® screws. Titen screws (Model No. TTN25234H) are not provided with the hangers.
- 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.
- Stainless steel HU/HUC hangers and Titen screws are available for exterior applications.
- See page 32 for more information on Titen® screw.

OPTIONS: • The HUC is a concealed flange version of the HU. Concealed flange hangers have the face flanges turned in.
- HU is available with A flanges concealed, provided the W dimension is 2 5⁄16" or greater, at 100% of the table value.
- HU is available with one flange concealed when the W dimension is less than 2 5⁄16" at 100% of the table value.
- Skewed HU/HUC hangers attached to masonry have not been evaluated.



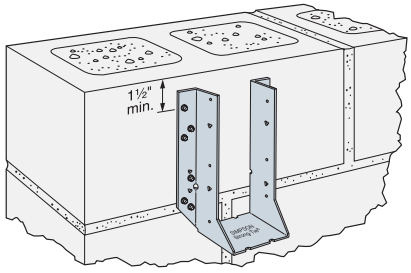
HUC410



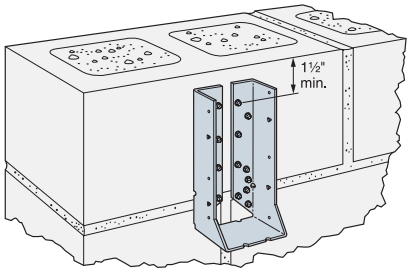
Titen® Hex Head

Model No.	Dimensions (in)				Fasteners			Factored Resistance	
								Uplift	Normal
	W	H	B	d_e	CMU	Concrete	Joist	(K_D = 1.15)	(K_D = 1.00)
								lbs	lbs
								kN	kN
HU26	1 3⁄16	3 1⁄16	2 1⁄4	2 11⁄16	4-¼x2¾ Titen	4-¼x1¾ Titen	2-10dx1½	490	2265
								2.18	10.08
HU28	1 3⁄16	5 1⁄4	2 1⁄4	4 7⁄8	6-¼x2¾ Titen	6-¼x1¾ Titen	4-10dx1½	975	3590
								4.34	15.97
HU210	1 3⁄16	7 1⁄8	2 1⁄4	6¾	8-¼x2¾ Titen	8-¼x1¾ Titen	4-10dx1½	975	3590
								4.34	15.97
HU212	1 3⁄16	9	2 1⁄4	8 5⁄8	10-¼x2¾ Titen	10-¼x1¾ Titen	6-10dx1½	1465	4015
								6.52	17.86
HU26-2	3 1⁄8	5 3⁄8	2 1⁄2	5	12-¼x2¾ Titen	12-¼x1¾ Titen	6-10d	1575	5430
								7.01	24.15
HU28-2	3 1⁄8	7	2 1⁄2	6 5⁄8	14-¼x2¾ Titen	14-¼x1¾ Titen	6-10d	1575	5780
								7.01	25.71
HU210-2	3 1⁄8	8 13⁄16	2 1⁄2	8 7⁄16	18-¼x2¾ Titen	18-¼x1¾ Titen	10-10d	2620	5780
								11.65	25.71
HU212-2	3 1⁄8	10 9⁄16	2 1⁄2	10 3⁄16	22-¼x2¾ Titen	22-¼x1¾ Titen	10-10d	2620	5780
								11.65	25.71
HU46	3 9⁄16	5 3⁄16	2 1⁄2	4 13⁄16	12-¼x2¾ Titen	12-¼x1¾ Titen	6-10d	1575	5430
								7.01	24.15
HU48	3 9⁄16	6 13⁄16	2 1⁄2	6 7⁄16	14-¼x2¾ Titen	14-¼x1¾ Titen	6-10d	1575	5780
								7.01	25.71
HU410	3 9⁄16	8 5⁄8	2 1⁄2	8¼	18-¼x2¾ Titen	18-¼x1¾ Titen	10-10d	2620	5780
								11.65	25.71
HU412	3 9⁄16	10 5⁄16	2 1⁄2	9 15⁄16	22-¼x2¾ Titen	22-¼x1¾ Titen	10-10d	2620	5780
								11.65	25.71

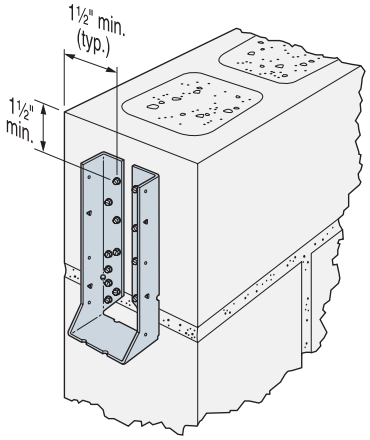
1. Factored uplift resistances have been increased 15% for wind or earthquake loading with no further increase allowed. The values shown assume a D.Fir-L joist in the hanger and are based on nail values only. The Designer must ensure the joist can generate the resistances shown based on the effective shear depth d_e. For S-P-F joist multiply uplift value by 0.71.
2. Minimum concrete and grout strength shall be 2500 psi (17.25 MPa).
3. The Designer must ensure the joist can generate the factored normal resistances shown.
4. d_e is the dimension from the bearing seat to the top joist nail.
5. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.



HU410 Installed on Masonry Block Sidewall



HUC410 Installed on Masonry Block Sidewall



HUC410 Installed on Masonry Block End Wall

LGUM/HGUM *High Capacity Beam/Girder Hangers for Concrete/Masonry*

SIMPSON Strong-Tie®

High-capacity girder hangers for masonry applications. Installation is made easier using Strong-Drive® SDS Heavy-Duty Connector screws into the wood member and Titen HD® anchors into the masonry.

MATERIAL: See table **FINISH:** Galvanized

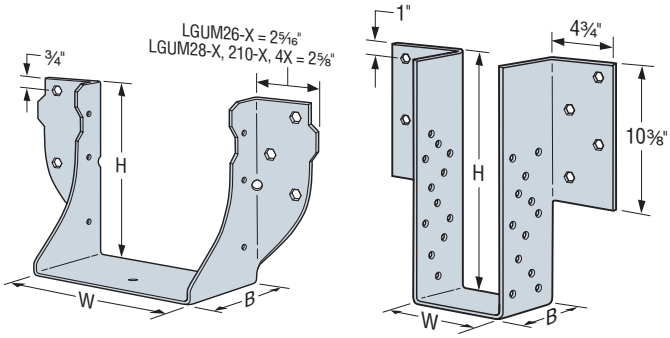
INSTALLATION: Use all specified fasteners *(included)*.

Titen HD:

- 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 anchor 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 or wet service conditions.
- See page 31 for more information on Titen HD anchors.

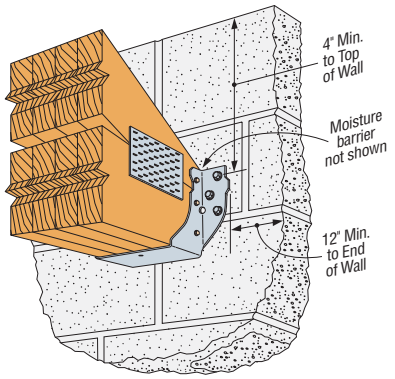
OPTIONS:

- For HGUM only – Other seat widths available. Order as "X" version.
- HGUM available with one flange concealed.
- LGUM/HGUM available with skews up to 45°. See hanger options, page 238.

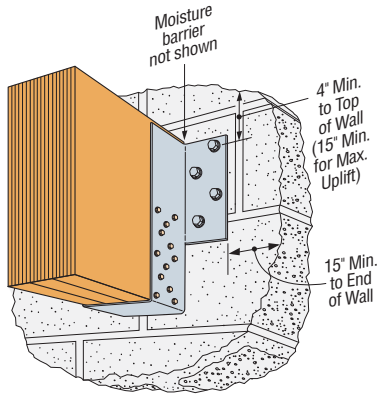


LGUM **HGUM**

Model No.	Ga	Dimensions (in) W	H	B	Fasteners CMU/Concrete Titen HD	Joist SDS Screws	Factored Resistance Uplift (K_D = 1.15) lbs / kN	Normal CMU (K_D = 1.00) lbs / kN	Normal Concrete (K_D = 1.00) lbs / kN
Double 2x Sizes									
LGUM26-2-SDS	12	3⁵⁄₁₆	5⁷⁄₁₆	4	4-⅜"x4"	4-¼"x2 ½"	2640 / 11.76	8125 / 36.19	8125 / 36.19
LGUM28-2-SDS	12	3⁵⁄₁₆	7³⁄₁₆	4	6-⅜"x4"	6-¼"x2 ½"	4070 / 18.13	10110 / 45.03	10110 / 45.03
LGUM210-2-SDS	12	3⁵⁄₁₆	9³⁄₁₆	4	8-⅜"x4"	8-¼"x2 ½"	5430 / 24.19	11585 / 51.60	11585 / 51.60
Triple 2x Sizes									
LGUM26-3-SDS	12	4¹⁵⁄₁₆	5½	4	4-⅜"x4"	4-¼"x2½"	2640 / 11.76	8125 / 36.19	8125 / 36.19
LGUM28-3-SDS	12	4¹⁵⁄₁₆	7¼	4	6-⅜"x4"	6-¼"x2½"	4070 / 18.13	10110 / 45.03	10110 / 45.03
LGUM210-3-SDS	12	4¹⁵⁄₁₆	9¼	4	8-⅜"x4"	8-¼"x2½"	5430 / 24.19	11585 / 51.60	11585 / 51.60
Quadruple 2x Sizes									
LGUM26-4-SDS	12	6⁹⁄₁₆	5⁷⁄₁₆	4	4-⅜"x4"	4-¼"x2½"	2640 / 11.76	8125 / 36.19	8125 / 36.19
LGUM28-4-SDS	12	6⁹⁄₁₆	7³⁄₁₆	4	6-⅜"x4"	6-¼"x2½"	4070 / 18.13	10110 / 45.03	10110 / 45.03
LGUM210-4-SDS	12	6⁹⁄₁₆	9³⁄₁₆	4	8-⅜"x4"	8-¼"x2½"	5430 / 24.19	11585 / 51.60	11585 / 51.60
4x Sizes									
LGUM46-SDS	12	3⅝	5⁵⁄₁₆	4	4-⅜"x4"	4-¼"x2½"	2640 / 11.76	8125 / 36.19	8125 / 36.19
LGUM48-SDS	12	3⅝	7⁵⁄₁₆	4	6-⅜"x4"	6-¼"x2½"	4070 / 18.13	10110 / 45.03	10110 / 45.03
LGUM410-SDS	12	3⅝	9⁵⁄₁₆	4	8-⅜"x4"	8-¼"x2½"	5430 / 24.19	11585 / 51.60	11585 / 51.60
Engineered Wood & Structural Composite Lumber Sizes (Heavy Duty)									
HGUM5.25-SDS	7	5¼	11 to 30	5¼	8-⅝"x5"	24-¼"x2½"	8045 / 35.84	15310 / 68.20	22615 / 100.73
HGUM5.50-SDS	7	5½		5¼	8-⅝"x5"	24-¼"x2½"	8045 / 35.84	15310 / 68.20	22615 / 100.73
HGUM7.00-SDS	7	7		5¼	8-⅝"x5"	24-¼"x2½"	8045 / 35.84	15310 / 68.20	22615 / 100.73
HGUM7.25-SDS	7	7¼		5¼	8-⅝"x5"	24-¼"x2½"	8045 / 35.84	15310 / 68.20	22615 / 100.73
HGUM9.00-SDS	7	9		5¼	8-⅝"x5"	24-¼"x2½"	8045 / 35.84	15310 / 68.20	22615 / 100.73



Typical LGUM Installation



Typical HGUM Installation

1. Factored uplift values have been increased 15% for wind or earthquake loading with no further increase allowed. Reduce where other load durations govern.
2. Factored uplift values assume D.Fir-L joist (SG=0.49). For S-P-F joist, multiply the tabulated uplift values by 0.72.
3. Factored resistances assume Type S mortar with f'_m = 1087 psi (7.5 MPa) for 15 MPa concrete block masonry as per Table 4 CSA S304-14. For values of f'_m < 1085 psi (7.5 MPa) multiply the tabulated values by $(f'_m / 1085)^{0.5}$.
4. Factored resistances assume a 28 day concrete compressive strength of f'_c = 2500 psi (17.25 MPa). For values of f'_c < 2500 psi (17.25 MPa) multiply the tabulated values by $(f'_c / 2500)^{0.5}$.
5. Factored resistances for concrete block masonry assumes minimum 8" (190 mm) block grouted solid as per CSA A179-14. Designer to design block wall reinforcing as per CSA S304-14 to carry the applied load.
6. Factored resistances for concrete assumes minimum 8" (203 mm) concrete wall. Designer to design concrete wall reinforcing as per CSA A23.3-14 to carry the applied load.
7. Factored normal resistances assume D.Fir-L joist. For other joist materials, the Designer must ensure that the bearing capacity of the joist does not govern.
8. HGUM tabulated factored uplift resistance require a minimum loaded edge distance of 15". For loaded edge distances less than 15" to a minimum of 4", the factored uplift resistance is 5080 lbs (22.38 kN).

WM/WMI/WMU *Hangers*

See pages 126-140 for sizes, fasteners and load information.

WMs are designed for use on standard 8" grouted masonry block wall construction.

MATERIAL: See tables on pages 126-140;
WM, WMI, WMU—12 ga. top flange and stirrup

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

FACTORED RESISTANCES: For hanger heights exceeding the joist height, the factored resistance is 0.50 of the table load.

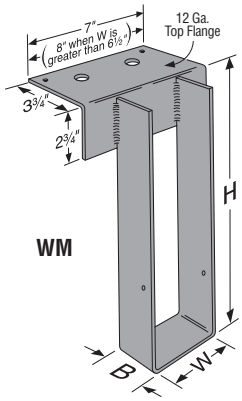
INSTALLATION: • Use all specified fasteners.

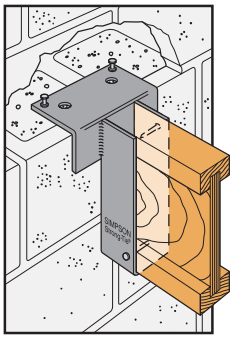
- Mid-Wall—two 16d duplex nails must be installed into the top flange and embedded into the grouted wall. Embed WM into block with a minimum of one course above and one course below the top flange with one 15M vertical rebar minimum 24" long in each cell. Minimum grout strength is 2000 psi (13.8 MPa).
- When installed on top of masonry wall, use 2-Titen® ¼x1¾" masonry screws after pre-drilling into minimum 2000 psi (13.8 MPa) grout.
- See page 32 for more information on Titen screws.

OPTIONS: • See Hanger Options, page 231 for hanger modifications and associated load reductions.

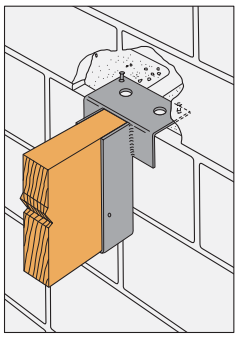
Model No.	Joist Size (in)		Fasteners			Factored Resistance	
	Width	Height	Top	Face	Joist	Uplift (K_D = 1.15) lbs / kN	Normal (K_D = 1.00) lbs / kN
Mid-Wall Installation							
WM/WMI	1½ to 7½	3½ to 30	2-16d duplex	—	2-10dx1½	— / —	6060 / 26.96
WMU	1½ to 7½	9 to 28	2-16d duplex	4-¼x1¾ Titen	6-10dx1½	860 / 3.83	6060 / 26.96
Top-of-Wall Installation							
WM/WMI	1½ to 7½	3½ to 30	2-¼x1¾ Titen	—	2-10dx1½	— / —	5300 / 23.58
WMU	1½ to 7½	9 to 28	2-¼x1¾ Titen	4-¼x1¾ Titen	6-10dx1½	745 / 3.31	5300 / 23.58

1. Factored uplift resistances shown are for D.Fir-L joist. Multiply table value x 0.71 for S-P-F values.
2. WM/WMI/WMU hangers are limited based on joist bearing capacity for the specific wood species, up to the maximum test value of 6060 lbs (26.99 kN). All headers are grouted masonry block.
3. Titen® ¼x1¾" installed on top of wall after grout has cured.
4. Products shall be installed such that Titen screws are not exposed to weather.
5. **NAILS:** 16d duplex = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

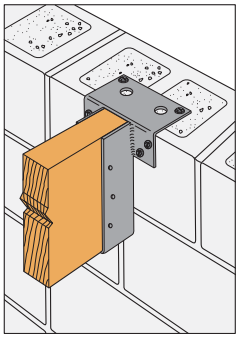




Typical WM Installation with Alternate Nailing Pattern (ANP)



Typical WM Installation at Mid-Wall



Typical WMU Installation at Top-of-Wall

LTA2 *Lateral Truss Anchor*

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

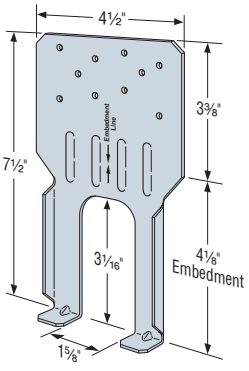
MATERIAL: 18 gauge **FINISH**: Galvanized; see Corrosion Information, pages 14-17.

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

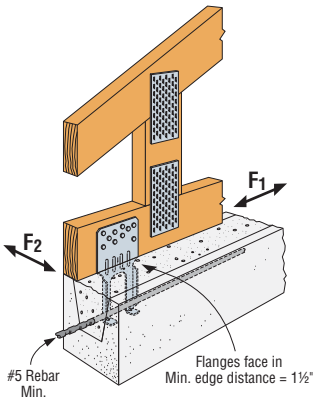
- Whether in grouted CMU or concrete, the LTA2 must be embedded to the depth of the embedment line stamped on the part.
- A minimum of one horizontal 15M rebar is required at top of concrete or in the top course of grouted CMU.
- For parallel-to-wall applications, install the LTA2 with flanges facing the center of the wall. Minimum edge distance of 1½" required.

Model No.	Fasteners	Installation	Factored Resistance (K_D = 1.15)					
			D.Fir-L			S-P-F		
			Uplift lbs / kN	F_1 lbs / kN	F_2 lbs / kN	Uplift lbs / kN	F_1 lbs / kN	F_2 lbs / kN
LTA2	10-10dx1½	Perpendicular to Wall	1845 / 8.21	495 / 2.20	1330 / 5.92	1310 / 5.83	350 / 1.56	945 / 4.20
		Parallel to Wall	1825 / 8.12	1305 / 5.81	370 / 1.65	1295 / 5.76	930 / 4.14	265 / 1.18

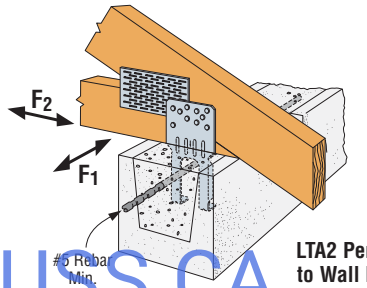
1. Factored resistances are based on a minimum grout strength of 2500 psi (17.25 MPa) with one 15M horizontal rebar in the shear cone.
2. Factored uplift resistances have been increased 15% for wind loading with no further increase allowed.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.



LTA2
U.S. Patent 6,560,943



LTA2 Parallel to Wall Installation



LTA2 Perpendicular to Wall Installation

H Seismic & Hurricane Ties

The H10S provides a high capacity connection from truss or rafter to stud. A flexible nailing pattern allows installation where the stud is offset from the rafter up to 1". Suitable for wood-to-wood and wood-to-CMU/concrete application.

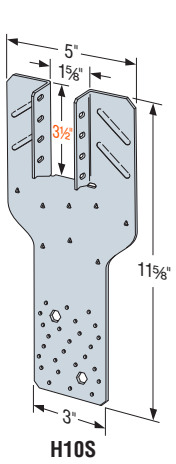
The presloped 5:12 seat of the H16 provides for a tight fit and reduced deflection. The strap length provides for various truss height up to a maximum of 13½". Minimum heel height for H16 series is 4".

MATERIAL: See table.

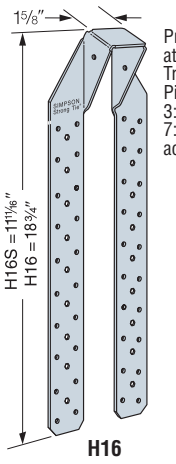
FINISH: Galvanized; other models available in stainless steel or ZMAX®; see Corrosion Information, pages 14-17.

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

- HGAM10 can be installed into grouted concrete block. Screws are provided.
- The HM9KT and the HGAM10KTA are sold with Strong-Drive® SDS Heavy-Duty Connector screws and Titen® screws.
- Hurricane ties do not replace solid blocking.
- Attach to grouted concrete block with a minimum one 15M rebar horizontal in the top lintel block.
- Titen® and Titen HD® are not recommended for exposed exterior applications or wet service conditions.
- See pages 31-32 for more information on Titen screw and Titen HD anchor.

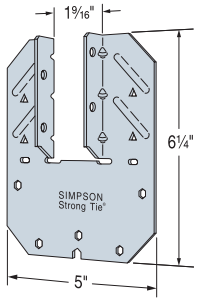


H10S

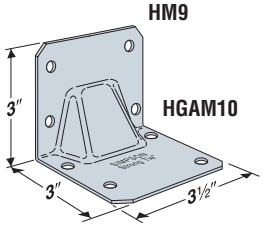


H16
(H16-2 similar)

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



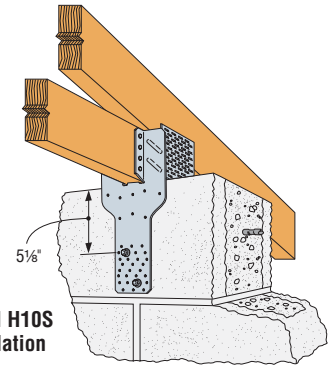
HM9



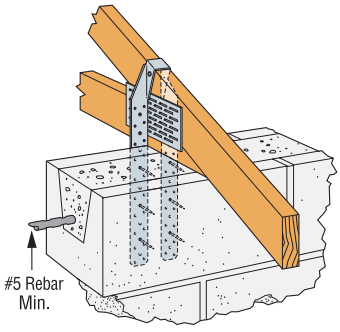
HGAM10

Model No.	Ga	Dimensions (in)		Fasteners			Factored Resistance (K_D = 1.15)					
							D.Fir-L			S-P-F		
							Uplift	Lateral		Uplift	Lateral	
		W	L	Rafters/ Truss	CMU	Concrete		F_1	F_2		F_1	F_2
							lbs	lbs	lbs	lbs	lbs	lbs
							kN	kN	kN	kN	kN	kN
HM9KT	18	1⁹⁄₁₆	6¼	4-¼"x1½" SDS	5-¼x2¼ Titen	5-¼x1¾ Titen	815	580	285	585	580	285
							3.63	2.58	1.27	2.60	2.58	1.27
HGAM10KT	14	—	—	4-¼"x1½" SDS	4-¼x2¾ Titen	4-¼x1¾ Titen	1470	1305	1495	1060	940	1310
							6.54	5.81	6.66	4.72	4.18	5.83
H10S	18	1⅝	11⅝	8-10dx1½	2-⅜x4 Titen HD	2-⅜x4 Titen HD	1655	—	—	1175	—	—
							7.36	—	—	5.23	—	—
H16	18	1⅝	18¾	2-10dx1½	6-¼x2¼ Titen	6-¼x1¾ Titen	2075	—	—	1470	—	—
							9.23	—	—	6.54	—	—
H16S	18	1⅝	11¹¹⁄₁₆	2-10dx1½	6-¼x2¼ Titen	6-¼x1¾ Titen	2075	—	—	1470	—	—
							9.23	—	—	6.54	—	—
H16-2	18	3¼	18¾	2-10dx1½	6-¼x2¼ Titen	6-¼x1¾ Titen	2075	—	—	1470	—	—
							9.23	—	—	6.54	—	—
H16-2S	18	3¼	11¹¹⁄₁₆	2-10dx1½	6-¼x2¼ Titen	6-¼x1¾ Titen	2075	—	—	1470	—	—
							9.23	—	—	6.54	—	—

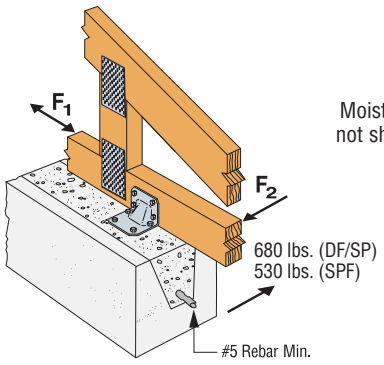
1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed.
2. Factored resistances are for one anchor. A minimum rafter thickness of 2½" must be used when framing anchors are installed on each side of the joist and on the same side of the plate.
3. When cross-grain bending or cross-grain tension cannot be avoided, mechanical reinforcement to resist such forces should be considered.
4. HGAM10KTA factored F_2 resistances shown are for loading applied into the connector. For loading applied away from the connector, the factored resistances are 960 lbs (4.27 kN) for D.Fir-L and 690 lbs (3.07 kN) for S-P-F.
5. Minimum edge distance for Titen screws is 1½".
6. Factored resistances for CMU assume Type S mortar with f'_m = 1087 psi (7.5 MPa) for 15 MPa concrete block as per Table 4, CSA S304-14.
7. CMU must be grouted solid with a minimum grout strength of 2500 psi (17.25 MPa).
8. Factored resistances for concrete assume a 28 day concrete compressive strength of f'_c = 2500 psi (17.25 MPa).
9. Designer to design wall reinforcing to carry the applied loads.
10. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long, 8dx1½ = 0.131" dia.x1½" long. See pages 22-23 for other nail sizes and information.



Typical H10S Installation

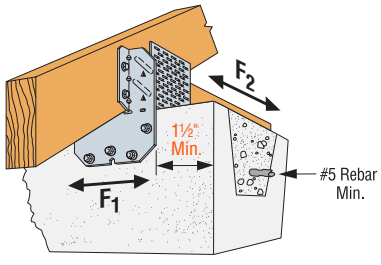


❶ H16S Installed into Masonry



❷ HGAM10 Installed into Masonry

Moisture barrier not shown (Typ.)



❸ HM9 Attaching Truss to Masonry

LGT/MGT/VGT *Heavy Girder Tiedowns*

The LGT and VGT 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 SDS screws 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 overhang.

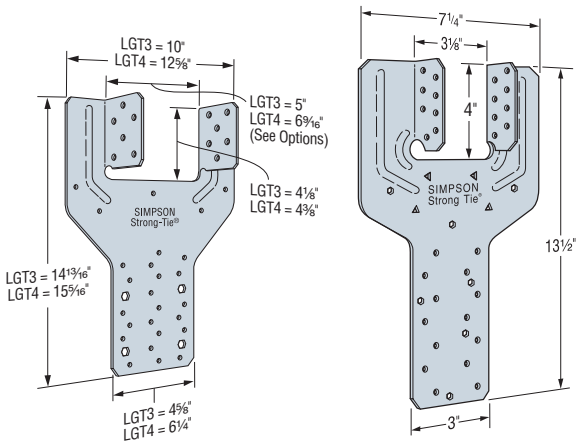
MATERIAL: VGT—7 gauge; LGT2—14 gauge; MGT, LGT3—12 gauge

FINISH: Galvanized

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

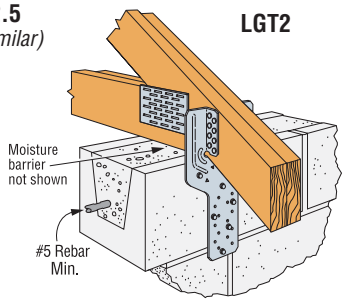
- Minimum grout or concrete strength f'_c = 2500 psi (17.25 MPa).
- To achieve the values listed in the table below, the product shall be attached to a grouted and reinforced block wall or a reinforced concrete wall designed by others to transfer the high concentrated uplift forces to the foundation.
- SDS screws included with LGT3, LGT4 and VGT series.
- VGT—Screw holes are configured to allow for double installation on a two-ply *(minimum)* truss.
- VGT—Can be installed on roof pitches up to 8:12 or on a bottom chord designed to transfer the loads.
- 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 plates.
- Titen® screws and Titen HD® anchors are not recommended for exposed exterior applications or wet service conditions.
- See pages 31-32 for more information on Titen screw and Titen HD anchor.

OPTIONS: LGT3 is available with reduced widths of W = 4 13/16" — order as LGT3N-SDS2.5.



LGT3-SDS2.5
(LGT4-SDS3 similar)

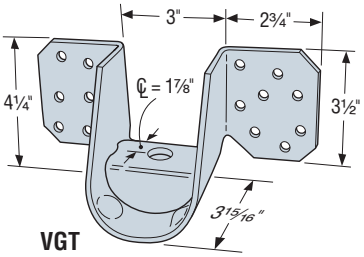
LGT2



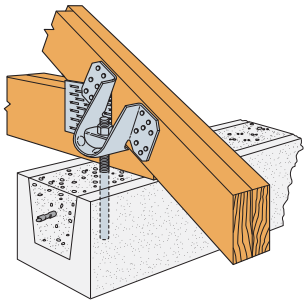
Typical LGT2 Installation into Masonry
(LGT3 and LGT4 similar)

Model No.	Qty.	No. of Plies	Fasteners		Factored Resistance (K_D = 1.15)	
			Wall Anchorage	Girder Truss	D.Fir-L	S-P-F
					lbs	lbs
					kN	kN
LGT2	1	2 ply	7-¼x2¼ Titen	16-10d	2620	2205
					11.65	9.81
LGT3-SDS2.5	1	3 ply	4-⅜x5 Titen HD®	12-¼"x2½" SDS	5220	3770
					23.22	16.77
LGT4-SDS3	1	4 ply	4-⅜x5 Titen HD	16-¼"x3" SDS	5220	3770
					23.22	16.77
MGT	1	2 ply min.	1-⅝" Dia.	22-10d	5610	3985
					24.96	17.73
VGT	1	2 ply min.	1-⅝" Dia.	16-¼"x3" SDS	8600	6195
					38.26	27.56
	2	2 ply min.	2-⅝" Dia.	32-¼"x3" SDS	11690	8420
					52.00	37.46
VGTR/L	1	2 ply min.	1-⅝" Dia.	16-¼"x3" SDS	3475	2505
					15.46	11.14
	2	2 ply min.	2-⅝" Dia.	32-¼"x3" SDS	6950	5010
					30.92	22.28

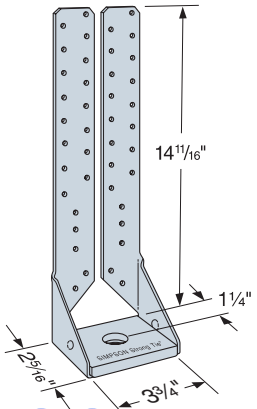
1. Factored resistances have been increased 15% for earthquake or wind load. Reduce where other load durations govern.
2. Attached members must be designed to resist the factored loads.
3. The MGT can be installed with straps vertical for full capacity provided 26-10d nails are installed to either a solid header or minimum double 2x6 web.
4. Products shall be installed such that the Titen® screws and Titen HD® anchors are not exposed to the weather.
5. For concrete wall applications use ¼x1¾ Titen screws.
7. **NAILS:** 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.



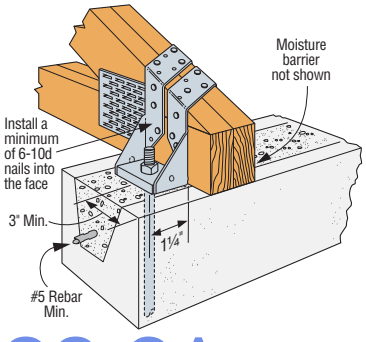
VGT



Typical VGT Installation



MGT



Typical MGT Installation

HGT *Heavy Girder Tiedowns*

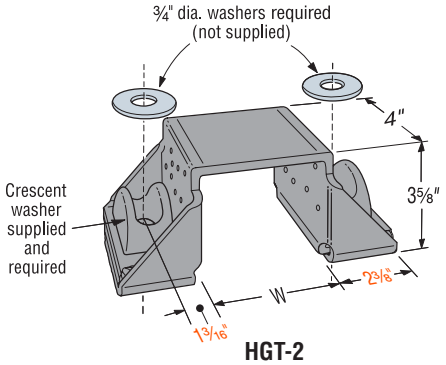
The HGT – Heavy Girder Tiedown offers the highest uplift capacity for girders and can be installed on trusses and beams with top chord slopes from 3:12 to 8:12. The HGT is available in sizes for 2, 3 and 4-ply widths.

MATERIAL: 7 gauge

FINISH: Simpson Strong-Tie® gray paint

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

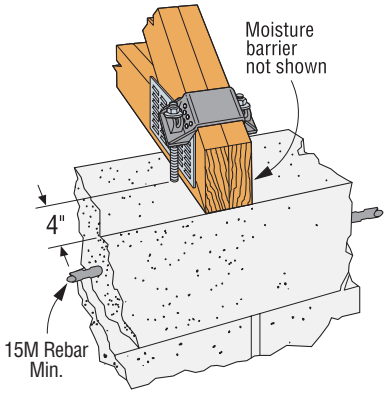
- Minimum grout or concrete strength f'_c = 2500 psi (17.25 MPa).
- To achieve the values listed in the table below, the product shall be attached to a grouted and reinforced block wall or a reinforced concrete wall designed by others to transfer the high concentrated uplift forces to the foundation.
- Anchorage from HGT to wall below shall be with ¾" diameter ASTM A307 Grade A bolts or threaded rod.
- Standard cut washers (not supplied) are required between the nut and the HGT.
- See page 185 for wood applications.



HGT-2
(HGT-3 and HGT-4 similar)

Model No.	Qty.	No. of Plies	O.C. Dimension Between Anchors (in)	Fasteners		Factored Uplift Resistance (K_D=1.15)	
				Anchor Bolts	Girder Truss	D.Fir-L	S-P-F
						lbs	lbs
						kN	kN
HGT-2	1	2 ply	5¹¹⁄₁₆	2-¾" ϕ	16-10d	12140	9280
						54.00	41.28
HGT-3	1	3 ply	7⁵⁄₁₆	2-¾" ϕ	16-10d	12140	9280
						54.00	41.28
HGT-4	1	4 ply	9	2-¾" ϕ	16-10d	12140	9280
						54.00	41.28

1. Factored resistances have been increased 15% for earthquake or wind load. Reduce where other load durations govern.
2. Attached members must be designed to resist the applied loads.
3. Anchorage must be designed by others.
4. **NAILS:** 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.



Typical HGT-2 Installation into Concrete

MTSM/HTSM *Straps Ties*

The MTSM and HTSM offer high strength truss to masonry connections.

MATERIAL: MTSM—16 gauge; HTSM—14 gauge

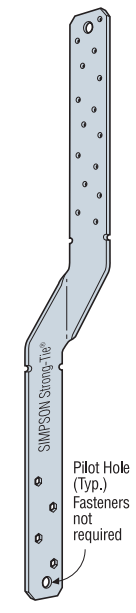
FINISH: Galvanized. Some products available in stainless steel or ZMAX®; see Corrosion Information, pages 14-17.

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

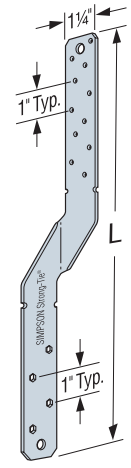
- Attach to either side of grouted concrete block with a minimum one 15M rebar horizontal in the lintel block.
- Minimum f'_c = 2500 psi (17.25 MPa) maximum aggregate ⅜".
- Titen® screws are not recommended for exposed exterior applications or wet service conditions.
- See page 32 for more information on Titen screws.

Model No.	L (in)	Fasteners			Factored Resistance (K_D=1.15)	
		Truss	CMU	Concrete	D.Fir-L	S-P-F
					lbs	lbs
					kN	kN
MTSM16	16	7-10d	4-¼x2¼ Titen	4-¼x1¾ Titen	1240	880
					5.52	3.91
MTSM20	20	7-10d	4-¼x2¼ Titen	4-¼x1¾ Titen	1240	880
					5.52	3.91
HTSM16	16	8-10d	4-¼x2¼ Titen	4-¼x1¾ Titen	1495	1180
					6.65	5.25
HTSM20	20	10-10d	4-¼x2¼ Titen	4-¼x1¾ Titen	1495	1200
					6.65	5.34

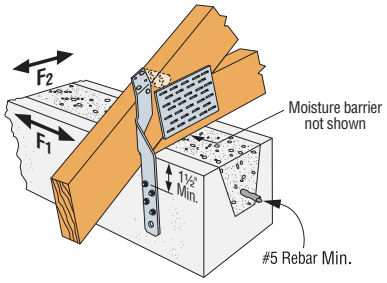
1. Factored resistances have been increased 15% for wind or earthquake loading, no further increase is allowed. Reduce table values where other loads govern as per code.
2. Twist straps do not have to be wrapped over the truss to achieve resistances shown.
3. Minimum edge distance for Titen® screws is 1½".
4. Products shall be installed such that the Titen screws are not exposed to the weather.
5. **NAILS:** 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.



MTSM20



MTSM16



Typical MTSM20 Installation

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. Coined edges ensure safer handling.

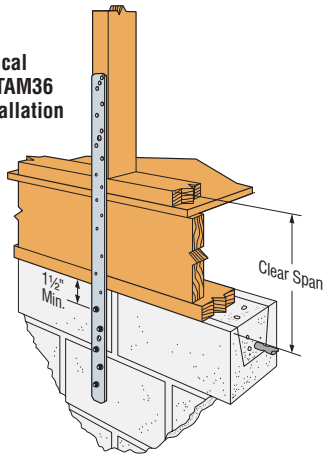
FINISH: Galvanized. Some products are available in stainless steel or ZMAX® coating; see Corrosion Information, pages 14-17.

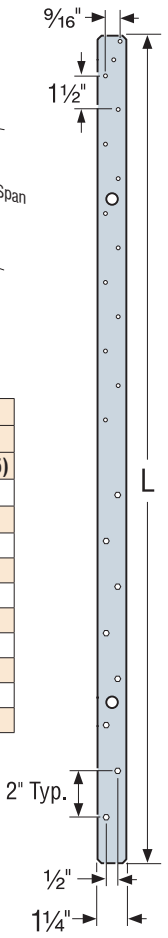
INSTALLATION:

- Use all specified fasteners. See General Notes.
- Attaches to grouted concrete block or solid concrete.
- Titen® screws are not recommended for exposed exterior applications or wet service conditions.
- See page 32 for more information on Titen screws.

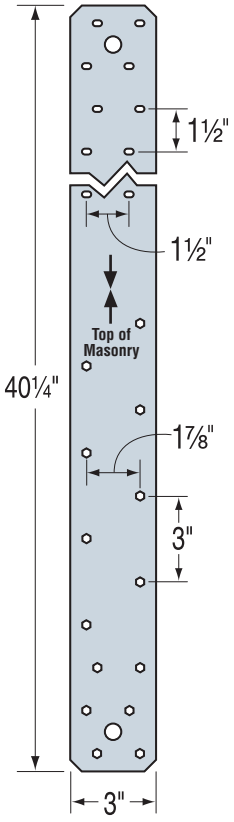
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Typical MSTAM36 Installation





MSTAM36



MSTCM40
(Other MSTCM similar)

Masonry Application

Model No.	Ga	Dimensions (in)		Fasteners (Total)			Factored Tensile Resistance			
							D.Fir-L		S-P-F	
		W	L	Nails	CMU	Concrete	(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)
							lbs	lbs	lbs	lbs
							kN	kN	kN	kN
MSTAM24	18	1¼	24	8-10d	5-¼x2¼ Titen	5-¼x1¾ Titen	1790	1870	1660	1870
							7.96	8.32	7.38	8.32
MSTAM36	16	1¼	36	12-10d	8-¼x2¼ Titen	8-¼x1¾ Titen	2685	2685	2685	2685
							11.94	11.94	11.94	11.94
MSTCM40		3	40¼	26-10d	14-¼x2¼ Titen	14-¼x1¾ Titen	5235	5235	5235	5235
							23.29	23.29	23.29	23.29
MSTCM60		3	59½	26-10d	14-¼x2¼ Titen	14-¼x1¾ Titen	5235	5235	5235	5235
							23.29	23.29	23.29	23.29

1. Minimum edge distance 1½" using Titen® screws.
2. **NAILS:** 10d = 0.148" dia. x 3" long. See pages 22-23 for other nail sizes and information.

Floor-to-Floor Clear Span Table

Model No.	Clear Span (in)	Fasteners (Total)			Factored Tensile Resistance			
					D.Fir-L		S-P-F	
		Nails	CMU	Concrete	(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
MSTAM36	16 or 18	6-10d	4-¼x2¼ Titen	4-¼x1¾ Titen	1480	1495	1355	1495
					6.58	6.65	6.03	6.65
MSTCM60	22¼	26-10d	14-¼x2¼ Titen	14-¼x1¾ Titen	5235	5235	5235	5235
					23.29	23.29	23.29	23.29

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.

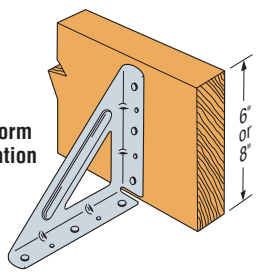
MATERIAL: 16 gauge

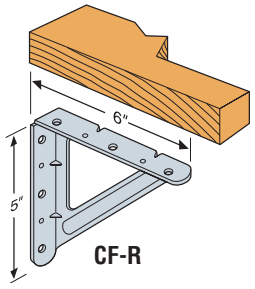
FINISH: Galvanized

INSTALLATION:

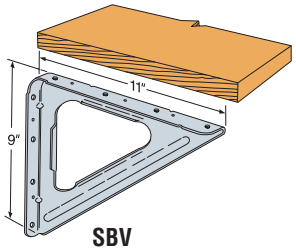
- Use all specified fasteners. See General Notes.
- SBV—Reversible for nominal 10" or 12" shelves of any thickness.
- CF-R *(Retail Pack)*—Recommended spacing is 36" for 2x's and 18" for 1x's. Use the 5" leg for 6" lumber and the 6" leg for 8" lumber. Holes are sized for ¼" fasteners or 10d commons.

Typical CF-R Form Installation





CF-R



SBV

Model No.	Fasteners	Factored Resistance (K_D = 0.65)	
	Stud	D.Fir-L	S-P-F
		lbs	lbs
		kN	kN
CF-R	3-SDS ¼"x2"	140	130
		0.62	0.58
SBV	4-SDS ¼"x2"	150	140
		0.67	0.62

1. Factored resistances have been decreased for permanent loading. Values can be increased for other load durations as per code.

DTT2Z/DTT2SS *Deck Post Connectors*

The DTT2 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. The DTT2 can be used for laterally tying the deck to the house. Additionally, the versatile DTT2 is load rated as a holdown for light-duty shearwalls and braced wall panel applications. The DTT2 fastens easily to a single 2x joist or stud using Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws *(included)* and accepts a ½" machine bolt or anchor bolt.

The 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 stainless-steel DTT2 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 Heavy-Duty Connector screws *(included)*.

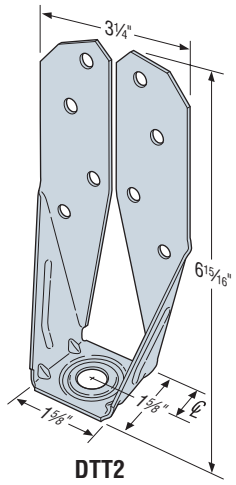
The DTT2Z-SDS2.5 is our standard DTT2Z packaged with 2½" Simpson Strong-Tie Strong-Drive SDS Heavy-Duty Connector screws instead of the standard 1½" fasteners. These longer screws allow the DTT2Z to achieve a higher capacity when used as a holdown on double S-P-F studs in a shearwall application. The 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

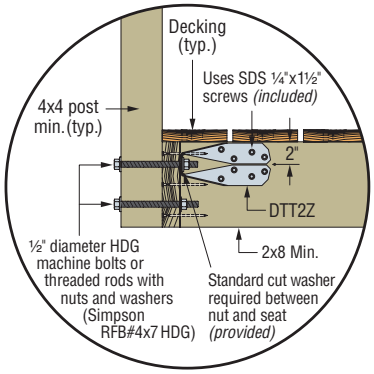
FINISH: DTT2Z—ZMAX® coating; DTT2SS—Stainless steel; see Corrosion Information, pages 14-17.

INSTALLATION: Use all specified fasteners. See General Notes.

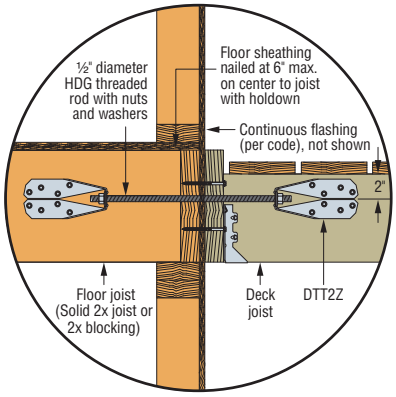
- A standard cut washer *(refer to General Notes)* must be installed between the nut and the seat.
- Strong-Drive SDS Heavy-Duty Connector screws install best with a low speed high torque drill with a ⅜" hex head driver.



DTT2



DTT2 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

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.	℄ (in)	Fasteners		Minimum Wood Thickness (in)	Factored Tensile Resistance (K_D = 1.15)		Deflection[3,4] at Factored Resistance
		Anchor Bolt Dia. (in)	Fasteners		D.Fir-L	S-P-F	
					lbs	lbs	in
					kN	kN	mm
DTT2Z/DTT2SS	13⁄16	½	8-SDS ¼"x1½"	1½	2805	2520	0.250
					12.48	11.21	6.35
				3	3060	2565	0.250
					13.61	11.41	6.35
DTT2Z-SDS2.5	13⁄16	½	8-SDS ¼"x2½"	3	3060	2950	0.250
					13.61	13.12	6.35

1. Factored resistances have been increased 15% for short term load duration. Reduce where other load durations govern.
2. Tension values are valid for holdowns flush or raised off of the sill plate.
3. Installations shown are for post to joist connections, however these products can be used as a holdown or tension tie for other applications. If used as a holdown or tension tie, the following apply:
   a. The designer must specify anchor bolt type, length and embedment to ensure adequate anchorage to concrete.
   b. When using structural composite lumber columns, screws must be applied to the wide face of the column.
   c. Post design shall be by the Designer. Tabulated values are based on a minimum wood member thickness in the direction of the fastener penetration. Post may consist of multiple 2x members provided they are designed to act as one unit independently of the holdown fasteners.
   d. Holdowns shall be installed centred along the width of the attached post.
   e. Deflection at Factored Resistance includes fastener slip, holdown elongation and anchor bolt elongation (L = 6"). Additional elongation of anchor bolts shall be accounted for by the Designer when the length of the anchor bolt above the top of the concrete to the attachment at the holdown is longer than 6". Similar consideration for floor to floor connections must be addressed by the Designer.
4. Deflection values may be reduced linearly for lesser loads including specified wind loads at h/500.

DPTZ *Deck Post Tie*

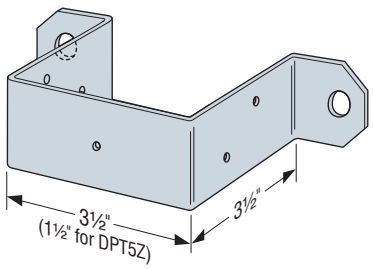
The DPTZ Deck Post Tie products are used to attach 2x4 (DPT5Z) or 4x4 (DPT7Z) vertical posts to the side of stringers, rims or other wood members.

MATERIAL: 14 gauge

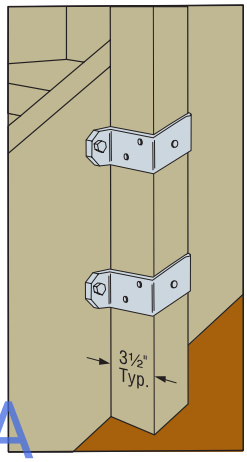
FINISH: ZMAX® coating; see Corrosion Information, pages 14-17.

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.



DPT7Z
(DPT5Z similar)



Typical DPT7Z Stairway Installation
(DPT5Z similar)

These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

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, pages 14-17.

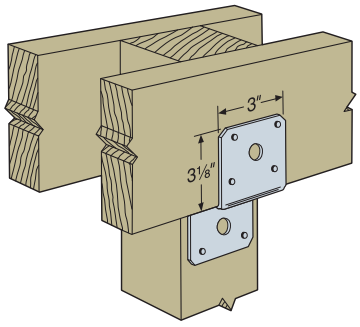
INSTALLATION: • Use specified HDG fasteners. See General Notes.
- Recommended: install on post first.
- Minimum 2x4 joist and 4x4 post.

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 Connector screw. See page 24 for more information.

Model No.	Ga	Fasteners	Factored Normal Resistance (K_D = 1.00) D.Fir-L lbs / kN	Factored Normal Resistance (K_D = 1.00) S-P-F lbs / kN
DJT14Z	14	8-16d	1925 / 8.56	1630 / 7.25
		2-⅝ Dia. MB	2295 / 10.21	1630 / 7.25

1. Resistances assume a dry service condition (K_{SF} = 1.00). Reduce values for other conditions as per 12.2.1.5 CSA O86-14.
2. Resistances shown are for one DJT14Z.
3. **NAILS:** 16d = 0.162" dia. x 3½" long. See pages 22-23 for other nail sizes and information.



Typical DJT14Z Installation

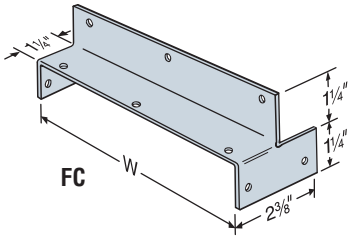
FC *Framing Clips*

For fast, accurate framing. Three-dimensional nailing pattern results in high-strength joint values. Ideal for fence construction.

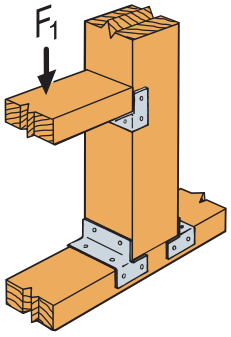
MATERIAL: 16 gauge **FINISH**: Galvanized

INSTALLATION: Use all specified fasteners. See General Notes.

Model No.	W (in)	Fasteners	F_1 Factored Resistance (K_D = 1.00) D.Fir-L lbs / kN	F_1 Factored Resistance (K_D = 1.00) S-P-F lbs / kN
FC4	3⁹⁄₁₆	8-16d	1415 / 6.30	1005 / 4.47
FC6	5½	10-16d	1415 / 6.30	1005 / 4.47



1. Resistances may be increased for other load durations as per code.
2. Multiply values by 0.67 for wet service conditions (K_{SF} = 0.67).
3. A 2½" minimum lumber thickness is required to achieve resistances shown.
4. **NAILS:** 16d = 0.162" dia. x 3½" long. See pages 22-23 for other nail sizes and information.



Typical FC Load Installation

ML *Angles*

The ML angle combines strength and versatility through the use of Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector 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

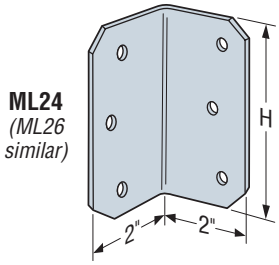
FINISH: ML24Z/ML26Z—ZMAX® coating; ML24SS/ML26SS—stainless steel; see Corrosion Information, pages 14-17.

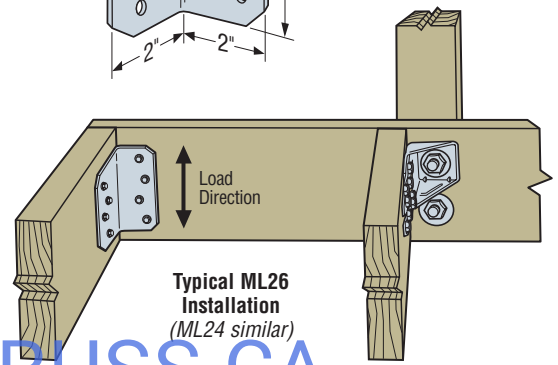
INSTALLATION: • Use all specified fasteners. See General Notes.
- ¼"x1½" Strong-Drive SDS Heavy-Duty Connector screws are not provided with the angle.

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.

Model	H (in)	Fasteners (Total)	Factored Normal Resistance (K_D = 1.00) D.Fir-L lbs / kN	Factored Normal Resistance (K_D = 1.00) S-P-F lbs / kN
ML24	4	6-SDS ¼"x1½"	765 / 3.40	550 / 2.45
ML26	6	8-SDS ¼"x1½"	1360 / 6.05	1160 / 5.16

1. Factored resistances may be increased 15% for short term load duration. Reduce where other load durations govern.
2. Multiply values by 0.67 for wet service conditions.





Typical ML26 Installation *(ML24 similar)*

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:

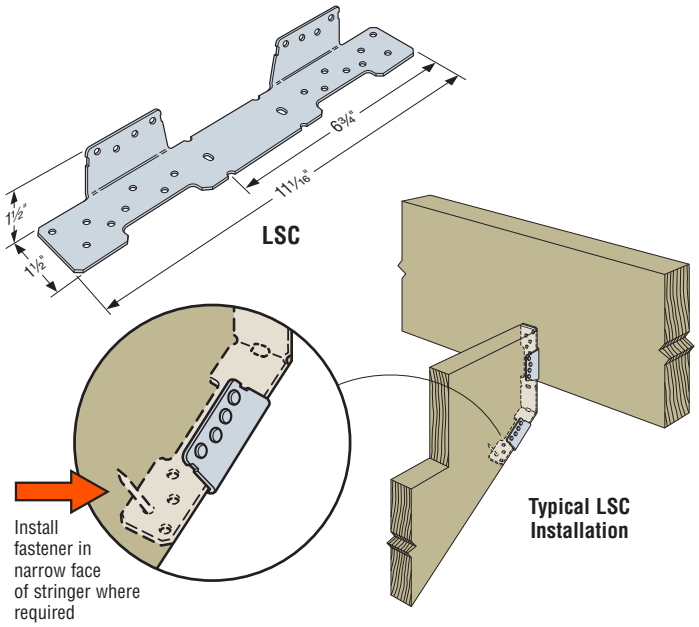
- Replaces additional framing and toe-nailing
- Suitable for most installations on 2x10 or 2x12 header/rim joist
- May be installed flush with the top of the carrying member or lower on the face
- Interchangeable for left or right applications
- LSCZ features a ZMAX® coating for additional corrosion 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:

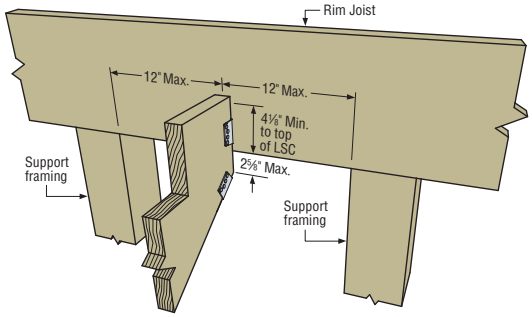
- Use all specified fasteners, see table.
- Before fastening, position the stair stringer with the LSC on the carrying member to verify where the bend should be located.
- Tabs on the LSC must be positioned to the inside of the stairs.
- The fastener that is installed into the bottom edge of the stringer must go into the second-to-last hole.



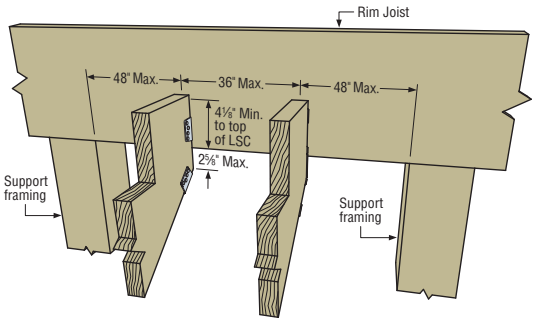
These products feature additional corrosion protection.

Model No.	Rim Joist Installation	Fasteners: Rim Joist	Fasteners: Stringer: Wide Face	Fasteners: Stringer: Narrow Edge	Factored Normal Resistance (K_D = 1.00): D.Fir-L	Factored Normal Resistance (K_D = 1.00): S-P-F
					lbs	lbs
					kN	kN
LSCZ	Supported[1,7]	8-10dx1½	8-10dx1½	1-10dx1½	1425	1040
					6.34	4.63
		8-SD#9x1½"	8-SD#9x1½"	—	1215	860
					5.40	3.83
	Standard[2]	8-10dx1½	8-10dx1½	1-10dx1½	1165	825
					5.18	3.67
		8-SD#9x1½"	8-SD#9x1½"	1-SD#9x1½"	1165	825
					5.18	3.67
	Cantilevered[5,6]	8-10dx1½	8-10dx1½	1-10dx1½	655	465
					2.91	2.07
		8-SD#9x1½"	8-SD#9x1½"	—	840	600
					3.74	2.67

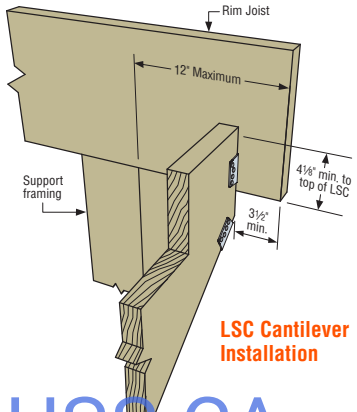
1. Supported installations require bearing supports within 12" of LSC.
2. Standard installations require bearing support within 4 ft. of LSC.
3. When cross grain tension forces cannot be avoided in the member, mechanical reinforcement to resist such forces may be considered.
4. A minimum distance of ¾" measured from the lowest rim joist fastener to edge of rim joist is required.
5. A minimum distance of 3½" measured from the LSC tabs to the end of the rim joist is required.
6. A maximum rim joist cantilever length of 12" measured from the face of the bearing support to the end of the rim joist is required to achieve the tablulated values.
7. Simpson Strong-Tie® Strong-Drive® SD#9x1½" Connector screws may be substituted for 10dx1½" nails to achieve the published nail values if the extra screw is installed in the narrow face of the stringer.
8. Tabulated values assume seasoned lumber and dry service conditions. Multiply values by 0.67 for wet service conditions.
9. **NAIL:** 10dx1½ = 0.148" dia. x 1½" long. Nails shall be hot-dip galvanized for LSCZ and stainless steel for LSCSS. See pages 22-23 for other nail sizes and information.
10. **SCREWS (LSCZ only):** SD#9x1½" *(model SD9112)* = 0.131" dia. x 1½" long *(see page 24)*.



Supported LSC Installation



Standard LSC Installation



LSC Cantilever Installation

TA *Staircase Angles*

For use in structurally-sound staircase framing. The TA eliminates costly conventional notching.

MATERIAL: 12 gauge

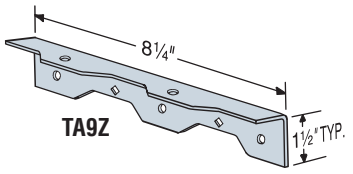
FINISH: TA9Z/TA10Z—ZMAX® coating; TA9SS/TA10SS—stainless steel; see Corrosion Information, pages 14-17.

ORDER: May be ordered TA9ZKT and TA10ZKT with two ZMAX TAs and ¼"x1½" Strong-Drive® SDS Heavy-Duty Connector screws.

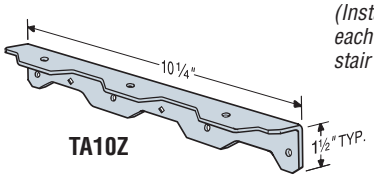
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Fasteners		Factored Resistance ($K_D = 1.00$)	
	Stringer	Tread	D.Fir-L	S-P-F
			lbs	lbs
			kN	kN
TA9Z	3-SDS ¼"x1½"	2-SDS ¼"x1½"	1025	945
			4.56	4.23
TA10Z	3-SDS ¼"x1½"	4-SDS ¼"x1½"	1025	1260
			4.56	5.60
TA10Z	4-SDS ¼"x1½"	3-SDS ¼"x1½"	1370	1260
			6.10	5.60

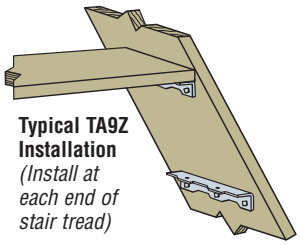
1. Values may be adjusted for other load durations according to code.
2. See page 25 for SDS information.
3. HDG ¼" lag screws may be used. Resistances must be calculated in accordance with CSA O86-14 but may not be greater than tabulated values. Predrill in accordance with code.
4. Values assume dry service conditions. Multiply values by 0.67 for wet service conditions.



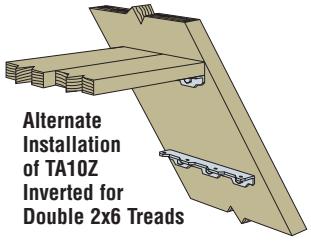
TA9Z



TA10Z



Typical TA9Z Installation *(Install at each end of stair tread)*



Alternate Installation of TA10Z Inverted for Double 2x6 Treads

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.

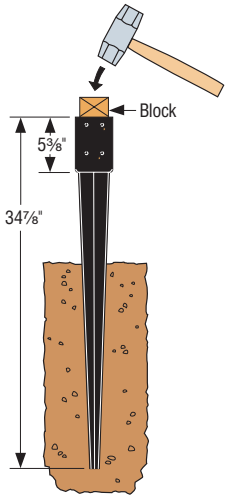
MATERIAL: 12 gauge

FINISH: Black powder-coat

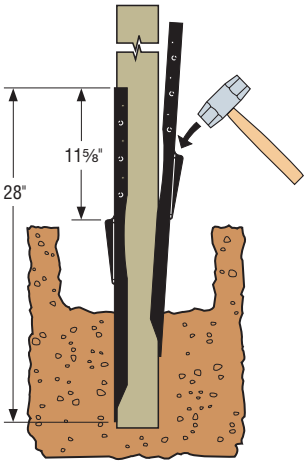
INSTALLATION:
- See flier F-EZFPP13.
- Attach post to E-Z Spike or E-Z Base with 8-¼" Strong-Drive® SDS Heavy-Duty Connector screws or ¼" HDG lag screws and attach post to E-Z Mender using 6 HDG nails or screws per part.

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.

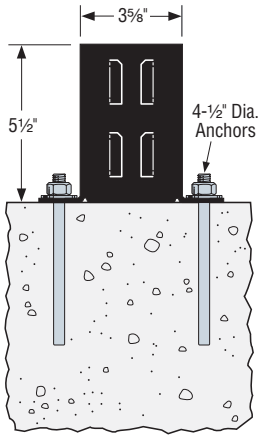
◤ *These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.*



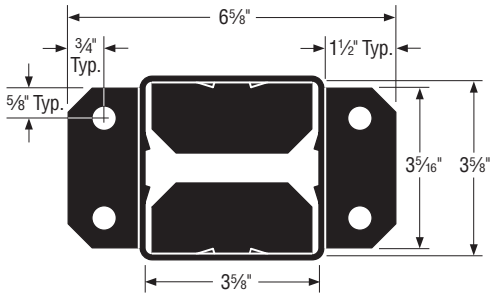
E-Z Spike™ (FPBS44)



E-Z Mender™ (FPBM44E)



E-Z Base™ (FPBB44)



E-Z Base™ (FPBB44) Top View

SIMPSON Strong-Tie®

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.

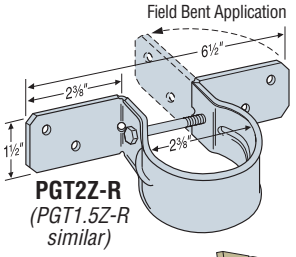
The PGT1.5Z-R is for 1½" pipe *(1⅞" outside diameter)*, and the PGT2Z-R for 2" pipe *(2⅜" outside diameter)*.

MATERIAL: 12 gauge

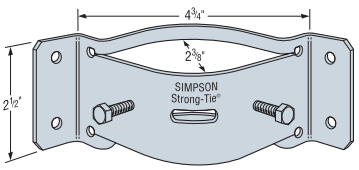
FINISH: ZMAX® coating, also available in G90.

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

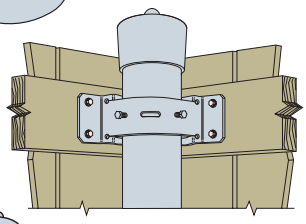
- PGTIC2Z-R to Post – Install two set screws *(supplied)* with ⅜ socket in predrilled holes.
- PGTIC2Z-R to Rails – Use Simpson Strong-Tie® ¼"x1½" Strong-Drive® SDS Heavy-Duty Connector screws *(not supplied)*.
- Install on vertical pipes, offsetting corners to allow for the correct rail alignment.
- 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 ¼"x1½" Strong-Drive SDS Heavy-Duty Connector screws *(not supplied)*. See page 25 for Strong-Drive SDS screw information.
- ¼" lag bolts may be used. Follow the code requirements for predrilling.
- Nail fence boards to rails.
- Field bend PGT flanges to fit corner and angled conditions *(bend one time only)*.



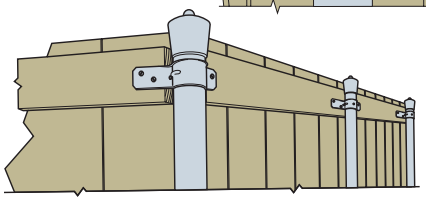
PGT2Z-R
(PGT1.5Z-R similar)



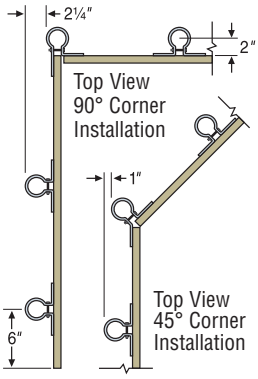
PGTIC2Z-R



Typical PGTIC2Z-R Fence Installation



Typical PGT2Z-R Fence Installation



Corner Installation Top View

PGT2E *Pipe-Grip Tie*

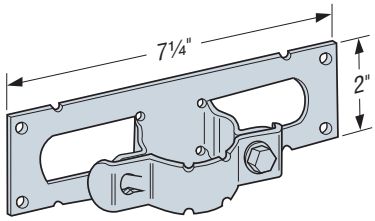
Simpson Strong-Tie introduces the latest time-saving solution for building fences with 2" steel posts. The PGT2E pipe-grip tie features a unique two-piece design that installs quickly and provides a solid connection between fence stringer and post. Snap the attachment plate onto the post for easy positioning 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

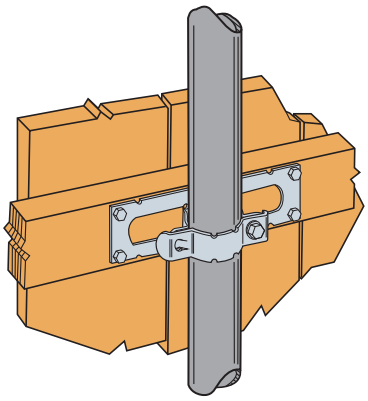
MATERIAL: 12 gauge **FINISH:** Galvanized

INSTALLATION:

- Fasten stringers using ¼" Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector 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, pages 14-17.

INSTALLATION: • Holes are sized for 8dx1½", 8d commons or Strong-Drive® SD9x1½" Connector screws into the supporting member.

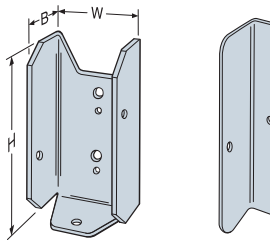
- FB24R is sized for 10dx1½" or Strong-Drive SD10x1½" Connector screws.
- FB26 is sized for Strong-Drive SD10x1½" Connector screws.

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.

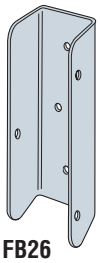
These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

Model No.	Ga	Member Size	Dimensions (in)		
			W	H	B
FB24Z	20	2x4	1⁹⁄₁₆	3⅜	¾
FB24R	20	2x4 RGH	2	3⅜	¾
FBR24	18	2x4	1⁹⁄₁₆	2⅞	1½
FB26	18	2x6	1⁹⁄₁₆	5"	1½

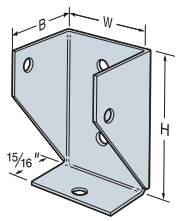
1. FB26 has a factored resistance for F_1 of 460 lbs (2.05kN).
2. FBR24: R = rail *(not rough)*.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long, 8d = 0.131" dia. x 2½" long, 8dx1½ = 0.131" dia. x 1½" long. See pages 22-23 for other nail sizes and information.



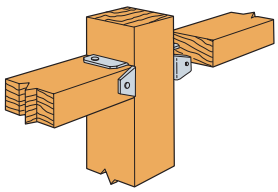
FB24Z
(FB24R Similar)



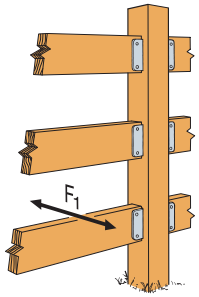
FB26



FBR24



Typical FB24Z Installation



Typical FB26 Fencing Installation

KBS1Z *Knee-Brace Stabilizer*

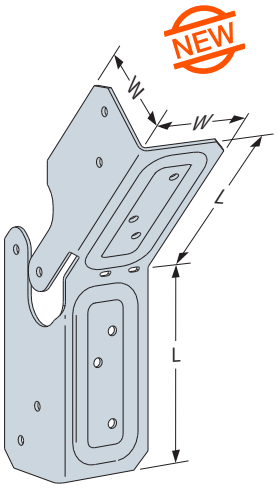
The KBS1Z knee-brace stabilizer makes a structural connection between knee bracing and columns or beams to help stabilize free-standing structures. Factory-formed at a 45° angle and easily installed with nails, the KBS1Z braces 2x, 4x and 6x in line post-to-beam configurations. Check with your local building department for deck bracing requirements.

MATERIAL: 16 gauge

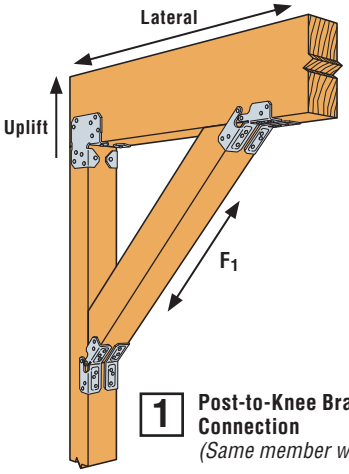
FINISH: ZMAX® coating

INSTALLATION:

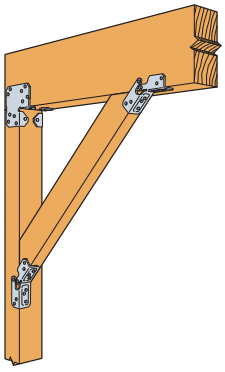
- Use all specified fasteners.
- For installations at an angle other than 45°, bend KBS1Z along slots to desired angle. Bend one time only.
- Knee Brace:
  - Cut braces at desired angle
  - Bend KBS1Z to desired angle if required
  - Install fasteners to secure in place
  - For equal-width members, install (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



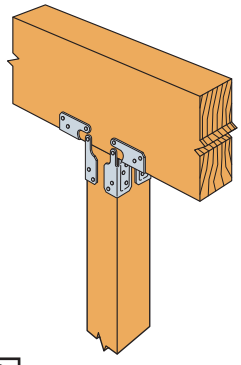
KBS1Z



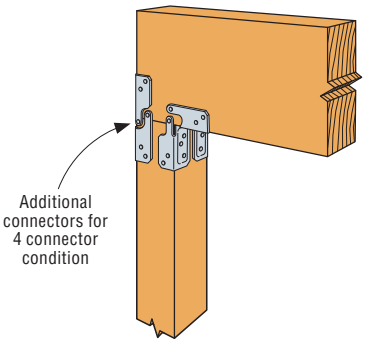
1 **Post-to-Knee Brace Connection**
(Same member width)



2 **Post-to-2x Knee Brace Connection**



3 **(Continuous) Beam-to-Post**



4 **End Beam-to-Post**

Model	Dimensions (in.)		Type of Connection	Connectors per Joint	Direction of Load	Fasteners per Connector	Factored Resistance (K_D = 1.15)	
	W	L					D.Fir-L	S-P-F
							lbs	lbs
							kN	kN
KBS1Z	1½	3	1	2	F_1 - Brace angle = 45°	12-8d	1765	1610
							7.85	7.16
					F_1 - Brace angle = 30° or 60°	12-8d	1285	1110
							5.72	4.94
			2	1	F_1 - Brace angle = 45°	12-8dx1½	745	685
							3.31	3.05
					F_1 - Brace angle = 30° or 60°	12-8dx1½	735	680
							3.27	3.02
			3	4	Uplift	12-8d	1750	1590
							7.78	7.07
					Lateral	12-8d	2415	2205
							10.74	9.81
			4	2	Uplift	12-8d	845	730
							3.76	3.25
					Lateral	12-8d	1255	1080
							5.58	4.80
				4	Uplift	12-8d	1550	1170
							6.90	5.20
					Lateral	12-8d	2290	1625
							10.19	7.23

1. Factored resistances have been increased 15% for short term load duration. No further increase is permitted.
2. For wet service conditions, multiply the tabulated values x 0.67.
3. For all braces installed at intermediate angles between 45° and 30° or 45° and 60°, interpolation between tabulated values may be used.
4. **NAILS:** 8d = 0.131" dia. x 2½" long, 8dx1½" = 0.131" dia. x 1½" long. See pages 22-23 for other nail sizes and information.

ABR/AE *Cross Laminated Timber Connectors*

SIMPSON Strong-Tie®

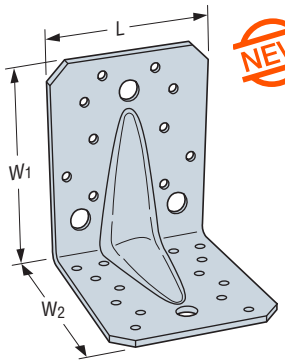
The AE and ABR heavy angles are used to transfer shear forces between CLT wall and floor panels. Both series of angles have been tested using SPF Cross Laminated Timber manufactured to ANSI/APA PRG 320 standard and can be installed using proprietary CNA ring-shank nails or Strong-Drive SD Structural Connector screws.

MATERIAL: See table

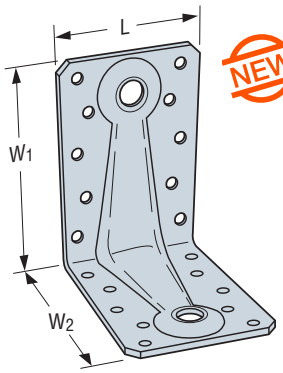
FINISH: Galvanized

INSTALLATION:

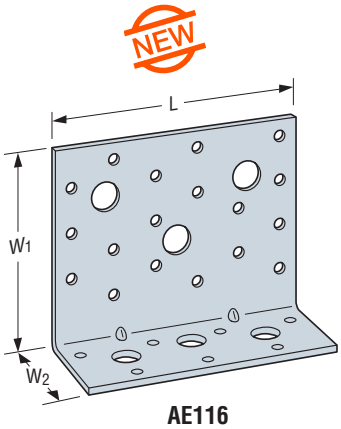
- Use all specified fasteners.
- Installation and fasteners schedule assumes platform framing. Install vertical leg at bottom edge of CLT wall panel and horizontal leg on CLT floor panel with 3⅞" minimum edge distance.



ABR105



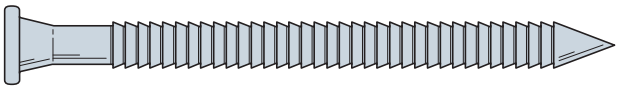
ABR9020



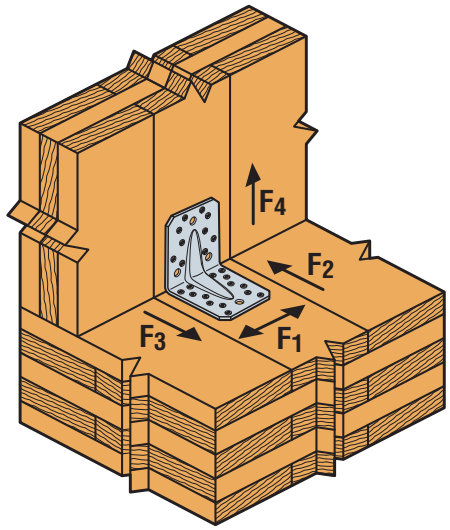
AE116

Model No.	Dimensions (mm)				Fasteners		Factored Resistance (K_D = 1.15)			
	t	W_1	W_2	L	Horizontal Leg	Vertical Leg	F_1	F_2	F_3	F_4
							lbs	lbs	lbs	lbs
							kN	kN	kN	kN
ABR9020	2	88	88	65	10-CNA4x60	10-CNA4x60	1525	510	1925	510
							6.78	2.27	8.56	2.27
					10-SD#10x2½	10-SD#10x2½	2320	1440	1925	1440
							10.31	6.41	8.56	6.41
ABR105	3	105	105	90	14-CNA4x60	10-CNA4x60	1885	500	3330	700
							8.38	2.23	14.81	3.12
					14-SD#10x2½	10-SD#10x2½	2735	1440	3330	2015
							12.16	6.41	14.81	8.97
AE116	3	90	48	116	7-CNA4x60	18-CNA4x60	2125	900	2125	350
							9.45	4.01	9.45	1.56
					7-SD#10x2½	18-SD#10x2½	2980	2140	2980	1010
							13.25	9.53	13.25	4.49

1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce where other load durations govern.
2. Factored resistances are based on Cross Laminated Timber manufactured to ANSI/APA PRG 320 using SPF material.
3. **NAILS:** CNA4x60 = 4.1 mm diameter x 60 mm long proprietary ring-shank nail.
4. **SCREWS:** SD#10x2½ *(model SD9212)* = 0.131" dia. x 2½" long.



CNA4 x 60



Typical ABR105 Installation
(Others similar)

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

- 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.

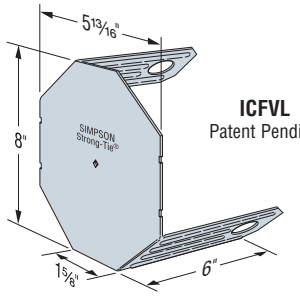
Wood Ledger Attachment – ICFVL-W or -CW

- Slip appropriate ledger connector underneath the ledger.
- Install the eight ICF-D3.62 (included) screws partially into the ledger.
- Position bottom of the ledger level to the chalk line and drive the screws through the wood and into the ICFVL.

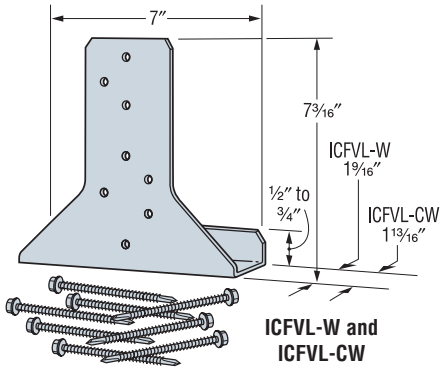
Steel Ledger Attachment

- Position bottom of 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.

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	Model No.	Factored Resistance Vertical lbs / kN	Factored Resistance Lateral lbs / kN
2x D.Fir-L/S-P-F	ICFVL w/ ICFVL-W	2820 / 12.56	3075 / 13.70
1¾" SCL	ICFVL w/ ICFVL-CW	2820 / 12.56	3075 / 13.70
Steel	ICFVL	2590 / 11.54	2470 / 11.00

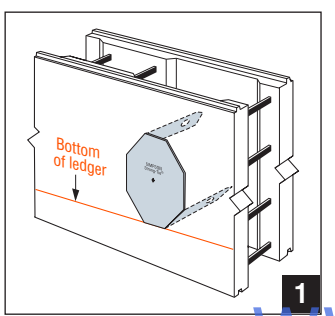
1. Minimum steel ledger specification is F_y = 33 ksi (230 Mpa) and F_u = 45 ksi (310 Mpa) in accordance with CSA S136-12.
2. No load duration increase allowed.
3. Minimum concrete compressive strength, f'_c 2500 psi (17.25 Mpa).
4. Connector spacing to be determined by the design professional up to a maximum of 4'-0".
5. Values shown apply to ICF foam thickness of 3¼" or less. Contact factory for values with thicker foam.
6. When combining vertical and lateral loads designer shall evaluate as follows: Vertical Load/Vertical Resistance + Lateral Load/Lateral Resistance ≤ 1.0.
7. The ICFVL must be installed no closer than 4" below the top of the wall to achieve the tabulated resistances shown. For installations where the ICFVL is installed less than 4" from the top of the wall *(including flush applications)* multiply the factored resistances by 0.94.

This tables address vertical load applications for ICF foam thickness of 3¼" or less only.

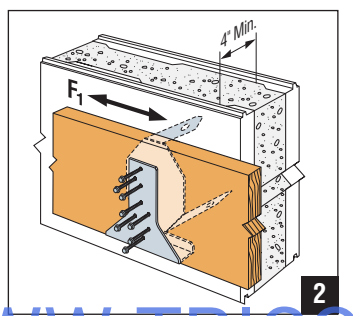
Ledger Type	Connector Type	ICFVL SPACING TO REPLACE ANCHOR BOLTS (in)[1,2,3] ½" Dia. Anchors at 12" o.c.	½" Dia. Anchors at 24" o.c.	½" Dia. Anchors at 36" o.c.	½" Dia. Anchors at 48" o.c.	⅝" Dia. Anchors at 12" o.c.	⅝" Dia. Anchors at 24" o.c.	⅝" Dia. Anchors at 36" o.c.	⅝" Dia. Anchors at 48" o.c.	(2)-⅝" Dia. Anchors at 12" o.c.	(2)-⅝" Dia. Anchors at 24" o.c.	(2)-⅝" Dia. Anchors at 36" o.c.	(2)-⅝" Dia. Anchors at 48" o.c.	¾" Dia. Anchors at 12" o.c.	¾" Dia. Anchors at 24" o.c.	¾" Dia. Anchors at 36" o.c.	¾" Dia. Anchors at 48" o.c.
WOOD LEDGERS																	
2x D.Fir-L/S-P-F	ICFVL w/ ICFVL-W	48	48	48	48	38	48	48	48	19	38	48	48	34	48	48	48
1¾" SCL	ICFVL w/ ICFVL-CW	48	48	48	48	34	48	48	48	17	34	48	48	28	48	48	48
STEEL LEDGERS																	
16 ga (0.060")	ICFVL	20	40	48	48	16	32	48	48	—	—	—	—	—	—	—	—
14 ga (0.057")	ICFVL	16	32	48	48	13	26	39	48	—	—	—	—	—	—	—	—

1. The Designer may specify different spacing based on the load requirements. It is recommended to space the components at multiples of the joist spacing to help reduce the chance of interference with joist hangers.
2. Spacings are based on perpendicular to grain capacity of bolt in wood ledger compared to tested value of ICFVL.
3. See F-ICFVL flier for additional connection details.
4. For steel ledgers, the 14 ga spacing is closer than the 16 ga ledger due to the calculated resistance of a bolt being higher when using a thicker piece of steel.
5. Steel ledger values are based on steel. F_u = 45ksi (310 Mpa).
6. The ICFVL must be installed no closer than 4" below the top of the wall to achieve the connector spacings shown. For installations where the ICFVL is installed less than 4" from the top of the wall *(including flush applications)* multiply the connector spacings by 0.94.

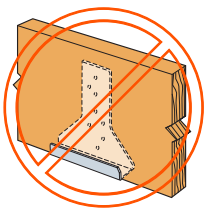
Typical Steel Ledger Installation with ICFVL
(minimum 16 ga steel ledger)



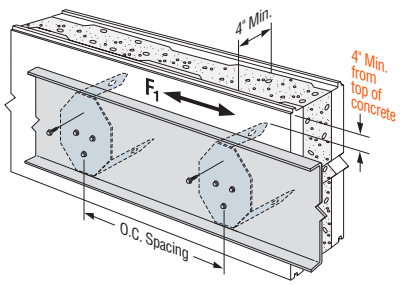
ICFVL



Typical Wood Ledger Installation with ICFVL and ICFVL-W



MISINSTALLATION!



Requires 4 screws at each location. Table provides on center spacing.

ICFVL *Ledger Connector System*

The following spacing tables are an alternative to the ICFVL spacing to replace the building code prescribed anchor bolts spacing for vertical loads only. They provide the recommended spacing of the ICFVL Ledger Connectors based on the Factored Vertical Resistance of the connector, the load on the floor, and the span of the joist. The Designer must determine the design load, the ledger design, and the joist design. This table is useful if the Designer already has loads and spans, but not necessarily anchor bolt spacing.

ICFVL Spacing for Wood Ledger (in)

Specified Load (psf)		Joist Span (ft)											
Live	Dead	10	12	14	16	18	20	22	24	26	28	30	32
40	10	48	48	48	46	41	37	33	31	28	26	24	23
	15	48	48	48	42	38	34	31	28	26	24	22	21
	20	48	48	45	39	35	31	28	26	24	22	21	19
	25	48	48	42	37	32	29	26	24	22	21	19	18
	30	48	46	39	34	30	27	25	23	21	19	18	17
50	10	48	48	44	38	34	30	28	25	23	22	20	19
	20	48	45	38	33	30	27	24	22	20	19	18	16
	30	48	40	34	30	26	24	21	20	18	17	16	15
	40	43	36	30	27	24	21	19	18	16	15	14	13
100	10	33	27	23	20	18	16	15	13	12	—	—	—
	20	30	25	22	19	17	15	14	12	—	—	—	—
	30	28	24	20	18	16	14	13	12	—	—	—	—
	40	27	22	19	16	15	13	12	—	—	—	—	—

See notes below.

Values in the cells highlighted in yellow represent the maximum allowable spacing of 48".

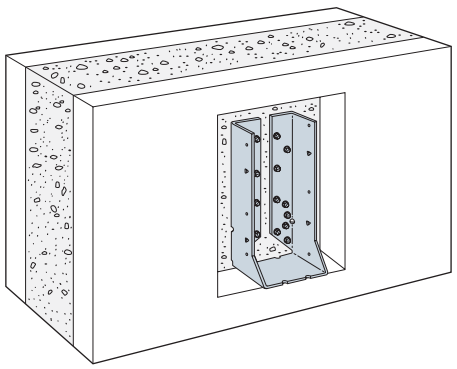
ICFVL Spacing for Steel Ledger (in)

Specified Load (psf)		Joist Span (ft)											
Live	Dead	10	12	14	16	18	20	22	24	26	28	30	32
40	10	48	48	48	42	38	34	31	28	26	24	22	21
	15	48	48	45	39	35	31	28	26	24	22	21	19
	20	48	48	41	36	32	29	26	24	22	20	19	18
	25	48	45	38	34	30	27	24	22	20	19	18	17
	30	48	42	36	31	28	25	23	21	19	18	17	15
50	10	48	47	40	35	31	28	25	23	21	20	18	17
	20	48	41	35	31	27	24	22	20	19	17	16	15
	30	44	36	31	27	24	22	20	18	17	15	14	13
	40	39	33	28	24	22	19	18	16	15	14	13	12
100	10	30	25	21	19	17	15	13	12	—	—	—	—
	20	28	23	20	17	15	14	12	—	—	—	—	—
	30	26	22	18	16	14	13	12	—	—	—	—	—
	40	24	20	17	15	13	12	—	—	—	—	—	—

1. Values shown are maximum spacing distances (inches) based on 2-span ledger and simple supported joists. It does not consider concentrated loads. The engineer of record can modify the spacing accordingly for other conditions.
2. Joist and ledger are to be designed by others.
3. Table above address vertical loads only. If connection is designed to resist lateral loads, spacing will decrease. Contact Simpson Strong-Tie for current information.
4. The ICFVL must be installed no closer than 4" below the top of wall to achieve the connector spacing.
5. The maximum distance between the end of the ledger and the first ICFVL is 12" as per the recommended splicing installation.
6. Tables above assume Principal Loads only with Importance Factor = 1.00. For other cases adjust spacing accordingly.

Alternative Retrofit Solution for Direct Attachment of Joist to Wall

The HU and HUC hangers are heavy duty face mount joist hangers made from 14-gauge galvanized steel. These hangers can be directly attached to concrete wall using ¼"x1¾" Simpson Strong-Tie® Titen® hex head screws. See page 200 for more information on installation and use.



HUC410 Installed on face of concrete in ICF

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. 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 & 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, pages 14-17.

INSTALLATION:

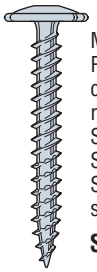
- Use all specified fasteners. See General Notes.
- Install vertical members first, then attach horizontal members for easier alignment.
- Seat wood member in bracket with a C-clamp before securing to aid positioning and prevent skewing.
- Always follow manufacturer's instructions when using power tools and building equipment.

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 Connector screw. See page 24 for more information.

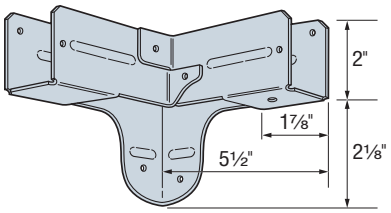
Model No.	Post Size	Joist Size	Fasteners (Total)		Factored Normal Resistance (K_D=1.00)	
			Post	Joist	D.Fir-L	S-P-F
					lbs	lbs
					kN	kN
FWH2	2x	2x	8-SD8x1.25	8-SDSx1.25	—	—
					—	—
RTA12	1x	1x	4-SD8x1.25	4-SD8x1.25	—	—
					—	—
RTA2Z	2x	2x	4-SD8x1.25	4-SD8x1.25	—	—
					—	—
RTA4	4x	4x	7-SD8x1.25	5-SD8x1.25	—	—
					—	—
RTB22	2x	2x	4-SD8x1.25	4-SD8x1.25	—	—
					—	—
RTC22Z	2x	2x	5-SD8x1.25	6-SD8x1.25	—	—
					—	—
NEW RTC2Z	2x4	2x	6-SD8x1.25	6-SD8x1.25	1080	985
					4.80	4.38
RTC42	4x4	2x	14-SD8x1.25	8-SDSx1.25	1905	1750
					8.47	7.78
	4x4	2x	14-10d	8-10dx1½	2700	2480
					12.01	11.03
RTC44	4x4	4x	14-10d	15-10d	3190	2980
					14.19	13.26
RTF2Z	2x	2x	4-SD8x1.25	8-SDSx1.25	—	—
					—	—
RTT22	2x	2x	3-SD8x1.25	7-SD8x1.25	—	—
					—	—
RTR	2x	2x	2-SD8x1.25	4-SD8x1.25	—	—
					—	—
RTU2	2x	2x	2-SD8x1.25	4-SD8x1.25	—	—
					—	—

1. Factored loads must be equally distributed on both joists.
2. Factored resistances 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 pages 22-23 for other nail sizes and information.



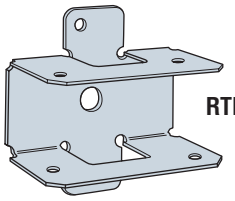
Most Rigid-Tie connectors require Simpson Strong-Tie® Strong-Drive® screws.

SD8X1.25

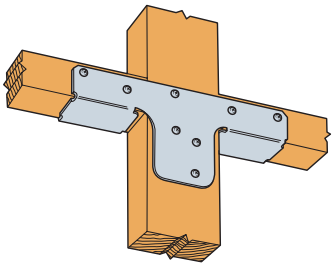


RTC2Z
(RTC22 similar)

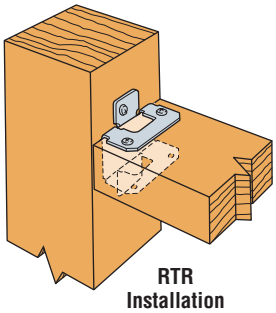
WARNING: Industry studies show that hardened fasteners can experience performance problems in wet and corrosive environments. Accordingly, use the SD8X1.25 screw in dry, interior, and non-corrosive environments only.



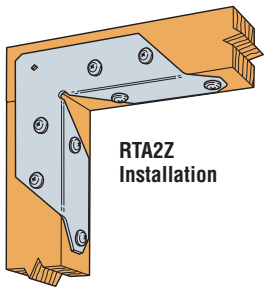
RTR



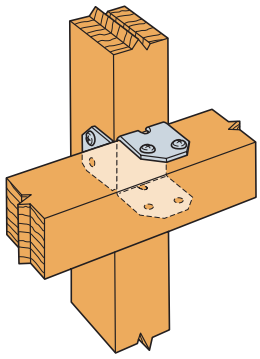
RTF2Z Installation



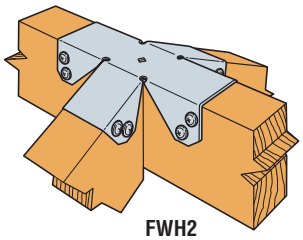
RTR Installation



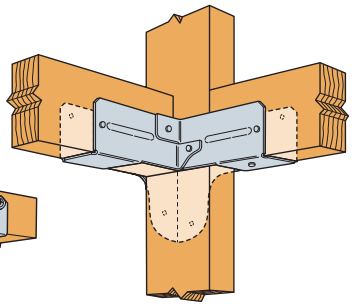
RTA2Z Installation



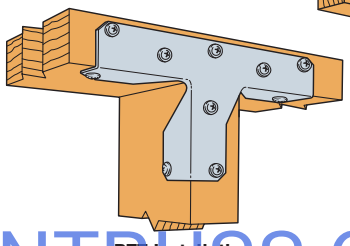
RTB22 Installation



FWH2 Installation



Typical RTC2Z Installation



RTT Installation

NS/NSP/PSPNZ *Nail Stoppers*

Nail Stoppers help prevent nails from piercing water pipes and electrical lines. Installed over utilities that pass through framing members.

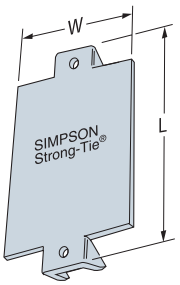
MATERIAL: 16 gauge

FINISH: Galvanized, PSPN–ZMAX® coating, see Corrosion Information, pages 14-17.

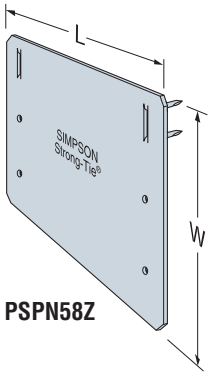
INSTALLATION: • NS/NSP/PSPN58Z—8d commons or prongs.
- PSPN516Z—16d commons
- For more information request F-PLUMBING.

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.

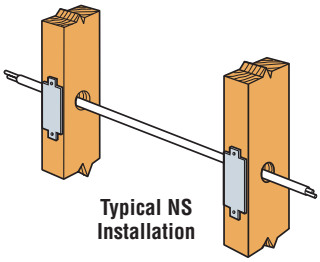
Model No.	W	L
NS1	1½	3
NS2	1½	6
PSPN58Z	5	8
PSPN516Z	5	16

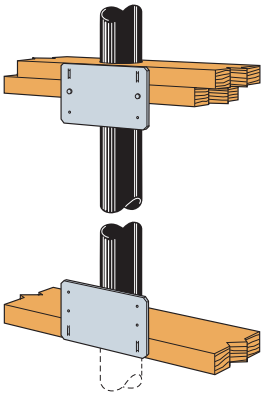


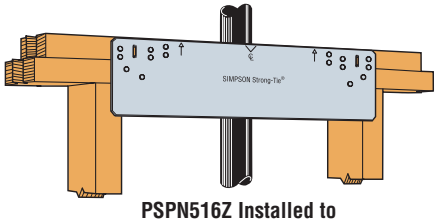
NS



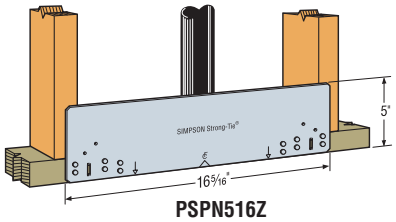
PSPN58Z


Typical NS Installation


Typical PSPN58Z Installation



PSPN516Z Installed to Double Top Plates



PSPN516Z Installation to Sill Plate

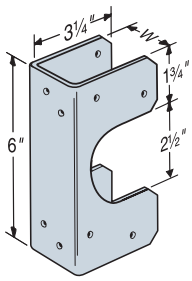
HSS/SS *Stud Shoes*

Stud Shoes reinforce studs notched in construction. They are NOT a total replacement of removed material.

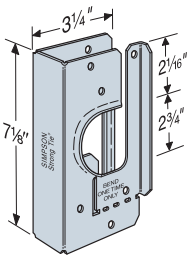
HSS2-3 is designed for triple 2x studs. HSS Stud Shoes provide tension resistances as well as increased compression resistances. Flared flange provides greater strength. Installs over pipe up to 2⅜" outside diameter.

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.

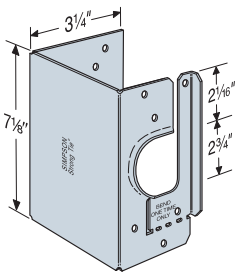


SS



HSS

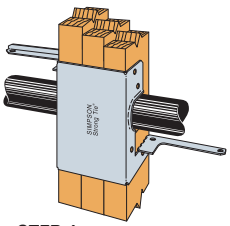
US Patent 6,176,057

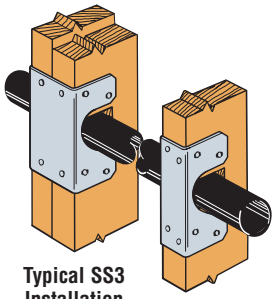


HSS2-3

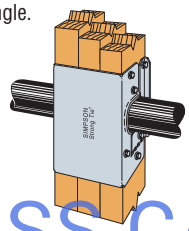
Model No.	Stud Size	Fasteners	Factored Resistance			
			D.Fir-L		S-P-F	
			Compresion (K_D = 1.00)	Tension (K_D = 1.15)	Compresion (K_D = 1.00)	Tension (K_D = 1.15)
			lbs	lbs	lbs	lbs
			kN	kN	kN	kN
SS1.5	2x	12-10dx1½	875	—	620	—
			3.89	—	2.76	—
SS2.5	3x	12-10dx1½	1170	—	920	—
			5.20	—	4.09	—
SS3	2-2x	12-10d	1255	—	970	—
			5.58	—	4.31	—
SS4.5	3-2x	14-10d	1375	—	975	—
			6.12	—	4.34	—
HSS2-SDS1.5	2x	12-¼"x1½" SDS	1860	1450	1430	1040
			8.27	6.45	6.36	4.63
HSS2-2-SDS3	2-2x	12-¼"x3" SDS	1980	1370	1425	990
			8.81	6.09	6.34	4.40
HSS2-3-SDS3	3-2x	12-¼"x3" SDS	1635	1370	1175	990
			7.27	6.09	5.23	4.40
HSS4-SDS3	4x	12-¼"x3" SDS	1995	1370	1435	990
			8.87	6.09	6.38	4.40

1. Factored compression resistances cannot be increased for short term load durations.
2. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.


STEP 1
Install HSS *(HSS2-3 shown)* over stud with flanges bent at a 90° angle.


Typical SS3 Installation

Typical SS1.5 Installation


STEP 2
Bend HSS *(HSS2-3 shown)* flanges one time only. Screw into position.

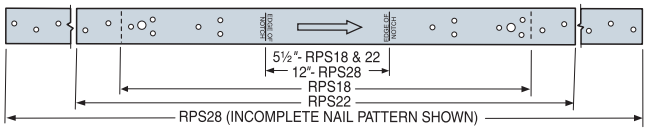
RPS *Strap Ties*

The RPS can be used to reinforce notches in wall plates for HVAC and pipe penetrations in walls.

FINISH: Galvanized, some products available in ZMAX® coating. See Corrosion Information, pages 14-17.

INSTALLATION: Use all specified fasteners. See General Notes.

- Use RPS22 or RPS28 (16 gauge) to reinforce top plate.
- Use RPS18Z, RPS22Z or RPS28Z (16 gauge ZMAX) to reinforce sill plate.

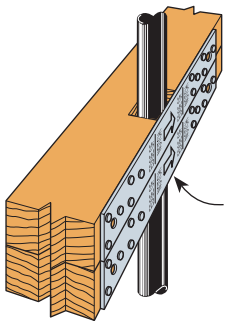


RPS

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	Dimensions (in) L	Notch Width	Fasteners (Total)	Factored Tensile Resistance D.Fir-L (K_D=1.00)	D.Fir-L (K_D=1.15)	S-P-F (K_D=1.00)	S-P-F (K_D=1.15)
						lbs	lbs	lbs	lbs
						kN	kN	kN	kN
RPS18	16	1½	18⁵⁄₁₆	≤ 5½"	12-8d	1155	1325	1075	1240
						5.14	5.90	4.79	5.52
RPS22		1½	22⁵⁄₁₆	≤ 5½"	16-8d	1535	1770	1435	1650
						6.84	7.88	6.39	7.35
RPS28		1½	28⁵⁄₁₆	≤ 12"	12-8d	1155	1325	1075	1240
						5.14	5.90	4.79	5.52

1. Factored resistances have been increased 15% for earthquake or wind loading. No further increase is permitted.
2. **NAILS:** 8d = 0.131" dia. x 2½" long. See pages 22-23 for other nail sizes and information.



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 code requirements)

CTS218 *Compression and Tension Straps*

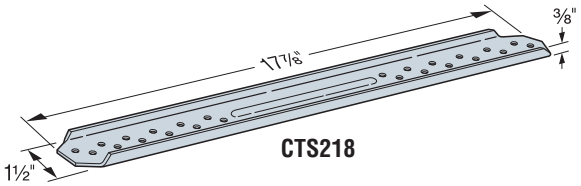
The CTS218 is designed to repair wood members such as top plates, studs and trusses and is our first strap that handles both tension and compression loads. The unique rolled edges of the strap allow it to span gaps as wide as 4½" and its 1½" width enables installation on the narrow face of 2x lumber.

- Tested specifically for top/bottom plate repair with various multi-strap configurations

MATERIAL: 14 gauge **FINISH**: Galvanized

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

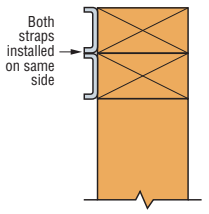
- **One-sided installations** – install one or two CTS straps on the same side of the member.
- **Two-sided installation** – install CTS straps on opposite sides of member. For three-part installations, install two parts on one side, one part on opposite side.



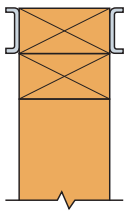
CTS218

These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

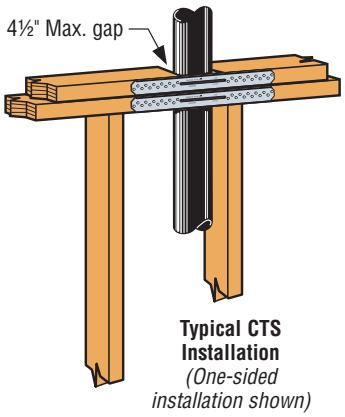
Model No.	Strap Qty.	Installation	Fasteners (per strap)	Factored Resistance (K_D=1.15) D.Fir-L Compression	D.Fir-L Tension	S-P-F Compression	S-P-F Tension
				lbs	lbs	lbs	lbs
				kN	kN	kN	kN
CTS218	1	One Sided	24-10dx1½	1485	1985	1055	1985
				6.61	8.83	4.69	8.83
	2	One Sided		2970	3970	2110	3970
				13.21	17.66	9.39	17.66
	2	Two Sided		3440	3970	2445	3970
				15.30	17.66	10.88	17.66
	3	Two Sided		5405	5955	3840	5955
				24.04	26.49	17.08	26.49
	4	Two Sided		6880	7940	4890	7940
				30.60	35.32	21.75	35.32
	1	One Sided	24-SD#9x1½	1705	1985	1210	1985
				7.58	8.83	5.38	8.83
	2	One Sided		3410	3970	2420	3970
				15.17	17.66	10.77	17.66
	2	Two Sided		3970	3970	2820	3970
				17.66	17.66	12.54	17.66
	3	Two Sided		5995	5955	4255	5955
				26.67	26.49	18.93	26.49
	4	Two Sided		7940	7940	5640	7940
				35.32	35.32	25.09	35.32



One-Sided Installation



Two-Sided Installation



Typical CTS Installation
(One-sided installation shown)

1. Factored resistances have been increased 15% 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 pages 22-23 for other nail sizes and information.

PSCL/PSCA *Panel Sheathing Clips*

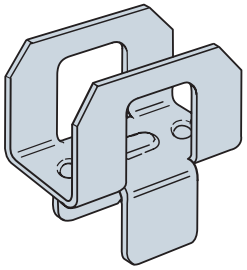
Simpson Strong-Tie® Panel Sheathing Clips are used to brace unsupported sheathing edges. The PSCA is a new version of the PSCL with less material for a more cost effective solution. Model sizes include: PSCL3/8, PSCA7/16, PSCL7/16, PSCA15/32, PSCL15/32, PSCL1/2, PSCL5/8, PSCL19/32, PSCL3/4.

MATERIAL: 20 gauge **FINISH**: Galvanized

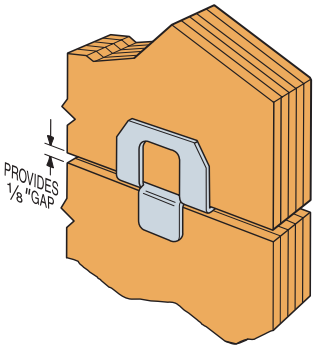
INSTALLATION: • Use the same size sheathing clip as the panel thickness.

Model No.	Panel Thickness
PSCL3/8	3/8
PSCL7/16, PSCA7/16	7/16
PSCL15/32, PSCA15/32	15/32
PSCL1/2	1/2
PSCL5/8	5/8
PSCL19/32	19/32
PSCL3/4	3/4

1. PSCLs and PSCAs meet the requirements of 9.23.16.6 NBC 2015 for required edge support of panel type sheathing.



PSCL
(PSCA smilar)



Typical PSCL Installation

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 any rafter sloped up to 30°.

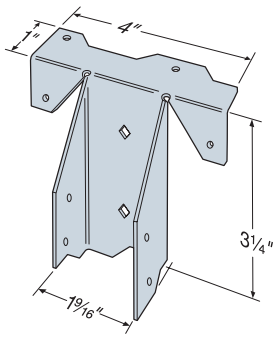
MATERIAL: 18 gauge **FINISH**: Galvanized

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

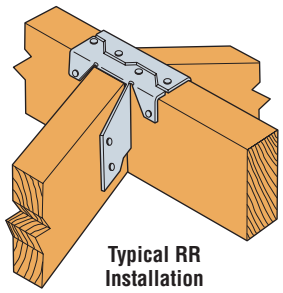
These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

Model No.	Joist Size	Fasteners		Factored Resistance			
				D.Fir-L		S-P-F	
		Header	Joist	Uplift (K_D=1.15) lbs kN	Normal (K_D=1.00) lbs kN	Uplift (K_D=1.15) lbs kN	Normal (K_D=1.00) lbs kN
RR	2x6	4-10dx1½	4-10dx1½	185 0.82	685 3.05	130 0.58	490 2.18

1. Factored uplift resistances have been increased 15% for wind loading. No further increase is allowed.
2. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See pages 22-23 for other nail sizes and information.



RR



Typical RR 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 labour.

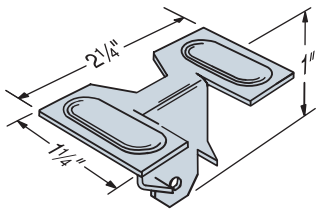
The installation prongs provide even more labour savings.

MATERIAL: 20 gauge

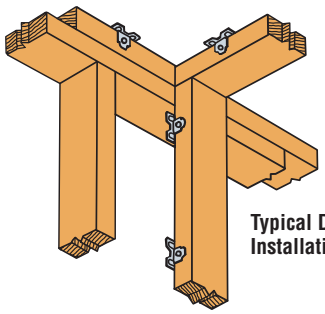
FINISH: Galvanized

INSTALLATION:

- 16" on center or less, using 8d commons.
- DS should not be used where gypsum board is used for structural loads.



DS



Typical DS Installation

BT *Brick Ties*

Brick Ties provide a connection between the wood structure and brick façade.

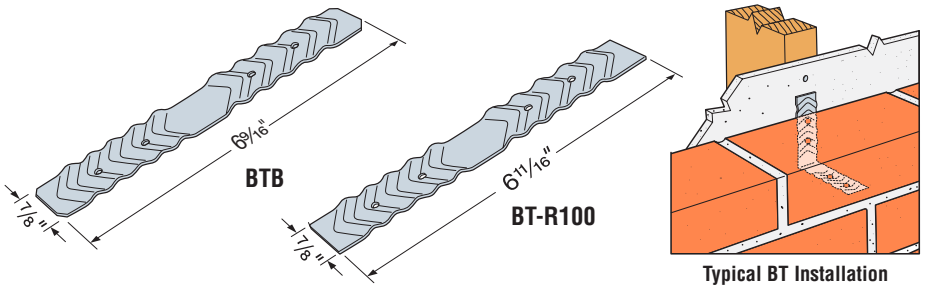
MATERIAL: 22 gauge

FINISH: Galvanized

INSTALLATION:

- Holes sized for 10d commons.
- See code for spacing and installation requirements.

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.

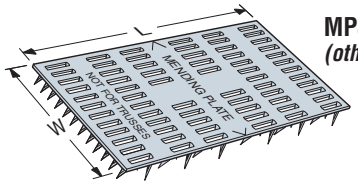
MATERIAL: 20 gauge **FINISH:** Galvanized

INSTALLATION:

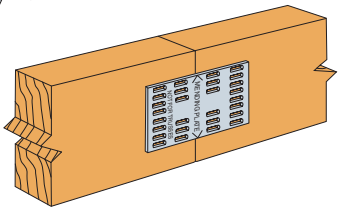
- Place plate over two pieces of aligned wood with arrows aligned at joint.
- Hammer the plate to embed the prongs.

Model No.	Dimensions (in)	
	W	L
MP14	1	4
MP24	2	4
MP36	3	6

1. Connectors are not load rated.



MP36
(other sizes similar)



Typical MP Installation

TP/TPA *Tie Plates*

TPs are nail-on tie plates. TPAs are flanged for added support.

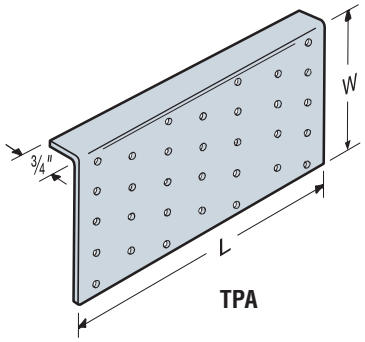
MATERIAL: 20 gauge **FINISH:** Galvanized

INSTALLATION: • Holes are sized for 8d common or 8dx1½" nails.

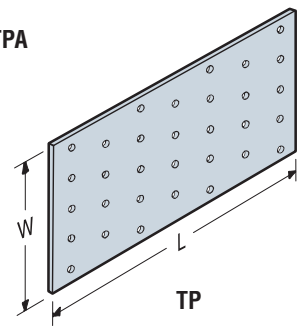
These products are approved for installation with the Strong-Drive® SD Connector screw. See page 24 for more information.

Model No.	Dimensions (in)		Number of Nail Holes
	W	L	
TP15	1 13⁄16	5	13
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.



TPA



TP

WB/WBC/TWB/RCWB *Wall Bracing*

Simpson Strong-Tie® Wall Bracing products offer effective options to resist racking during construction. 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

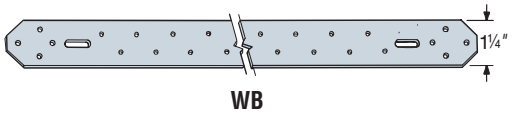
INSTALLATION: • Use all specified fasteners. See General Notes.

WB and WBC:

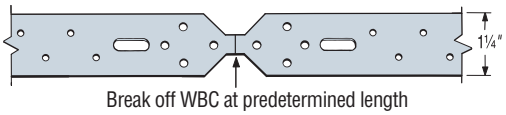
- Install in "X" pairs or in opposing "V" fashion.
- Use with 16" or 24" o.c. 2x4 (min.) studs.

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.

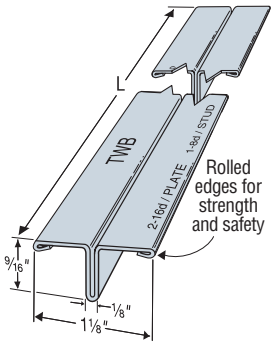


WB

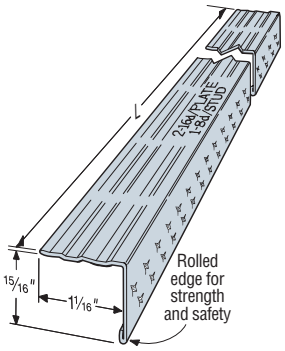


Break off WBC at predetermined length

WBC



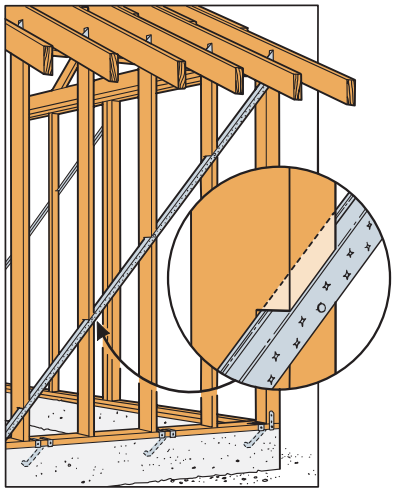
TWB



RCWB

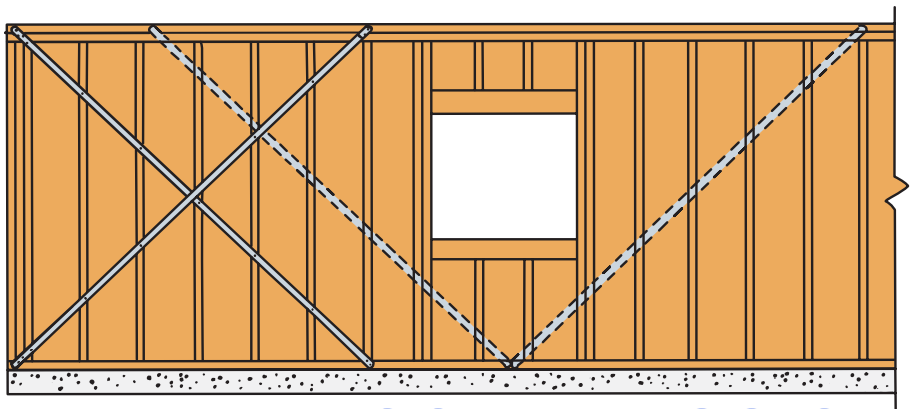
Model No.	L	Angle and Wall Height	Fasteners	
			Plates	Studs
WB106	9'-5⅝"	8' @ 60	2-16d	1-8d
WB106C	9'-6"	8' @ 60	2-16d	1-8d
TWB10	9'-9"	8' @ 55	2-16d	1-8d
RCWB12	11'-4"	8' @ 45	2-16d	1-8d
WB126	11'-4⅜"	8' @ 45	2-16d	1-8d
WB126C	11'-4¾"	8' @ 45	2-16d	1-8d
TWB12	11'-4"	8' @ 45	2-16d	1-8d
RCWB12	11'-4"	9' @ 53	2-16d	1-8d
WB126	11'-4⅜"	9' @ 53	2-16d	1-8d
WB126C	11'-4¾"	9' @ 53	2-16d	1-8d
TWB12	11'-4"	9' @ 53	2-16d	1-8d
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 pages 22-23 for other nail sizes and information.



Typical RCWB Installation

The WBC Handy Carry Carton is convenient to store, transport and use.



WB or WBC Wall Bracing "X" and "V" Applications

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.

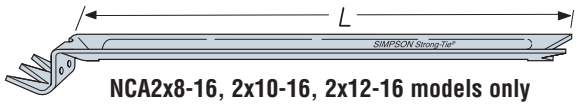
LTB—Staggered nail pattern accommodates 2x8 and 2x10 joists. Use just two of the six nail holes at each end. LTB40 has rigid prongs that install easily into the joist, and embossments that allow crisp bends.

MATERIAL: LTB—22 gauge; NCA and TB—20 gauge *(except NCA2x12-16—18 gauge)*.

FINISH: Galvanized

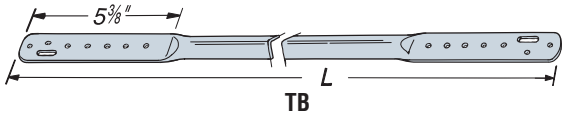
INSTALLATION:
- Support floor joists with a depth-to-thickness ratio of six or more with bridging at intervals not exceeding 8'. If span is greater than 8', install on 2x8 or larger joists. If span is greater than 16', use more than one pair.
- Tension bridging works only in tension, so must be used 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.
- **Nail Bridging Only**—When installation for the connection to the top of the stud wall instead of the joist underside, use a strap one size smaller than shown in the table.

Space bridging to avoid contact noises.

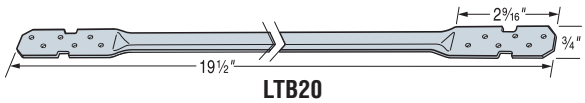


NCA2x8-16, 2x10-16, 2x12-16 models only

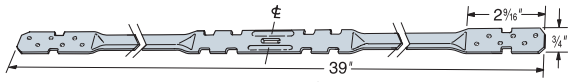
NCA



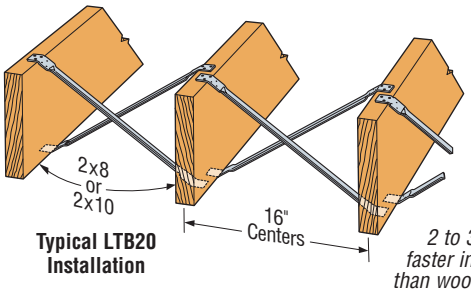
TB



LTB20

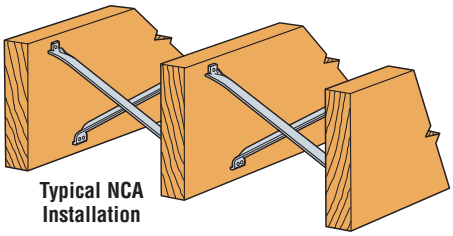


LTB40

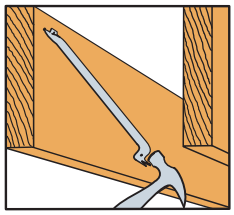


Typical LTB20 Installation

2 to 3 times faster installation than wood bridging.



Typical NCA Installation



Install from below as shown, or from above. Drive upper end into joist approximately 1" from the top.

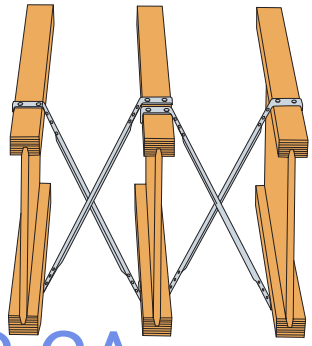
TENSION BRIDGING FOR I-JOISTS

Joist Height (in)	Joist Spacing (in)								
	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

TENSION BRIDGING FOR SOLID SAWN LUMBER

Joist Size	Spacing	NCA		TB		LTB
		Model No.	L (in)	Model No.	L (in)	Model No.
2x10	12" o.c.	NCA2x10-12	12½	TB20	20	—
2x12	12" o.c.	NCA2x12-12	13⅝	TB20	20	—
2x14	12" o.c.	NCA2x8-16	15¼	TB27	27	—
2x16	12" o.c.	NCA2x10-16	15¹³⁄₁₆	TB27	27	—
2x8	16" o.c.	NCA2x8-16	15¼	TB27	27	LTB20 or 40
2x10	16" o.c.	NCA2x10-16	15¹³⁄₁₆	TB27	27	LTB20 or 40
2x12	16" o.c.	NCA2x12-16	16⅞	TB27	27	—

For all bridging avoid contact between steel members *(this may cause squeaks)*.



Typical TB Installation

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 catalogue.

- **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.

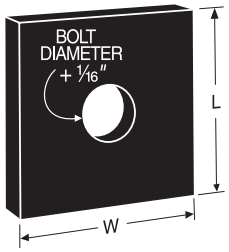
Products shown in this section come with textured flat black powder-coat unless otherwise noted. Most are also available with a galvanized coating or gray primer. Contact Simpson Strong-Tie for availability.

www.strongtie.com/apg

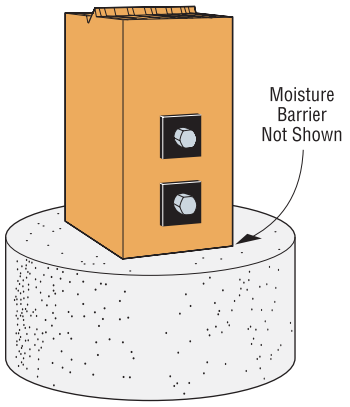
BP – BEARING PLATES

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.

Model No.	Thickness (in)	Dimensions (in)		Bolt Dia. (in)
		W	L	
BP½PC	3/16	2	2	½
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

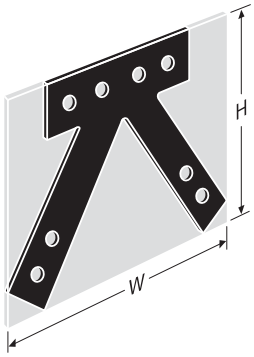


Typical BP Installation

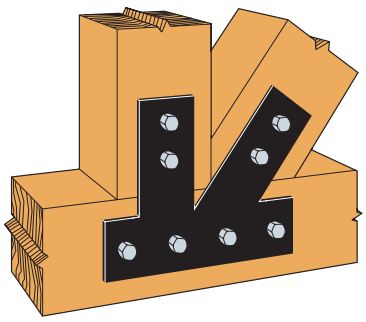
SPECIAL ORDER PLATES

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 coating *(Simpson Strong-Tie Gray Paint, Black Powder-Coat, HDG or raw steel).*
- Total plate shape and size up to max. dimensions of 48"x48" *(approx. 1/16" tolerance).*
- Simpson Strong-Tie does not provide product engineering or load values for Custom Steel Plates.
- Contact Simpson Strong-Tie for pricing information.



"W" and "H" indicate the envelope size of the steel shape.



Typical Installation
(Plate shown has black powder-coat)

CLASSIC COLLECTION

MATERIAL: As noted in tables
FINISH: Textured powder-coated flat black paint
INSTALLATION: • Use all specified fasteners. See General Notes.

STRAP TIES

Model No.	Ga	Dimensions (in)		Bolts	
		W	L	Qty.	Dia.
HST2PC	7	2½	21¼	6	⅝
HST5PC	7	5	21¼	12	⅝
HST3PC	3	3	25½	6	¾
HST6PC	3	6	25½	12	¾
PS218PC	7	2	18	4	¾
PS418PC	7	4	18	4	¾
PS720PC	7	6¾	20	8	½

BEAM TO COLUMN TIES

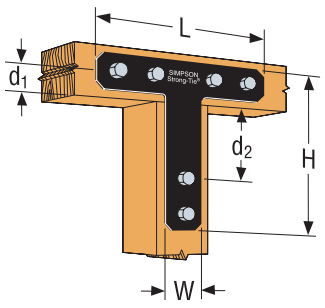
Model No.	Ga	Dimensions (in)			Minimum Bolt End & Edge Distances (in)		Bolts	
		W	H	L	d_1	d_2	Qty.	Dia.
1212HLPC	7	2½	12	12	2½	4⅜	5	⅝
1616HLPC	7	2½	16	16	2½	4⅜	5	⅝
1212HTPC	7	2½	12	12	2½	4⅜	6	⅝
1616HTPC	7	2½	16	16	2½	4⅜	6	⅝

1. 1212HL, 1616HL, 1212HT and 1616HT are to be installed in pairs with machine bolts in double shear.

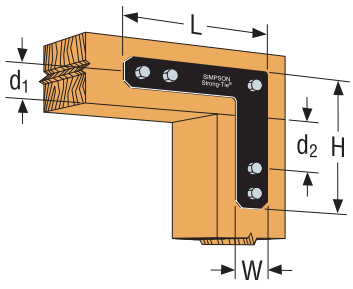
COLUMN BASES

INSTALLATION: • Minimum side cover is 3" for CB's.
- Install with bottom of base 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)*.

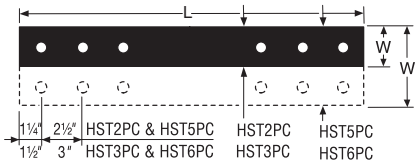
Model No.	Ga	Dimensions (in)		Bolts	
		W_1	W_2	Qty.	Dia.
CB44PC	7	3⁹⁄₁₆	3½	2	⅝
CB46PC	7	3⁹⁄₁₆	5½	2	⅝
CB48PC	7	3⁹⁄₁₆	7½	2	⅝
CB66PC	7	5½	5½	2	⅝
CB68PC	7	5½	7½	2	⅝
CB88PC	3	7½	7½	2	¾
CB810PC	3	7½	9½	2	¾



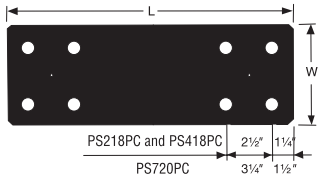
Typical 1212HTPC Installation
(1616HTPC similar)



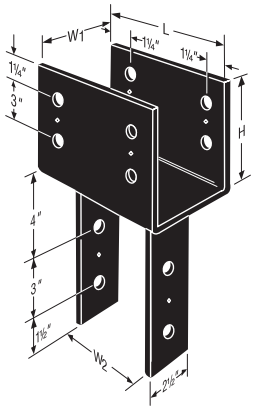
Typical 1212HLPC Installation
(1616HLPC similar)



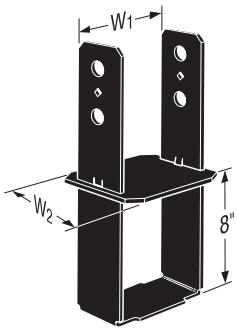
HSTPC



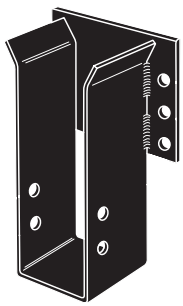
PSPC



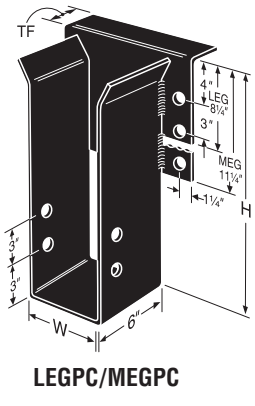
CCPC



CBPC



MEGPC without Top Flange



LEGPC/MEGPC

BEAM HANGERS

MATERIAL: Top flange–7 ga, Stirrups–7 ga.

Model No.	Dimensions (in)			Bolts			
				Header		Joist	
	W	Min. H	TF	Qty.	Dia.	Qty.	Dia.
LEG3PC	3¼	9	2½	4	¾	2	¾
LEG5PC	5¼	9	2½	4	¾	2	¾
MEG5PC	5¼	9	2½	6	¾	2	¾
LEG7PC	6⅞	9	2½	4	¾	2	¾
MEG7PC	6⅞	9	2½	6	¾	2	¾

1. See Glulam Connectors section of this catalogue for additional information on these products.

COLUMN CAPS

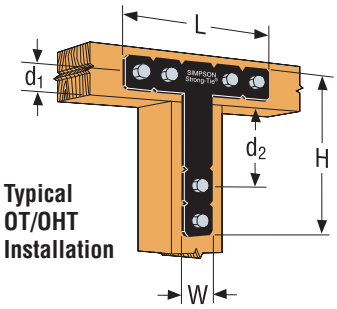
INSTALLATION: • Bolt holes shall be a minimum of 1⁄32" to a maximum of 1⁄16" larger than the specified bolt's diameter *(12.4.1.2 CSA O86-14)*.

Model No.	Ga	Dimensions (in)				Bolts			
						Beam		Post	
		W_1	W_2	L	H	Qty.	Dia.	Qty.	Dia.
CC44PC	7	3⅝	3⅝	7	4	2	⅝	2	⅝
CC46PC	7	3⅝	5½	11	6½	4	⅝	2	⅝
CC66PC	7	5½	5½	11	6½	4	⅝	2	⅝
CC68PC	7	5½	7½	11	6½	4	⅝	2	⅝
CC88PC	3	7½	7½	13	8	4	¾	2	¾

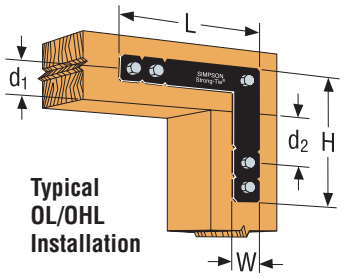
SIMPSON Strong-Tie®

RUSTIC COLLECTION

MATERIAL: As noted in tables
FINISH: Textured powder-coated flat black paint
INSTALLATION: • Use all specified fasteners. See General Notes.



Typical OT/OHT Installation



Typical OL/OHL Installation

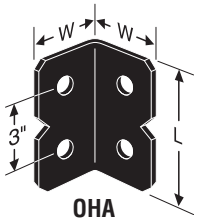
STRAP TIES

Model No.	Ga	Dimensions (in)		Bolts	
		W	L	Qty.	Dia.
OS	12	2	12	4	½
OHS	7	2½	12	4	⅝
OHS135	7	6	13½	4	¾
OHS195	7	6	19½	8	¾

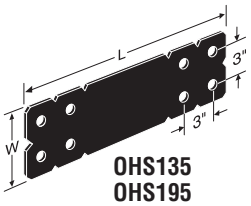
BEAM TO COLUMN TIES

Model No.	Ga	Dimensions (in)			Minimum Bolt End & Edge Distances		Bolts	
		W	H	L	d_1	d_2	Qty.	Dia.
OL	12	2	12	12	2	3½	5	½
OHL	7	2½	12	12	2½	4⅜	5	⅝
OT	12	2	12	12	2	3½	6	½
OHT	7	2½	12	12	2½	4⅜	6	⅝

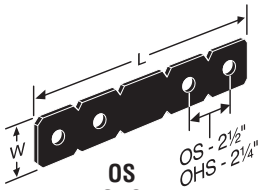
1. OL, OHL, OT and OHT must be installed in pairs with machine bolts in double shear.



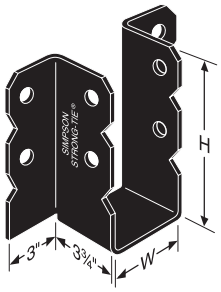
OHA



OHS135
OHS195



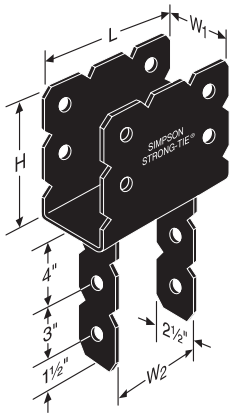
OS
OHS



OU (7 ga)

HEAVY ANGLES

Model No.	Ga	Dimensions (in)		Bolts	
		W	L	Qty.	Dia.
OHA33	7	3⅛	3	2	¾
OHA36	7	3⅛	6	4	¾



OCC (3 ga)

COLUMN BASES

Model No.	Ga	Dimensions (in)		Bolts	
		W_1	W_2	Qty.	Dia.
OCB44	3	3⁹⁄₁₆	3½	2	⅝
OCB46	3	3⁹⁄₁₆	5½	2	⅝
OCB48	3	3⁹⁄₁₆	7½	2	⅝
OCB66	3	5½	5½	2	⅝
OCB68	3	5½	7½	2	⅝
OCB88	3	7½	7½	2	¾
OCB810	3	7½	9½	2	¾

1. Minimum side cover is 3" for OCB's.

JOIST HANGERS

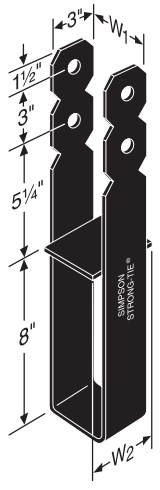
Model No.	Dimensions (in)		Bolts	
	W	H	Header	Joist
OU46	3⁹⁄₁₆	5	2-¾	1-¾
OU48	3⁹⁄₁₆	7	4-¾	2-¾
OU410	3⁹⁄₁₆	9	4-¾	2-¾
OU412	3⁹⁄₁₆	11	6-¾	3-¾
OU414	3⁹⁄₁₆	13	6-¾	3-¾
OU68	5½	7	4-¾	2-¾
OU610	5½	9	4-¾	2-¾
OU612	5½	11	6-¾	3-¾
OU614	5½	13	6-¾	3-¾
OU810	7½	9	4-¾	2-¾
OU812	7½	11	6-¾	3-¾
OU814	7½	13	6-¾	3-¾

1. Glulam beam sizes are available. Add an "X" to the name and specify width, i.e. OU68X, W = 5.25".

COLUMN CAPS

Model No.	Ga	Dimensions (in)				Bolts			
						Beam		Post	
		W_1	W_2	L	H	Qty.	Dia.	Qty.	Dia.
OCC44	3	3⅝	3⅝	9	4½	2	⅝	2	⅝
OCC46	3	3⅝	5½	12	7½	4	⅝	2	⅝
OCC66	3	5½	5½	12	7½	4	⅝	2	⅝
OCC68	3	5½	7½	12	7½	4	⅝	2	⅝
OCC88	3	7½	7½	15	7½	4	¾	2	¾

1. For end conditions specify OECC.



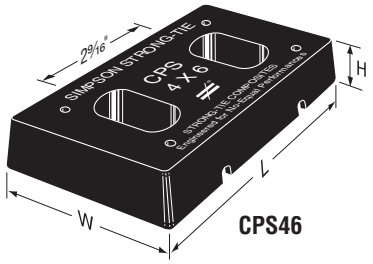
OCB (3 ga)

STANDOFF BASES

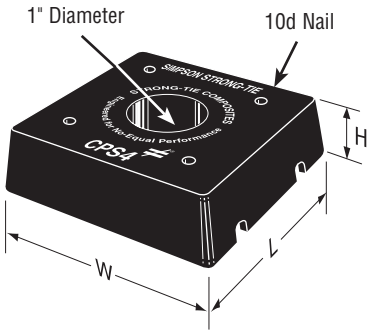
FEATURES: • Designed for increased concrete surface area
- Corrosion resistant
- Sized for 10d nails
- Can be used with rough lumber

MATERIAL: Engineered composite plastic.

INSTALLATION: • See General Notes.
- **Not recommended for non-top-supported installations such as fences.**
- Attach to post before installation using four nail holes.
- Embed minimum ½" diameter rod into concrete and extend into wood member *(2 rods required for CPS46)*.
- For nominal or rough sawn lumber.



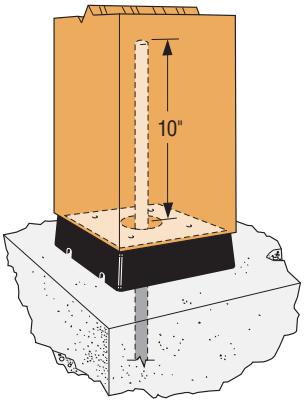
CPS46



CPS4
(other sizes similar)

Model No.	Post or Column Size	Dimensions (in)			Factored Compressive Resistance
		L	W	H	lbs
					kN
CPS4	4x4	3¼	3¼	1	5685
					25.32
CPS46	4x6	5 5/16	3 5/16	1	8065
					35.92
CPS5	5x5	4⅛	4⅛	1	6945
					30.94
CPS6	6x6	5 5/16	5 5/16	1	10655
					47.46
CPS7	8x8	7¼	7¼	1¼	11430
					50.91

1. Resistances may not be increased for short term load duration.
2. Resistance is calculated based on the CPS bearing area and concrete strength of 20 MPa.



Typical CPS4 Installation

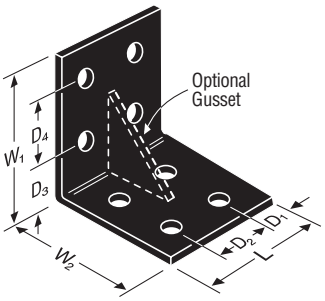
HL – HEAVY ANGLES & GUSSETS

Versatile angle gussets and heavy angles promote standardization and construction economy, and are compatible with Simpson Strong-Tie structural hardware.

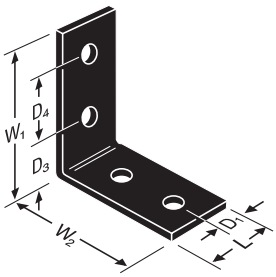
FINISH: Textured flat black powder-coat, Simpson Strong-Tie® gray paint and also available galvanized

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.



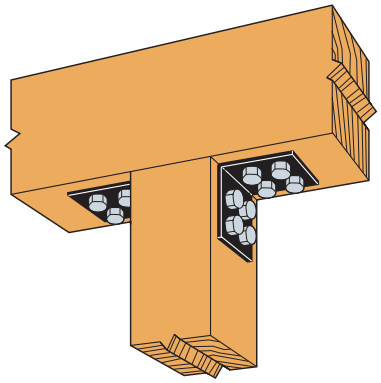
HL55PC



HL53PC

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)						Bolts (Total)	
		W_1 & W_2	L	D_1	D_2	D_3	D_4	Qty.	Dia.
HL33PC	7	3¼	2½	1¼	—	2	—	2	½
HL35PC	7	3¼	5	1¼	2½	2	—	4	½
HL37PC	7	3¼	7½	1¼	2½	2	—	6	½
HL53PC	7	5¾	2½	1¼	—	2	2½	4	½
HL55PC	7	5¾	5	1¼	2½	2	2½	8	½
HL57PC	7	5¾	7½	1¼	2½	2	2½	12	½
HL43PC	3	4¼	3	1½	—	2¾	—	2	¾
HL46PC	3	4¼	6	1½	3	2¾	—	4	¾
HL49PC	3	4¼	9	1½	3	2¾	—	6	¾
HL73PC	3	7¼	3	1½	—	2¾	3	4	¾
HL76PC	3	7¼	6	1½	3	2¾	3	8	¾
HL79PC	3	7¼	9	1½	3	2¾	3	12	¾



Typical HL55PC Installation

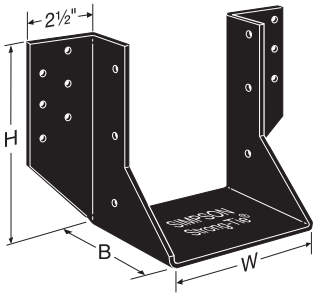
ORNAMENTAL – JOIST HANGER

The OHU Ornamental Joist Hangers are heavy duty, load-rated joist hangers that are attached with Simpson Strong-Tie® ¼"x3" Strong-Drive® double-barrier coating SDS Heavy-Duty Connector screws *(supplied with product)*.

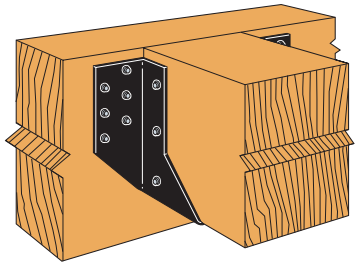
MATERIAL: 12 gauge

FINISH: Textured powder-coated flat black paint

OPTIONS: No modifications.



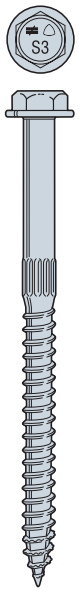
OHU



Typical OHU Installation

Joist Size	Model No.	Ga	Dimensions (in)			No. of SDS ¼"x3" Wood Srews		Factored Resistance			
								D.Fir-L		S-P-F	
								Uplift	Normal	Uplift	Normal
								(K_D=1.15)	(K_D=1.00)	(K_D=1.15)	(K_D=1.00)
			W	H	B	Face	Joist	lbs	lbs	lbs	lbs
								kN	kN	kN	kN
4x6	OHU46-SDS3	12	3⁹⁄₁₆	5	4	6	4	2415	3885	2080	2795
								10.74	17.28	9.25	12.43
4x8	OHU48-SDS3	12	3⁹⁄₁₆	6¾	4	8	6	2890	3885	2080	2795
								12.86	17.28	9.25	12.43
4x10	OHU410-SDS3	12	3⁹⁄₁₆	8¾	4	12	6	3620	8175	3275	5885
								16.10	36.37	14.57	26.18
4x12	OHU412-SDS3	12	3⁹⁄₁₆	10¾	4	12	8	4755	8175	3425	5885
								21.15	36.37	15.24	26.18
4x14	OHU414-SDS3	12	3⁹⁄₁₆	12¾	4	14	10	4755	8175	3425	5885
								21.15	36.37	15.24	26.18
6x6	OHU66-SDS3	12	5½	5	4	6	4	2415	3885	2080	2795
								10.74	17.28	9.25	12.43
6x8	OHU68-SDS3	12	5½	7	4	12	6	3620	8175	3275	5885
								16.10	36.37	14.57	26.18
6x10	OHU610-SDS3	12	5½	9	4	14	6	3620	8175	3275	5885
								16.10	36.37	14.57	26.18
6x12	OHU612-SDS3	12	5½	11	4	16	8	4830	9435	4370	6795
								21.49	41.97	19.44	30.23
6x14	OHU614-SDS3	12	5½	13	4	18	10	6035	9435	5360	6795
								26.85	41.97	23.84	30.23

1. Factored resistances have been increased 15% for wind or earthquake loading with no further increase allowed.



Strong-Drive® ¼"x3" SDS HEAVY-DUTY CONNECTOR Screw

U.S. Patent 6,109,850; 5,897,280; 5,044,853

ARCHITECTURAL PRODUCTS GROUP

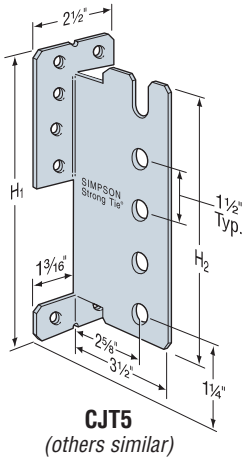
The CJT is a concealed connector. It can be installed three ways: with no routing of header/post or beam; a routed header/post, or a routed beam.

MATERIAL: 12 gauge

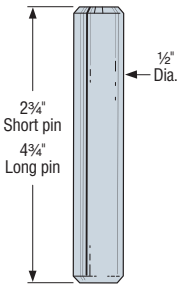
FINISH: Galvanized

INSTALLATION: • Use all specified fasteners. See General Notes.
- The CJT Pack is supplied with all dowels and screws required. Screws require a hex head driver.
- Router end of beam for screw heads for flush installation.
- To provide maximum beam width for use with short dowels, center in beam.
- The joist/beam may be sloped to 45° with full tabulated resistances.
- Request F-CJT flier for installation instructions and ordering information

OPTIONS: Order short or long dowels, eg. CJT3S or CJT3L.



CJT5
(others similar)

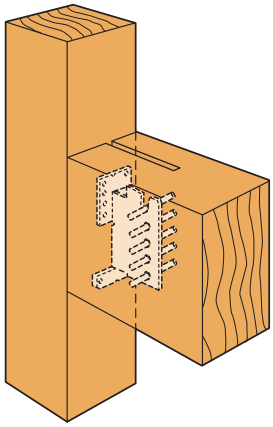


Chamfered Steel Dowel
(Galvanized)

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.

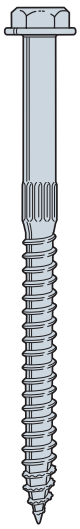
Model No.	Min. Joist Size (in)	Dimensions (in)		Fasteners		Factored Resistance			
						Short Dowels		Long Dowels	
		H_1	H_2	SDS ¼"x3" Screws	½" Dia. Dowels	Uplift (K_D=1.15)	Normal (K_D=1.00)	Uplift (K_D=1.15)	Normal (K_D=1.00)
						lbs	lbs	lbs	lbs
						kN	kN	kN	kN
D.Fir-L									
CCJT3	4x8	5 9/16	4 7/16	6	3	2580	2510	2580	2510
						11.48	11.17	11.48	11.17
CJT4	4x10	7	5 15/16	8	4	3935	3470	3935	4200
						17.50	15.44	17.50	18.68
CJT5	4x12	8 9/16	7 7/16	10	5	4535	3945	4940	5065
						20.17	17.55	21.98	22.53
CJT6	6x12	10	8 15/16	12	6	—	—	5900	5130
						—	—	26.25	22.82
D.Fir-L Glulam									
CJT3	3⅛x7½	5 9/16	4 7/16	6	3	2460	2140	2580	2660
						10.94	9.52	11.48	11.83
CJT4	3⅛x9	7	5 15/16	8	4	3055	2655	3935	4200
						13.59	11.81	17.50	18.68
CJT5	3⅛x10½	8 9/16	7 7/16	10	5	3635	3160	4940	5215
						16.17	14.06	21.98	23.20
CJT6	3⅛x12	10	8 15/16	12	6	4190	3640	6910	6005
						18.64	16.19	30.74	26.71
Spruce-Pine Glulam									
CJT3	3⅛x7½	5 9/16	4 7/16	6	3	1855	1875	1855	1915
						8.25	8.34	8.25	8.52
CJT4	3⅛x9	7	5 15/16	8	4	2670	2325	2830	3505
						11.88	10.34	12.59	15.59
CJT5	3⅛x10½	8 9/16	7 7/16	10	5	3180	2765	3555	4560
						14.15	12.30	15.81	20.28
CJT6	3⅛x12	10	8 15/16	12	6	3665	3185	6045	5255
						16.30	14.17	26.89	23.38
Parallam									
CJT3	3½x9½	5 9/16	4 7/16	6	3	2580	3150	2580	3150
						11.48	14.01	11.48	14.01
CJT4	3½x9½	7	5 15/16	8	4	3935	4085	3935	4085
						17.50	18.17	17.50	18.17
CJT5	3½x11⅞	8 9/16	7 7/16	10	5	4940	5250	4940	5250
						21.98	23.35	21.98	23.35
CJT6	3½x11⅞	10	8 15/16	12	6	7245	6300	7245	6300
						32.23	28.02	32.23	28.02

1. Center dowel in beam. Short dowel (2¾") for use with 3⅛ GLB, 4x sawn lumber or 3½" wide PSL. Long dowel (4¾") for use with 5⅛ GLB, 6x sawn lumber or greater widths.



Typical CJT Installation
(Note that dowels should be centered within beam)

Identification on all Strong-Drive® SDS HEAVY-DUTY CONNECTOR screw heads
(¼"x3" SDS shown)



Strong-Drive® ¼"x3" SDS HEAVY-DUTY CONNECTOR Screw

U.S. Patent 6,109,850; 5,897,280; 5,044,853

ETB – HIDDEN CONNECTOR KIT

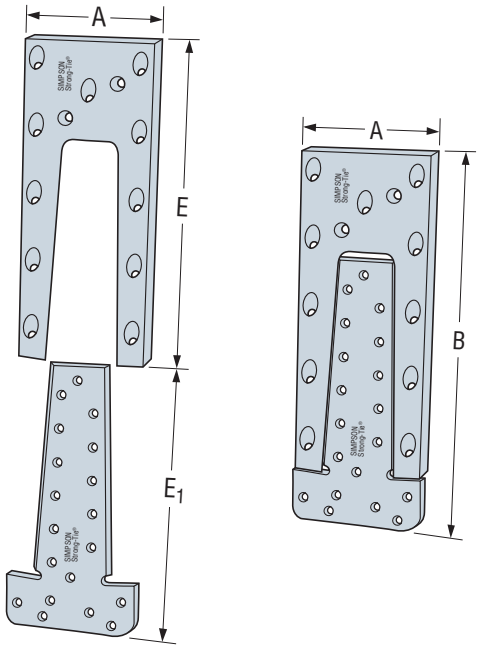
The ETB hidden connector provides a load-tested beam connection without any visible hardware. Interlocking plates are fastened onto each member and lock together for a secure structural connection.

MATERIAL: Plates—Aluminum 6082-T6

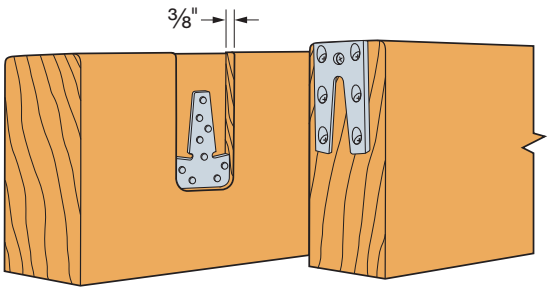
FINISH: Plates—none; Screws—Dacromet® corrosion resistant coating

INSTALLATION: • Use all specified fasteners. See General Notes

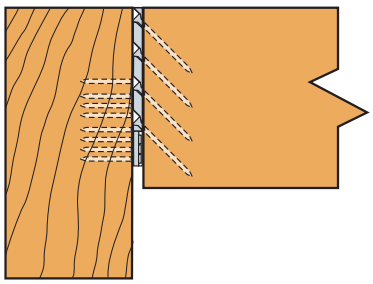
- Rout a ⅜" (10mm) deep pocket into the side of the supporting beam as shown for the lower plate.
- Install lower plate with 16d hot dip galvanized nails *(not included in kit)*.
- Install horseshoe plate onto end of supported beam using SCRB screws supplied in kit. Screws are installed at a downward angle *(approx. 45°)*.
- Templates are available to make accurate installation more efficient.



ETB



Typical ETB Installation



ETB Installation with Non-Routed Header (Side View)

Dimensional and Fabrication Information

Model No.	Dimensions (in)					
	A	B	E	E_1	t_1	t_2
ETB90	2.36	3.62	2.72	2.26	0.236	0.393
ETB160	2.36	6.61	5.12	3.74	0.236	0.393
ETB230	2.95	9.13	7.87	5.43	0.236	0.393

Model No.	Fasteners		Joist Size	Factored Resistance (K_D = 1.00)		
				D.Fir-L	S-P-F	Northern
	Header	Joist		(K_D=1.00)	(K_D=1.00)	(K_D=1.00)
				lbs	lbs	lbs
				kN	kN	kN
ETB90	6-16dHDG	5-SPAX 5x80 SCRB screw	4x6	1870	1525	1325
				8.34	6.78	5.89
			4x8	1675	1325	1145
				7.45	5.89	5.09
			4x10	1545	1220	1060
				6.87	5.43	4.72
			4x12	1415	1120	970
				6.29	4.98	4.31
			6x6	1870	1640	1385
				8.32	7.30	6.16
			6x8	1870	1640	1385
				8.32	7.30	6.16
			6x10	1870	1535	1280
				8.32	6.83	5.69
			6x12	1755	1410	1175
				7.81	6.27	5.23
ETB160	11-16dHDG	10-SPAX 5x80 SCRB screw	4x8	3430	2965	2545
				15.26	13.19	11.32
			4x10	3430	2740	2375
				15.26	12.19	10.56
			4x12	3175	2510	2175
				14.12	11.17	9.68
			6x8	3430	2985	2545
				15.26	13.28	11.32
			6x10	3430	2985	2545
				15.26	13.28	11.32
			6x12	3430	2985	2545
				15.26	13.28	11.32
ETB230	19-16dHDG	16-SPAX 5x80 SCRB screw	4x12	4925	3890	3375
				20.48	17.30	15.01
			6x12	5930	4420	3770
				23.24	19.66	16.77

1. Factored resistances assume standard term load duration. Reduce value where other load durations govern. Do not increase value for short term load duration.
2. Factored resistances have been calculated in accordance with CSA O86-14 assuming dry service condition (K_S = 1.00) and seasoned lumber *(moisture content ≤ 15%)* at time of fabrication. For unseasoned lumber *(moisture content > 15%)* multiply tablulated values by 0.80. For wet service condition multiply tablulated values by 0.67.
3. Do not use ETB connectors with preservative-treated woods.
4. Factored resistances shown are the lower of the test value, the fasterner capacity or the effective shear capacity of the joist assuming joist and headers are same species.
5. Substitution for fasteners is not permitted. All fasteners must be used as specified.
6. **NAILS:** 16dHDG = 0.162" dia. x 3½" long hot-dip galvanized.

FACE-MOUNT HANGER OPTION MATRIX

SIMPSON Strong-Tie®

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			○	●	U	238
HGUM	≤ 45°	7" wide			●	●	U	238
HGUS	≤ 45°	○					U	234
HHGU					●	●	U	238
HHUS	≤ 45°		≤ 45°	●			U	234
HSUL/HSUR	45° Std.	●			○		U	—
HSULC/HSURC	45° Std.	●			Std.		U	—
HTU	≤ 67½°	●					U	234
HU[3]	≤ 67½°	●	≤ 45°	●	○	○	U, W	233
HUC	≤ 45°	●	≤ 45°		Std.		U, W	233
HUCQ					Std.		U	—
HUSC					Std.		U	—
IUS							U	—
LGU	≤ 45°	●			●	●	U	238
LGUM	≤ 45°	●					U	238
LSU/LSSU	Field skewable and slopeable to 45° available for some models						U	—
LTHJA							U	—
LU							U	—
LUC					Std.		U	—
LUS							U	—
MGU	≤ 45°	●			○	●	U	238
MIU							U	—
MTHM							U	—
SUL/SUR	45° Std.	●					U	—
SULC/SURC	45° Std.	●			Std.		U	—
THGB/THGBH/ THGBV/THGBHV	≤ 45°	7" wide					U	239
THGQH	45°	●					U	239
THJA							U	—
THJU						●	U	234
U[3]	≤ 67½°	●	≤ 45°	●			U	233

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.
3. See page 233 for limitations on skew angles for U/HU hangers.

● = Available for all models ○ = 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)
TOP FLANGE HANGERS														
B	≤ 45°		≤ 45°	●		●	●	●	●		●		U, N, W	235
BA													U, N, W	—
EG	≤ 45°		≤ 45°										—	237
EGQ	≤ 45°		≤ 45°										U	239
GB			≤ 45°								●		U, W	235
GLS	≤ 50°		≤ 45°	●			●			●	●		U, W	237
GLT	≤ 50°		≤ 45°	●			●			●			U, W	237
GLTV	≤ 50°		≤ 45°	●			●			●			U, N, W	237
HB	≤ 45°		≤ 45°	●		●	●	●	●		●		U, N, W	235
HGB			≤ 45°								●		U	235
HGLS	≤ 50°		≤ 45°				●			●	●		U, W	237
HGLT	≤ 50°		≤ 45°				●			●			U, W	237
HGLTV	≤ 50°		≤ 45°				●			●			U, W	237
HHB			≤ 45°			●					●		U, W	235
HIT													U, N	—
HUSCTF					Std.								—	—
HW/HWI	≤ 84°	⊙	≤ 45°	●			●	●		●	●	⊙	N, W	236
HWU	≤ 45°		≤ 45°	⊙									U, N, W	236
ITS													U, N	—
LB													U, N, W	—
LBV	≤ 45°		≤ 45°	●		●	●	●	●		●		U, N, W	235
LEG	≤ 45°	●	≤ 45°							●			—	237
MEG	≤ 45°	7" wide	≤ 45°							●			—	237
MIT													U, N	—
MSC	20°-45° ⊙	●	≤ 45°	●		⊙							—	—
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	236
WM/WMI	≤ 45°		≤ 45°	●						●			—	233
WNP/WP/WPI	≤ 84°	⊙	≤ 45°	●			●	●	●	●	●	⊙	N, W	236
WPU/WNPU	≤ 45° ⊙		≤ 45°	⊙									U, N, W	236

See foonotes on page 230.

● = Available for all models ⊙ = Available for some models Std. = Available with standard model *(no modification required)*

HANGER OPTIONS GENERAL NOTES

HANGER MODIFICATION OPTIONS AND APPLICATIONS

The Hanger Options Matrix for Face Mount and Top Flange Hangers on pages 230-231 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 catalogue.

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.

RESISTANCES: For multiple modifications on the same connector, use the single multiplier factor that yields the lowest factored resistance.

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
Base Model	X = Modification	Seat Sloped Down (30°) *(SLU = Seat Up)*	Skewed Left (20°) *(SKR = Skewed Right)*	Top Flange Down Left (20°) *(TFDR = Top Flange Down Right)*	Top Flange Open (20°) *(TFC = Top Flange Closed)*	Offset Top Flange Right *(OSL = Offset Top Flange Left)*

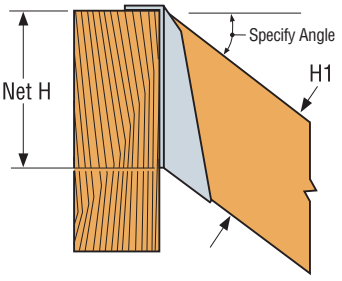
HEIGHT FOR SLOPED HANGERS

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.



HANGER OPTIONS

U/HU

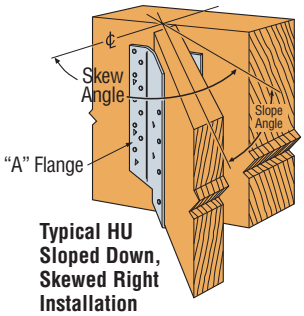
See Hanger Options General Notes.
Not all slope and skew combinations are available.

SLOPED, SKEWED, AND SLOPED/SKEWED

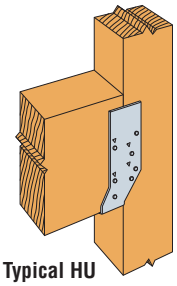
- For low-cost, 45° skews, see SUR/SUL and HSUR/HSUL. See also LSU/LSSU connectors.
- These options only apply to wood-to-wood connections.
- U/HU may be skewed to a maximum of 45° and sloped to a maximum of 45°. Hangers 5½" or less in width may be skewed to 67½°. Hangers skewed 51°- 67½° require a square cut.
- HU1.81/5 can be skewed to a maximum of 50°.
- For all options, uplift resistances are 0.75 of table values.
- For skew only or combined slopes and skews, the factored down resistance is 65% of the table value.
- For slope only, the factored down resistance is 100% of the table value.
- Skewed hangers may have joist nails on one side.

STRAIGHT OR CONCEALED FLANGE

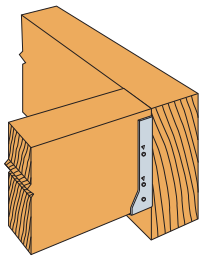
- HU is available with the A flanges straight at 0.70 of the table values if W ≥ 3½". If W < 3", use N10 nails at 0.50 of the table value. If W ≥ 3", use 10d nails at 0.50 of the table value. Do not use with end grain nailing.
- HU is available with A flanges concealed, provided the W dimension is 2⁵⁄₁₆" or greater, at 100% of the table value. Specify HUC.
- HU is available with one flange concealed when the W dimension is less than 2⁵⁄₁₆" at 100% of the table value.
- For skewed only HUC hangers, the flange on the acute side can be concealed at 0.65 of the table value. See table for skew limitations.
- For sloped only hangers, flanges can be concealed at 100% of the table value.
- For sloped and skewed hangers, the flange on the acute side can be concealed at 0.65 of the table value. Contact Simpson Strong-Tie for skew limitations.
- When nailing into the carrying member's end grain, the factored resistance is 0.67 of the table value for an unmodified product or 0.67 of the reduced capacity for a modified product.
- For welding see technical bulletin T-HUHUC-W for details.



Typical HU Sloped Down, Skewed Right Installation



Typical HU Installation Manufactured with Flanges Straight

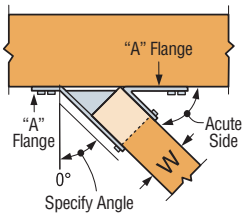


Typical HUC Installed on a Beam

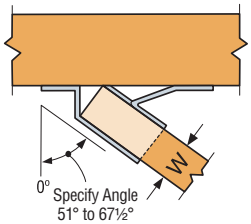
Maximum Skew Degree for Skewed HUC Hangers

Hanger Width	Maximum Skew
2⁵⁄₁₆"	26°
2⅜"	26°
2⁹⁄₁₆"	29°
2¾"	29°
3⅛"	37°
3¼"	38°
3⁵⁄₁₆"	39°
3⁹⁄₁₆"	42°
4⅛"	42°
4⁹⁄₃₂"	42°

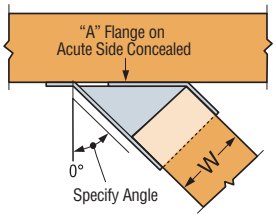
1. Widths greater than 4⁹⁄₃₂" maximum skew is 45°.



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 *(Midwall Installation Only)*

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 factored resistance is 0.50 of the table value.

SLOPED AND/OR SKEWED SEAT

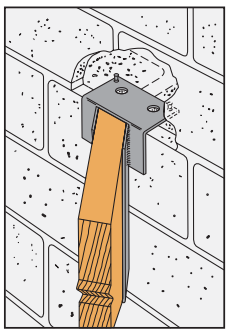
- WM/WMI may be skewed and/or sloped to 45° maximum.
- The factored resistance is 100% of the table value.

OFFSET TOP FLANGE

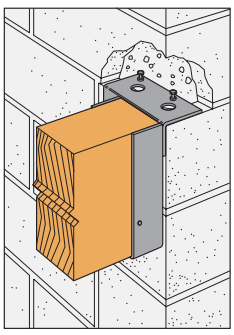
- The top flange may be offset left or right for placement at the end of a header. The factored resistance is 0.50 of the table value.

UPLIFT *(WMU Only)*

- WMU cannot be modified.



Typical WM Sloped Down, Skewed Right Block Wall Installation



Typical WM Top Flange Offset Left

HANGER OPTIONS

HGUS/HHUS

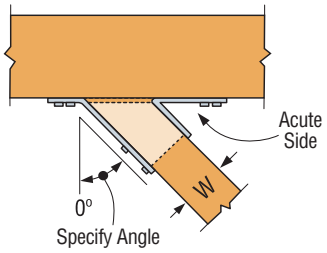
See Hanger Options General Notes.

SLOPED AND/OR SKEWED SEAT

- **HHUS** hangers can be skewed to a maximum of 45° and/or sloped to a maximum of 45°.
- HHUS skew only, maximum factored down resistance is 0.85 of the table value.
- For sloped only or sloped and skewed hangers, the maximum factored down resistance is 0.72 for HHUS.
- Not all slope and skew combinations are available; consult the factory for information.
- HHUS, the joist must be bevel-cut to allow for double shear nailing.
- Uplift resistances for sloped/skewed conditions are 0.62 of the table value for HHUS hangers.

HGUS hangers can be skewed only to a maximum of 45°. Factored resistances are:

Models	Down Load	Uplift
W < 2" bevel or square	0.62 of table values	0.46 of table values
2" < W < 6" beveled	0.67 of table values	0.41 of table values
2" < W < 6" square cut	0.46 of table values	0.41 of table values
W > 6" bevel or square	0.40 of table values	0.41 of table values



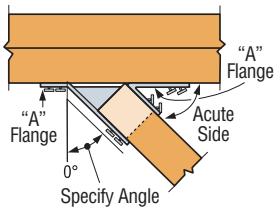
Top View HHUS Hanger Skewed Right
(joist must be bevel cut)
All joist nails installed on the outside angle *(non-acute side).*

HTU

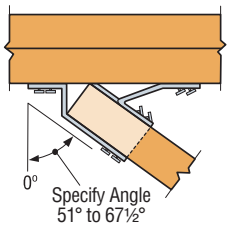
See Hanger Options General Notes.

SKEWED SEAT

- Skewable up to 67½°.
- Available in single and 2-ply size.
- No bevel cut required.



Top View HTU Hanger Skewed Right < 51°



Top View HTU Hanger Skewed Right ≥ 51°

Factored Resistances for Skewed HTU Hangers

Model No.	Skew Angle (Degrees)	Fasteners		Factored Resistance			
				D.Fir-L		S-P-F	
		Header	Joist	Uplift (K_D=1.15)	Normal (K_D=1.00)	Uplift (K_D=1.15)	Normal (K_D=1.00)
				lbs	lbs	lbs	lbs
				kN	kN	kN	kN
HTU26	< 51	20-16d	14-10dx1½	1835	4110	1300	2905
				8.16	18.28	5.78	12.92
	51-67½	20-16d	12-10dx1½	1350	3620	955	2560
				6.01	16.10	4.25	11.39
HTU28	< 51	26-16d	20-10dx1½	2810	4270	1985	3030
				12.50	18.99	8.83	13.48
	51-67½	26-16d	17-10dx1½	2075	3930	1465	2780
				9.23	17.48	6.52	12.37
HTU210	< 51	32-16d	26-10dx1½	3785	4430	2675	3135
				16.84	19.71	11.90	13.95
	51-67½	32-16d	22-10dx1½	2795	4240	1980	3000
				12.43	18.86	8.81	13.35
HTU26-2	< 51	20-16d	14-10d	2140	3715	1515	2625
				9.52	16.53	6.74	11.68
	51-67½	20-16d	12-10d	1610	3920	1140	2785
				7.16	17.44	5.07	12.39
HTU28-2	< 51	26-16d	20-10d	3960	5425	2815	3855
				17.62	24.13	12.52	17.15
	51-67½	26-16d	17-10d	2385	5425	1695	3855
				10.61	24.13	7.54	17.15
HTU210-2	< 51	32-16d	26-10d	5025	6890	3570	4890
				22.35	30.65	15.88	21.75
	51-67½	36-16d	22-10d	3145	6680	2225	4745
				13.99	29.72	9.90	21.10

1. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed.
2. Reduced heel heights are not permitted for skewed HTU's.

THJU

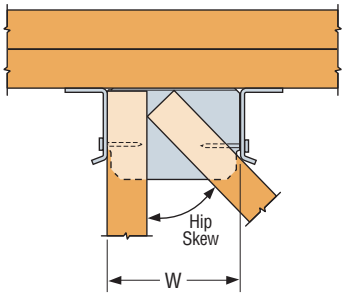
See Hanger Options General Notes.

HANGER WIDTHS

- THJU is available in intermediate seat widths between 5⅛" *(THJU26 width)* and 8⅛" *(THJU26-W width).*
- Factored download and uplift resistances for all intermediate widths is 100% of the THJU26-W table values.
- For double hip installation, divide the total factored resistance by 2 to determine the factored resistance 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	THJU26-W
Single-Ply Hip and Single-Ply Jack	44-46	THJU26
	47-49	5½
	50-52	5¾
	53-55	6
	56-57	6⅜
	58-59	6⅝
	60-61	7
	62-63	7⅜
	64-65	THJU26-W



THJU Top View Installation

HANGER OPTIONS

B/LBV/HB/HHB/GB/HGB

See Hanger Options General Notes.

MATERIAL:

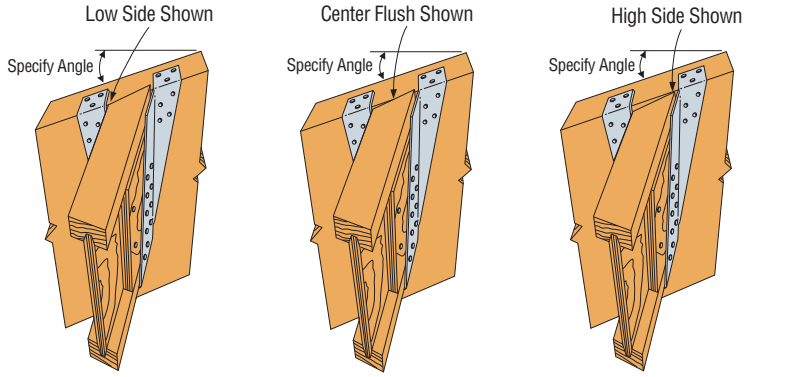
- Gauge may vary from that specified depending on the manufacturing process used. Hanger configurations, height and fastener schedules may vary from the tables depending on the joist size, skew and slope.

RESISTANCES:

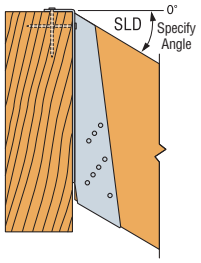
- For multiple modifications on the same connector, use the single multiplier factor that yields the lowest factored resistance.

INSTALLATION:

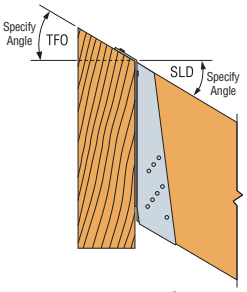
- Fastener quantities will typically increase beyond the amount specified in the standard hanger tables.
- Web stiffeners are required for I-joists.
- Fill all holes with the table-specified fastener types.
- Bevel cut the carried member for skewed applications.



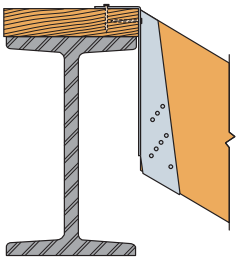
B Hanger Sloped Down and Skewed Left with Sloped Top Flange Installation
When ordering, specify Low Side Flush, Center Flush or High Side Flush



Typical LBV Sloped Down Installation with Full Backing



Typical LBV Sloped Down with Top Flange Open

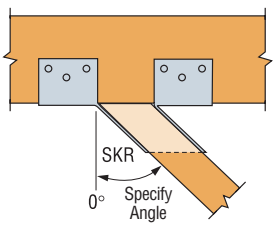


Typical LBV Sloped Down on Nailer Non-Backed

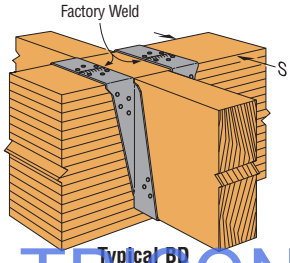
Reduction Factors for Modified Hangers[1]

Hanger Series	Condition		Sloped Down	Sloped Up	Skewed Only	Sloped Down & Skewed		Sloped Up & Skewed		TF Down	TF 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	0.98	0.68	1.00	0.97	1.00	1.00	0.68	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	1.00	1.00	1.00	0.86	0.86	1.00	1.00
B	Minimum Height		6	6	6	9¼	14	9¼	14	14	9¼
	Less than 2½" Wide	Download	0.64	0.49	0.70	0.64	0.86	0.49	0.49	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	0.95	1.00	1.00	0.76	0.76	1.00	1.00
	2½" and Wider	Download	0.80	0.97	0.81	0.75	1.00	0.97	0.49	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	0.95	1.00	1.00	0.76	0.76	1.00	1.00
HB	Minimum Height		8	8	8	11¼	14	11¼	14	14	11¼
	Less than 2½" Wide	Download	0.69	0.51	0.95	0.55	0.52	0.51	0.51	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	0.53	0.82	1.00	0.53	0.53	1.00	1.00
	2½" and Wider	Download	0.87	0.79	0.95	0.60	1.00	0.79	0.79	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	0.53	1.00	1.00	0.53	0.53	1.00	1.00
HHB GB HGB	Minimum Height		9¼	—	—	—	—	—	—	—	—
	All Widths	Download	0.60	—	—	—	—	—	—	—	—
		Uplift	1.00	—	—	—	—	—	—	—	—

1. Use this table to calculate factored resistances for modified hangers. Apply the reduction factor to the appropriate factored resistance 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. In the table the term "x" refers to the angle of the modification.
6. 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 3⁹⁄₁₆". Minimum supporting member width is 3½". Minimum nailer thickness apply *(see page 83 and 114)*. Saddle hangers achieve factored resistances listed. Saddle hangers on stud walls do not achieve factored resistances listed.

HANGER OPTIONS

W/WI/WNP/WNPU/WP/WPI/WPU/HW/HWI/HWU

See Hanger Options General Notes.

INSTALLATION: • Some models are available in Type A *(Bevel Cut)* and Type B *(Butt Cut)* styles; all models are available in Type B style. Check Simpson Strong-Tie when ordering.
- Bevel-cut the joist for skewed Type A hangers *(see illustration)*. Square-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 thickness of 3½".

HANGER HEIGHT
- For hanger heights exceeding the joist height by more than ½", the factored resistance is 0.50 of the table value.
- Minimum hanger height may increase significantly with modification. Check availability when ordering.

SLOPED AND/OR SKEWED SEAT
- Non-skewed hangers can carry the design load when the seat slope is within 2° 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 factored resistance is 100% of the table value.
- WPU/WNPU/HWU series may be skewed to a maximum of 45° and/or sloped to a maximum of 45° for joist widths less than or equal to 3⁹⁄₁₆". Multiply the table values by 0.50.

UPLIFT RESISTANCES *(WPU/WNPU/HWU only)*
- Hangers can be sloped to 45° and/or skewed 45° at 100% of the uplift resistance.
- 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 centre 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.

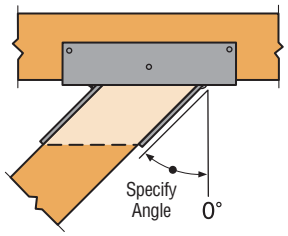
SLOPED TOP FLANGE
- A top flange may be ordered sloped down left or down right to 35° with or without a sloped and/or skewed seat *(see illustration)*. Reduce tabulated factored resistances using straight-line interpolation *(see open/closed top flange)*.

OFFSET TOP FLANGE
- The top flange may be offset left or right for placement at the end of a header *(see illustration)*. The factored resistance is 0.50 of the table value.
- For skewed and offset top flange hangers, the maximum factored resistance is 0.42 of the table value or 2905 lbs (12.92 kN), whichever is lower.

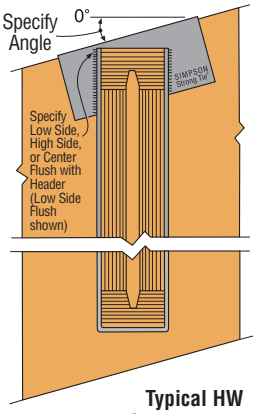
OPEN/CLOSED TOP FLANGE
- The top flange may be opened more or closed less than the standard 90° *(see illustration)* to a maximum of 30°, except the HW which cannot be closed. Reduce factored resistances using straight-line interpolation.
- Example: For a top flange open 30°, reduce resistance to [(90-30)/90] x table value.

SADDLE HANGER
- To order, add D to model and specify S dimension *(see illustration)*.

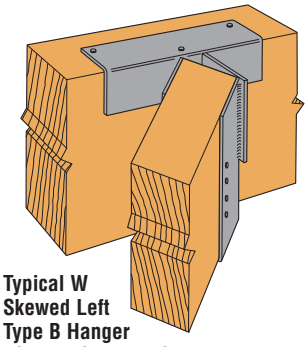
RIDGE HANGER *(not available for uplift models)*
- Top flange may be sloped to a maximum of 35° to accommodate a ridge *(see illustration)*. Specify angle of the slope. Reduce factored resistance using straight-line interpolation. See Open/Closed example.



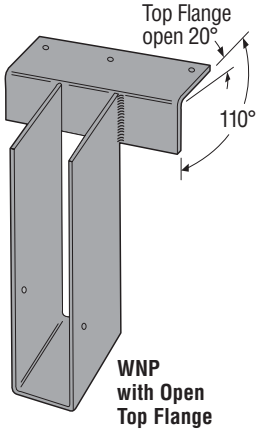
Typical W Top View Skewed Left Type A Hanger
(Bevel Cut Joist Shown)



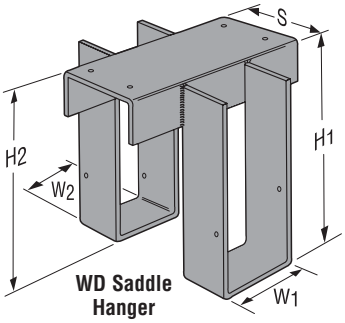
Typical HW Top Flange Sloped Down Left with Low Side Flush



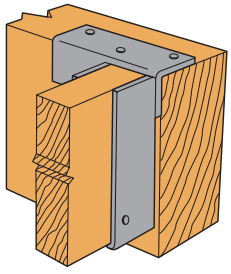
Typical W Skewed Left Type B Hanger
(Square Cut Joist Shown)



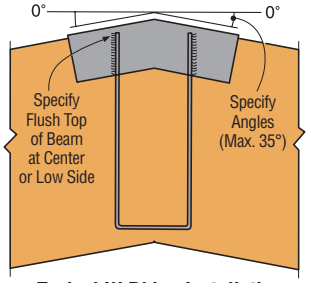
WNP with Open Top Flange



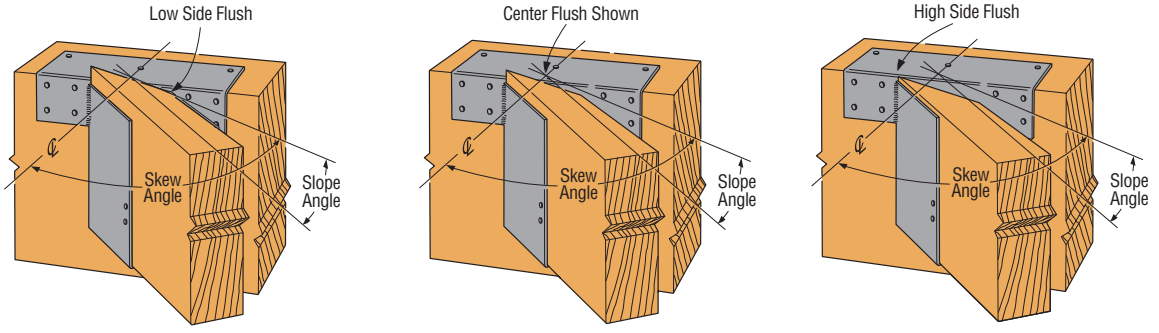
WD Saddle Hanger



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

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", the factored resistance is 50% of the table value.

SLOPED AND/OR SKEWED SEAT

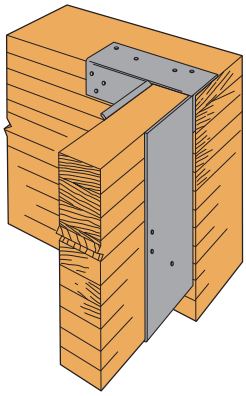
- GLT/GLTV/HGLT/HGLTV and GLS/HGLS series may be skewed to a maximum of 50° or sloped to a maximum of 45°.
- For skews greater than 15°, multiply the tabulated factored uplift resistance by 0.50.
- For sloped only, multiply the table value by 0.78 for GLT/GLS/GLTV to a maximum of 8135 lbs. For HGLT/HGLS/HGLTV multiply the table value by 0.85 to a maximum of 12,605 lbs.
- For skewed only, multiply the table value by 0.87 for GLT/GLS/GLTV to a maximum of 9510 lbs. For HGLT/HGLS/HGLTV multiply the table value by 0.73 to a maximum of 10,890 lbs.
- For sloped and skewed GLT/GLS/GLTV configurations, multiply the table values by 0.78 to a maximum of 8130 lbs. Sloped and skewed combinations are not allowed for the HGLT/HGLS/HGLTV.

SLOPED TOP FLANGE

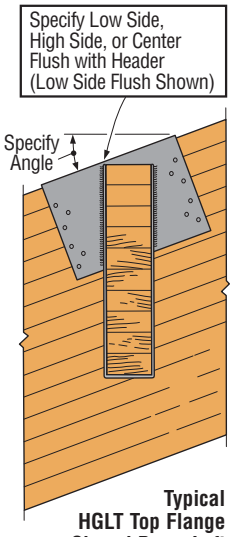
- A top flange may be sloped down left or down right to 30° with or without a sloped and/or skewed seat *(see illustration)*. Reduce tabulated factored resistances using straight-line interpolation.
- Example: For a top flange sloped 30°, reduce resistance to [(90-30)/90] x table value.

OFFSET TOP FLANGE

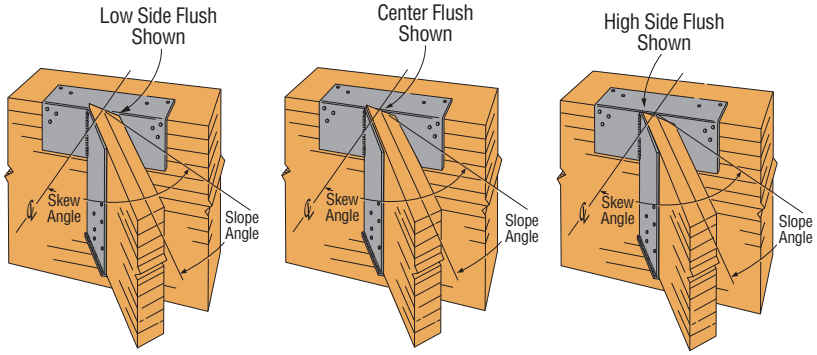
- The top flange may be offset left or right for placement at the end of a header. Minimum seat width 3¼". The maximum factored resistance is 0.50 of the table value for the GLT/GLTV/GLS and 0.45 for the HGLT/HGLTV/HGLS.
- For skewed and offset top flange hangers, the maximum factored resistance is 5085 lbs.
- No uplift resistance.



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

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 factored resistance is 13,750 lbs D.Fir-L Glulam and 12,090 lbs Spruce-Pine Glulam for LEG and MEG, 19,710 lbs D.Fir-L Glulam and 18,005 lbs Spruce-Pine Glulam for EG.

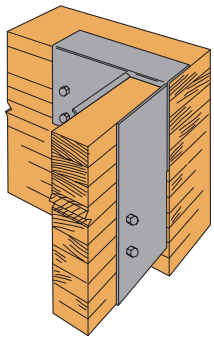
SLOPED SEAT – TOP FLANGE MODELS ONLY

- The LEG/MEG/EG series can be sloped up to 45°. The maximum factored resistance is 15,835 lbs D.Fir-L Glulam and 13,920 lbs Spruce-Pine Glulam; see illustration.

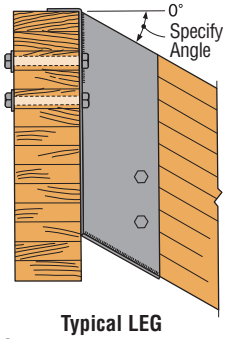
NO SLOPED AND SKEWED COMBO AVAILABLE.

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 factored resistance is 9,280 lbs D.Fir-L Glulam and 8,160 lbs. Spruce-Pine Glulam *(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)

HANGER OPTIONS

LGU/MGU/HGUU/HHGU

See Hanger Options General Notes.

CONCEALED FLANGE

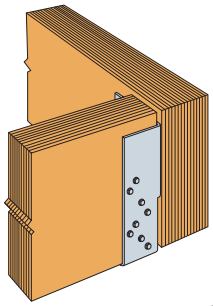
- LGU, MGU, HGU and HHGU hangers are available with one flange concealed. Specify flange to conceal.
- Factored resistances for one flange-concealed option:
  - LGU 0.83 of published value - HGU 0.70 of published value
  - MGU 0.65 of published value - HHGU 0.84 of published value
- MGU with W ≤ 4" and HGU with W ≤ 4 11/16" flanges cannot be concealed.

SKEWED

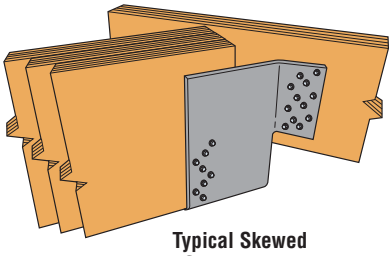
- LGU, MGU and HGU hangers are available skewed up to 45°.
- Concealed flanges are not available with skewed models.
- Apply the following reduction factors to table values:

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



Typical MGU Installation with Right Flange Concealed



Typical Skewed MGU Installation

LGUM/HGUM

See Hanger Options General Notes.

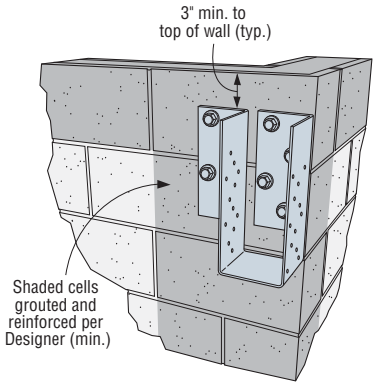
CONCEALED FLANGE

- HGUM hangers are available with one flange concealed. Specify flange to conceal.

Table 1 – HGUM Factored Resistances for One Flange Concealed Applications

Model No.	Dimensions (in)		Fasteners		Factored Resistance					
					End of Wall				Outside Corner	
					CMU Wall		Concrete Wall		CMU or Concrete Wall	
			CMU/ Concrete	Joist	Uplift	Normal	Uplift	Normal	Uplift	Normal
	W	H	Titen HD	SDS Screws	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)	(K_D = 1.15)	(K_D = 1.00)
					lbs	lbs	lbs	lbs	lbs	lbs
					kN	kN	kN	kN	kN	kN
HGUM	5¼ to 9	11 to 30	8-⅝"x5"	24-¼"x2½"	1690	7355	4495	9660	3880	9890
					7.52	32.72	20.00	42.97	17.26	43.99

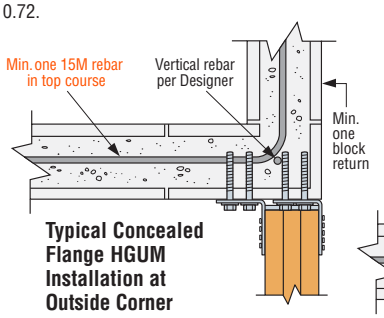
1. Factored uplift resistances shown are for D.Fir-L joist. For S-P-F joist, multiply the value x 0.72.
2. See Table 2 for additional notes.



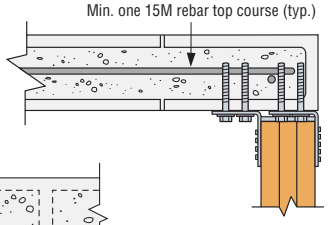
Typical Concealed Flange HGUM Installation at Outside Corner

Table 2 – LGUM/HGUM Factored Resistances for Skewed Applications

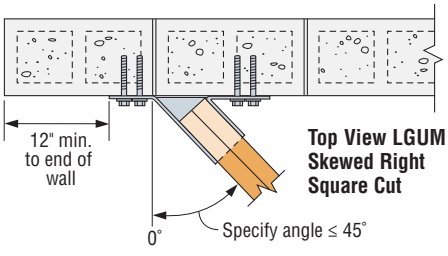
Model No.	Fasteners		Factored Resistance		
			Uplift		Normal
	CMU/ Concrete	Joist	D.Fir-L	S-P-F	Concrete/CMU
			(K_D = 1.15)	(K_D = 1.15)	(K_D = 1.00)
	Titen HD	SDS Screws	lbs	lbs	lbs
			kN	kN	kN
LGUM26-2X	4-⅜"x4"	4-¼"x2½"	875	630	2855
LGUM26-3X					
LGUM26-4X			3.89	2.80	12.70
LGUM46X					
LGUM28-2X	6-⅜"x4"	6-¼"x2½"	1410	1015	4470
LGUM28-3X					
LGUM28-4X			6.27	4.52	19.88
LGUM48X					
LGUM210-2X	8-⅜"x4"	8-¼"x2½"	1950	1405	6085
LGUM210-3X					
LGUM210-4X			8.67	6.25	27.07
LGUM410X					
HGUM5.25X	8-⅝"x5"	8-¼"x2½"	2390	1720	9370
HGUM5.50X			10.63	7.65	41.68
HGUM7.00X	8-⅝"x5"	8-¼"x2½"	2350	1690	8450
HGUM7.25X			10.45	7.52	37.59
HGUM9.00X	8-⅝"x5"	8-¼"x2½"	2310	1660	7530
			10.28	7.38	33.50



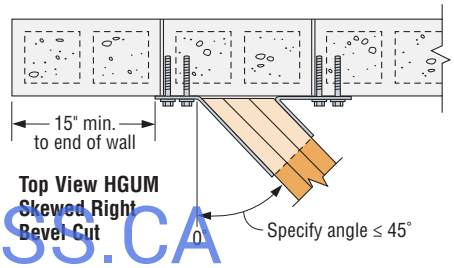
Typical Concealed Flange HGUM Installation at Outside Corner



Typical Concealed Flange HGUM Installation at End of Wall



Top View LGUM Skewed Right Square Cut



Top View HGUM Skewed Right Bevel Cut

1. Factored uplift values have been increased 15% for wind or earthquake loading with no further increase allowed. Reduce where other load durations govern.
2. Factored resistances assume Type S mortar with f'_m = 1087 psi (7.5 MPa) for 15 MPa concrete block masonry as per Table 4 CSA S304.1-14. For values of f'_m < 1085 psi (7.5 MPa) multiply the tabulated values by $(f'_m/1085)^{0.5}$.
3. Factored resistances assume a 28 day concrete compressive strength of f'_c = 2500 psi (17.25 MPa). For values of f'_c < 2500 psi (17.25 MPa) multiply the tabulated values by $(f'_c/2500)^{0.5}$.
4. Factored resistances for concrete block masonry assumes minimum 8" (190 mm) block grouted solid as per CSA A179-14. Specifier to design block wall reinforcing per CSA S304.1-14 to carry the applied load.
5. Factored resistances for concrete assumes minimum 8" (203 mm) concrete wall. Specifier to design concrete wall reinforcing as per CSA A23.3-14 to carry the applied load.

HANGER OPTIONS

EGQ

See Hanger Options General Notes.

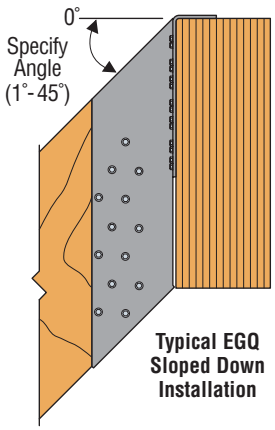
SKEWED SEAT

- The EGQ can be skewed a maximum of 45°.
- The factored down resistance is 0.69 of the table value to a maximum of 22,435 lbs (99.76 kN).
- The factored uplift resistance is 100% of the table value.

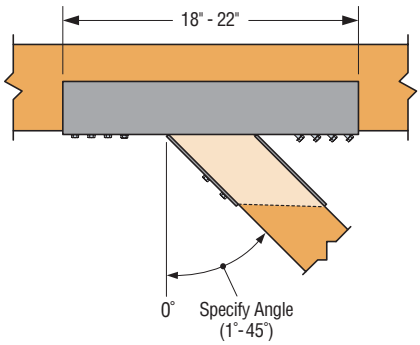
SLOPED SEAT

- The EGQ can be sloped down a maximum of 45°.
- The factored down resistance is 0.78 of the table value to a maximum of 25,160 lbs (111.92 kN)
- The factored uplift resistance is 100% of the table value.
- 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

THGB/THGBH/THGBV/THGBHV

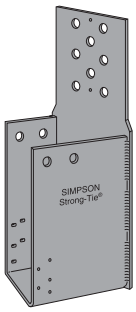
See Hanger Options General Notes.

SKEWED SEAT, 45° MAXIMUM

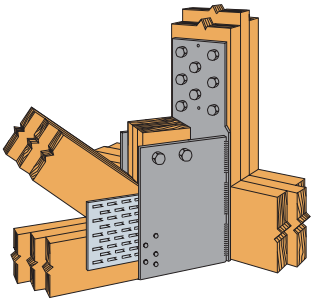
- Multiply the tabulated factored resistances for uplift and download by the following:
  - THGB2/THGB3 0.74
  - THGBH3 0.71
  - THGBH4 0.56

DROPPED BUCKET

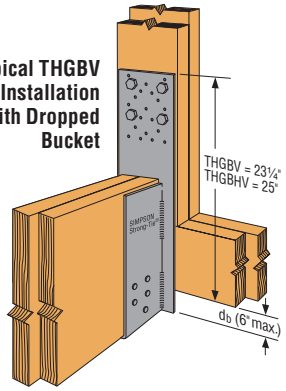
- THGBV/THGBHV backplates can be extended to allow for up to a 6" dropped bucket.
- Factored resistances are 100% of the table values.
- Order as "X" version, specify the total backplate height, BK_PLT, equal to the hanger height (H) plus the dropped bucket amount (db). Ex: a THGBV3.62/9 with a 4" dropped bucket would have a total backplate height of 27¼".



THGBH3 *(Skewed Left)*



Typical THGBH Installation Skewed Left



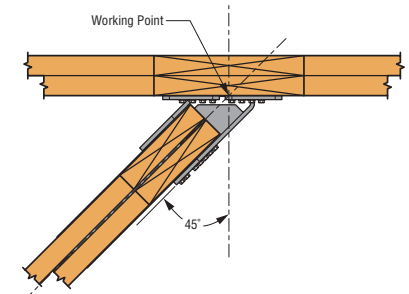
Typical THGBV Installation with Dropped Bucket

THGQH

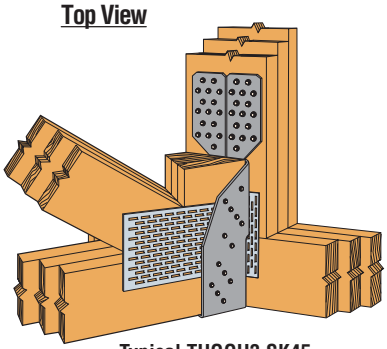
See Hanger Options General Notes.

SKEWED SEAT

- THGQH may be skewed 45° for the models shown. Carried members may be bevel cut.
- Align centreline of joist and centreline of connecting web at the face of the girder.



Top View



Typical THGQH3 SK45 Installation Skewed Left

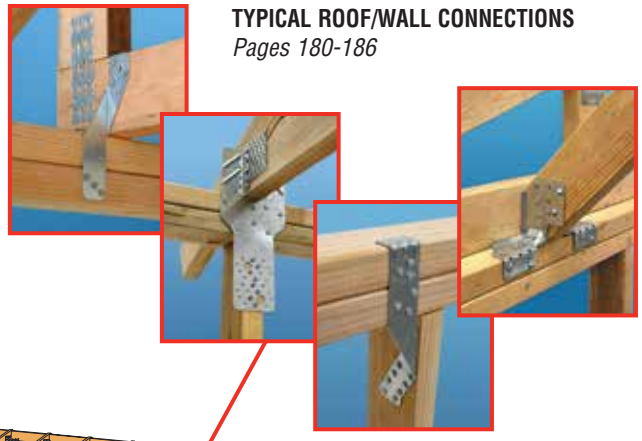
Model No.	Max. Girder Truss B.C. Depth	Min. Vert. Web Size	Fasteners		Factored Resistance			
					D.Fir-L		S-P-F	
			Header	Joist	Uplift (K_D = 1.15)	Normal (K_D = 1.00)	Uplift (K_D = 1.15)	Normal (K_D = 1.00)
					lbs	lbs	lbs	lbs
					kN	kN	kN	kN
THGQH2 SK45	2x10	2x12	28-SDS ¼"x3"	18-SDS ¼"x3"	6275	15440	4520	11115
					27.91	68.68	20.11	49.44
THGQH3 SK45	2x10	2x12	36-SDS ¼"x4½"	18-SDS ¼"x4½"	5345	15440	3845	11115
					23.78	68.68	17.10	49.44
THGQH4 SK45	2x12	2x12	40-SDS ¼"x6"	18-SDS ¼"x6"	5345	20310	3845	14625
					23.78	90.35	17.10	65.06

CONTINUOUS LOAD TRANSFER PATH

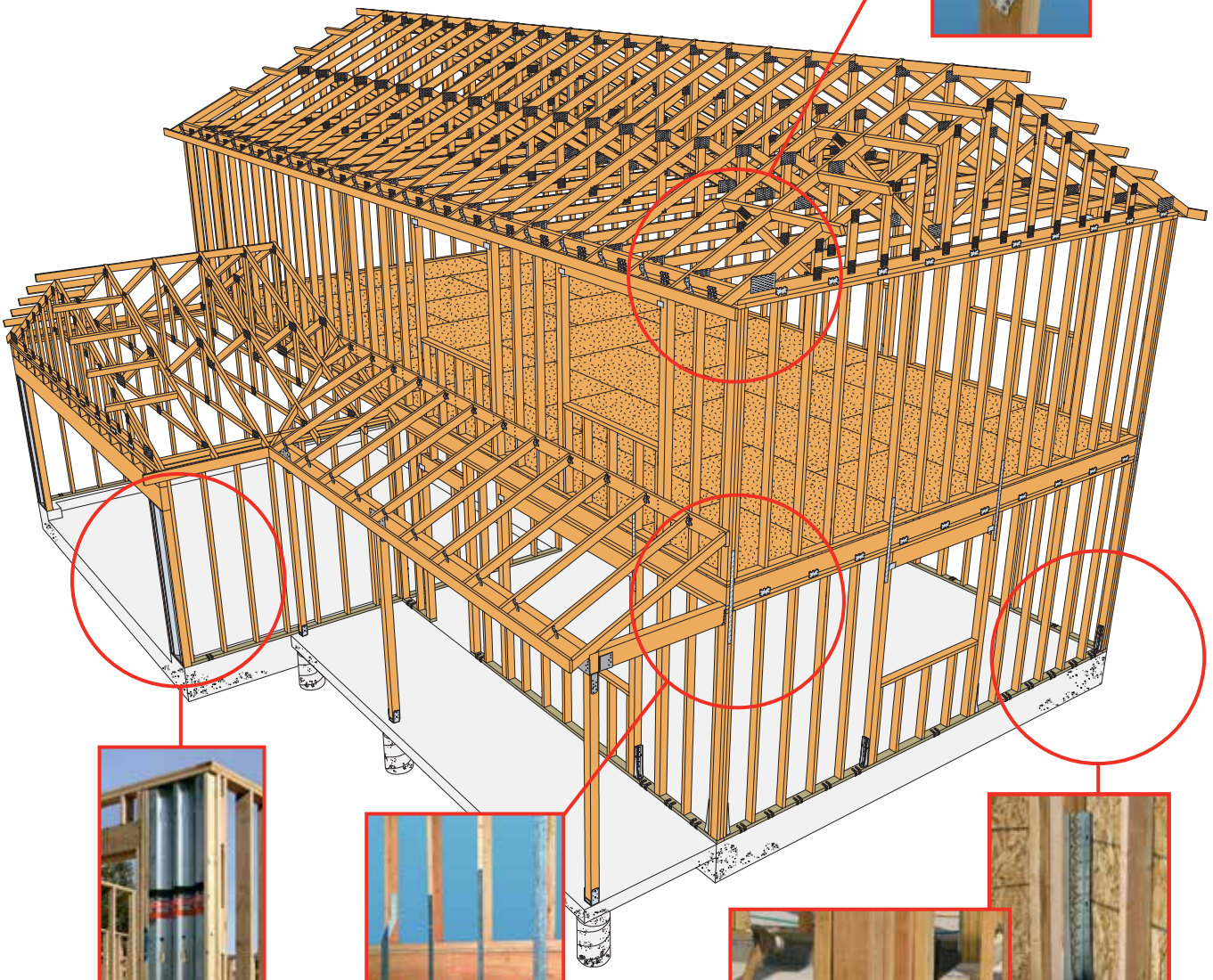
This drawing shows the connection points for a continuous load transfer path from the rafters to the foundation of a two-story house.

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 values.



TYPICAL ROOF/WALL CONNECTIONS
Pages 180-186



LATERAL SYSTEMS
Pages 74-76

TYPICAL FLOOR-TO-FLOOR CONNECTIONS
Pages 187-194

TYPICAL FOUNDATION CONNECTIONS
Pages 28-56

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NOTES

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