The C-2009 is a two year catalog and this document now includes a 2010 addendum, which follows page 196.

SIMPSON Strong-Tie®

WOOD CONSTRUCTION CONNECTORS

2009-2010

C-2009

(800) 999-5099
www.strongtie.com

STRENGTH COMES IN NUMBERS

Steel Strong-Wall®shearwall shake table test
Simpson Strong-Tie Tye Gilb test facility
Stockton, CA

Little did we know

when we introduced our first holdown in 1966 that our product innovations would lead us to solutions that can help hold together five-story buildings during an earthquake or allow builders to install larger window and door openings in homes. Our offering of lateral-force resisting systems, including Wood and Steel Strong-Wall® shearwalls, Anchor Tiedown Systems and new Strong Frame™ moment frames, gives designers and engineers added design flexibility in wood-frame construction and the confidence that almost anything is possible.

At Simpson Strong-Tie, we believe that strength really does come in numbers. By offering the largest selection of lab and field-tested lateral-force resisting systems along with dedicated engineers and field support reps to back them up, you can count on the strength of our products and our people to perform.

Whether you're designing or building a single-family home, a six-story mixed-used building or a retail store, we know we have a solution to fit your project and meet the most stringent code requirements. And we're not done yet. The research, testing and structural system technology that's to come has us just as excited as we were when we developed that first holdown. With each new product and design innovation, we're working with the industry to increase the structural safety of homes and buildings around the country. And in light of all the hurricanes and earthquakes we've experienced during the last 40 years, that's a pretty good feeling.

To learn more, visit:
www.strongtie.com/lateralsystems

ALPHABETICAL INDEX

SIMPSON Strong-Tie®

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

ALPHABETICAL INDEX

SUBJECT INDEX

KEEP THIS CATALOG – IT IS NOW VALID FOR TWO YEARS

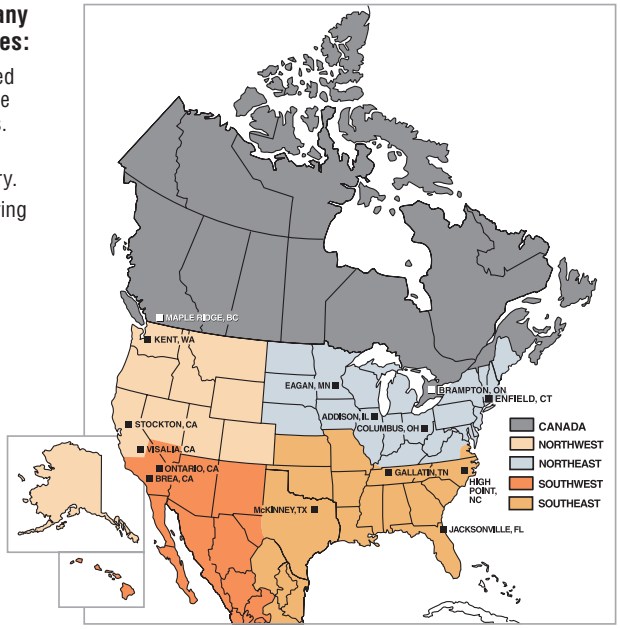
Simpson Strong-Tie will now publish its *Wood Construction Connectors* catalog every two years. In an effort to continue to provide our customers with current information on our ever-expanding product line, we will be publishing an addendum on years we don't print a catalog. The addendum will contain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

INTRODUCTION

For more than 50 years, Simpson Strong-Tie has focused on creating structural products that help people build safer and stronger homes and buildings. A leader in structural systems research and technology, Simpson is one of the largest suppliers of structural building products in the world. Simpson's 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, Strong-Wall® prefabricated shearwalls, Anchor Tiedown Systems for multi-story buildings, Quik Drive® auto-feed screw driving systems and Simpson Strong-Tie Anchor Systems® anchors and fasteners for concrete and masonry. For more information, visit the company's Web site at ***www.strongtie.com***.

The Simpson Strong-Tie Company Inc. "NO EQUAL" pledge includes:

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



THE SIMPSON STRONG-TIE QUALITY POLICY

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

Tom Fitzmyers
Chief Executive Officer

Terry Kingsfather
President

GETTING FAST TECHNICAL SUPPORT

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

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

WE ARE ISO 9001-2000 REGISTERED

Simpson Strong-Tie is an ISO 9001-2000 registered company. ISO 9001-2000 is an internationally-recognized quality assurance system which lets our domestic and international customers know that they can count on the consistent quality of Simpson Strong-Tie products and services.

800-999-5099 | www.strongtie.com

CONNECTOR SELECTION KEY

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

NEW PRODUCTS FOR 2009

MASA Mudsill Anchor

MAS mudsill anchors have always been a time-saving alternative to mudsill anchor bolts, and now the new and improved design of the MASA provides for one-to-one replacement of ½" and ⅝" anchor bolts. Additional fasteners and the reinforcement of key sections of the anchor have improved performance so that the load capacity of the MASA mudsill anchor either meets or exceeds that of other cast-in-place anchors. Since the MASA can be installed as wide as 6' on center, the same load capacity can be achieved with fewer mudsill anchors.

See pages 22-23 for details

FWANZ Foundation Wall Angle

The new FWANZ foundation angle performs the same function as the original FWAZ: anchoring foundation and basement walls to the floor system to resist lateral loads due to soil pressure. Whereas the FWAZ utilizes the Titen HD screw anchor for anchorage, the new FWANZ fastens to the sill plate with nails and utilizes independent anchorage *(by Designer)* into the wall. This connection is called out in both the International Building Code® (IBC) Section 1610.1 and International Residential Code® Section R404.

See page 25 for details

HTT4 & HTT5 Tension Ties

The LTT/MTT/HTT series of tension ties offers tension-resisting solutions that install with nails. These new additions to the HTT line feature an optimized nailing pattern which results in better performance with less deflection. Designed to meet new code standards, the HTT4 and HTT5 offer higher loads than their predecessors the HTT16 and HTT22. For an added benefit, the HTT5 installs with 6 fewer nails than the HTT22.

See page 40 for details

HD19 Holdown

The new HD19 sits at the top of the holdown family when it comes to load values. With a maximum load of over 19,000 lbs. this high-capacity bolted holdown is ideal for applications that exceed the capacity of our other holdowns such as the HDU series. They are self-jigging on the stud, ensuring that the code-required seven-bolt-minimum end distance is maintained.

See page 41 for details

NEW PRODUCTS FOR 2009

DTT2Z Deck Tension Tie

The new DTT2Z is a safe, cost-effective way to attach deck-railing posts to the deck framing. Because the post is tied back into the deck joists, rather than to the rim joist alone, the connection is stronger than typical through-bolt installations and complies with new standards regarding guardrail post connections for decks. The DTT2Z also complies with the new standards for reinforcing the connection of the deck to the house. Additionally the versatile DTT2Z is load rated as a holdown for light-duty shearwalls and braced-panel applications.

See page 165 for details

DETAL Embedded Truss Anchor

The new DETAL high-capacity embedded truss anchor attaches single-ply roof trusses to concrete and masonry walls. The DETAL20 combines dual embedded anchors with a structural moisture-barrier seat that is partially embedded in the concrete or grout. This plate serves to protect the truss and also provides increased lateral and uplift capacity.

See pages 144-145 for details

TBD Truss Brace

Everything about the new TBD truss brace is designed to make diagonal truss bracing easier. It travels in a box like a coiled strap and is formed into shape as it is pulled from the carton, making it rigid and easy to position across trusses. Once fastened into place, the braces lay flat so that they remain in place as the roof is sheathed, eliminating the need to remove bracing. And since the braces stay in place, trusses maintain better alignment and are safer for sheathing crews to work on.

See page 133 for details

General Purpose Angles & Straps

Simpson Strong-Tie introduces three new products to handle those applications where you need a versatile general-purpose connector. The MLZ angles are 4" and 6" long angles that fasten with Simpson Strong-Tie® Strong-Drive® screws (SDS) for a solid connection. The HTP37Z is a 3"x7" strap that installs with 10dx1½" nails and the HRS416Z is a heavy-duty 4"x16" strap that installs with SDS screws for added strength.

See pages 148-149 *(HTPZ & HRSZ)*, 167 *(MLZ)* for details

HOW TO USE THIS CATALOG

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

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

EXTRA CORROSION PROTECTION
This icon identifies products that are available with additional corrosion protection *(ZMAX®, Hot-Dip Galvanized, stainless steel or the SDS double-barrier coating).* Other products may also be available with additional protection, contact Simpson Strong-Tie for options. The end of the product name will indicate what type of extra corrosion protection is provided *(Z = ZMAX, HDG = Hot-Dip Galvanized or SS = stainless steel).* See page 10-11 for information on corrosion, and visit our website ***www.strongtie.com/info*** for more technical information on this topic.

HOW WE DETERMINE ALLOWABLE LOADS

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

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

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

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

CATALOG DEFINITION:

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

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

Code Ref: See page 12 for the Code Reference Key Chart, to determine which code reports include this product.

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

Uplift **Lateral** **Down**

Model No.: This is the Simpson product name.

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

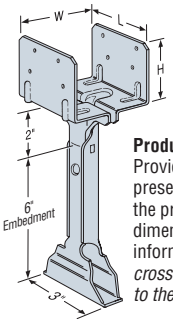
Model No.	W	L	H	Nails	Allowable Loads (160) Uplift	(160) F_1	(160) F_2	Down (100)	Code Ref.
EPB44A	3⁹⁄₁₆	3	2⅜	8-16d	1100	815	935	2670	IL8
EPB44	3⁹⁄₁₆	3¼	2⁵⁄₁₆	8-16d	800	985	1135	3465	IL8, L13
EPB46	5½	3⁵⁄₁₆	3	8-16d	800	985	1135	3465	
EPB66	5½	5½	3	12-16d	1500	985	1135	3465	

NAILS: 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.

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

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

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



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

CORROSION INFORMATION

Understanding the Issues

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

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

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

In the last several years, preservative-treated wood formulations have changed significantly. Many of the new formulations are more corrosive to steel connectors and fasteners than the traditionally used formulation of CCA-C. Simpson Strong-Tie testing has shown that ACQ-C, ACQ-D (Carbonate), CBA-A and CA-B treated woods are approximately 2 times more corrosive than CCA-C, while SBX-DOT (Sodium Borate) treated woods were shown to be less corrosive than CCA-C. Refer to technical bulletin T-PTWOOD for more information *(see page 191 for details).*

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

Stainless steel is always the most effective solution to corrosion risk. However, it is also more expensive and sometimes more difficult to obtain. To best serve our customers, Simpson Strong-Tie is evaluating the options to identify the safest and most cost-effective solutions. Based on our testing and experience there are some specific applications that are appropriate for ZMAX/HDG or G90 connectors *(see chart on page 11.)*

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

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

CORROSION INFORMATION

General Simpson Strong-Tie Recommendations

- Outdoor environments are generally more corrosive to steel. If you choose to use ZMAX® or HDG finish on an outdoor project *(i.e. deck, patio cover)*, you should periodically inspect your connectors and fasteners or have a professional inspection performed. Regular maintenance including water-proofing of the wood used in your outdoor project is also a good practice.
- For wood with actual retention levels greater than 0.40 pcf for ACQ and MCQ, 0.41 pcf for CBA-A, or 0.21 pcf for CA-B *(Ground Contact)*, stainless-steel connectors and fasteners are recommended. Verify actual retention level with the wood treater.
- When using stainless-steel connectors, use stainless-steel fasteners. When using ZMAX/HDG galvanized connectors, use fasteners that meet the specifications of ASTM A153.
- Testing indicates wood installed dry reduces potential corrosion. If dry wood is used, see our website for additional information.
- Using a barrier membrane can provide additional corrosion protection, see technical bulletin T-PTBARRIER *(see page 191 for details)*.

Due to the many variables involved, Simpson Strong-Tie cannot provide estimates on service life of connectors, anchors or fasteners. We suggest that all users and Designers also obtain recommendations for HDG, ZMAX (G185), mechanically galvanized, or other coatings from the treated wood supplier for the type of wood used. However, as long as Simpson Strong-Tie recommendations are followed, we stand behind product performance and our standard warranty *(page 15)* applies.

Guidelines for Selecting the Proper Connector

1 Evaluate the Application.

Consider the type of structure and how it will be used. These recommendations may not apply to non-structural applications such as fences.

2 Evaluate the Environment.

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

Interior Dry Use: Includes wall and ceiling cavities, and raised floor applications of enclosed buildings that have been designed to ensure that condensation and other sources of moisture do not develop.

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

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

Higher Exposure Use: Includes exposure to ocean-salt air, fire retardants, large bodies of water, fumes, fertilizers, soil, some preservative-treated woods, industrial zones, acid rain, and other corrosive elements. Type 316 stainless steel contains slightly more nickel than other grades, plus molybdenum, giving it better corrosion resistance in high-chloride environments.

3 Evaluate and select a suitable preservative-treated wood for the intended application and environment.

The treated wood supplier should provide all the information needed regarding the wood being used. This information should include: the specific type of wood treatment used, if ammonia was used in the treatment, and the chemical retention level. If the needed information is not provided then Simpson Strong-Tie would recommend the use of stainless-steel connectors and fasteners. You should also ask the treated-wood supplier for a connector coating or material recommendation.

4 Use the chart on the right, which was created based on Simpson Strong-Tie testing and experience to select the connector finish or material.

If a preservative-treated wood product is not identified on the chart, Simpson Strong-Tie has not evaluated test results regarding such product and therefore cannot make any recommendation other than the use of stainless steel with that product. Manufacturers may independently provide test results or other product use information; Simpson Strong-Tie expresses no opinion regarding any such information.

5 Compare the treated-wood supplier's recommendation with the Simpson Strong-Tie recommendation.

If these recommendations are different, Simpson Strong-Tie recommends that the most conservative recommendation be followed.

Simpson Strong-Tie recommendations are as follows:

Low = Use standard painted and G90 galvanized connectors, or Simpson Strong-Tie® Strong-Drive® screws (SDS) with the double-barrier coating, as a minimum.

Med = Use ZMAX/HDG galvanized connectors as a minimum. Use HDG fasteners which meet the specifications of ASTM A153 or Simpson Strong-Tie® Strong-Drive® screws (SDS) with double-barrier coating.

High[6] = Use Type 303, 304, 305 or 316 stainless-steel connectors and fasteners.

CONNECTOR COATING RECOMMENDATION – STRUCTURAL APPLICATIONS

Environment	Untreated Wood	SBX/ DOT & Zinc Borate	MCQ	ACQ-C, ACQ-D (Carbonate), CA-B & CBA-A			ACZA	Other or Uncertain
				No Ammonia	With Ammonia	Higher Chemical Content[1]		
Interior – Dry	Low	Low	Low[5]	Med[5]	Med	High	High	High
Exterior – Dry	Low	N/A[2]	Med	Med	High	High	High	High
Exterior – Wet	Med	N/A[2]	Med[3,4]	Med[3,4]	High	High	High	High
Higher Exposure	High	N/A[2]	High	High	High	High	High	High
Uncertain	High	N/A[2]	High	High	High	High	High	High

1. Woods with actual retention levels greater than 0.40 pcf for ACQ and MCQ, 0.41 pcf for CBA-A, or 0.21 pcf for CA-B (Ground Contact level).
2. Borate treated woods are not appropriate for outdoor use.
3. Test results indicate that ZMAX/HDG and the SDS double-barrier coating will perform adequately, subject to regular maintenance and periodic inspection. However, the nationally-approved test method used, AWPA E12-94, is an accelerated test, so data over an extended period of time is not available. If uncertain, use stainless steel.
4. Some treated wood may have excess surface chemicals making it potentially more corrosive. If you suspect this or are uncertain, use stainless steel.
5. Where noted in the table, applications where the wood is dry *(moisture content less than 19%)* when installed and will remain dry in-service may use a minimum coating recommendation of "Low".
6. Type 316 stainless-steel connectors and fasteners are the minimum recommendation for ocean-salt air and other chloride environments.

COATINGS AVAILABLE

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

Finish/Material	Description	Level of Corrosion Resistance
Gray Paint	Water-based paint intended to protect the product while it is warehoused and in transit to the jobsite.	Low
Powder Coating	Baked on paint finish that is more durable than our standard paint and produces a better looking finished product.	Low
Standard G90 Zinc Coating	Zinc galvanized coating containing 0.90 oz. of zinc per square foot of surface area *(total both sides)*.	Low
ZMAX G185	Galvanized (G185) 1.85 oz. of zinc per square foot of surface area *(hot-dip galvanized per ASTM A653 total both sides)*. These products require hot-dip galvanized fasteners *(fasteners which meet the specifications of ASTM A153)*.	Medium
HDG HOT-DIP GALVANIZED	Products are hot-dip galvanized after fabrication (14 ga. and thicker). The coating weight increases with material thickness. The minimum specified coating weight is 2.0 oz./ft^2 *(per ASTM A123 total both sides)*. These products require hot-dip galvanized fasteners *(fasteners which meet the specifications of ASTM A153)*.	Medium
Double-Barrier Coating *(SDS Screws)*	Simpson Strong-Tie Strong-Drive screws (SDS) that are manufactured with two different finishes that provide a level of corrosion protection that exceeds that provided by the previous HDG coating.	Medium
SST300 STAINLESS STEEL	Connectors are manufactured from Type 316L stainless steel, and provide greater durability against corrosion. Stainless-steel nails are required with stainless-steel products, and are available from Simpson Strong-Tie.	High

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

IMPORTANT INFORMATION & GENERAL NOTES

CODES

Code Reference Column in Load Tables

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

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

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

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

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

Multiple types of ICC-ES evaluation reports are shown in the Code Reference Key Chart. ICC-ES NER, ICC-ES ER, and ICC-ES ES reports are referred to as Legacy Reports and have been obtained over the years to verify that Simpson Strong-Tie products are in compliance with the code. These Legacy reports were evaluated under the 1997 UBC and/or the 2000 IBC codes. In order to obtain evaluation for the 2003 or 2006 I-codes, manufacturers must submit for ICC-ES ESR reports.

Simpson has many ICC-ES ESR reports, but currently not all products have been evaluated per the latest codes. This does not mean that the information in those reports is inaccurate. Simpson has submitted our Legacy Reports to ICC-ES to obtain product evaluation service reports (ESR's) evaluated using the 2006 IBC/IRC, but due to the large number of reports they have to evaluate and new acceptance criteria (AC) that have only recently been adopted, ICC-ES has not been able to process all the reports in time for this catalog.

It is anticipated that during the first and second quarter of 2009, our remaining Legacy Reports will be converted. To help understand which of our stamped and welded connector products are listed in an ESR report, we have obtained an ICC-ES index evaluation services report, ICC-ES ESR-2523, for these products. This report is a reference document to other ESR reports held by Simpson Strong-Tie and will be updated frequently by ICC-ES as new stamped and welded connector evaluation services reports are issued or converted. Please visit ***www.strongtie.com*** for the latest information or contact ICC Evaluation Services at ***www.icc-es.org***.

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

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

On September 20, 2007, the City of Los Angeles, ***www.ladbs.org***, revised its policy to permit products with evaluation reports from other evaluation agencies with the exception of those products resisting seismic forces. Products resisting seismic forces must be listed in a Los Angeles Research Report (LA RR).

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

CODE REFERENCE KEY CHART

AGENCY	CODE LISTING	CODE REF.
ICC-ES LEGACY REPORTS	ER1211	IL1
	ER4935	IL2
	ER5313	IL3
	ER5349	IL4
	ER5357	IL5
	ER5655	IL6
	ER5672	IL7
	ER5708	IL8
	ER5709	IL9
	ER5938	IL10
	ER5952	IL11
	NER209	IL12
	NER393	IL13
	NER413	IL14
	NER432	IL15
	NER443	IL16
	NER469	IL17
	NER499	IL18
	NER694	IL19
	9603C	IL20
ICC-ES ESR	ESR-1866	I1
	ESR-2203	I2
	ESR-1622	I3
	ESR-2105	I4
	ESR-2236	I5
	ESR-2330	I6
	ESR-2549	I7
	ESR-2551	I8
	ESR-2552	I9
	ESR-2553	I10
	ESR-2554	I11
	ESR-2604	I12
	ESR-2605	I13
	ESR-2606	I14
	ESR-2607	I15
	ESR-2608	I16
	ESR-2613	I17
	ESR-2614	I18
	ESR-2615	I19
	ESR-2616	I20
IAPMO ES ER	ER-112	IP1
	ER-130	IP2
Submitted for Listing	Call us for Status and Test Data	160*
No Code Listing	Call us for Test Data	170
No Load Rating	—	180
Prescriptive Code	—	190

AGENCY	CODE LISTING	CODE REF.
City of Los Angeles, California	RR 24949	L1
	RR 25074	L2
	RR 25076	L3
	RR 25119	L4
	RR 25158	L5
	RR 25248	L6
	RR 25281	L7
	RR 25293	L8
	RR 25528	L9
	RR 25540	L10
	RR 25568	L11
	RR 25707	L12
	RR 24818	L13
	RR 25064	L14
	RR 25149	L15
	RR 25552	L16
	RR 25711	L17
	RR 25712	L18
	RR 25713	L19
	RR 25714	L20
	RR 25716	L21
	RR 25718	L22
	RR 25719	L23
	RR 25720	L24
	RR 25725	L25
	RR 25726	L26
State of Florida	FL10849	F1
	FL10852	F2
	FL10854	F3
	FL11496	F4
	FL10441	F5
	FL10655	F6
	FL10447	F7
	FL10531	F8
	FL10856	F9
	FL10444	F10
	FL10860	F11
	FL10861	F12
	FL10446	F13
	FL10863	F14
	FL10864	F15
	FL10456	F16
	FL10865	F17
	FL10667	F18
	FL10866	F19
	FL9589	F20
	FL11166	F21
	FL11169	F22

* As of the printing of this catalog, products coded 160 either have been submitted and are awaiting issuance from the respective product evaluation agency or are to be submitted. Because code reports can be issued throughout the year, we encourage the user to visit ***www.strongtie.com***, ***www.icc-es.org***, ***www.ladbs.org***, ***www.dsa.dgs.ca.gov***, and ***www.floridabuilding.org*** for the most current information, call Simpson Strong-Tie at 800-999-5099, or contact the code agency directly.

IMPORTANT INFORMATION & GENERAL NOTES

WARNING

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

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

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

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

- Instructional builder/contractor training kits containing an instructional video, an instructor guide and a student guide in both English and Spanish;
- *Installer's Pocket Guide* (form S-INSTALL, see page 191 for details) which is designed specifically for installers and uses detailed graphics and minimal text in both English and Spanish to explain visually how to install many key products;
- Information on workshops Simpson Strong-Tie conducts at various training centers throughout the country;
- Product specific installation videos;
- Specialty catalogs;
- Code reports;
- Technical fliers and bulletins;
- Master format specifications;
- Material safety data sheets;
- Corrosion information;
- Connector selection guides for engineered wood products *(by manufacturer)*;
- Simpson Strong-Tie Connector Selector™ software;
- Simpson Strong-Tie Autocad menu;
- Simpson Strong-Tie Strong-Wall® Selector software;
- Simpson Strong-Tie Anchor Tiedown System Selector and anchor related software; and
- Answers to frequently asked questions and technical topics.

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

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

GENERAL NOTES

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

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

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

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

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

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

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

Species	$F_{c\perp}$	Specific Gravity
Douglas Fir-Larch (DF)	625 psi	0.50
Southern Pine (SP)	565 psi	0.55
Spruce-Pine-Fir (SPF)	425 psi	0.42
Hem Fir (HF)	405 psi	0.43
Glulam	560 psi	0.50
LVL (DF/SP)	750 psi	0.50
LSL ($E=1.3x10^6$)	680 psi	0.50
LSL ($E\geq1.5x10^6$)	880 psi	0.50
Parallam® PSL	750 psi	0.50

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

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

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

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

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

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

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

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

o. Hanger Options *(Simpson Strong-Tie Hanger Options Matrix and Hanger Option General Notes page 181-183)* – 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 allowable table load for the non-modified hanger, and adjust as indicated. Gauge may vary from that specified depending on the manufacturing process used.

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

q. Truss plates shown are not manufactured by Simpson Strong-Tie.

r. Do not weld products listed in this catalog unless this publication specifically identifies a product as acceptable for welding, or unless specific approval for welding is provided in writing by Simpson Strong-Tie. Some steels have poor weldability and a tendency to crack when welded. Cracked steel will not carry load and must be replaced. See Simpson Strong-Tie Hanger Options Matrix and Hanger Option General Notes page 181-183 for hangers that may be welded.

s. Unless noted otherwise, all references to standard cut washers refer to Type A plain washers (W) conforming to the dimensions shown in ASME B18.22.1 for the appropriate rod size. 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 INSTALLER

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

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

b. Fill all fastener holes as specified in the installation instructions for that product. Refer to page 17 for the requirements of the various shapes of fastener hole.

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

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

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

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

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

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

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

j. Install all specified fasteners before loading the connection.

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

l. Use proper safety equipment.

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

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

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

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

q. Holdowns and Tension Ties may be raised off the sill as dictated by field conditions to accommodate an anchor mislocated no more than 1½". The holdown shall be raised off the sill at least 3" for every ¼" that the anchor is offset from the model's centerline *(as defined on pages 37 to 41 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" or raised more than 6". Raised holdown height is measured from the top of concrete to the top of the holdown bearing plate.

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

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

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

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

GENERAL INSTRUCTIONS FOR THE DESIGNER

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

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

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

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

d. Unless otherwise noted, connector allowable loads published in this catalog are limited to the lowest of: average recorded test load at 1/8" deflection, lowest ultimate recorded test load of 3 tests specimens divided by 3 *(or the average of 6 specimens divided by 3)*, or the calculated value based on steel, wood bearing, and/or fastener capacity.

e. Allowable simultaneous loads in more than one direction on a single connector must be evaluated as follows:
   Design Uplift/Allowable Uplift + Design Lateral Parallel to Plate/Allowable Lateral Parallel to Plate + Design Lateral Perpendicular to Plate/Allowable Lateral Perpendicular to Plate < 1.0. The three terms in the unity equation are due to the three possible directions that exist to generate force on a connector. The number of terms that must be considered for simultaneous loading is at the sole discretion of the Designer and is dependent on their method of calculating wind forces and the utilization of the connector within the structural system.

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

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

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

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

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

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

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

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

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

IMPORTANT INFORMATION & GENERAL NOTES

GENERAL INSTRUCTIONS FOR THE DESIGNER (cont.)

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

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

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

r. Holdown and Tension Tie allowable loads are based on installations with an anchor rod length of 6" from the concrete to top of holdown seat, yet these products may be raised to any height with consideration of the increased deflection due to additional bolt elongation. For cases where the anchor bolt is offset, Simpson Strong-Tie offers recommendations, subject to the approval of the Designer, which permit holdowns to be raised up to 18" maximum with a corresponding horizontal anchor bolt offset of 1½". See "General Instructions for the Installer" *(page 14 note q)*.

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

LIMITED WARRANTY

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

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

Due to the particular characteristics of potential impact events, the specific design and location of the structure, the building materials used, the quality of construction, and the condition of the soils involved, damage may nonetheless result to a structure and its contents even if the loads resulting from the impact event do not exceed Simpson Strong-Tie catalog specifications and Simpson Strong-Tie connectors are properly installed in accordance with applicable building codes.

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

This warranty is expressly in lieu of all other warranties, expressed or implied, including warranties of merchantability or fitness for a particular purpose, all such other warranties being hereby expressly excluded. This warranty may change periodically – consult our website *www.strongtie.com* for current information.

TERMS & CONDITIONS OF SALE

PRODUCT USE

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

INDEMNITY

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

NON-CATALOG AND MODIFIED PRODUCTS

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

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

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

CONVERSION CHARTS

Metric Conversion

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

Bolt Diameter

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

If Common Rafter Roof Pitch is…

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

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

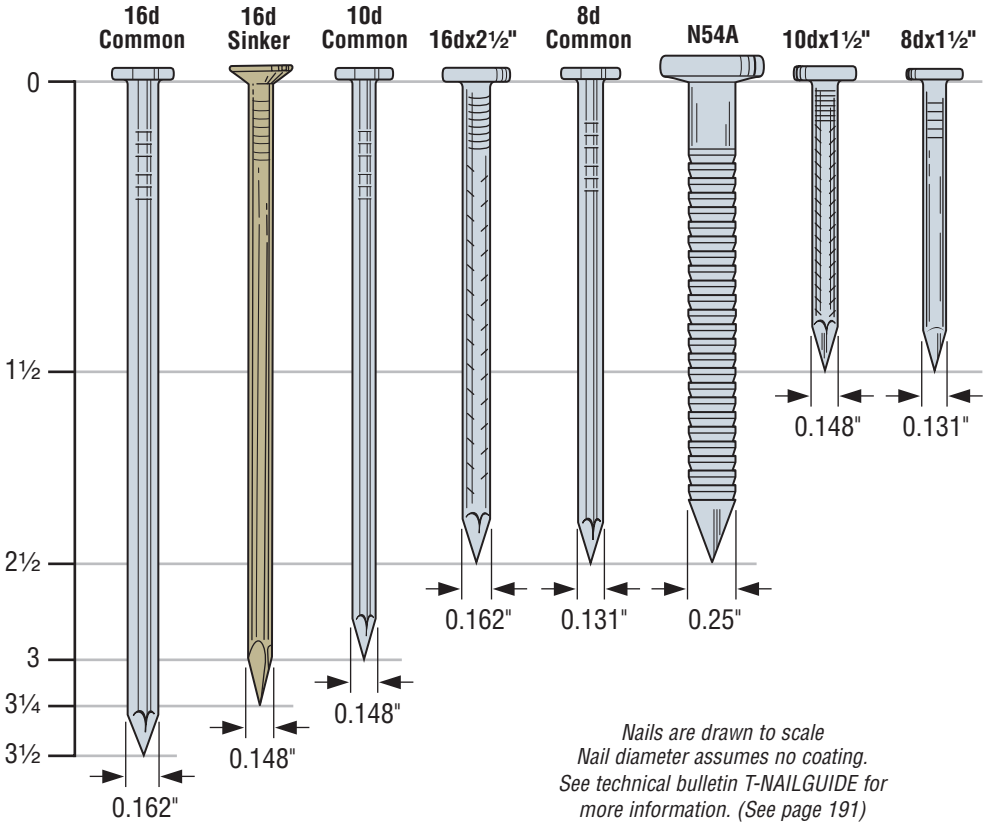
Steel thickness varies according to mill standards.

NAIL TYPES

Nail 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 nails. The specified quantity, type and size of nail must be installed in the correct holes on the connector to achieve published loads. Other factors such as nail 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 nails, see page 17 for more information.



Nails are drawn to scale
Nail diameter assumes no coating.
See technical bulletin T-NAILGUIDE for more information. (See page 191)

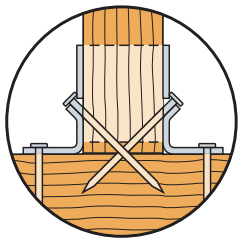
NAIL DESIGN INFORMATION

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 allowable loads listed for the connector.

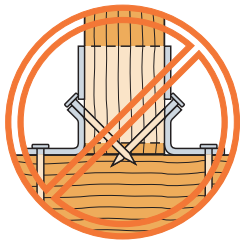
Load Adjustment Factors for Optional Nails Used with Face Mount Hangers and Straight Straps

Catalog Nail	Replacement	Allowable Load Adjustment Factor	
		Face Mount Hangers	Straight Straps
16d common (0.162"x3½")	10dx1½ (0.148"x1½")	0.64	0.84[7]
16d common (0.162"x3½")	10d common (0.148"x3") 12d common (0.148"x3¼")	0.84	0.84
16d common (0.162"x3½")	16d sinker (0.148"x3¼")	0.84	0.84
16d common (0.162"x3½")	16dx2½ (N16) (0.162"x2½")	1.00	1.00
10d common (0.148"x3") 12d common (0.148"x3¼") 16d sinker (0.148"x3¼")	10dx1½ (0.148"x1½")	0.77	1.00[8]
10d common (0.148"x3") 16d sinker (0.148"x3¼")	10dx1¼ (0.148"x1¼")	0.64	1.00[8]
10d common (0.148"x3") 12d common (0.148"x3¼")	16d sinker (0.148"x3¼")	1.00	1.00
8d common (0.131"x2½")	8dx1½ (0.131"x1½")	0.85	1.00
10d common (0.148"x3")	8d common (0.131"x2½")	0.83	0.83

1. Allowable load adjustment factors shown in the table are based on calculated reduction factors and are applicable for all face mount hangers and straight straps throughout this catalog, except as noted in the footnotes below.
2. Some products have been tested specifically with alternate fasteners and have allowable load adjustment factors or reduced capacities published on the specific product page which may differ from the values calculated using this table.
3. This table does not apply to hangers modified per the Hanger Options described on pages 181-183, or steel thicker than 10 gauge.
4. Unless noted otherwise, 10dx1½" or 16dx2½" nails may not be substituted for joist nails in double-shear hangers *(i.e. LUS, MUS, HUS, HHUS, HGUS)*. For applications involving pneumatic nails, refer to specific tool manufacturer technical bulletins. Refer to technical bulletin T-PNEUMATIC *(see page 191 for details)*.
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.
7. Where noted, use 0.80 for 10 ga, 11 ga, and 12 ga products when using SPF lumber.
8. Where noted, use 0.92 for 10 ga, 11 ga, and 12 ga products when using SPF lumber.

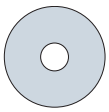


Double shear nailing should use full length common nails

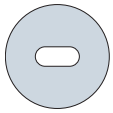


Shorter nails may not be used as double shear nails

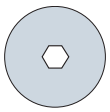
FASTENING IDENTIFICATION



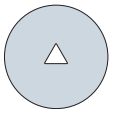
Round Holes
Purpose: to fasten a connector.
Fill Requirements: always fill, unless noted otherwise.



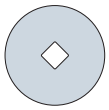
Obround Holes
Purpose: to make fastening a connector in a tight location easier.
Fill Requirements: always fill.



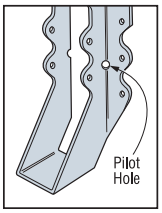
Hexagonal Holes
Purpose: to fasten a connector to concrete or masonry.
Fill Requirements: always fill when fastening a connector to concrete or masonry.



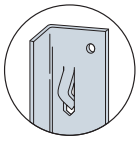
Triangular Holes
Purpose: to increase a connector's strength or to achieve Max strength.
Fill Requirements: when the Designer specifies Max nailing.



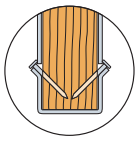
Diamond Holes
Purpose: to temporarily fasten a connector to make installing it easier.
Fill Requirements: none.



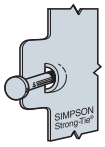
Pilot Holes
Tooling holes for manufacturing purposes. No fasteners required.



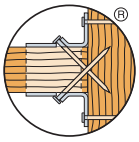
Speed Prongs
Used to temporarily position and secure the connector for easier and faster installation.



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

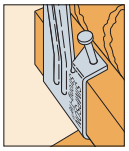


Dome Nailing
This feature guides the nail into the joist and header at a 45° angle.
U.S. Patent 5,603,580



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.



ITT Tab Nailing
The nail is hammered in at an angle of approximately 45° to prevent the wood from splitting.

SIMPSON STRONG-TIE® NAILS

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

For pneumatic nail use, see Instructions to the Installer, page 14 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.

Display Packages

Display Package	Description
N8DHDG MSTR CTN	24 display packs of 150 N8 nails
N8D5HDG MSTR CTN	6 display packs of 750 N8 nails
N10DHDG MSTR CTN	24 display packs of 120 N10 nails
N10D5HDG MSTR CTN	6 display packs of 600 N10 nails
10DHDG MSTR CTN	24 display packs of 50 10d nails
10D5HDG MSTR CTN	6 display packs of 250 10d nails
16DHDG MSTR CTN	24 display packs of 40 16d nails
16D5HDG MSTR CTN	6 display packs of 200 16d nails
50 lb. Bulk Boxes	Available for N8HDG and N10HDG Model no. N8, N10

Nails Sold by the Pound

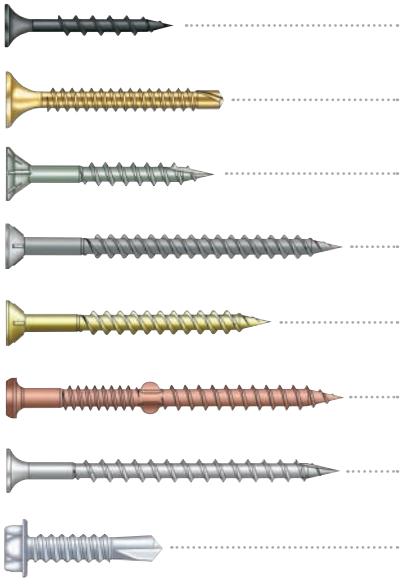
Nail	Simpson Model No.	Dimensions	Wire Gauge	Finish	Fasteners[9] per CWT
8dx1½"	N8	0.131" x 1½" (3.3mm x 38.1mm)	10¼	HDG	15200
	SSN8			SS	15200
8d Common	SS8D	0.131" x 2½" (3.3mm x 63.5mm)	10¼	SS	9400
10dx1½"	N10	0.148" x 1½" (3.8mm x 38.1mm)	9	HDG	11900
	SSN10			SS	12200
10d Common	10DHDG	0.148" x 3" (3.8mm x 76.2mm)	9	HDG	6700
	SS10D		9	SS	6700
16dx2½"	N16	0.162" x 2½" (4.1mm x 63.5mm)	8	Bright	6300
16d Common	16DHDG	0.162" x 3½" (4.1mm x 88.9mm)	8	HDG	4400
	SS16D			SS	4400
N54A	N54A	0.250" x 2½" (6.4mm x 63.5mm)	3	Bright	2700
	N54AHDG			HDG	2700

1. N16 fasteners may be ordered electro-galvanized; specify EG; for example N16EG. This finish is not acceptable for ZMAX® or HDG applications.
2. HDG = hot-dip galvanized; SS = stainless steel; Bright = no finish; GV = green vinyl.
3. Metric equivalents are listed (Diameter x Length).
4. For pneumatic fastener info, request additional technical information.
5. Recommended minimum end distance to prevent splitting with a steel side member is 10 x the nail diameter per 2005 NDS Commentary Table 11.1.5.6.
6. Use HDG nails with ZMAX and HDG products.
7. 16d sinker with GV finish is not acceptable for ZMAX or HDG applications.
8. HDG nails sold by Simpson Strong-Tie meet the specifications of ASTM A153. Stainless-steel nails are type 316 stainless.
9. Fasteners per CWT references the quantity of fasteners per 100 lbs.

QUIK DRIVE® FASTENERS AND ATTACHMENTS

SIMPSON Strong-Tie®

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



Drywall

Fiberglass-Backed Gypsum Sheathing

Fiber Cement Backerboard & Composite Underlayment

Deck and Dock

Subfloor, Sheathing, Wall Plates and Stair Treads

Composite Deck

Concrete and Ceramic Tile Roofing

Steel

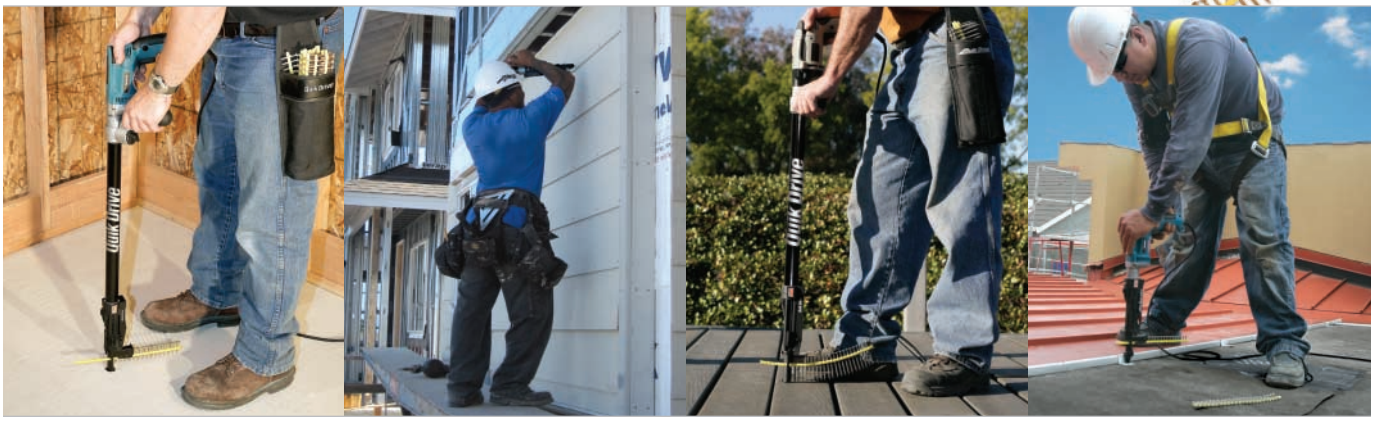
See the Quik Drive *Auto-Feed Screw Driving Systems* catalog *(form C-QD)* for more information. *(See page 191 for details)*

AUTO-FEED SCREW DRIVING SYSTEMS

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

QUIK DRIVE FASTENERS

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

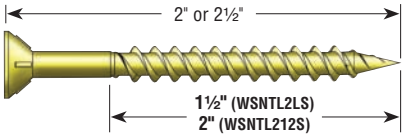


For more information visit *www.strongtie.com*

QUIK DRIVE® FASTENERS AND ATTACHMENTS

WSNTL COLLATED SCREW SYSTEM

Simpson Strong-Tie® Quik Drive auto-feed screw driving systems offer superior performance and reduced installation time in subfloor applications. The holding power of screws reduces the gaps that cause floor squeaks and the tool extension enables stand-up-and-drive installation.



Allowable Shear in Pounds per Foot for Horizontal Plywood Diaphragms with WSNTL2LS or WSNTL212S Screws and Douglas Fir-Larch or Southern Pine[1,6] Framing

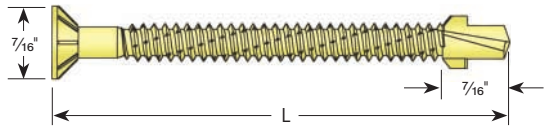
CODE LISTED: ICC-ES ER-5053

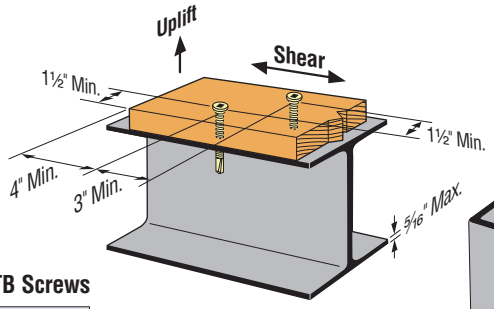
Panel Grade	Panel Thickness	Minimum Nominal Width of Framing Member	BLOCKED DIAPHRAGMS[2] Screw spacing at diaphragm boundaries (all cases), at continuous panel edges parallel to load (Cases 3 and 4), and at all panel edges (Cases 5 and 6)				UNBLOCKED DIAPHRAGMS Screws spaced 6 inches, maximum, at supported edges[2]	
			6	4	2½[3]	2[3]	Case 1 (No unblocked edges or continuous joints parallel to load)	All other configurations (Cases 2, 3, 4, 5 and 6)
			Screw Spacing at Other Panel Edges[2]					
			6	6	4	3		
Structural I	15/32	2	320	425	640	730	285	215
		3	360	480	720	820	320	240
Sheathing, single floor and other grades covered in DOC PS1 and PS2[7]	15/32	2	290	385	575	655	255	190
		3	325	430	650	735	290	215
	19/32	2	320	425	640	730	285	215
		3	360	480	720	820	320	240
	1 1/8[4,5]	2	320	425	640	730	285	215
		3	360	480	720	820	320	240

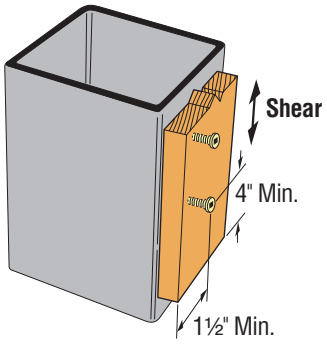
1. **Minimum fastener penetration of 1¼" into the framing member is required.**
2. For IBC wind design, shear capacities may be increased 40% per IBC 2306.3.1. For normal loading, shear capacities shall be reduced 25%. These two adjustments are not included in the Code Report.
3. Space screws at 12" on center along intermediate framing members or as required by design to resist wind suction forces on roofs where applicable.
4. Framing at adjoining panel edges must be 3 inches nominal or wider, and screws must be staggered where screws are spaced 2" or 2½" on center.
5. When noted in the table, WSNTL212S screws required.
6. The values for this application are not included in the Code Report.
7. See 2003 IBC chapter 23 for additional requirements and information.
8. Allowable withdrawal loads, based on thread penetration into the main member, are **151 lb/in** for SP, **125 lb/in** for DF, and **88 lb/in** for SPF. Values may be increased as permitted by the applicable building code.

TB COLLATED SCREW SYSTEM

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







Allowable Loads for Wood Attachment to Steel with Quik Drive TB Screws

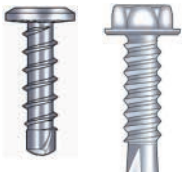
Model No.	L (mm)	Wood Size	DF/SP Allowable Load			
			Uplift		Shear	
			(100)	(160)	(100)	(160)
TB1460S	2⅜" (60)	2x	250	400	225	360
TB1475S	3" (75)					

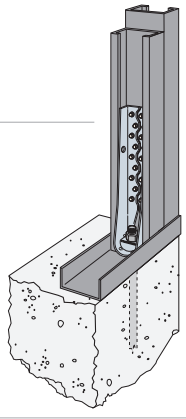
1. For use with structural steel members up to 5/16" thick or cold-formed steel members 16 gauge (54 mil) or thicker.
2. Standard product available in a black phosphate, yellow zinc dichromate or N2000 finish for additional corrosion protection *(TBG1460S or TBG1475S)*.
3. For use with 2x (1½") DF/SP only.
4. For use with QD HSD60 or HSD75 Tool.

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

Designing with Steel?

If you are designing a structure using Cold-Formed Steel, comprehensive design information on using connectors, Simpson Strong-Tie Anchor Systems® products and Quik Drive® screws in your project can be found in the latest issue of the Simpson Strong-Tie *Cold-Formed Steel Connectors* catalog *(form C-CFS, see page 191 for details)*. You can access this information via the web at ***www.strongtie.com***.





For more information visit *www.strongtie.com*

SDS & SD *Wood Screws*

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

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

SDS FEATURES:

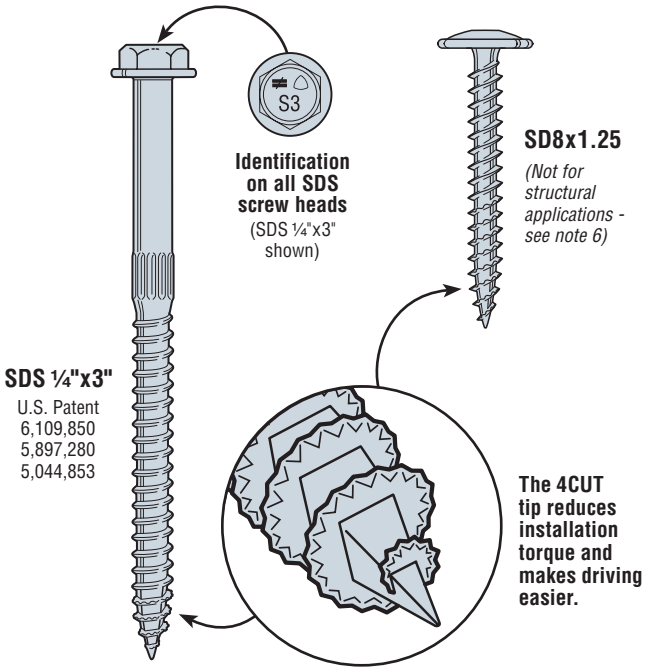
- The patented 4CUT tip has a square core and serrated threads to reduce installation torque and make driving easier with no predrilling and minimal wood splitting.
- A new double-barrier coating finish provides corrosion resistance equivalent to hot-dip galvanization. Now one screw can handle interior, exterior and certain pressure-treated wood applications *(see Corrosion Information on page 10-11 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

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

CODES: See page 12 for Code Reference Key Chart.

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.



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

SDS and SD Wood Screws

Size (in.)	Model No.	Thread Length (in.)	Fasteners per Carton[8]	DF/SP Allowable Loads[4]						SPF/HF Allowable Loads[4]						Code Ref.
				Shear (100)[1]					Withdrawal[5] (100)	Shear (100)					Withdrawal[5] (100)	
				Wood Side Plate[3]		Steel Side Plate				Wood Side Plate[3]		Steel Side Plate				
				1½"	1¾" SCL	16 ga	14 ga & 12 ga	10 ga or Greater	Wood or Steel Side Plate	1½"	1¾" SPF LVL	16 ga	14 ga & 12 ga	10 ga or Greater	Wood or Steel Side Plate	
	5/32 x 1¼	SD8x1.25[6,7]	—	—	—	—	50	50	50	—	—	—	45	45	45	—	170
	¼ x 1½	SDS25112	1	1500	—	—	250	250	250	170	—	—	180	180	180	120	
	¼ x 2	SDS25200	1¼	1300	—	—	—	290	290	215	—	—	—	210	210	150	
	¼ x 2½	SDS25212	1½	1100	190	—	—	390	420	255	135	—	—	280	300	180	I5,
	¼ x 3	SDS25300	2	950	280	—	—	420	420	345	200	—	—	300	300	240	L17,
	¼ x 3½	SDS25312	2¼	900	340	340	—	420	420	385	245	245	—	300	300	270	F20
	¼ x 4½	SDS25412	2¾	800	350	340	—	420	420	475	250	245	—	300	300	330	
	¼ x 6	SDS25600	3¼	600	350	340	—	420	420	560	250	245	—	300	300	395	

1. Allowable loads for SDS screws are based on ICC-ES Code Report ESR-2236. Screws may be provided with the 4CUT or Type 17 tip.
2. SDS screws install best with a low speed ½" drill with a ⅜" hex head driver.
3. Wood to wood applications are based on a wood thickness of 1½" side member. All applications are based on full penetration into the main member. Refer to technical bulletin T-SDSCREWAPPS for allowable loads for other side member thicknesses.
4. Allowable loads are shown at the wood load duration factor of C_D=1.00. Loads may be increased for load duration by the building code up to a C_D=1.60.
5. Withdrawal loads shown are in pounds (lbs.) and are based on the entire threaded section installed into the main member. If thread penetration into the main member is less than the Thread Length as shown in the table, reduce allowable load by 172 lbs. x inches of thread not in main member. Use 121 lbs./inch for SPF.
6. DO NOT USE SD8x1.25 wood screws with structural connectors unless specifically stated in this catalog.
7. SD8 requires ¾" minimum penetration.
8. Fasteners per Carton represent the quantity of screws which are available in bulk packaging. Screws are also available in mini bulk and retail packs. Refer to Simpson Strong-Tie List Price book. Contact Simpson Strong-Tie for more information.
9. **LSL wood-to-wood applications that require 4½" and 6" SDS screws are limited to interior-dry use only.**

UFP *Universal Foundation Plate*

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

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

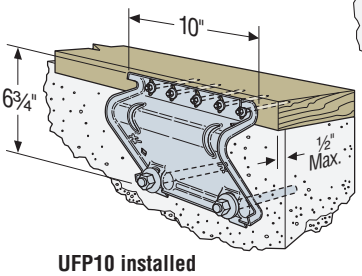
MATERIAL: 14 gauge

FINISH: Galvanized. May be ordered HDG, contact Simpson Strong-Tie. See Corrosion Information, page 10-11.

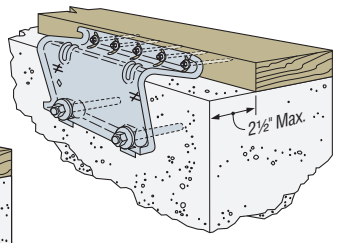
INSTALLATION: • Use all specified fasteners; see General Notes.

- Loads are based on test results using Simpson Strong-Tie® SDS ¼"x3" screws, which are supplied with the UFP10.
- Alternate lag screws will not achieve published loads.
- Refer to technical bulletin T-ANCHORSPEC or flier F-PLANS for post-installed anchorage solutions *(see page 191 for details)*.

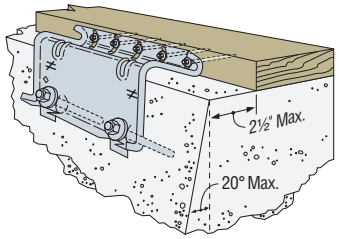
CODES: See page 12 for Code Reference Key Chart.



UFP10 installed on a Straight Foundation with ½" Offset Mudsill



UFP10 installed on a Straight Foundation



UFP10 installed on a Trapezoid Foundation

Model No.	Max Spacing to replace Anchor Bolt ½" or ⅝" dia.	Fasteners			Allowable Load DF/SP Parallel to Plate (160)	Code Ref.
		Anchor Bolt		Plate		
		Qty.	Dia.			
UFP10-SDS3	6'	2	½	5-SDS ¼"x3"	1340	I20, L26, F19

U.S. Patent 5,732,519

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other load durations apply.
2. Each anchor bolt requires a standard cut washer.

FAP/FJA/FSA *Foundation Anchors*

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

The FJA Foundation Joist Anchor nails or bolts directly into floor joists, providing a direct connection between the foundation and joist to resist uplift and lateral forces. FSA Foundation Stud Anchor nails or bolts to floor joists, or nails to the stud. Plywood sheathing may require notching with stud-to-foundation installation.

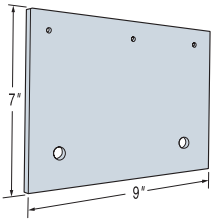
MATERIAL: FAP—7 gauge; all others—12 gauge

FINISH: Galvanized. May be ordered HDG, contact Simpson Strong-Tie. See Corrosion Information, page 10-11.

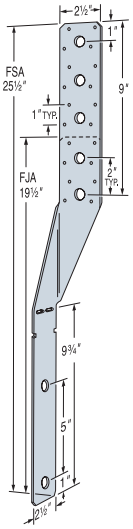
INSTALLATION:

- Use all specified fasteners; see General Notes.
- Refer to technical bulletin T-ANCHORSPEC for post-installed anchorage solutions *(see page 191 for details)*.

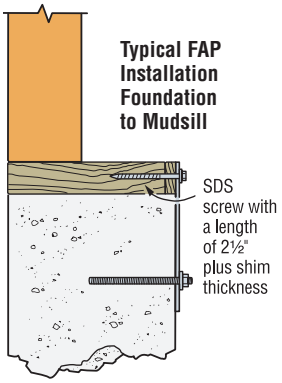
CODES: See page 12 for Code Reference Key Chart.



FAP
(screws not included)



FJA/FSA



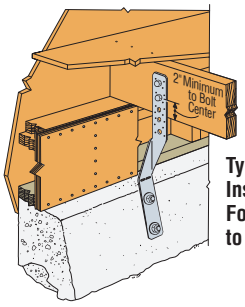
Typical FAP Installation Foundation to Mudsill

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

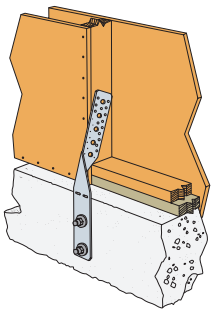
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Max Spacing to Replace Anchor Bolts		Fasteners			Allowable Loads DF/SP (160)			Code Ref.
			Anchor Bolt		Stud/Joist/ Plate				
	½"	⅝"	Qty.	Dia.		Uplift	F_1	F_2	
FAP	5½'	4'	2	½	3-SDS ¼"x2½" + shim thickness	—	950	365	L8
FJA	—	—	2	½	8-10dx1½	1205	185	60	I20, L26, F19
					2-½MB	690	185	60	
FSA	—	—	2	½	8-10dx1½	1205	—	—	
					2-½MB	690	—	—	

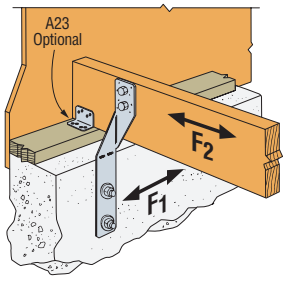
1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other load durations govern.
2. For redwood mudsills, reduce F_1 on FAP to 840 lbs.
3. Spacing to be specified by the Designer.
4. FAP shall use a minimum SDS wood screw length of 2½" plus the shim thickness.
5. The shim must be fastened to the mudsill by means other than the FAP SDS wood screw.
6. FAP may be installed with ¼" HDG lag bolts. Follow code requirements for predrilling.
7. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



Typical FSA Installation Foundation to Joist



Typical FSA Installation Foundation to Stud



Typical FJA Installation Foundation to Joist

MAS/MASA/MASAP/MASB/MASP *Mudsill Anchors*

SIMPSON Strong-Tie®

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

MAS style mudsill anchors are easy to install for both the concrete and framing contractor. They are suitable for either stemwall or slab foundations and easily mount on the forms before the pour, simplifying finishing and reducing anchor mislocation problems. The MAS eliminates the need to drill the mudsill and can be installed three different ways to provide flexibility when stud placement or sheathing becomes an issue *(see table below)*.

The new and improved MASA/P provides the installation advantages of mudsill anchors combined with the maximum allowable on-center spacing. The new stronger design provides parallel-to-wall load carrying capacity that meets or exceeds most cast-in-place anchors. This allows for a one-to-one replacement of ½" bolts on 2x or 3x sills and ⅝" bolts on a 2x sill.

The different models of mudsill anchors are designed for specific applications:

MAS/MASA—installed at the top of the form
MASP/MASAP—for panelized forms
MASB—used in concrete masonry units.

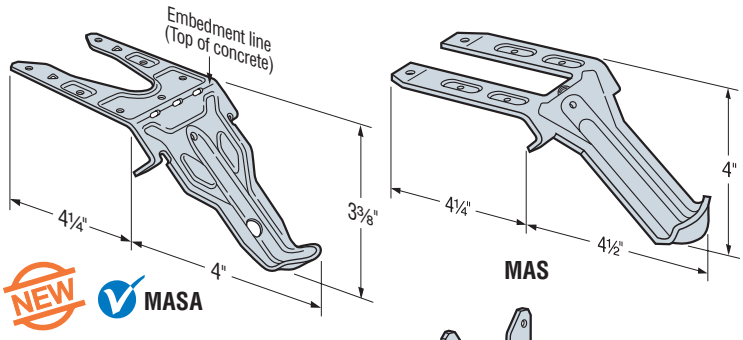
MATERIAL: 16 gauge

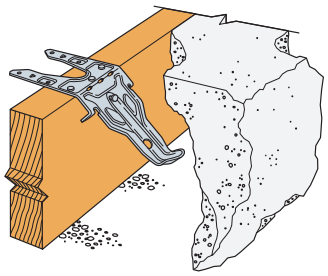
FINISH: Galvanized, all available in ZMAX® coating. See Corrosion Information, page 10-11.

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

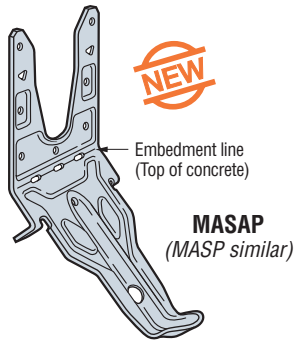
- **MAS/MASP/MASA/MASAP**
  - Concrete shall have a minimum f'_c = 2500 psi.
  - Spalling—Full published capacity is achieved so long as a maximum height of 1¼" and a maximum depth of ⅞" is not exceeded. Any exposed portion of the mudsill anchor must be protected against possible corrosion.
  - For prescriptive anchor spacing refer to page 23.
  - Testing shows that these mudsill anchors can be used in lieu of code required anchor bolts and square washer in high seismic zones. Refer to technical bulletin T-MASSW for additional information *(see page 191 for details)*.
- **MASB**—Fill CMU cell with concrete grout first, then place MASB into the grouted cell and adjust into position. Attach mudsill to anchor only after the concrete grout cures.
  - CMU shall have a minimum f'_m = 1500 psi.
  - The MASB Mudsill Anchors were tested in standard 8" CMU.

CODES: See page 12 for Code Reference Key Chart.

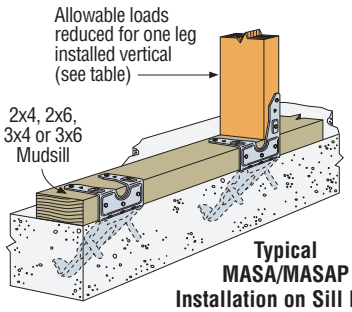




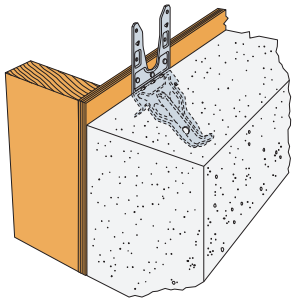
Typical MASA Installation in Concrete
(MAS similar)



MASAP
(MASP similar)



Typical MASA/MASAP Installation on Sill Plate
(MAS/MASP similar)



Typical MASAP Installation in Concrete
(MASP 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.	Sill Size	Fasteners[6] Sides	Fasteners[6] Top	Attached to DF/SP Sill Plate — Allowable Loads[1] (160) Uplift[2]	Parallel to Plate (F_1)	Perp. to Plate (F_2)	Attached to HF Sill Plate — Allowable Loads[1] (160) Uplift[2]	Parallel to Plate (F_1)	Perp. to Plate (F_2)	Code Ref.
TYPICAL INSTALLATION										
MAS or MASP	2x4, 6	2-10dx1½	4-10dx1½	1005	815	575	680	835	255	IL12[6], F24
	3x4, 6	4-10dx1½	2-10dx1½	955	835	465	—	—	—	
NEW MASA or MASAP	2x4, 6	3-10dx1½	6-10dx1½	930	1605	800	930	1440	685	170[6]
	3x4, 6	5-10dx1½	4-10dx1½	930	1570	685	795	1190	495	
MASB	2x4,6x8	2-10dx1½	6-10dx1½	130	930	410	—	—	—	IL5[6]
ONE LEG UP INSTALLATION										
MAS or MASP	2x4, 6	4-10dx1½	2-10dx1½	435	700	240	—	—	—	IL12[6], F24
NEW MASA or MASAP	2x4, 6	6-10dx1½	3-10dx1½	780	1445	380	715	980	380	170[6]
MASB	2x4,6x8	5-10dx1½	3-10dx1½	—	960	360	—	—	—	IL5[6]
BOTH LEGS OVER MAX. ½" PLYWOOD OR OSB INSTALLATION (See page 23)										
MAS or MASP	2x4, 6	6-10dx1½	—	755	785	260	—	—	—	170[6]
NEW MASA or MASAP	2x4, 6	9-10dx1½	—	710	930	280	710	930	225	
MASB	2x4,6x8	8-10dx1½	—	45	295	25	—	—	—	

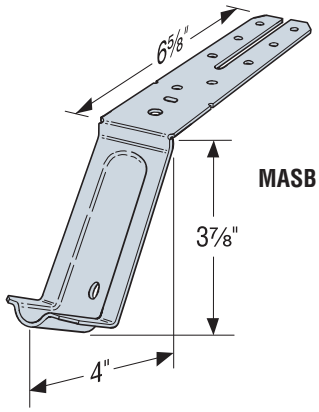
1. Loads have been increased for short-term loading.
2. For uplift loads, provide attachment from mudsill to building's structural components to prevent cross-grain bending.
3. For stemwall applications, allowable loads are based on a minimum stemwall width of 6".
4. For simultaneous loads in more than one direction, the connector must be evaluated using the Unity Equation. See page 14 under General Instructions for the Designer.
5. Stud-to-plate connectors must be installed on the same side of the plate as the MAS/MASP or MASA/MASAP straps to complete the continuous load path.
6. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.
7. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

MAS/MASA/MASAP/MASB/MASP *Mudsill Anchors*

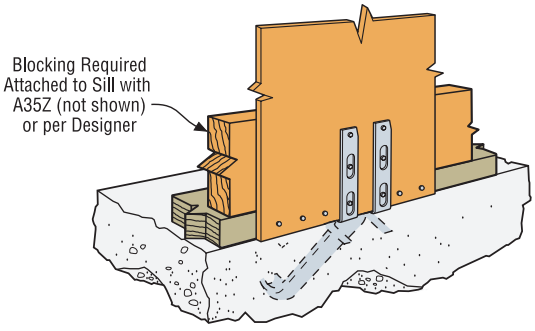
Prescriptive Anchor Spacing

Model No.	O.C. Spacing to replace ½" Anchor Bolt 6' O.C. (160)	O.C. Spacing to replace ⅝" Anchor Bolt 6' O.C. (160)	Min. Concrete End Distance	Min. C–C Spacing
MAS or MASP	5'-0"	4'-0"	4"	8"
NEW MASA or MASAP[6]	6'-0"	6'-0"	4"	8"
MASB	5'-6"	4'-8"	3¾"	7½"

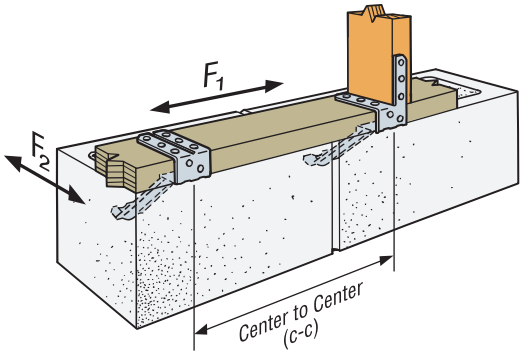
1. Place anchors not more than 12" from the end of each sill per code.
2. Spacing is based on parallel to plate load direction only.
3. CMU shall have a minimum f'_m = 1500 psi and concrete shall have a minimum f'_c = 2500 psi.
4. Spacing applies to DF, SP, and HF 2x sill plates.
5. For installations to rim joist or blocking, MASB spacing is 1'-10" for replacing ½" bolts and 1'-6" for ⅝" bolts. MAS/P and MASA/P remain the same as the table.
6. **When replacing ½" sill bolts use 7-10dx1½" nails *(minimum nailing)* and when replacing ⅝" sill bolts use 9-10dx1½" nails *(maximum nailing).***



MASB



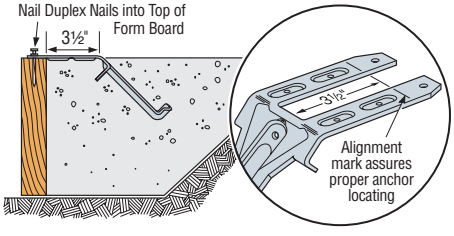
MAS/MASP Rim Joist or Blocking Installation in Concrete over Max. ½" Sheathing
(MASA/MASAP/MASB similar)



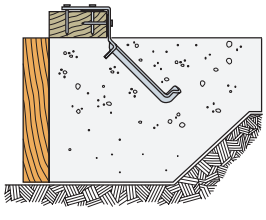
Typical MASB Installation

ALTERNATIVE MUDSILL ANCHOR INSTALLATIONS

ALTERNATE INSTALLATION FOR INSIDE OF WALL CONTINUITY

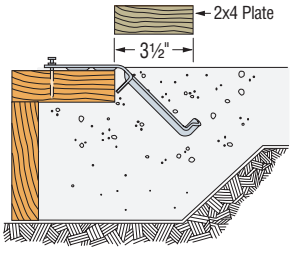


1 **STEP 1:**
Attach MAS/MASA 3½" from inside of form. After concrete cures, remove nails and bend straps up 90°



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

ALTERNATE INSTALLATION FOR BRICK LEDGES



Alternate MAS Installation for Brick Ledges
(MASA similar)

LMAZ/MA/MAB *Mudsill Anchors*

SIMPSON Strong-Tie®

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

LMAZ—an economical replacement for ½" sill plate anchor bolts

MA—for slab or stem wall construction

MAB—anchors mudsill to concrete block, poured walls or slab foundations

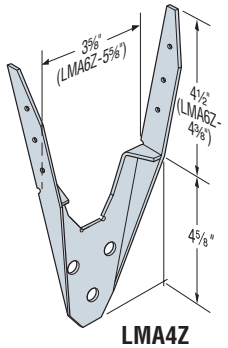
MATERIAL: LMAZ, MAB—18 gauge; MA—16 gauge

FINISH: MA, MAB—Galvanized *(some available in ZMAX® coating)*; LMAZ—ZMAX only.
See Corrosion Information, page 10-11.

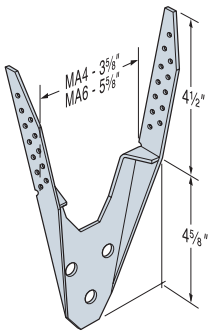
INSTALLATION:

- Use all specified fasteners. See General Notes.
- CMU shall have a minimum f'_m = 1500 psi and concrete shall have a minimum f'_c = 2000 psi.
- Not for use where a horizontal cold joint exists between the slab and foundation wall or footing beneath, unless provisions are made to transfer the load.
- Not for use in slabs poured over foundation walls formed of concrete block or with brick and 4" masonry block stemwalls.

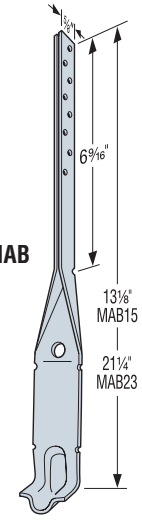
CODES: See page 12 for Code Reference Key Chart.

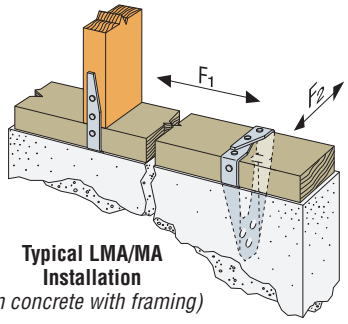


LMA4Z
(LMA6Z similar)

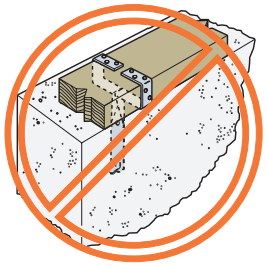


MA4 and MA6





Typical LMA/MA Installation
(in concrete with framing)

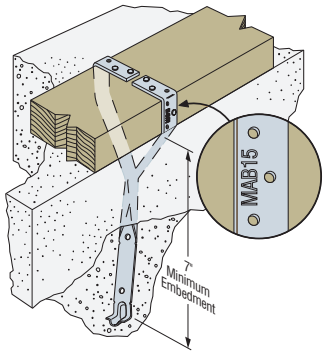


MAB Misinstallation
(MAB straps must be separated before the concrete is poured)

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

Model No.	Sill Size	Fasteners		Allowable Loads[1] DF/SP (160)			Code Ref.
		Sides	Top	Uplift[2]	Parallel to Plate (F_1)	Perp. to Plate (F_2)	
LMA4Z	2x4	2-10dx1½	4-10dx1½	905	675	520	F24[6]
	3x4	4-10dx1½	2-10dx1½	905	675	520	
LMA6Z	2x6	2-10dx1½	4-10dx1½	905	825	650	
	3x6	4-10dx1½	4-10dx1½	1110	825	650	
MA4	2x4	2-10dx1½	2-10dx1½	830	575	430	IL16, L15[6]
	3x4	4-10dx1½	2-10dx1½	915	680	430	
MA6	2x6	2-10dx1½	4-10dx1½	915	680	430	
	3x6	4-10dx1½	4-10dx1½	915	680	430	
MAB15	2x4,6	2-10dx1½	4-10dx1½	565	500	500	IL8[6]
MAB23	2x4,6	2-10dx1½	4-10dx1½	565	500	500	

1. Loads have been increased for short-term loading.
2. For uplift loads, provide attachment from mudsill to building's structural components to prevent cross-grain bending.
3. MA installed attached to the stud has no load reduction for parallel loads, has a perpendicular load of 670 lbs. and an uplift of 835 lbs.
4. LMAZ installed attached to the stud has no load reduction for parallel and perpendicular loads and an uplift of 600 lbs. for LMA4 and 835 lbs. for LMA6.
5. For stemwall applications, allowable loads are based on a minimum stemwall width of 6".
6. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.
7. **NAILS:** 10dx1½ = 0.148" dia.x 1½" long. See page 16-17 for other nail sizes and information.

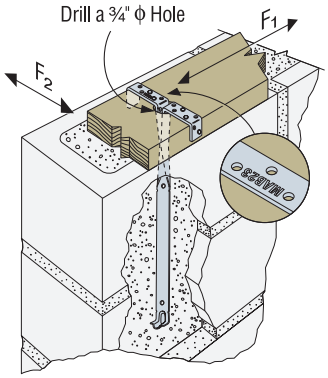


Typical MAB15 Installation in Concrete
(MAB23 similar, with 15" minimum embedment)
Not applicable for concrete block installation

Prescriptive Anchor Spacing

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

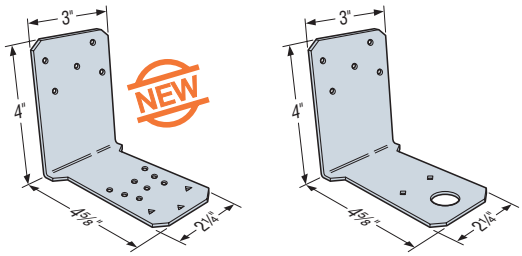
1. Place anchors not more than 12" from the end of each sill per code.
2. Spacing is based on parallel to plate load direction only.
3. CMU shall have a minimum f'_m = 1500 psi and concrete shall have a minimum f'_c = 2000 psi.
4. Spacing applies to DF, SP, and HF 2x sill plates.



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

FWAZ/FWANZ *Foundation Wall Angle*

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



Special Features:

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

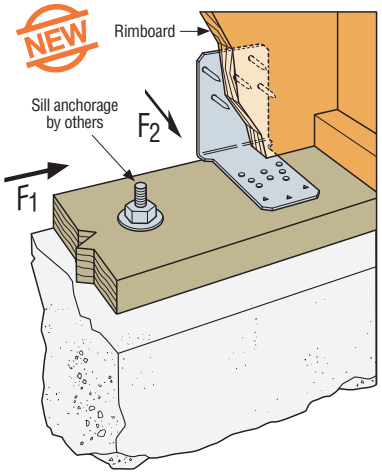
MATERIAL: 14 gauge

FINISH: ZMAX® coating. See Corrosion Information, page 10-11.

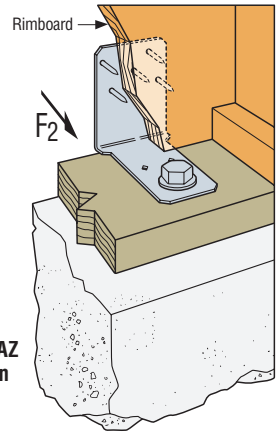
INSTALLATION: • Use all specified fasteners. See General Notes.

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

CODES: See page 12 for Code Reference Key Chart. Refer to IBC 1610.1.



Typical FWANZ Installation



Typical FWAZ Installation

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

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

1. Lateral (F_2) loads are based on load duration factor C_D = 0.90 with no further increase allowed.
2. FWAZ spacing shall be per Designer. Refer to flier F-FWAZ *(see page 191 for details)* for prescriptive spacing options and additional information.
3. FWAZ must be located within 5" of adjacent joist/blocking for floor joist spacings larger than 16" o.c. and may be centered between joists/blocking for 16" o.c. floor joist spacing.
4. Maximum sill plate thickness shall be 1½".
5. The Titen HD anchor used in the FWAZ to resist the out-of-plane (F_2) forces may also be used to resist in-plane shear forces provided the Designer determines the Titen HD anchor allowable loads *(refer to C-SAS catalog, see page 191 for details)* and evaluates the combined loading condition with the published F_2 loads.
6. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

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

1. FWANZ may be used to transfer F_1 loads up to 310 lbs. No further increase in load permitted.
2. For simultaneous F_1 and F_2 loads, the connector must be evaluated using the unity equation *(see page 14)*.
3. Designer shall evaluate rim board and sill plate design based on demand load.
4. FWANZ spacing and sill plate anchorage to be specified by the Designer.
5. For joist/blocking spacing greater than 16" o.c. the FWANZ must be located within 5" o.c. of the adjacent joist/blocking.
6. When floor joists are parallel to the rimboard, Designer must ensure proper load transfer from rimboard into diaphragm.
7. Values based on a load duration factor C_D = 0.90.
8. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

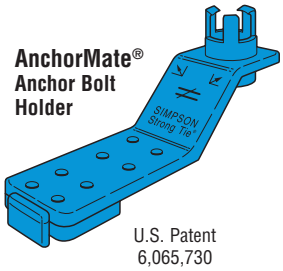
ANCHORMATE® *Anchor Bolt Holders*

Designed to hold the anchor in place before the concrete pour, as required in some jurisdictions.

- Built-in 2x4 and 2x6 stops eliminate measuring.
- Elevated bolt grippers allow easy trowel finishing.
- Color-coded for easy size identification.
- Lightweight, durable and easy to use.
- Reusable yet cost-efficient for single application.
- Threaded grippers hold each bolt in the exact same location and height. They secure the bolt in place without a nut for quicker set-up and tear-down, and protect threads from splashing concrete.
- 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.
- Available in cartons of 100 parts or bags of 10 parts *(except AM1 which are only available in cartons of 100 parts)*.

MATERIAL: Nylon

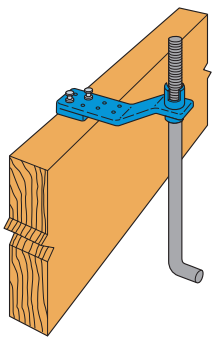
CODES: See page 12 for Code Reference Key Chart.



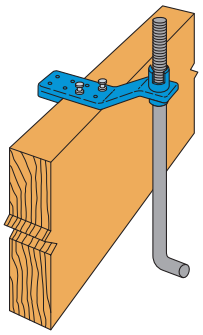
AnchorMate® Anchor Bolt Holder

U.S. Patent 6,065,730

Model No.	Dia.	Color	Code Ref.
AM½	½	Yellow	180
AM⅝	⅝	Blue	
AM¾	¾	Red	
AM⅞	⅞	Green	
AM1	1	Black	



Typical AnchorMate Installation for a 2x6 Mudsill



Typical AnchorMate Installation for a 2x4 Mudsill

ABS *Anchor Bolt Stabilizer*

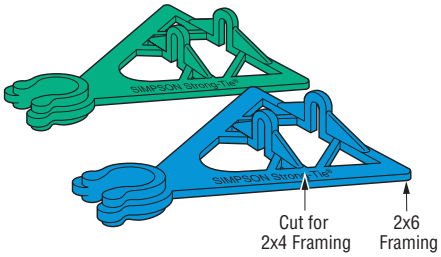
The ABS stabilizes the anchor bolt to prevent it from being pushed against the form during the concrete pour.

FEATURES:

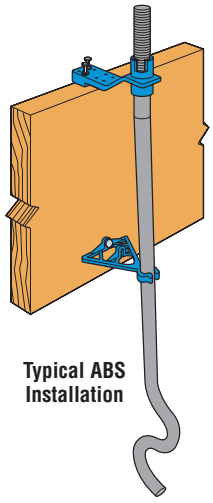
- Supports the bolt approx. 8" below the top of the concrete.
- Model ABS⅝ is for the ⅝" SSTB and ABS⅞ is for the ⅞" SSTB.
- Thin section limits the effect of a cold joint.
- Sized for 2x4 and 2x6 mudsills.

MATERIAL: Engineered Composite Plastic.

CODES: See page 12 for Code Reference Key Chart.



ABS Anchor Bolt Stabilizer



Typical ABS Installation

Model No.	Diameter	Color	Code Ref.
ABS⅝	⅝	Blue	180
ABS⅞	⅞	Green	

STRAPMATE® *Strap Holder*

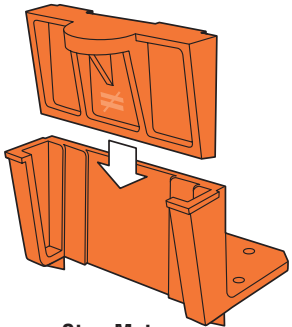
The StrapMate is designed to keep the STHD, LSTHD, HPAHD and PAHD straps vertically aligned during the concrete pour to minimize possibility of spalling. The friction fit allows for quick and easy installation.

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

MATERIAL: Engineered Composite Plastic.

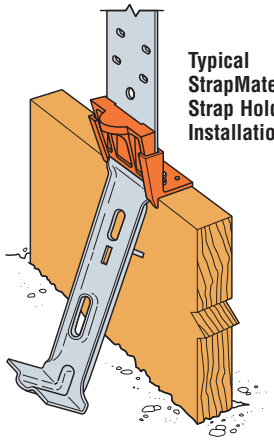
- Designed to fit ¾" plywood forms up to 1¾" LVL forms and larger.
- The strap is positioned off the front edge of the form board.

CODES: See page 12 for Code Reference Key Chart.



StrapMate Strap Holder

U.S. Patent 6,796,099



Typical StrapMate Strap Holder Installation

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

SB Anchor Bolt

The geometry of the SB bolt is the latest development in high capacity anchors. The smooth transition angle of the bolt positions the head of the anchor into an optimum position in the concrete stem wall without creating excessive horizontal forces. The SB⅞x24 is designed to maximize performance with minimum embedment while the SB1x30 is intended to cover holdown devices that exceed the capacity of SSTB anchors.

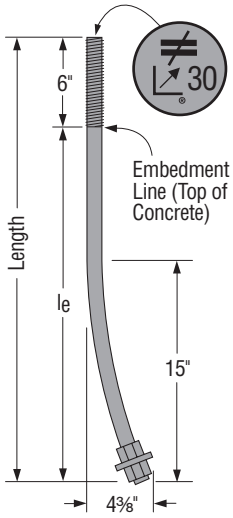
Special Features:

- Identification on the bolt head showing embedment angle and model
- Stamped embedment line
- Rolled thread for higher tensile capacity
- Tested in different compressive strength concretes for versatility in specification

MATERIAL: ASTM A36
FINISH: None. May be ordered HDG. Contact Simpson Strong-Tie.
INSTALLATION:

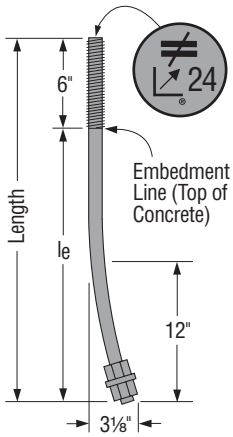
- SB is only for concrete applications poured monolithically.
- Install 1-#4 rebar in the area 3" to 5" *(may be foundation rebar not post-tension cable)* from the top of the foundation.
- Top nuts and washers for holdown attachment are not supplied with the SB; install standard nuts, couplers and/or washers as required.

CODES: See page 12 for Code Reference Key Chart.



SB1x30

U.S. Patent 5,317,850



SB⅞x24

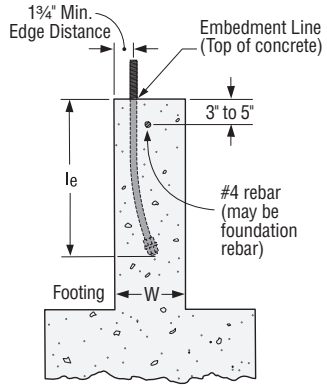
Model No.	Dimensions (in.)				Allowable Tension Loads (lbs.)									Code Ref.
					Continuous Stemwall			Corner Installation			End Wall			
	Stemwall Width (W)	Dia.	Length	Min. Embed. (le)	f'c = 2500 psi	f'c = 3000 psi	f'c = 4000 psi	f'c = 2500 psi	f'c = 3000 psi	f'c = 4000 psi	f'c = 2500 psi	f'c = 3000 psi	f'c = 4000 psi	
SB⅞x24	8	7/8	24	18	8330	8930	10130	8330	8930	10130	6325	7150	8795	F24, 170[5]
SB1x30	10	1	30	24	13675	15560	15560	13675	15560	15560	8605	11475	11475	
	12	1	30	24	14940	—	—	14940	—	—	8605	—	—	

1. Loads may not be increased for short-term loading. Loads apply to earthquake and wind loading.
2. Minimum anchor center-to-center spacing is 3 l_e for anchors acting in tension at the same time for full load.
3. Allowable loads are based on ultimate test load divided by a factor of 3.0. Contact Simpson Strong-Tie for testing and design information.
4. **For two pour installations *(see drawing below)* with a SB1x30, use the table loads for the SB⅞x24.**
5. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.

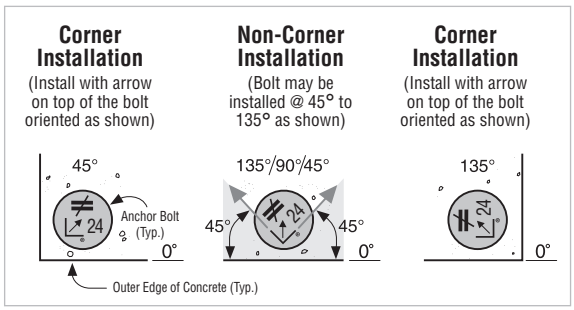
SELECTION GUIDE

Anchor Diameter	2x, 3x, 2-2x Sill Plates	
	Holdown Model No.	Anchor Model No.
⅞	HDU8	SB⅞x24
	HD7[7]	
	HD9[5,7]	
	HDQ8	See SSTB *(Page 28)*
	HDC10/22	
	HDC10/4	
1	HDU11	SB1x30
	HDU14[4]	
	HHDQ11	
	HHDQ14[4]	
	HD7[7]	
	HD9[7]	
	HD12[6,7]	

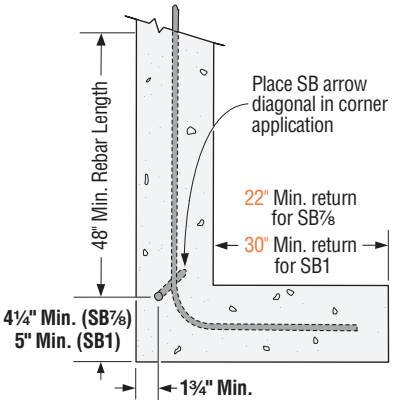
1. Selections assume installations into a continuous stemwall or in a corner. Minimum f'_c = 2500 psi.
2. No cold joint within the embedment depth.
3. The Design Engineer may specify an alternate anchorage system provided the diameter is the same.
4. Where noted, the allowable load for this application is 13675 lbs. which is less than the published loads for these holdowns. For concrete strengths 3000 psi or greater, the maximum allowable load for the holdown can be achieved.
5. **Where noted SB⅞x24 may be used on 3" (post) wood member thickness when using f'_c = 3000 psi for the foundation concrete.**
6. **Where noted SB1x30 may be used for 5½" (post) wood member thickness when 3000 psi foundation concrete is used. 3½" and 4½" (post) wood member thicknesses may be used when using 2500 psi foundation concrete. See catalog page 41 for (post) wood member thickness info.**
7. **When SB is used with the HD holdown and a sill plate greater in thickness than 1½", then provisions must be taken to extend the SB.**



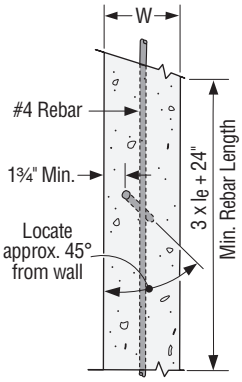
Typical SB Installation



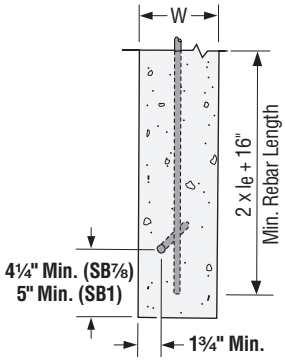
Plan View of SB Placement in Concrete



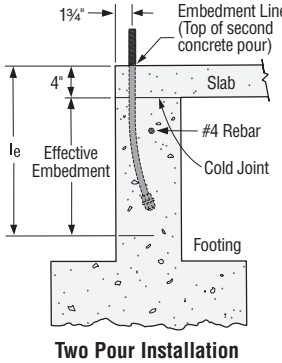
Corner Installation



Continuous Stemwall



End Wall



Two Pour Installation
(SB1x30)

SSTB® Anchor Bolts

The SSTB is designed for maximum performance as an anchor bolt for holdowns and Strong-Wall® shearwalls. Extensive SSTB testing has been done to determine the design load capacity at a common application, the garage stem wall. Design loads are based on a series of five tests, with a three-times reduction factor. SSTB14 is a ⅝" diameter anchor bolt designed and tested specifically for shallow foundation installations.

SPECIAL FEATURES: • Rolled threads for higher tensile capacity.
- Offset angle reduces side-bursting, provides more concrete cover.
- Stamped embedment line aids installation.
- Configuration results in minimum rebar interference.

MATERIAL: ASTM A36

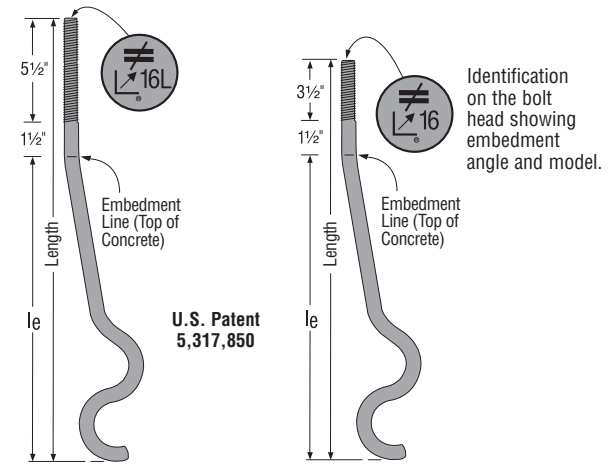
FINISH: None. May be ordered HDG; contact Simpson Strong-Tie.

INSTALLATION: • SSTB is used for monolithic and two-pour installations.
- Nuts and washers 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 *(Simpson NUT⅝-OST, NUT⅞-OST, CNW⅝-⅝OST, CNW⅞-⅞OST).*

REINFORCED CONCRETE FOUNDATION
- Install SSTB before the concrete pour using AnchorMates® *(see page 26).* Install the SSTB per plan view detail shown on page 29. Install one #4 rebar 3" to 5" *(may be foundation rebar not post-tension cable)* from the top of the foundation.
- The SSTB does not need to be tied to the rebar.
- Minimum concrete compression strength is 2500 psi. Unless noted otherwise, no special inspection is required for foundation concrete when the structural design is based on concrete no greater than 2500 psi *(IBC Section 1704.4).*
- 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.

REINFORCED CONCRETE BLOCK
- Before concrete pour, install diagonally at approx. 45° in the cell per plan view detail shown on page 27.
- Horizontal #4 rebar *(minimum 56" long centered about the anchor bolt)*—approximately one rebar 12" from the top and two rebars approximately 28" from the top. Vertical #4 rebar *(minimum 24" long)* install with maximum 24" o.c. spacing.
- Grout all cells with minimum 2000 psi concrete. Vibrate the grout per the IBC, Section 2104.1.

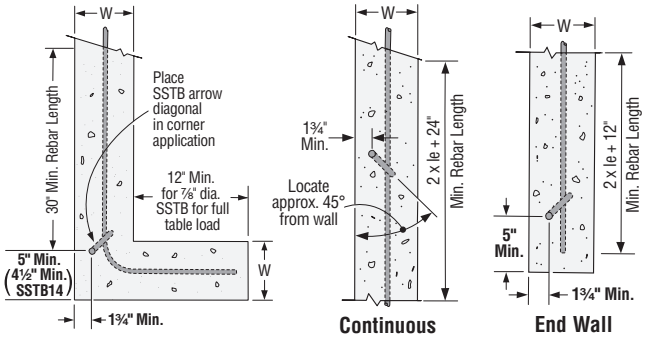
CODES: See page 12 for Code Reference Key Chart.



SSTB16L
(others similar see footnote #6 below)

SSTB16
(others similar see footnote #7 below)

See page 27 for additional installation details.



Corner Installation | **Continuous Stemwall** | **End Wall** *(Note 4)*

TYPICAL PLAN VIEWS OF REBAR INSTALLATION

SELECTION GUIDE *(Per Anchor Bolt Diameter)*

Model No.	2x, 3x[1], 2-2x[1] Sill Plates	
	Mono Pour	Two Pour
HDU2, HD2A, LTT19, LTT20B, LTTI31	SSTB16[7]	SSTB20
HTT16	SSTB16	SSTB20
HDU4, HD5[8]	SSTB20	SSTB24
HTT22[6], HDC5/22, HDC5/4, HDU5[6], HD5	SSTB24	SSTB24[5]
HDU8, HDQ8,HDC10/22[4], HDC10/4[4], HD7, HD9[9]	SSTB28	SSTB34

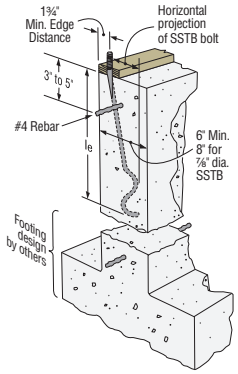
1. SSTBL models are recommended for HDU, HDQ8, and HD holdowns on 2-2x and 3x sill plates. Where SSTB14's are specified for these products, use SSTB16L.
2. No cold joint within embedment depth unless provisions are made to transfer the load.
3. The design engineer may specify an alternate anchorage system, provided the anchor diameter is the same.
4. Increase the embedment depth 2½" to accommodate the HDC standoff block.
5. Where noted the allowable load for this application is limited to 4600 lbs. which is less than the published loads for these holdowns.
6. Where noted the allowable load for single pour is limited to 5175 lbs. which is less than the published loads for these holdowns.
7. SSTB14 can be used for this application with a 9" stemwall width.
8. **Where noted SSTB20 may be used on 1½", 2" and 3" (post) wood member thicknesses. See catalog page 41 for (post) wood member thickness info.**
9. **Where noted SSTB28 may be used on 3" (post) wood member thickness.**

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.

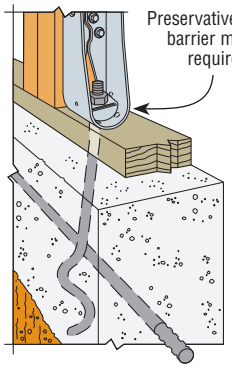
Model[7] No.	Stem-wall Width (W)	Dia.	Length	Min. Embed. (l_e)	Allowable Tension Load[1,2]			Code Ref.
					Concrete[4] f'c = 2500 psi	Concrete[10] 8" CMU Block	Concrete 8" CMU Block End	
SSTB14	9	⅝	16	11	3835[9]	—	—	F24, 170[11]
SSTB16	6	⅝	17⅝ (SSTB16L = 19⅝)	12⅝	4420	4780	1850	IL2[11], L6, F24
SSTB20	6	⅝	21⅝ (SSTB20L = 24⅝)	16⅝	4600	4780	1850	
SSTB24	6	⅝	25⅝ (SSTB24L = 28⅛)	20⅝	5175	4780	1850	
SSTB28	8	⅞	29⅞ (SSTB28L = 32⅞)	24⅞	10100	6385	4815	
SSTB34	8	⅞	34⅞	28⅞	10100	6385	4815	
SSTB36	8	⅞	36⅞	28⅞	10100	6385	4815	

1. Loads may not be increased for short-term loading. Loads apply to earthquake and wind loading.
2. Minimum anchor center-to-center spacing is $2l_e$ for anchors acting in tension at the same time for full load.
3. The SSTB was tested in a stem wall with a minimum amount of concrete cover.
4. Use full table load when installed 24" from the end or installed in a corner condition *(see illustrations).* When used 5" from the end of a concrete foundation *(see end wall graphic above)*, the maximum allowable load is 9045 lbs. for SSTB28, 9585 lbs. for SSTB34 and 36 bolts, and table loads for all other models *(these loads are not Code listed – contact Simpson Strong-Tie for test data).*
5. HDU and HTT minimum end distance is 4⅜".
6. Order the SSTBL models (ex. SSTB24L) for longer thread length (16L = 5½", 20L = 6½", 24L = 6", 28L = 6½"). SSTBL and SSTB loads are the same. Not available on SSTB14.
7. SSTB34 has 4½" of thread and SSTB36 has 6½". These two models are not available in SSTBL versions.
8. Use 90% of the table load for 2000 psi concrete.
9. Allowable load for SSTB14 is 5020 lbs. when f'_c = 3000 psi.
10. Minimum end distance required to achieve table loads is l_e.
11. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.

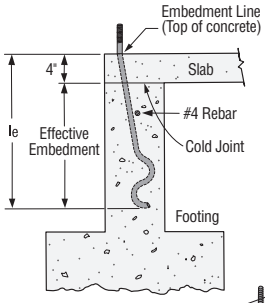
SSTB® *Anchor Bolts*



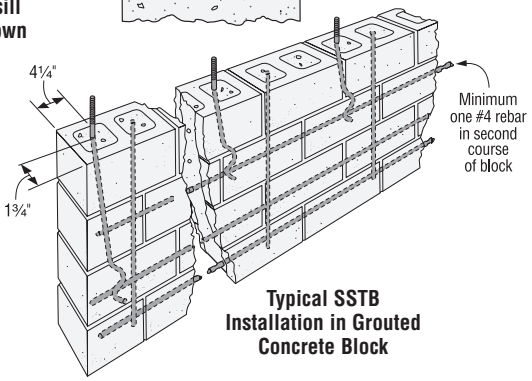
Typical SSTB Installation in Concrete Foundation
Maintain minimum rebar cover, per ACI-318 concrete code requirements



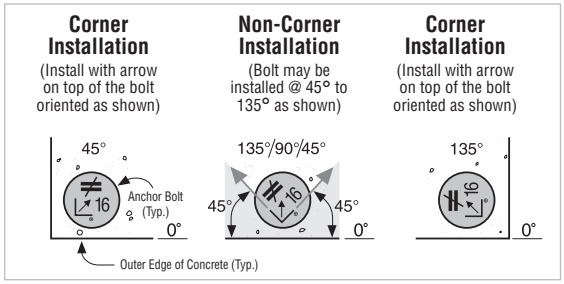
Typical SSTB Installation with Mudsill and Holdown



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



Typical SSTB Installation in Grouted Concrete Block



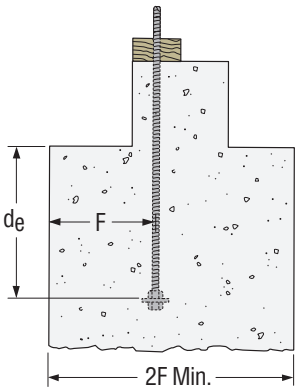
Plan View of SSTB Placement in Concrete

ADDITIONAL ANCHOR DESIGNS

In addition to anchorage solutions provided by the SB and SSTB anchor bolts, the following table provides design options obtained through calculations from the 2006 IBC per ACI 318-05 App. D. These solutions may be used with Simpson Strong-Tie® holdowns.

Code	Diameter (in.)	Load type	2500 psi Concrete			3000 psi Concrete		
			d_e (in.)	F (in.)	Allow.	d_e (in.)	F (in.)	Allow.
2006 IBC, ACI 318-05 - Appendix D	¾	Wind	5	7½	6710	5	7½	7350
		Seismic	7	10½	7790	7	10½	7790
	1	Wind	8	12	13580	7	10½	12170
			9	13½	16200	8	12	14870
		Seismic	10	15	14120	10	15	14120
	1⅛	Wind	6	9	8820	6	9	9660
			8	12	13580	8	12	14870
			11	16½	21760	10	15	20780
		Seismic	12	18	17790	11	16½	17790
	1¼	Wind	10	15	18970	9	13½	17750
		Seismic	14	21	22580	13	19½	22580

1. Anchor embedment length is based on a single pour concrete foundation within the footing dimensions d_e and F. Double pour foundation systems, masonry walls and masonry footings must be evaluated by the Designer.
2. Anchor bolt must be ASTM A307 or A36 steel.
3. Anchor head requires two hex nuts with a 2¼"x2¼"x⅜" plate. Use of a Simpson Strong-Tie® Bearing Plate BP1 *(see catalog page 31)* may be used as a substitute for 1" diameter bolts and Simpson Strong-Tie Bearing Plate BP¾ may be used as a substitute plate for ¾" diameter bolts.
4. Published loads are for use with Allowable Stress Design. IBC Seismic values denote SDC C through F. IBC Wind values include SDC A and B.
5. Design values are based on ACI 318-05 App. D where cracked concrete is assumed and additionally for seismic loads ductility requirements per D.3.3.4 are considered.



Anchor with Nut/Washer/Nut

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

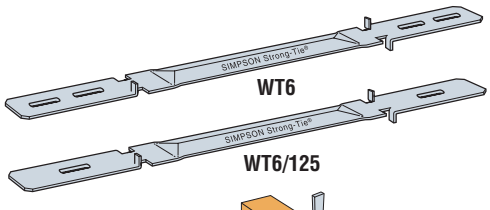
WT *Wedge Form Ties*

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

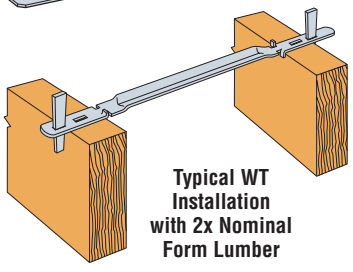
MATERIAL: Wedges—14 gauge, WT—18 gauge **FINISH**: Galvanized

INSTALLATION:
- Use two 3½" long wedges for each tie.
- Not recommended for wall pours greater than 4' high.
- Wall thickness from 6" to 12".
- Refer to technical bulletin T-WT for recommended spacing *(see page 191 for details)*.

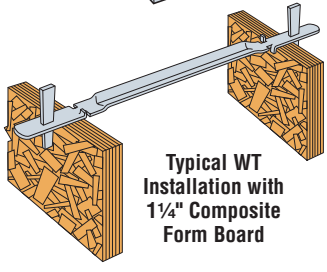
Model No.	Form Board	Wall Thickness
WT6	2x Solid Sawn	6
WT8		8
WT10		10
WT12		12
WT6/125	1¼" Composite	6
WT8/125		8
WT10/125		10
WT12/125		12



Order wedges separately. Specify W1.



Typical WT Installation with 2x Nominal Form Lumber



Typical WT Installation with 1¼" Composite Form Board

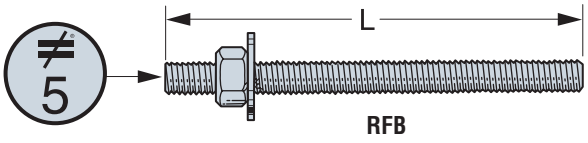
RFB *Retrofit Bolts*

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: A307 Grade C

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

See page 33-36 for application information and request technical bulletin T-ANCHORSPEC for additional product use information *(see page 191 for details).*



RFB

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

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

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

CNW/HSCNW *Coupler Nuts*

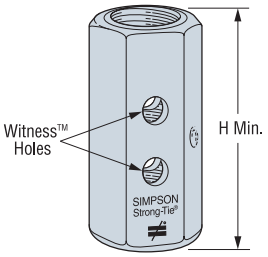
Simpson Strong-Tie® coupler nuts are a tested and load rated method to join threaded rod and anchor bolts. "Witness" holes in the nut provide a means to verify when rods are properly installed. The positive stop feature helps ensure even threading into each end of the nut. CNW's meet and exceed the capacity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

FINISH: Zinc Plated

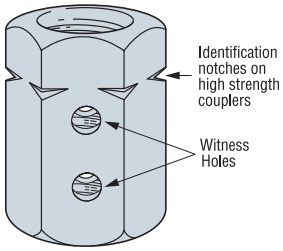
INSTALLATION:

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

CODES: See page 12 for Code Reference Key Chart.



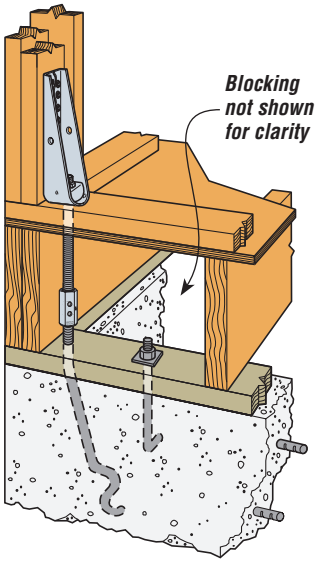
CNW
Allows fast visual check for correct all thread rod installation



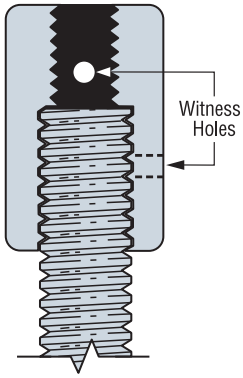
HSCNW
High Strength Coupler Nut

Model No.	Rod Diameter	H Min	Allowable Tension Capacity (lbs.) (100)	Code Ref.
CNW½	0.500	1½	3750	170
CNW⅝	0.625	1⅞	5875	
CNW¾	0.750	2¼	8460	
CNW⅞	0.875	2½	11500	
CNW1	1.000	2¾	15035	
CNW1¼	1.250	3	23490	
HSCNW¾	0.750	2¼	17495	
HSCNW1	1.000	2¾	31100	
Transition Couplers				
CNW⅝-½	0.625 to 0.500	1½	3750	170
CNW¾-⅝	0.750 to 0.625	1¾	5875	
CNW⅞-⅝	0.875 to 0.625	2	5875	
CNW1-⅞	1.000 to 0.875	2¼	11500	

1. Allowable loads may be increased as permitted by the applicable building code.
2. Allowable loads shown are based on threaded rod allowable load.



Typical CNW Rim Joist Installation



CNW Transition Coupler Nut

BP/LBP *Bearing Plates*

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

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

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

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

MATERIAL: See table

FINISH: LBP, LBPS & BP⅝S—Galvanized; BP⅞-2—Zinc Plated; BPS, BP—None. BP's and BPS's may be ordered HDG; LBP and LBPS products may be ordered ZMAX®; contact Simpson Strong-Tie. Refer to page 10-11 for Corrosion Information.

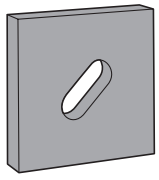
INSTALLATION: See General Notes.

CODES: See page 12 for Code Reference Key Chart.
2006 IRC R602.11.1, 2006 IBC 2305.3.11 *(see footnote 2 below)*

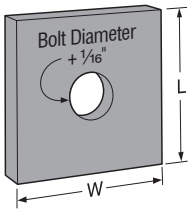
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Thickness	Dimensions W	Dimensions L	Bolt Dia.	Code Ref.
LBP½	9/64	2	2	½	180
LBP⅝	9/64	2	2	⅝	190
LBPS½	9/64	3	3	½	180
LBPS⅝	9/64	3	3	⅝	190
BPS½-3	3 ga	3	3	½	
BPS⅝-3	3 ga	3	3	⅝	
BP½	3/16	2	2	½	L8, 190
BP½-3	3 ga	3	3	½	190
BP⅝-2	3/16	2	2	⅝	
BP⅝SKT	3 ga	4	2	⅝	180
BP⅝	¼	2½	2½	⅝	L8
BP⅝-3	3 ga	3	3	⅝	190
BP¾	5/16	2¾	2¾	¾	L8
BP¾-3	3 ga	3	3	¾	190
BPS¾-3	3 ga	3	3	¾	
BP⅞-2	⅜	1 15/16	2¼	⅞	180
BP⅞	5/16	3	3	⅞	L8
BP1	⅜	3½	3½	1	

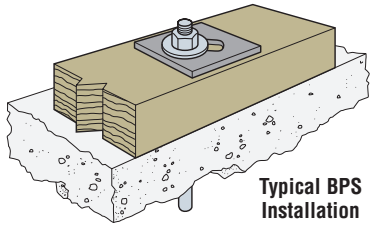
1. BP⅝SKT sold as a kit. 2. Standard cut washer required with BPS½-3, BPS⅝-3, and BPS¾-3 *(not provided)* per the 2006 IRC and IBC.



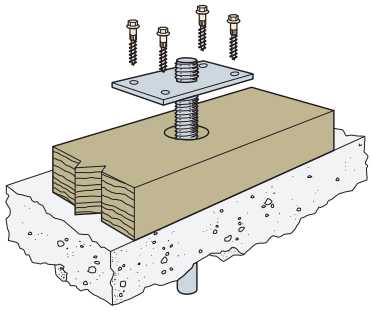
BPS
(LBPS similar)



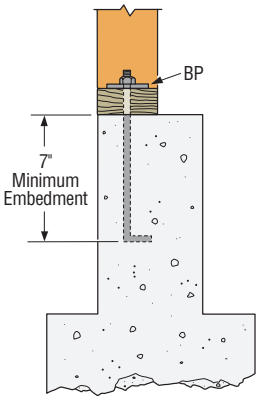
BP
(LBP similar)



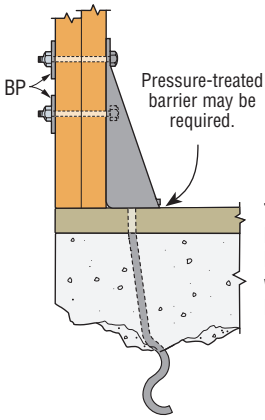
Typical BPS Installation



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 *(required for City of L.A.)*

GH *Girder Hangers*

A girder-to-foundation wall connection.

MATERIAL: 12 gauge

FINISH: Painted. May be ordered HDG, contact Simpson Strong-Tie. See Corrosion Information, page 10-11.

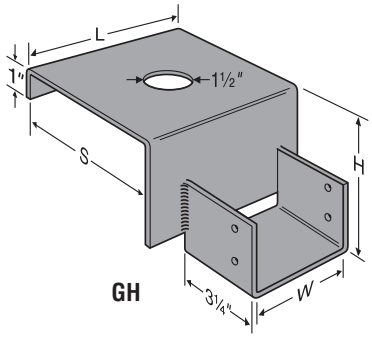
INSTALLATION: • Use all specified fasteners. See General Notes.
- Insert four 16d commons into girder.
- H = girder height – mudsill thickness.
- 1½" clearance hole accommodates rebar or anchor. This is not required.

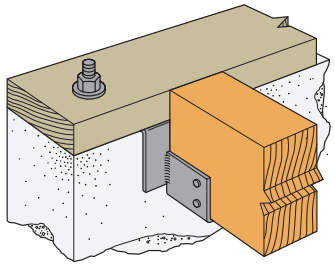
OPTIONS: For skewed and saddle hangers, see Hanger Options on pages 181-183. Contact Simpson Strong-Tie for other sizes available.

CODES: See page 12 for Code Reference Key Chart.

Model No.	Girder	Dimensions W	Dimensions L	Dimensions H 2x Plate	Dimensions H 3x Plate	Dimensions S	Allowable Loads Floor (100)	Allowable Loads Roof (125)	Code Ref.
GH46-6	4x6	3 9/16	6	4	3	6 1/16	2000	2000	I20, L26, F19
GH46-8	4x6	3 9/16	6	4	3	8 1/16	2000	2000	
GH48-6	4x8	3 9/16	6	6	5	6 1/16	2000	2000	
GH48-8	4x8	3 9/16	6	6	5	8 1/16	2000	2000	
GH66-6	6x6	5½	8	4	3	6 1/16	4000	4000	170
GH66-8	6x6	5½	8	4	3	8 1/16	4000	4000	
GH68-6	6x8	5½	8	6	5	6 1/16	4000	4000	
GH68-8	6x8	5½	8	6	5	8 1/16	4000	4000	

1. Loads may not be increased for short-term loading.
2. A mudsill on top of the GH is required to achieve the table loads.
3. Models listed are for a 2x plate, specify "H" dimension when ordering for use with a 3x plate.
4. Uplift loads do not apply for this hanger.
5. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.





Typical GH Installation

GLB/HGLB/GLBT *Beam Seats*

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

FINISH: Simpson Strong-Tie® gray paint

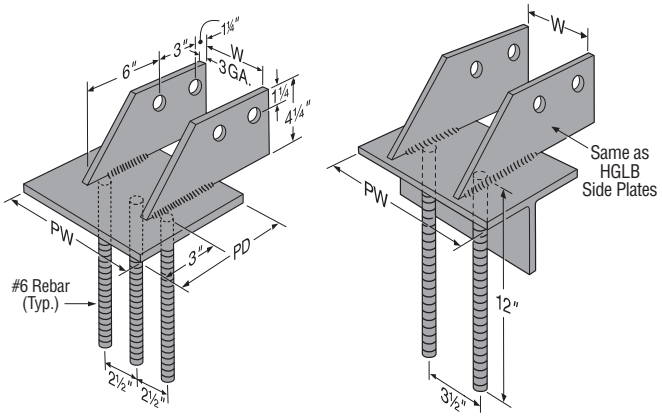
INSTALLATION:

- 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 the 2005 NDS, section 11.1.2)*.
- Check the rebar spacing requirements on all installations.

OPTIONS:

- Sawn timber and other sizes may be ordered by specifying special dimensions; use the letter designations shown on the illustrations.
- Specify if two-bolt GLB model is desired; see illustration.

CODES: See page 12 for Code Reference Key Chart.

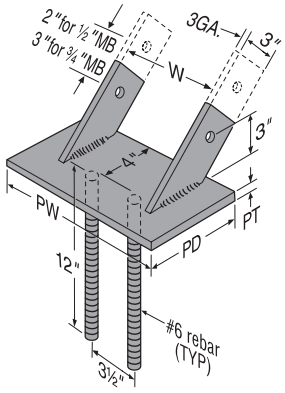


HGLB

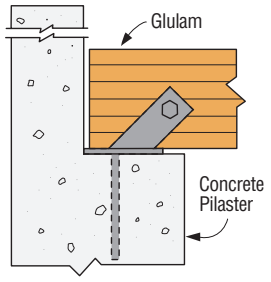
GLBT

Model No.	Dimensions				Bolts	Allowable Bearing Loads (lbs)[1,2]		Code Ref.
	W	PD	PW	PT		Masonry @ 375 psi	Wood f'c-perp	
GLB5A	5¼	5	7	3 ga	1 - ½	13125	14350	I20, L26, F19
GLB5B	5¼	6	7	⅜	1 - ½	15750	17220	
GLB5C	5¼	7	7	⅜	1 - ½	18375	20090	
GLB5D	5¼	8	7	⅜	1 - ½	21000	22960	
GLB7A	6⅞	5	9	3 ga	1 - ¾	16875	14350	
GLB7B	6⅞	6	9	⅜	1 - ¾	20250	17220	
GLB7C	6⅞	7	9	⅜	1 - ¾	23625	20090	
GLB7D	6⅞	8	9	⅜	1 - ¾	27000	22960	

1. Allowable bearing stress for masonry is based on an f'_m of 1500 psi using the IBC (ACI 530 2.1.9.3) Allowable Stress Design. Wood bearing is based on f'_c-perp of 560 psi.
2. When installed on masonry, use the lesser of the masonry or the wood allowable load values. When installed on concrete, a minimum f'_c = 2000 psi shall be used and use the wood values as the limiting allowable bearing load values.



GLB



Typical GLB Installation

Model No.	Dimensions				Bolts	Allowable Bearing Loads (lbs)[1,2]						Allowable Horizontal Bolt Loads[3,4] (lbs.)	Code Ref.
	W[6]	PD	PW	PT		Masonry @ 375 psi	Wood f'c-perp on Glulam Width						
							3⅛	5⅛	6¾	8¾	10¾		
HGLBA	3¼ to 9	5	10	⅜	2 - ¾	18750	8750	14350	18900	24500	—	8260	I20, L26, F19
HGLBB	3¼ to 9	6	10	⅜	2 - ¾	22500	10500	17220	22680	29400	—	8260	
HGLBC	3¼ to 9	7	10	⅜	2 - ¾	26250	12250	20090	26460	34300	—	8260	
HGLBD	3¼ to 9	8	10	⅜	2 - ¾	30000	14000	22960	30240	39200	—	8260	
GLBT512	3¼ to 11	5¼	12	5/16	2 - ¾	23625	9190	15070	19845	25725	31605	8260	
GLBT612	3¼ to 11	6½	12	⅜	2 - ¾	29250	11375	18655	24570	31850	39130	8260	
GLBT516	3¼ to 15	5¼	16	5/16	2 - ¾	31500	9190	15070	19845	25725	31605	8260	
GLBT616	3¼ to 15	6½	16	⅜	2 - ¾	39000	11375	18655	24570	31850	39130	8260	
GLBT520	3¼ to 19	5¼	20	5/16	2 - ¾	39375	9190	15070	19845	25725	31605	8260	
GLBT620	3¼ to 19	6½	20	⅜	2 - ¾	48750	11375	18655	24570	31850	39130	8260	

1. Allowable bearing stress for masonry is based on an f'_m of 1500 psi using the IBC (ACI 530 2.1.9.3) Allowable Stress Design. Wood bearing is based on f'_c-perp of 560 psi.
2. When installed on masonry, use the lesser of the masonry or the wood allowable load values. When installed on concrete, a minimum f'_c = 2000 psi shall be used and use the wood values as the limiting allowable bearing load values.
3. Allowable horizontal loads are bolt values and include a 60% increase for wind or earthquake loading. Loads must be reduced if stresses in masonry or concrete are limiting.
4. Beams must fully bear on base plate.
5. The GLBT5 has a WT4x9 structural tee; the GLBT6 has a WT4x12 structural tee.
6. Specify "W" dimension when ordering.
7. Uplift loads do not apply for this connector.

ANCHORING SYSTEMS *Sill Plate Anchor Solutions*

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

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

For Corrosion Information, refer to Simpson Strong-Tie *Anchoring and Fastening Systems for Concrete and Masonry* catalog (C-SAS).

EXTERIOR/INTERIOR SILL PLATE ANCHORAGE SOLUTIONS

The Titen HD® anchor and RFB Retrofit Bolt with Simpson Strong-Tie® adhesive may be used for sill plate applications. Use bearing plates as required by Code. Refer to the appropriate Code report or use Simpson Strong-Tie ACI 318 Anchor Designer™ software for anchor design information.

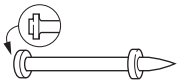
Titen HD®

RFB

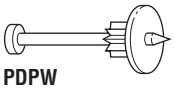
INTERIOR (ONLY) SILL PLATE ANCHORAGE SOLUTIONS

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

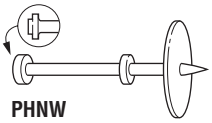
For complete information on product performance, installation requirements and appropriate code listings for Simpson Strong-Tie Anchor Systems products please refer to the *Anchoring and Fastening Systems for Concrete and Masonry* catalog *(form C-SAS)* or visit ***www.simpsonanchors.com.***



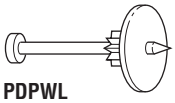
PHN



PDPW



PHNW



PDPWL

(PDPWL available in galvanized coating for preservative-treated wood applications)

These products are available with additional corrosion protection.

Catalog Number	Overall Length (in.)	Head Diameter (in.)	Shank Diameter (in.)	Maximum Spacing (in.)	
				Interior Braced Walls[3]	Interior Walls[2]
PDPW-300	3	5⁄16	0.145	12	24
PDPWL-300	3	5⁄16	0.145	12	24
PHN-72	2 7⁄8	5⁄16	0.145	18	36
PHNW-72	2 7⁄8	5⁄16	0.145	18	36

1. Spacings are based upon the attachment of 2-inch *(nominal thickness)* wood sill plates, with specific gravity of 0.50 or greater, to concrete floor slabs or footings. For species of wood with specific gravity of 0.42 to 0.49, multiply required spacing of fasteners for shear walls by 0.81. For species of wood with specific gravity of 0.31 to 0.41, multiply the required spacing of fasteners for shear walls by 0.65.
2. All walls shall have fasteners placed at 6 inches from ends of sill plates, with maximum spacing as shown in the table.
3. Fasteners indicated shall have two pins placed 6 inches and 10 inches, respectively, from each end of sill plates, with maximum spacing as shown in the table.
4. All fasteners must be installed with a minimum 3/4-inch-diameter, No. 16 gauge (0.0598 inch) steel washer.
5. Fasteners shall not be driven until the concrete has reached a compressive strength of 2,000 psi. Minimum edge distance is 1¾ inches.
6. The fasteners shall not be used for the attachment of shear walls having a unit shear in excess of 100 pounds per foot. Spacings shown are independent of the number of building stories.

Concrete Anchors Designed to Meet 2006 IBC

TESTED TO MEET IBC® 2006

Building Codes Are Changing – New Anchor Designs Now Required

Most states across the country have now adopted the 2006 International Building Code (IBC) and many jurisdictions within each state are now enforcing the new code. As a result, engineers and designers are increasingly being required to specify anchors designed and tested to meet the new requirements of the code. The 2006 IBC requires that Ultimate Strength Design methodology be used when designing structural anchorages within buildings and other structures. This affects how and when post-installed concrete anchors are specified and what products will be suitable for use.

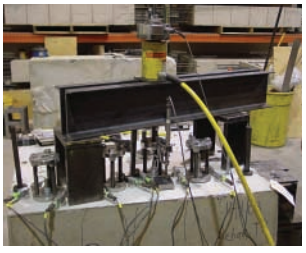
When designing concrete anchorages, designers are now being required to consider, among other things, whether conditions exist that may cause the concrete to crack. If it's determined such conditions do exist, anchors designed and tested for use in cracked concrete must be specified. If it's determined there is no risk of concrete cracking, the designer may choose to specify anchors approved for use in uncracked concrete. In either case, Ultimate Strength Design methodology is required as part of the 2006 IBC.

Common conditions that cause cracking of concrete:

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

ANCHOR DESIGNER ACI 318™

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



ANCHORING SYSTEMS *Anchoring Adhesives*

SET-XP™

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

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

CODES: ICC-ES ESR-2508; City of L.A. pending; Florida FL 11506.5 NSF/ANSI Standard 61 (216 in²/1000 gal)

IXP™ ANCHOR

Patent Pending

The Simpson Strong-Tie IXP anchor is a torque-controlled adhesive anchor that, when used with Simpson Strong-Tie® SET-XP epoxy, provides optimum performance in both cracked and uncracked concrete under a variety of adverse service conditions. The IXP anchor was rigorously tested according to ICC-ES AC308 and 2006 IBC requirements. The unique conical shape of the helix configuration enables the IXP anchor to mimic the follow-up expansion behavior of a torque-controlled expansion anchor when tension-zone cracks in the base material intersect the anchor location.

CODES: ICC-ES pending

SET EPOXY-TIE®

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

CODES: ICC-ES ESR-1772 (CMU & URM); City of L.A. RR25279; Florida FL 11506.4; Caltrans approved; multiple DOT listings; NSF/ANSI Standard 61 (216 in²/1000 gal), except SET1.7KTA.
SET-PAC-EZ™ covered by ICC-ES, City of L.A. and NSF/ANSI listings only

ET EPOXY-TIE®

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

CODES: ICC-ES ER-4945 (URM); City of L.A. RR25185, RR25120; Florida FL 11506.2; Multiple DOT Listings

AT ACRYLIC-TIE®

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

CODES: ICC-ES ER-5791* (CMU & URM); City of L.A. RR25459*; Florida FL 11506.1*; NSF/ANSI Standard 61 (11 in²/5000 gal); Multiple DOT listings

**Applies to all AT products except AT10*

TITEN HD® Heavy Duty Screw Anchor

TESTED TO MEET IBC® 2006

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

The Titen HD anchor is a patented, high-strength screw anchor for concrete and masonry. It is designed for optimum performance in both cracked and uncracked concrete; a requirement that the 2006 IBC places on post-installed anchors. The high strength, easy-to-install Titen HD anchor has been tested and shown to provide outstanding performance in cracked and uncracked concrete under both static and seismic-loading conditions. The self-undercutting, non-expansion characteristics of the Titen HD anchor make it ideal for structural applications, even at reduced edge distances and spacings. Recommended for permanent dry, interior non-corrosive environments or temporary outdoor applications.

ANCHOR DESIGNER ACI 318™

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

STRONG-BOLT™ Wedge Anchor

TESTED TO MEET IBC® 2006

The Strong-Bolt is a wedge anchor specifically designed for optimum performance in both cracked and uncracked concrete; a requirement that the 2006 IBC places on post-installed anchors. Rigorously tested according to the latest industry-wide criteria, the Strong-Bolt anchor is proven to offer increased reliability in the most adverse conditions, including performance in cracked concrete under static and seismic loading. The proprietary tri-segmented clip has dual undercutting embossments on each segment which enable secondary or "follow-up" expansion if a crack forms and intersects the anchor location. This significantly increases the ability of the Strong-Bolt wedge anchor to carry load if the hole opened slightly due to a crack. The Strong-Bolt anchor sets like a standard wedge anchor and is available in Imperial fractional sizes.

ANCHOR DESIGNER ACI 318™

CODES: ICC-ES ESR-1771; City of L.A. RR25705; Florida FL 11506.6

WEDGE-ALL® Wedge Anchor

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

CODES: ICC-ES ESR-1396 (CMU); City of L.A. RR24682; Factory Mutual 3017082 and 3031136; Florida FL 11506.8; Underwriters Laboratories File Ex3605; Meets requirements of Federal Specifications A-A-1923A, Type 4. The Tie-Wire anchor is not code listed.

TORQ-CUT™ Self-Undercutting Anchor

TESTED TO MEET IBC® 2006

The Torq-Cut self-undercutting anchor is a heavy-duty, high-capacity anchor designed and tested for use in cracked and uncracked concrete under static and seismic loading conditions. It is designed to meet the requirements that the 2006 IBC places on post-installed anchors. The built in ring with hardened cutters expands with installation torque forming undercut grooves in the concrete. This interlocking connection between the anchor and the concrete provides superior load carrying capacity.

CODES: ICC-ES pending

HDU *Holdown*

SIMPSON Strong-Tie®

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

HDU Holdowns are pre-deflected during the manufacturing process, virtually eliminating deflection under load due to material stretch. They use Simpson Strong-Tie® Strong-Drive® screws (SDS) which install easily and provide reduced fastener slip. Using SDS screws results in a greater net section, when compared to bolts, as no material is removed.

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

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

SPECIAL FEATURES:

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

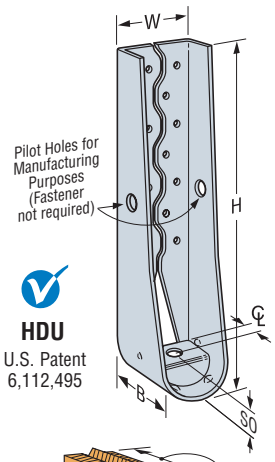
MATERIAL: See table **FINISH**: Galvanized

INSTALLATION:

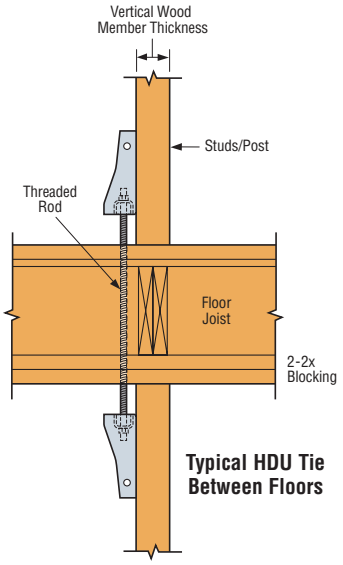
- Use all specified fasteners. See General Notes.
- For use in vertical and horizontal applications.
- No additional washer required.
- To tie multiple 2x members together, the Designer must determine the fasteners required to join the members to act as one unit without splitting the wood. See page 20 for SDS values.
- See SB and SSTB Anchor Bolts on pages 27-29 for anchorage options.
- SDS screws install best with a low speed high torque drill with a ⅜" hex head driver.
- Refer to technical bulletin T-ANCHORSPEC for post-installed anchorage solutions *(see page 191 for details)*.

CODES: See page 12 for Code Reference Key Chart.

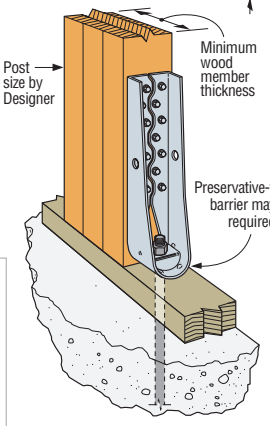
For holdowns, per ASTM test standards, anchor bolt nut should be finger-tight plus ⅓ to ½ turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used.



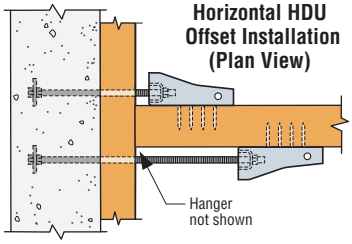
HDU
U.S. Patent 6,112,495



Typical HDU Tie Between Floors



Vertical HDU Installation



Horizontal HDU Offset Installation (Plan View)

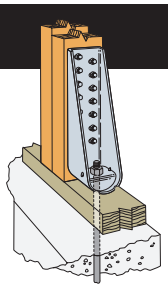
See footnote 7

Model No.	Ga	Dimensions (in.)					Fasteners		Minimum Wood Member Thickness[4] (in.)	Allowable Tension Loads (lbs.) (160)[1]			Code Ref.
		W	H	B	℄	SO	Anchor Bolt Dia. (in.)	SDS Screws		DF/SP	SPF/HF	Deflection at Allowable Load[5,6] (in.)	
HDU2-SDS2.5	14	3	8 11/16	3¼	1 5/16	1⅜	⅝	6-SDS ¼"x2½"	3	3075	2215	0.088	I6, L24, F5
HDU4-SDS2.5	14	3	10 15/16	3¼	1 5/16	1⅜	⅝	10-SDS ¼"x2½"	3	4565	3285	0.114	
HDU5-SDS2.5	14	3	13 3/16	3¼	1 5/16	1⅜	⅝	14-SDS ¼"x2½"	3	5645	4065	0.115	
HDU8-SDS2.5	10	3	16⅝	3½	1⅜	1½	⅞	20-SDS ¼"x2½"	3	5980	4305	0.084	
									3½	6970	5020	0.116	
									4½	7870	5665	0.113	
HDU11-SDS2.5	10	3	22¼	3½	1⅜	1½	1	30-SDS ¼"x2½"	5½	9535	6865	0.137	
									7¼	11175	8045	0.137	
HDU14-SDS2.5	7	3	25 11/16	3½	1 9/16	1 9/16	1	36-SDS ¼"x2½"	7¼	14390[9]	10360	0.177	
									5½[8]	14925[8,9]	10745	0.177	

1. Allowable loads have been increased for earthquake or wind load durations with no further increase allowed; reduce where other load durations govern.
2. The Designer must specify anchor bolt type, length and embedment. See SB and SSTB Anchor Bolts *(pages 27-29)*. Refer to technical bulletin T-ANCHORSPEC for retrofit anchor solutions *(see page 191 for details)*.
3. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details)*.
4. Post design by Specifier. Allowable load values are based on a minimum wood member thickness in the direction of the fastener penetration. Posts may consist of multiple 2x members provided they are designed to act as one unit independently of the holdown fasteners. Holdowns shall be installed centered along the width of the attached post.
5. Tension values are valid for holdowns flush or raised off of sill plate.
6. Deflection at Highest Allowable Tension Load includes fastener slip, holdown elongation, and anchor bolt elongation (L = 6"). Additional elongation of anchor bolts shall be accounted for by the Designer when holdowns are raised higher than 6".
7. Tabulated loads may be doubled when the HDU is installed on opposite sides of the wood member provided either the post is large enough to prevent opposing holdown screw interference or the holdowns are offset to eliminate screw interferences.
8. Noted HDU14 allowable loads are based on a 5½" wide post *(6x6 min.)*. All other loads are based on 3½" wide post minimum.
9. Requires heavy hex anchor nut to achieve tabulated loads *(supplied with holdown)*.

PHD *Predeflected Holdown*

The PHD Series of pre-deflected holdowns are being replaced by HDU holdowns. For specifications that call for a PHD, contact Simpson Strong-Tie for equivalent HDU models. See above for details on the HDU series of pre-deflected holdowns.



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® screws (SDS) 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 load value.

SPECIAL FEATURES:

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

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

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

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

- For use in vertical and horizontal applications.
- No additional washer is required.
- To tie multiple 2x members together, the Designer must determine the fasteners required to join members to act as one unit without splitting the wood. See page 20 for SDS values.
- See SB and SSTB Anchor Bolts on pages 27-29 for anchorage options.
- SDS screws install best with a low speed high torque drill with a ⅜" hex head driver.
- Refer to technical bulletin T-ANCHORSPEC for post-installed anchorage solutions *(see page 191 for details)*.

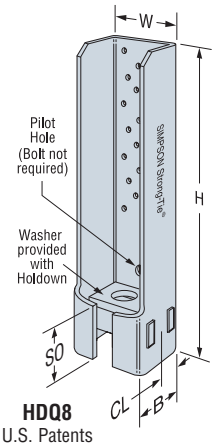
HDQ8:

- ⅝" of adjustability perpendicular to the wall.
- See SSTB Anchor Bolts, page 28-29, for anchorage options. For 2-2x and 3x sill plates use SSTBL models. The Designer may specify any alternate anchorage calculated to resist the tension load for a specific job. Anchorage length should take the bearing plate/washer height into account, to ensure adequate length of threads to engage the nut.

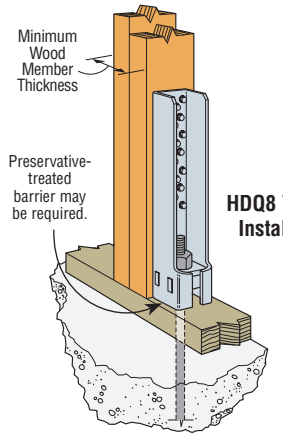
HHDQ11/14:

- No additional washer is required.
- HHDQ14 requires a heavy hex anchor nut *(supplied with holdown)*
- See SB Anchor Bolts, page 27, for anchorage options.

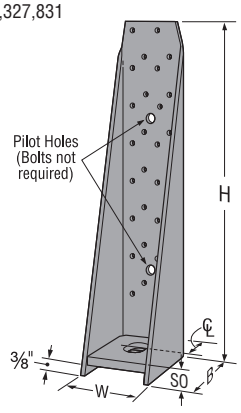
CODES: See page 12 for Code Reference Key Chart.



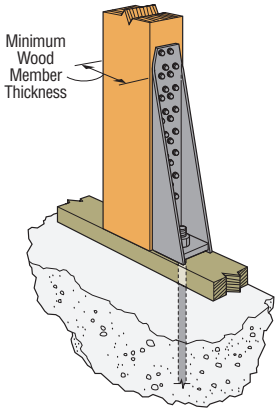
HDQ8
U.S. Patents 6,006,487 and 6,327,831



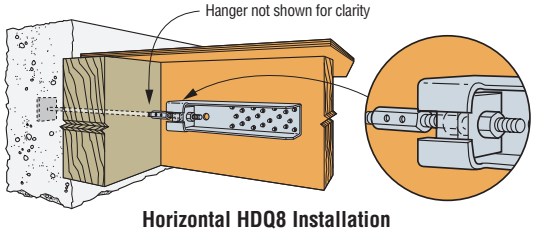
HDQ8 Vertical Installation



HHDQ11
(HHDQ14 similar)



Vertical HHDQ11 Installation
(HHDQ14 similar)



Horizontal HDQ8 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.

Model No.	Ga	Dimensions (in.)					Fasteners		Minimum Wood Member Thickness[4] (in.)	Allowable Tension Loads (lbs.) (160)			Code Ref.
		W	H	B	℄	SO	Anchor Bolt Dia. (in.)	SDS Screws		DF/SP	SPF/HF	Deflection at Allowable Load[6] (in.)	
HDQ8-SDS3	7	2⅞	14	2½	1¼	2⅜	⅞	20-SDS ¼"x3"	3	5715	4115	0.064	I6, L24, F5
								20-SDS ¼"x3"	3½	7630	5495	0.094	
								20-SDS ¼"x3"	4½	9230	6645	0.095	
HHDQ11-SDS2.5	7	3	15⅛	3½	1½	⅞	1	24-SDS ¼"x2½"	5½	11810	8505	0.131	
HHDQ14-SDS2.5	7	3	18¾	3½	1½	⅞	1	30-SDS ¼"x2½"	7¼	13015[9]	9370[9]	0.107	
									5½[8]	13710[8,9]	10745[9]	0.107	

1. Allowable loads have been increased for earthquake or wind load durations with no further increase allowed; reduce where other load durations govern.
2. The Designer must specify anchor bolt type, length and embedment. See SB and SSTB Anchor Bolts *(pages 27-29)*. Refer to technical bulletin T-ANCHORSPEC for retrofit anchor solutions *(see page 191 for details)*.
3. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details)*.
4. Post design by Specifier. Allowable load values are based on a minimum wood member thickness in the direction of the fastener penetration. Posts may consist of multiple 2x members provided they are designed to act as one unit independently of the holdown fasteners. Holdowns shall be installed centered along the width of the attached post.
5. Tension values are valid for holdowns flush or raised off of sill plate.
6. Deflection at Highest Allowable Tension Load includes fastener slip, holdown elongation, and anchor bolt elongation (L = 6"). Additional elongation of anchor bolts shall be accounted for by the Designer when holdowns are raised higher than 6".
7. Tabulated loads may be doubled when the HDQ8 is installed on opposite sides of the wood member provided either the post is large enough to prevent opposing holdown screw interference or the holdowns are offset to eliminate screw interferences.
8. Noted HHDQ14 allowable loads are based on a 5½" wide post *(6x6 min.)*. All other loads are based on 3½" wide post minimum.
9. Requires heavy hex anchor nut to achieve tabulated loads *(supplied with holdown)*.
10. HHDQ holdowns installed horizontally can achieve compression loads with the addition of a standard nut on the underside of the load transfer plate. Refer to ESR 2330 for design values. Design of anchorage rods for the compression force shall be per the Designer.

HDC *Concentric Holdown*

SIMPSON Strong-Tie®

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

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

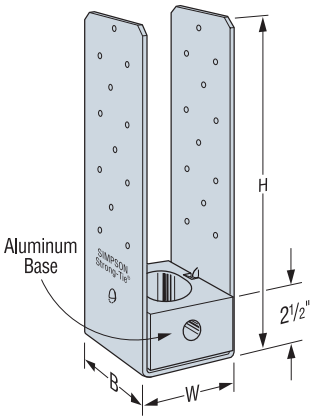
MATERIAL: 10 gauge strap

FINISH: Galvanized strap, aluminum base

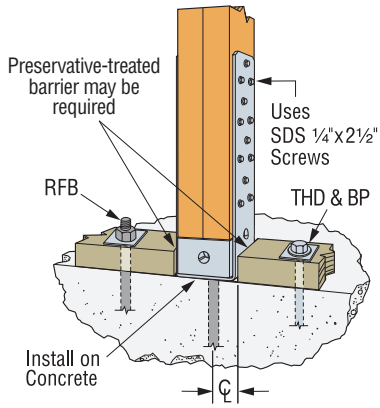
INSTALLATION: • Use all specified fasteners. See General Notes.

- Install on concrete.
- For use in vertical and horizontal applications.
- Sized for 2-2x, and 4x. Center 2-2x posts on holdown.
- Uses SDS screws supplied with the holdowns to ensure proper fasteners are used.
- Slot in the seat allows for ⅜" of adjustment perpendicular to plate.
- Cut washer required between base and anchor nut. For HDC5 models use a standard cut washer. For HDC10 models use narrow cut washer with outside diameter of 1¾".
- Witness slot in the base to inspect the nut .
- Maximum anchor bolt height above concrete is 2⅛".
- To tie multiple 2x members together, the Designer must determine the fasteners required to join members to act as one unit without splitting the wood. See page 20 for SDS values.
- Aluminum standoff cannot be in contact with preservative-treated wood.
- SDS screws install best with a low speed high torque drill with a ⅜" hex head driver.
- Refer to technical bulletin T-ANCHORSPEC for post-installed anchorage solutions *(see page 191 for details)*.

CODES: See page 12 for Code Reference Key Chart.



HDC10
U.S. Patent
6,513,290



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

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

Model No.	Post Size	W	H	B	℄	Anchor Bolt	Number of SDS ¼"x2½"	Allowable Tension Loads DF/SP (160)	Allowable Tension Loads SPF/HF (160)	Concrete Bearing[4,5] @ 2500 psi	Holdown Deflection at Highest Allowable Design Load	Code Ref.
HDC5/22-SDS2.5	2-2x4	3⅛	9⅜	3	1⁹⁄₁₆	⅝	12	4870	4215	7460	0.032	IL10, L10
HDC5/4-SDS2.5	4x4	3⁹⁄₁₆	9⅛	3	1¹³⁄₁₆	⅝	12	4870	4215	9060	0.046	
HDC10/22-SDS2.5	2-2x4	3⅛	14⅜	3	1⁹⁄₁₆	⅞	24	9665	8425	7460	0.050	
HDC10/4-SDS2.5	4x4	3⁹⁄₁₆	14⅛	3	1¹³⁄₁₆	⅞	24	9665	8425	9060	0.058	

1. The Designer must specify anchor bolt type, length and embedment. See SB Anchor Bolts *(page 27)*. Refer to technical bulletin T-ANCHORSPEC for retrofit anchor solutions *(see page 191 for details)*.
2. Loads are based on static tests on wood studs, limited by the lowest of 0.125" deflection, tested lowest ultimate divided by 3, or the wood screw value.
3. Deflection at Highest Allowable Tension Load includes fastener slip, holdown elongation, and anchor bolt elongation (L = 6"). Additional elongation of anchor bolts shall be accounted for by the Designer when holdowns are raised higher than 6".
4. The HDCs will be limited by wood compression capacity if installed on a sill plate. HDC5/22 and HDC10/22 will achieve an allowable load of 4005 lbs. on a DFL plate. HDC5/4 and HDC10/4 will achieve an allowable load of 4940 lbs. on a DFL plate, which does not take deflection into account. Full tension values apply when installed on a sill, deflections may be higher.
5. Higher values may be obtained when HDC is not placed at an edge or with f'_c concrete strength > 2500 psi.
6. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details)*.
7. Post design shall be by Designer.

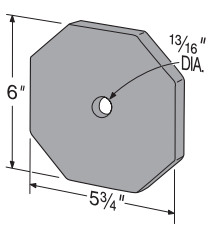
RP6 *Retro Plate*

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.

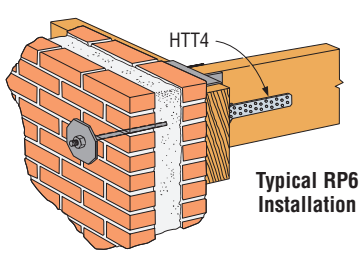
FINISH: Simpson Strong-Tie® gray paint. Optional hot-dip galvanized coating; see Corrosion Information, page 10-11, and specify HDG.

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

INSTALLATION: Use a ¾" diameter rod.



RP6



Typical RP6 Installation

LTT/MTT/HTT *Tension Ties*

SIMPSON Strong-Tie®

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

NEW! The HTT4 and HTT5 are the latest generation of tension ties. They feature an optimized nailing pattern which results in better performance with less deflection. Designed to meet new code standards, the HTT4 and HTT5 offer higher loads than their predecessors the HTT16 and HTT22. For an added benefit, the HTT5 installs with 6 fewer nails than the HTT22.

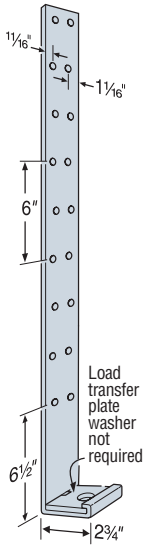
The LTT19 Light Tension Tie is designed for 2x joists or purlins and the LTT20B is for nail- or bolt-on applications. The 3" nail spacing makes the LTT20B suitable for wood I-joists with 10dx1½. The LTTI31 is designed for wood chord open web truss attachments to concrete or masonry walls and may also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

MATERIAL: See table

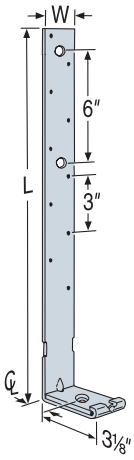
FINISH: Galvanized. May be ordered HDG; contact Simpson Strong-Tie.

INSTALLATION:
- Use all specified fasteners. See General Notes.
- For use in vertical and horizontal applications.
- To tie multiple 2x members together, the designer must determine the fasteners required to join members to act as one unit without splitting the wood. See page 20 for SDS values.
- Refer to technical bulletin T-ANCHORSPEC for post-installed anchorage solutions *(see page 191 for details)*.

CODES: See page 12 for Code Reference Key Chart.



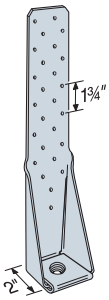
LTTI31



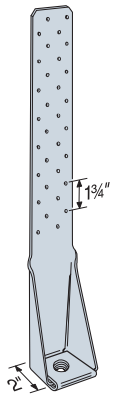
LTT20B
(LTT19 similar)

Available Early 2009

NEW



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



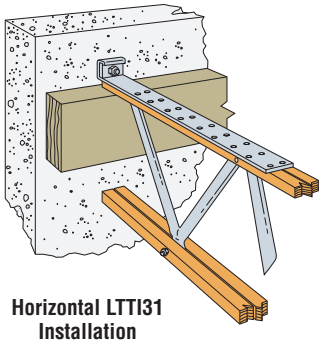
HTT22
(HTT16 similar)
U.S. Patent 5,467,570

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

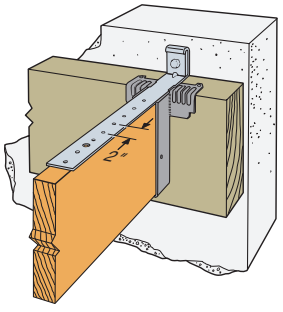
Model No.	Material (Ga)		Dimensions			Seat Thickness	Fasteners		Allowable Tension Loads (160)		Deflection at Highest Allowable Load	Code Ref.
	Strap	Plate	W	L	℄		Anchor Bolts	Fasteners	DF/SP	SPF/HF		
LTT19[4]	16	3	1¾	19⅛	1⅜	5⁄16	½, ⅝ or ¾	8-10dx1½	1310	1125	0.180	IP2, F4
								8-10d	1340	1150	0.157	
LTT20B[4]	12	3	2	19¾	1½	5⁄16	½, ⅝ or ¾	10-10dx1½	1355	1165	0.195	
								10-10d	1500	1290	0.185	
								2-½" Bolt	1625	1400	0.183	
LTTI31[5]	18	3	3¾	31	1⅜	¼	⅝	18-10dx1½	1350	1160	0.193	
MTT28B	**Deleted — See HTT5 or HTT22**											
NEW HTT4	11	—	2½	12⅜	1⅜	7⁄16	⅝	18-10dx1½	3610	3105	0.086	IP2, F4
								18-16dx2½	4235	3640	0.123	
HTT16	11	—	2½	16	1⅜	7⁄16	⅝	18-16dx2½	3955	3400	0.124	
NEW HTT5	11	—	2½	16	1⅜	7⁄16	⅝	26-10dx1½	4350	3740	0.120	
								26-10d	4670	4275	0.116	
								26-16dx2½	5090[7]	4375	0.135	
HTT22	11	—	2½	22	1⅜	7⁄16	⅝	32-10d	4165[7]	3580	0.152	

1. The Designer must specify anchor bolt type, length and embedment. See SB Anchor Bolts *(page 27)*. Refer to technical bulletin T-ANCHORSPEC for retrofit anchor solutions *(see page 191 for details)*.
2. Allowable loads have been increased for wind or earthquake load durations with no further increase allowed; reduce where other load durations govern.
3. Allowable loads are based on a minimum lumber thickness of 3".
4. If a ½" or ⅝" anchor bolt is used for the LTT19 or LTT20B, add a standard cut washer to the seat. No additional washer is required for a ¾" anchor bolt. See table for appropriate anchor bolt sizes.
5. **If the base of the LTTI31 is installed flush with a concrete or masonry wall, then the allowable load is 2285 lbs.**
6. Tension values are valid for holdowns flush or raised off of sill plate.
7. **Allowable tension load with a bearing plate washer BP⅝-2 *(sold separately)* is 5395 lbs. for HTT5 and 4265 lbs. for HTT22.**
8. Deflection at Highest Allowable Tension Load includes fastener slip, holdown elongation, and anchor bolt elongation (L = 6"). Additional elongation of anchor bolts shall be accounted for by the Designer when holdowns are raised higher than 6".
9. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details)*.
10. **NAILS:** 16dx2½ = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

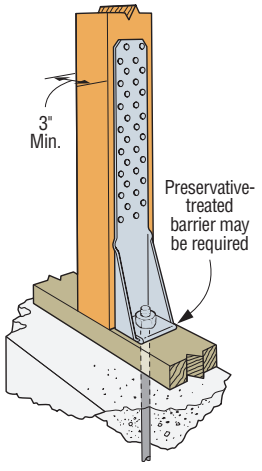
For tension ties, per ASTM test standards, anchor bolt nut should be finger-tight plus ⅓ to ½ turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used.



Horizontal LTTI31 Installation



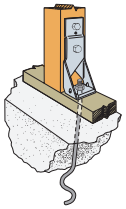
Horizontal LTT19 Installation
(LTT20B similar)



Vertical HTT22 Installation

HDA *Holdowns*

Allowable loads for HDA Holdowns have traditionally been limited by the calculated value of their stud bolts. Preliminary testing to the new acceptance criteria for testing and evaluating holdowns (AC 155) indicates that the ultimate capacity divided by a factor of safety exceeds the previously calculated values; however, the allowable loads are limited by deflection under the new critieria. Since significantly lower deflections are obtained with comparable SDS-style holdowns we recommend the use of the HDU series of holdowns *(see page 37)*. For those conditions which necessitate a bolted holdown our existing HD product line provides the best alternative for high loads at low deflection.



HD *Holdowns*

HD holdowns provide a bolted holdown solution.

NEW! The HD19 is a high-capacity bolted holdown designed for applications that require loads beyond the capacity of the HDU series holdowns. The HD19 can be installed back-to-back when maximum capacity is needed or when eccentricity is an issue.

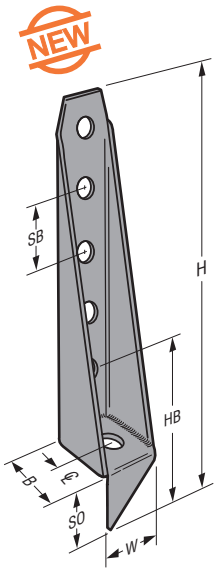
The HD9, HD12 and HD19 holdowns are self-jigging, ensuring that the code required minimum of seven bolt diameters from the end of the post is met. The HD5 and 7 must be raised such that the seven bolt diameter minimum from the end of the post is maintained.

MATERIAL: See table **FINISH**: Simpson Strong-Tie® gray paint

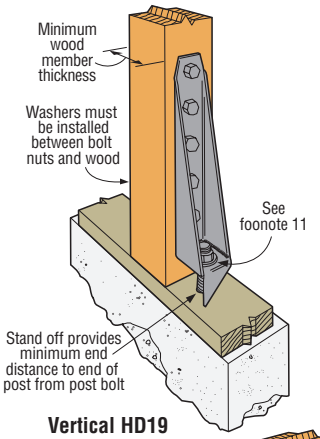
INSTALLATION: • Use all specified fasteners. See General Notes.

- For use in vertical and horizontal applications.
- HD holdowns are required to be installed such that the bottom stud bolt is a minimum of seven bolt diameters from the end of the post (2005 NDS, Section 11.5.1) which is indicated by the dimension in the drawing labeled (HB). HD9, 12 and 19 holdowns are self-jigging, ensuring that the code required minimum of seven bolt diameters from the end of the post is met. The HD5 and 7 must be raised such that the seven bolt diameter minimum from the end of the post is maintained *(refer to table for HB dimension)*.
- Bolt holes shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt diameter *(per NDS, section 11.1.2)*.
- Standard cut washer required between nut and base when using smaller diameter anchor bolts *(see footnote 11)*.
- Stud bolts should be snugly tightened with standard cut washers between the wood and nut *(BP's are required in the City of Los Angeles)*.
- The Designer must specify anchor bolt type, length, and embedment. See SB and SSTB Anchor bolts *(pages 27-29)*.
- 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 *(see page 20 for SDS values)*.
- Refer to technical bulletin T-ANCHORSPEC for post-installed anchorage solutions *(see page 191 for details)*.

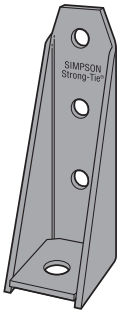
CODES: See page 12 for Code Reference Key Chart.



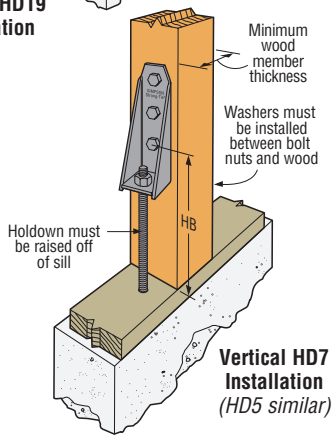
HD19
(HD9 and HD12 similar)



Vertical HD19 Installation



HD7
(HD5 similar)



Vertical HD7 Installation
(HD5 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.

Model No.	Material (Ga)		Dimensions							Fasteners		Allowable Tension Loads DF/SP (160)						Deflection at Highest Allowable Load	Code Ref.
												Wood Member Thickness							
	Base	Body	HB[3]	SB	W	H	B	SO	℄	Anchor Dia.	Stud Bolts	1½	2½	3	3½	4½	5½		
HD5	3 ga	7 ga	5¼	3	2⅞	6⅜	3½	3⅛	2⅛	⅝	2-¾	2405	3835	3850	4630	4945	—	0.178	160
										¾	2-¾	2405	3835	4055	4875	5010	—		
HD7	5/16	3 ga	6⅛	3½	3½	11¾	3⅜	2⅞	2⅛	⅞, 1	3-⅞	—	—	6480	6480	6480	6480	0.172	
										1⅛	3-⅞	—	—	6600	6600	6600	6600		
HD9	⅜	3 ga	7	4	3½	16½	4 7/16	3⅝	2⅛	⅞, 1	3-1	—	—	8810	10330	12100	12100	0.178	
										1⅛	3-1	—	—	8810	10330	12185	12185		
HD12	⅜	3 ga	7	4	3½	20 5/16	4 7/16	3⅝	2⅛	1	4-1	—	—	—	11350	12665	14220[2]	0.177	
										1⅛	4-1	—	—	—	11945	13335	15510[2]		
HD19	⅜	3 ga	7	4	3½	24½	4 7/16	3⅝	2⅛	1⅛	5-1	—	—	—	—	—	16735[2]	0.177	
										1¼	5-1	—	—	—	—	—	19070[2]	0.137	

1. Allowable loads have been increased for earthquake or wind load durations with no further increase allowed; reduce where other load durations govern.
2. HD12 and HD19 require a minimum 4x8 *(in a 3½" wide shearwall)* or 6x6 nominal post to ensure the tension load carrying capacity of the critical net section meets the holdown capacity. Designer to evaluate combined bending and tension stresses.
3. HB is the required minimum distance from the end of the stud to the center of the first stud bolt hole. End distance may be increased as necessary for installation *(see General Notes)*. Tension values are valid for holdowns installed flush to, or raised off of, the sill plate provided that the minimum HB distance is maintained.
4. The Designer must specify anchor bolt type, length and embedment. See SB and SSTB Anchor Bolts *(pages 27-29)*. Refer to technical bulletin T-ANCHORSPEC for retrofit anchor solutions *(see page 191 for details)*.
5. Lag bolts will not develop the listed loads.
6. Deflection at Highest Allowable Tension Load includes fastener slip holdown elongation, and anchor bolt elongation (L = 8"). Additional elongation of anchor bolts shall be accounted for by the Designer when holdowns are raised higher than 8".
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-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details)*.
8. To achieve published loads, machine bolts shall be installed with the nut on the opposite side of the holdown *(see drawing)*. If reversed, the Designer shall reduce the allowable loads shown per NDS requirements when bolt threads are in the shear plane.
9. For SPF/HF allowable loads use 0.85 of the DF/SP allowable loads.
10. Tabulated values may be doubled when the HD holdown is installed on opposite sides of the wood member. The Designer must evaluate the capacity of the wood member and the anchorage.
11. Standard cut washer required under anchor nut for HD5 with ⅝" anchor and HD7, HD9 and HD12 with ⅞" or 1" anchors. HD19 requires a cut washer with 1⅛" anchors.
12. Post design shall be by Designer. Tabulated loads are based on 3½" wide post minimum.

LSTHD/STHD *Strap Tie Holdown*

SIMPSON Strong-Tie®

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

The STHD is an embedded strap tie holdown with high load capacity and a staggered nail pattern to help minimize splitting. The STHD strap tie holdown incorporates many features that improve installation and function. When used in conjunction with the StrapMate® you have a system that helps prevent both parallel and perpendicular movement during installation relative to the form. Allows for accurate location of the STHD's and reduces the possibility of spalling.

FEATURES

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

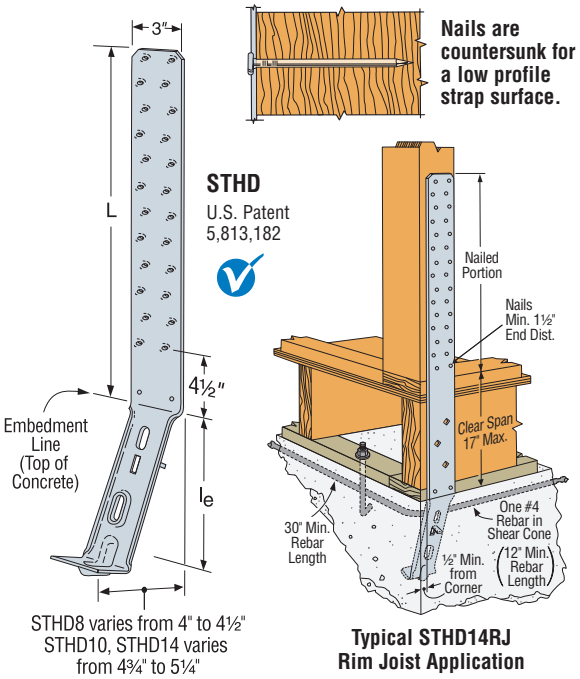
MATERIAL: LSTHD8, LSTHD8RJ—14 gauge, all others—12 gauge

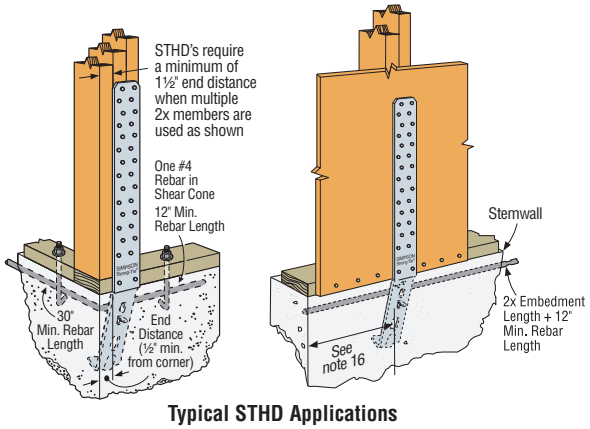
FINISH: Galvanized

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

- See Post Tension information on page 43.
- Install before concrete pour with a StrapMate, or other holding device.
- Nail strap from the bottom up.
- Strap may be bent one full cycle *(bent horizontal 90° then bent vertical)* to aid wall placement, but may cause spalling behind the strap. If the spall is 1" or less, measured from the embedment line to the bottom of the spall, full loads apply. For larger spalls see table footnotes for load reduction. Any portion of the strap left exposed should be protected against corrosion.
- For two pour installations spalling is measured from the first pour.
- 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.
- 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.
- 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.

CODES: See page 12 for Code Reference Key Chart.



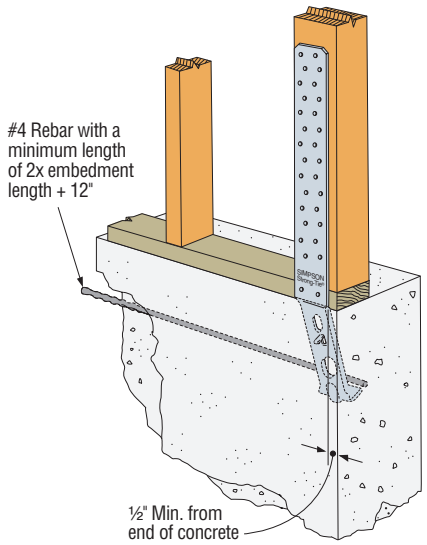


Tension Loads for STHD Installations

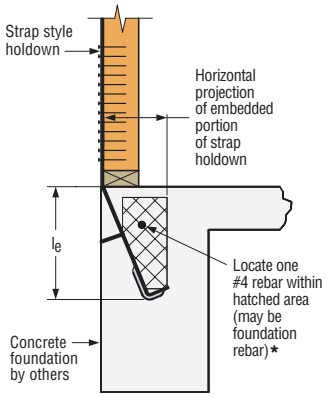
Model No. Standard / Rim Joist	Min. Stem Wall	Strap Length (L) Std. Model	Strap Length (L) Rim Joist Model	le	Nails	Allowable Tension Loads (DF/SP/HF/SPF) (160) End Distance ½"[5]	1½"	le	½"	1½"	le	½"	1½"	le	Code Ref.
						2000 psi Concrete			2500 psi Concrete			3000 psi Concrete			
LSTHD8 / LSTHD8RJ	6	21⅝	35⅛	8	24-16d Sinkers	1695	1695	1695	1825	1825	1825	1950	1950	1950	IL4[17], F24
STHD8 / STHD8RJ	6	21⅝	35⅛	8	24-16d Sinkers	1760	2050	2345	1950	2210	2385	2135	2370	2425	
STHD10 / STHD10RJ	6	23⅛	36⅝	10	28-16d Sinkers	2035	2575	3295	3730	3730	3730	3730	3730	3730	
STHD14 / STHD14RJ	6	31⅝	39⅝	14	38-16d Sinkers	3235	4220	4805	5025	5025	5025	5025	5025	5025	
LSTHD8 / LSTHD8RJ	8	21⅝	35⅛	8	24-16d Sinkers	1695	1695	1695	1825	1825	2335	1950	1950	2975	
STHD8 / STHD8RJ	8	21⅝	35⅛	8	24-16d Sinkers	2370	2370	3195	2370	2370	3195	2370	2370	3195	
STHD10 / STHD10RJ	8	23⅛	36⅝	10	28-16d Sinkers	2745	2745	3725	3730	3730	3730	3730	3730	3730	
STHD14 / STHD14RJ[2]	8	31⅝	39⅝	14	38-16d Sinkers	3885	4430	5785	5025	5025	5785	5025	5025	5785	

1. 'RJ' after the model indicates STHDs for rim joist applications, e.g. STHD8RJ.
2. STHD14RJ on 8" stemwall requires 30-16d sinkers.
3. 10d commons nails may be used with no load reduction.
4. Minimum nail end distance to prevent splitting is 10 x diameter, 1½" for 16d sinkers and 10d common.
5. For two pour with 4" slab or less. The STHD14 load at ½" end distance 2000 psi is 3235 lbs. and 4220 lbs. at 14" end distance. The STHD10 at the same condition is 2035 lbs. for ½" end distance, and 2750 lbs. at 10" end distance.
6. Allowable loads have been increased for wind or earthquake load durations with no further increase allowed; reduce where other load durations govern.
7. Where fewer fasteners are used in the structural wood member, reduce loads according to the code.
8. To get the full table load, the minimum center-to-center spacing is twice the embedment depth when resisting tension loads at the same time.
9. There is an increase in the amount of deflection if the strap is installed on the outside of the shear panel instead of directly to the framing. Refer to technical bulletin T-PLYWOOD *(see page 191 for details)*.
10. Calculate loads using straight line interpolation for corner distances between ½" and l_e.
11. STHD14RJ installed on HF/SPF in an 8" stemwall: the l_e load is **5370 lbs.**
12. Post design shall be by Designer.
13. Loads shown apply to post tension slabs when one #4 rebar *(minimum)* is installed *(per single pour rebar installation on page 43)*.
14. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details)*.
15. For concrete spalls between 1" and 4" the allowable loads is 0.90 of the table loads.
16. Table loads apply to corner stemwall applications provided that there is a perpendicular stemwall at the corner having a minimum length of le. See page 43 for loads where there is not a perpendicular stemwall at corners.
17. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.
18. **NAILS:** 16d sinker = 0.148" dia. x 3¼" long. See page 16-17 for other nail sizes and information.

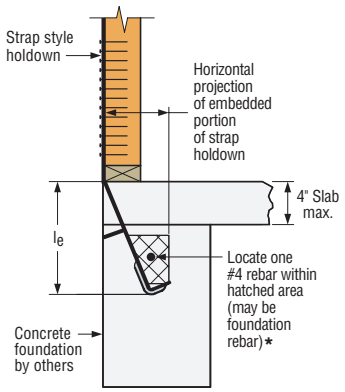
LSTHD/STHD *Strap Tie Holdown*



Typical STHD14 End Installation
(No corner return)



Single Pour Rebar Installation
**Maintain minimum rebar cover, per ACI-318 concrete code requirements.*



Two Pour Rebar Installation
**Maintain minimum rebar cover, per ACI-318 concrete code requirements.*

Model No.	End Installation Allowable Tension Loads at ½" End Distance (DF/SP/SPF/HF)		
	Stemwall Width		
	6"	8"	10"
STHD10	2095	—	—
STHD14	3105	3645	4500

1. Loads based on 2500 psi minimum concrete strength.
2. Allowable loads have been increased for wind or earthquake load durations with no further increase allowed; reduce where other load durations govern.
3. For dimensional information and required fasteners, refer to to table on page 42.
4. For STHD14 1½" End Distance in 8" stemwalls, loads can be increased to 4200 lbs.
5. Allowable loads also apply to rim joist models.
6. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.

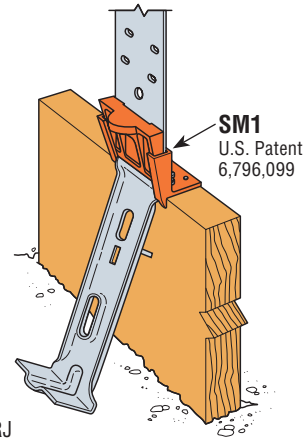
SPALL REDUCTION SYSTEM FOR STHD STRAP TIE HOLDOWN

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

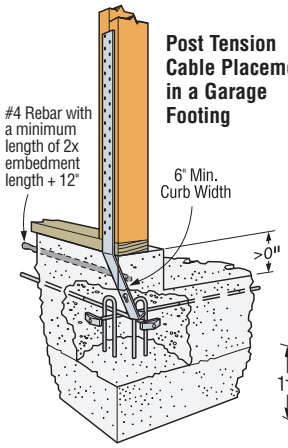
BENEFITS
Built-in Tab:
- Reduces spalling and costly retrofits.
- No additional labor to install.
- Holds STHD away from form board.

StrapMate Locator Line:
- Easy inspection to ensure proper location.
- Allows adjustment without removing STHD.

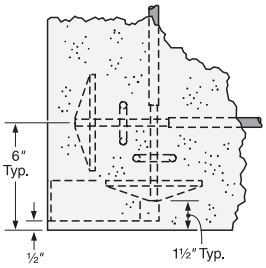
Additional Diamond Hole:
- One more fastener to help prevent the STHD RJ models from bowing out at the rim joist section.



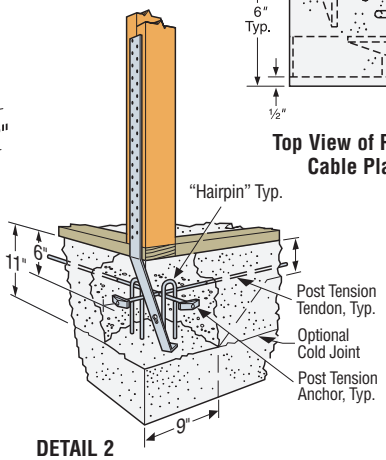
POST-TENSION INFORMATION



DETAIL 1
When installed on a raised curb, use 6" Stemwall installation and loads *(rebar required see above)*



Top View of Post Tension Cable Placement



DETAIL 2
Post Tension Cable Placement Corner Installation *(no rebar required)*

Model No.	Distance from Corner	Fasteners	Allowable Uplift Loads (160)	Code Ref.
HPAHD22	½" Min	13-16d	2705	IL1[6], F24
	8" Min	23-16d	4570	
LSTHD8/ LSTHD8RJ	½" Min	24-16d Sinkers	1695	IL4[6], F24
	8" Min	24-16d Sinkers	1695	
STHD8/ STHD8RJ	½" Min	24-16d Sinkers	2055	
	8" Min	24-16d Sinkers	2345	
STHD10/ STHD10RJ	½" Min	28-16d Sinkers	2055	
	10" Min	28-16d Sinkers	3185	

1. Minimum concrete strength is 2500 psi.
2. Post-tension steel is minimum ½" diameter, 7-wire, low-relaxation strand in accordance with ASTM A416, Grade 270 ksi, with a guaranteed ultimate strength of 41.3 k.
3. Anchorage is monostrand-type anchor system with current ICC approval using a ductile iron casting of at least 2.25"x4.5" of bearing and reusable pocket formers on all stressing ends.
4. It is the Designer's responsibility to provide reinforcement to tie cold-joints and to resist bending stresses in the foundation due to anchor uplift.
5. Post design shall be by Designer.
6. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.
7. **NAILS:** 16d = 0.162" dia.x3½" long, 16d sinker = 0.148" dia.x3¼" long. See page 16-17 for other nail sizes and information.

PAHD/HPAHD *Strap Tie Holdowns*

Wood-to-concrete connectors that satisfy engineering and code requirements.

MATERIAL: HPA—10 gauge; all others—12 gauge **FINISH**: Galvanized

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

- Install before concrete pour with a StrapMate®, or other holding device.
- Strap may be bent one full cycle. Bending the strap 90° to aid wall placement may cause spalling behind the strap. If the spall is 1" or less, measured from the embedment line to the bottom of the spall, full loads apply. For spalls between 1" and 4" *(see illustration on page 45)*, the allowable load is 0.90 of the table loads.
- For two pour installations spalling is measured from the first pour.
- Nail strap from bottom up.
- Where fewer fasteners are used in the structural wood member, reduce loads according to the code. A wood splitting problem may occur when holdowns are nailed to lumber less than 3½" wide. To lessen splitting of 3x's or double 2x's, either fill every nail hole with 10dx1½" nails or fill every other nail hole with 16d commons. Reduce the allowable load based on the size and quantity of fasteners used.
- 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.
- To get the full table load, the minimum center-to-center spacing is twice the embedment depth when resisting tension loads at the same time.
- 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.
- Additional studs attached to the shearwall studs or post may be required by the Designer for wall sheathing nailing.

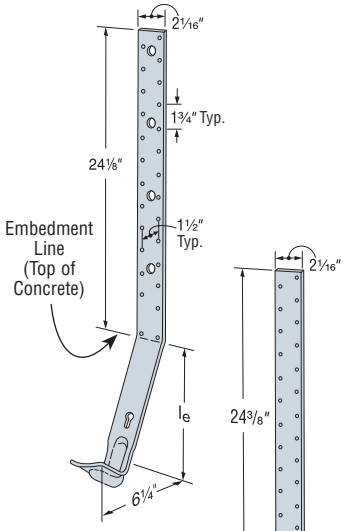
FOUNDATION CORNERS: Nail and bolt quantities have been reduced when the load is limited by tested concrete pullout strength *(fill holes from bottom up)*; additional nail holes need not be filled. Nail and bolt quantities may be reduced further for less than 8" corner distance design loads—use code allowable loads for fasteners used in shear.

TWO-POUR SYSTEMS: When a cold joint exists between slab and foundation, the holdown will be lower on the stud wall since the embedded portion of the holdown must be in the foundation *(see table footnote 1 for exception)*. Fewer fasteners are used, reducing allowable loads. Loads are calculated using a 4" slab over 6" and 8" foundation walls.

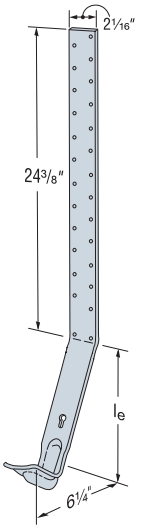
PAHD42, HPAHD22, HPAHD22-2P HOLDOWNS: Designed to be installed at the edge of concrete. Tests determined the pullout strength with one horizontal #4 rebar in the shear cone. Rebar should be a minimum length of 2x embedment depth + 12" *(except corner installations, page 45)*. Install before pouring concrete by nailing to form. Installation holes allow nailing to the form, resulting in 1" deeper embedment; see illustration.

OPTIONS: See also STHD Holdowns, LTT, HTT Tension Ties.

CODES: See page 12 for Code Reference Key Chart.



HPAHD22

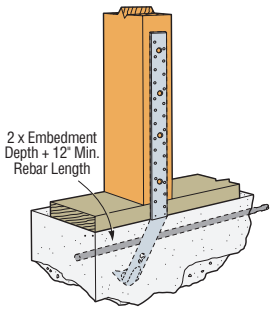


HPAHD22-2P

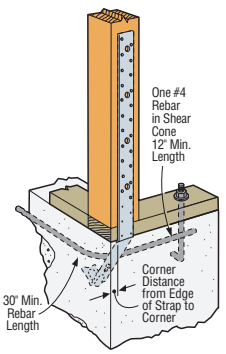
Model No.	Min. Stem Wall	Embed. Depth le	Nails	Allowable Tension Loads DF/SP (160) 2000 psi Concrete End Distance ½" 133	2000 psi Concrete ½" 160	2000 psi Concrete 8" 133	2000 psi Concrete 8" 160	2500 psi Concrete ½" 133	2500 psi Concrete ½" 160	2500 psi Concrete 8" 133	2500 psi Concrete 8" 160	Code Ref.
SINGLE POUR												
PAHD42	6	6½"	12-16d	920	920	2030	2030	1225	1225	2205	2205	IL1[13], F24
	8		16-16d	1050	1050	2715	2715	1400	1400	2945	2945	
HPAHD22	6	10"	16-16d	1315	1315	3335	3335	1750	1750	3335	3335	
	8		23-16d	2030	2030	4745	4745	2210	2210	4875	5160	
TWO POUR												
PAHD42	6	6½"	12-16d	920	920	2030	2030	1225	1225	2205	2205	IL1[13], F24
	8		12-16d	1050	1050	2305	2715	1400	1400	2305	2765	
HPAHD22	6	10"	16-16d	1315	1315	3335	3335	1750	1750	3335	3335	
	8		19-16d	2030	2030	4030	4745	2210	2210	4030	4835	
HPAHD22-2P	6	14⅞"	16-16d	2455	2455	3335	3335	2455	2455	3335	3335	
	8		23-16d	2455	2455	4745	4745	2455	2455	4875	5160	

1. HPAHD22 may be embedded 4" into the slab and 6" into the 8" stemwall beneath for a maximum load of 2810 lbs. at 8" minimum from the closest corner, and 1200 lbs. at ½" from the closest corner *(like installation 4)*.
2. Allowable loads have been increased for wind or earthquake load durations with no further increase allowed; reduce where other load durations govern.
3. 16d sinkers (0.148" dia. x 3¼" long) or 10d commons may be substituted for specified 16d commons at 0.85 of table loads.
4. Minimum nail end distance to prevent splitting is 10x the nail diameter, or 1⅝" for 16d nails.
5. Calculate loads using straight line interpolation for corner distances between ½" and 8".
6. Optional fastener holes are provided on selected products. Because the product is limited by the concrete foundation, you may not need to install optional fasteners.
7. Strap may be bent one full cycle. *(Bent horizontal 90° then bent vertical.)*
8. Rim Joist application: see Installation 3 for corner condition.
9. Loads shown apply to post-tension slabs when one #4 rebar *(minimum)* is installed as shown on page 45.
10. Post design shall be by Designer.
11. For SCL columns the PAHD/HPAHD straps should be used into the wide face only.
12. There is an increase in the amount of deflection if the strap is installed on the outside of the shear panel instead of directly to the framing. Refer to technical bulletin T-PLYWOOD *(see page 191 for details)*.
13. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.
13. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.

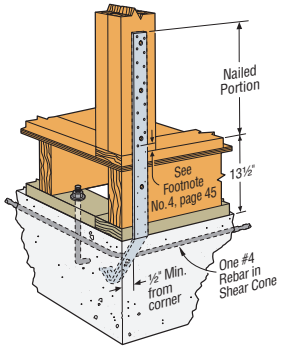
SINGLE POUR INSTALLATIONS



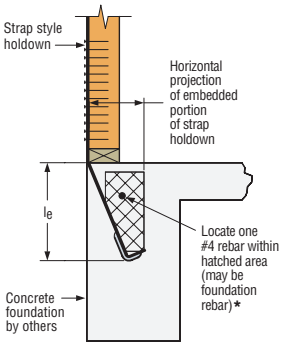
INSTALLATION 1
Typical HPAHD Single Pour Edge Installation



INSTALLATION 2
Typical HPAHD Single Pour Corner and Endwall Installation



INSTALLATION 3
Typical HPAHD Single Pour Rim Joist Installation *(Reduce allowable load based on quantity of effective nails used.)*



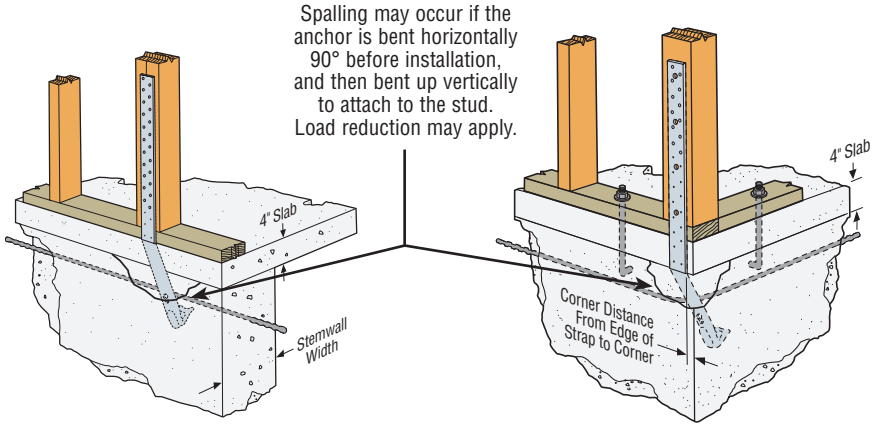
Single Pour Rebar Installation
**Maintain minimum rebar cover, per ACI-318 concrete code requirements.*

PAHD/HPAHD *Strap Tie Holdowns*

SIMPSON Strong-Tie®

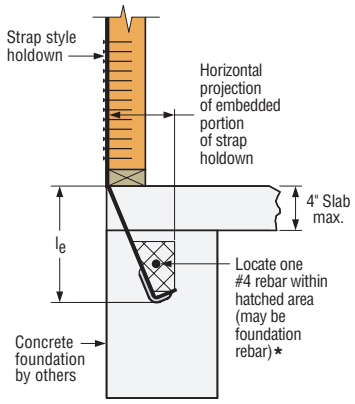
TWO POUR INSTALLATIONS

Spalling may occur if the anchor is bent horizontally 90° before installation, and then bent up vertically to attach to the stud. Load reduction may apply.

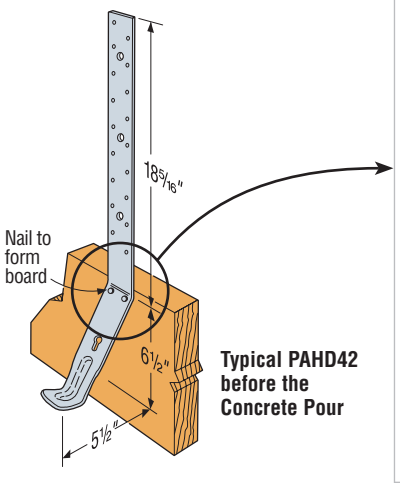


INSTALLATION 4
Typical HPAHD22-2P Two Pour Edge Installation. Unless noted, install other models with bend embedment line at cold joint between slab and foundation.

INSTALLATION 5
Typical HPAHD Two Pour Corner Installation



Two Pour Rebar Installation
**Maintain minimum rebar cover, per ACI-318 concrete code requirements.*



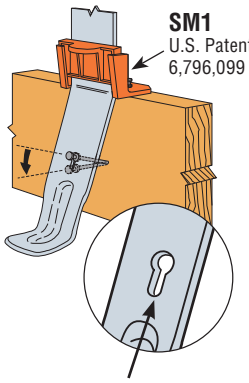
Typical PAHD42 before the Concrete Pour

SPALL REDUCTION SYSTEM FOR PAHD AND HPAHD

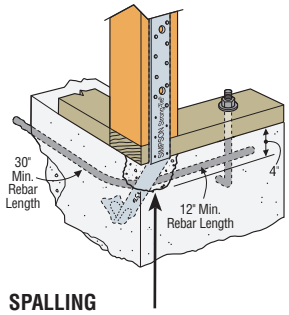
FEATURES
- Secures holdown to wood form-board.
- Allows for proper side-cover.
- Keeps strap vertical.
- Prevents tilting or twisting of strap during the concrete pour.
- Uses one 16d duplex nail.

BENEFITS
- Greatly reduces spalling and costly retrofits.
- Helps prevent strap movement parallel and perpendicular to plate.
- Decreases possibility of misinstallation of strap to wood member.
- Simple to use: – Common jobsite nail. – No additional expense.

When using keyhole feature, care should be taken when removing form boards. If concrete is not set, the duplex nail will move the strap placement.



Keyhole Feature
U.S. Patent 6,658,806



SPALLING
Spalling may occur if the anchor is bent horizontally 90° before installation, and then bent up vertically to attach to the stud. Load reduction may apply.

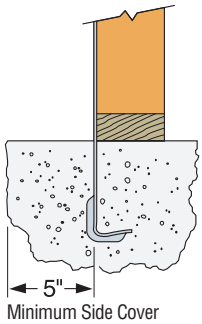
PA *Strap Tie Holdowns*

Wood-to-concrete connectors that satisfy engineering and code requirements.
MATERIAL: 12 gauge
FINISH: Galvanized or ZMAX® coating
INSTALLATION: • Use all specified fasteners. See General Notes.
• Refer to technical bulletin T-PAUPLIFT *(see page 191 for details)* for additional information.
CODES: See page 12 for Code Reference Key Chart.

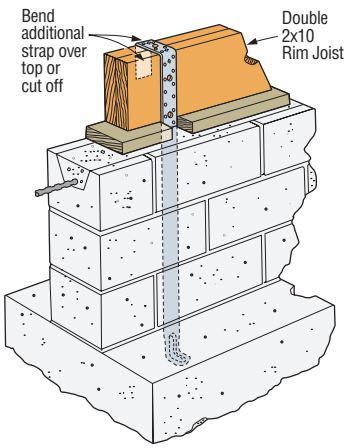
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	L	Min. Embed. Depth	Nails	Allowable Uplift Loads (160)	Code Ref.
PA51	51	4	9-16d	2030	IL6[4]
PA68	70	4	9-16d	2030	

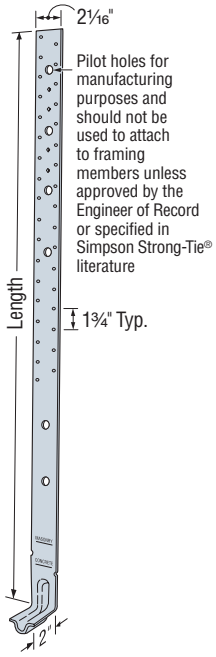
1. Loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. 16d sinkers (9 ga x 3¼") or 10d commons may be substituted for the specified 16d commons at 0.84 of the table loads.
3. Optional fastener holes provided. Calculate loads according to the code to a maximum of 3685 lbs. Minimum embedment is 4"; 5" to the nearest edge.
4. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.



Typical PA connecting Stud to Foundation
(use PAHD42 or HPAHD22 for edge applications)



Typical PA51 Installation
(PA68 similar)



PA51
(PA68 similar)

PA/HPA *Purlin Anchors*

PA/HPA purlin anchors offer solutions for wood to concrete and concrete block connections which satisfy code requirements. The PA's dual embedment line allows installation in concrete or concrete block.

MATERIAL: PA—12 gauge; HPA—10 gauge

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

INSTALLATION: • Minimum concrete strength is 2000 psi.

- Use all specified fasteners; some models have extra fastener holes. See General Notes.
- Purlin Anchor must hook around rebar.
- Wood splitting may occur when anchor is nailed to wood less than 3½" wide. For widths less than 3½", see PAHD Holdowns for alternate nailing configurations, or PAI.

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

CONCRETE BLOCK WALL—The masonry embedment line on the PA allows for 4" of grout embedment in a standard 8" concrete masonry unit. The minimum wall specifications are:

A One #4 vertical rebar, 32" long, 16" each side of anchor;

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

C A horizontal bond beam with two #4 rebars, 40" long, a maximum of two courses above or below the anchor.

All cells grouted with 2000 psi 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.

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

CODES: See page 12 for Code Reference Key Chart.

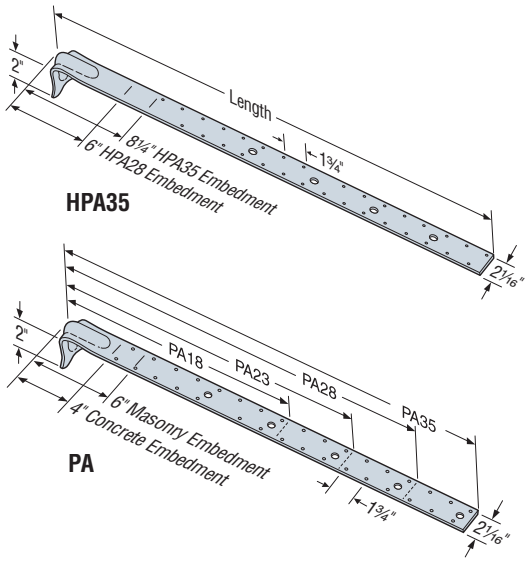
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

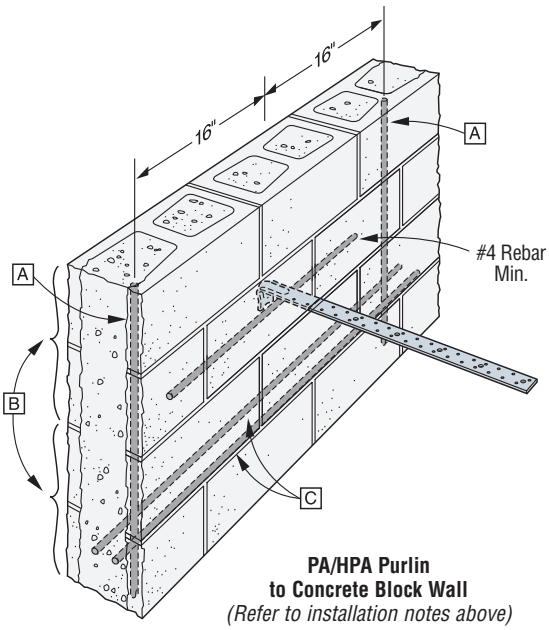
Model No.	L	Fasteners		Allowable Tension Loads (160)		Code Ref.
		Masonry	Concrete	Masonry	Concrete	
Maximum Capacity						
PA18	18½	12-16d	12-16d	2815	2845	IL8[6], F24
PA23	23¾	14-16d	18-16d	2815	3685	
PA28	29	14-16d	18-16d	2815	3685	
PA35	35	14-16d	18-16d	2815	3685	
HPA28	32½	—	24-16d	—	4845	
HPA35	38½	—	27-16d	—	5420	
1¾ LVL and 3x Ledger						
PA18	18½	10-16d	12-16d	2370	2845	IL8[6], F24
PA23	23¾	14-16d	18-16d	2815	3685	
PA28	29	14-16d	18-16d	2815	3685	
PA35	35	14-16d	18-16d	2815	3685	
HPA28	32½	—	24-16d	—	4845	
HPA35	38½	—	27-16d	—	5420	
4x Ledger						
PA18	18½	8-16d	11-16d	1895	2605	IL8[6], F24
PA23	23¾	14-16d	17-16d	2815	3685	
PA28	29	14-16d	18-16d	2815	3685	
PA35	35	14-16d	18-16d	2815	3685	
HPA28	32½	—	27-16d	—	4845	
HPA35	38½	—	27-16d	—	5420	

1. Allowable loads are for a horizontal installation into the side of a concrete or masonry wall.
2. Minimum penetration for 16d commons is 1$^{15}/_{16}$".
3. 16d sinkers (0.148" dia. x 3¼" long) or 10d commons may be substituted for the specified 16d commons at 0.85 of the table loads.
4. Allowable loads have been increased for earthquake or wind load durations with no further increase allowed; reduce where other load durations govern.
5. Strap may be bent one full cycle. *(Bent horizontal 90° then bent vertical.)*
6. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.
7. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.

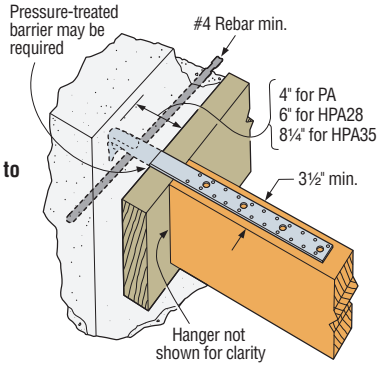
ASCE7-05 12.11.2.2.5 states:

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





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



PA/HPA Purlin to Concrete Wall

For I-Joist applications see page 110.

AB/ABA/ABE/ABU *Adjustable and Standoff Post Bases*

Additional standoff bases are on page 180.

The AB is an adjustable post base which offers moisture protection and finished hardware appearance.

These post bases feature 1" standoff height above concrete floors, code-required when supporting permanent structures that are exposed to the weather or water splash, or in basements. They reduce the potential for decay at post and column ends.

MATERIAL: AB—12 gauge plates; 16 gauge base cover; all others—see table

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 10-11.

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

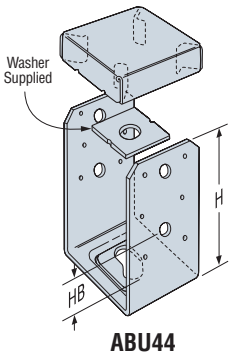
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.
- AB supplied as shown; position the post, secure the easy-access nut over the supplied washer, place the standoff base, then bend up the fourth side and nail all sides.
- AB, ABA, ABE and ABU—for pre-pour installed anchors. For epoxy or mechanical anchors, select and install according to anchor manufacturer's recommendations; anchor diameter shown in table.
- Products require washers between the nut and the base. Washers are supplied with all products except ABA's which require a standard cut washer.
- Refer to technical bulletin T-ANCHORSPEC for post-installed anchorage solutions *(see page 191 for details)*.

CODES: See page 12 for Code Reference Key Chart.

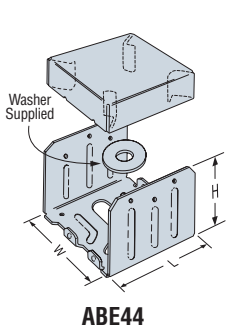
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Dimensions W	L	H	Anchor Dia.	Fasteners	Allowable Download (100)	Code Ref.
AB44	3 9/16	3 9/16	2 1/4	1/2	8-10d	4065	I3, L18, F1
AB44R	4	4 1/16	2 9/16	1/2	8-10d	4065	
AB46	3 9/16	5 3/8	3	1/2	8-10d	4165	
AB46R	4	6	2 13/16	1/2	8-10d	4165	
AB66	5 1/2	5 9/16	3	1/2	8-10d	5335	
AB66R	6	6	2 13/16	1/2	8-10d	5335	

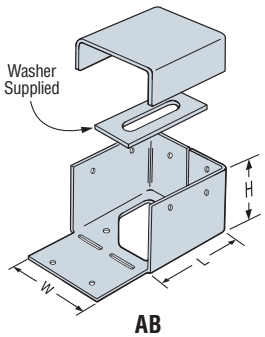
1. Loads may not be increased for short-term loading.



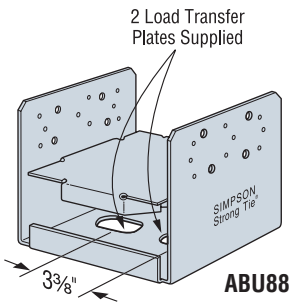
ABU44
(other sizes similar)



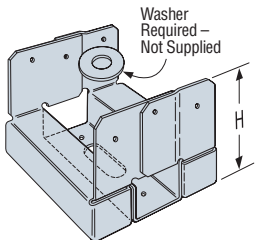
ABE44
ABE46,46R,66 and 66R supplied with washer.



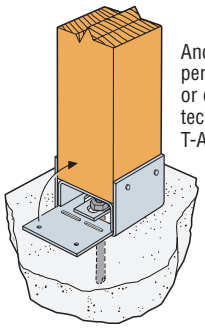
AB



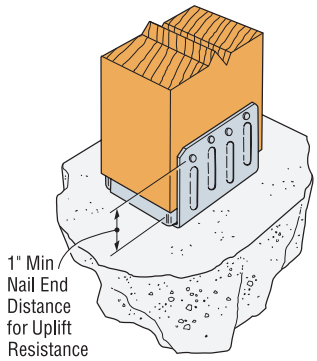
ABU88



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



Typical AB Installation



Typical ABE46R Installation for Rough Lumber
(ABE similar)

Model No.	Nominal Post Size	Material Base (Ga)	Material Strap (Ga)	Dimensions W	L	H	HB[6]	Anch. Dia.	Fasteners Post Nails	Fasteners Post Machine Bolts Qty.	Fasteners Post Machine Bolts Dia.	Allowable Loads (DF/SP) Uplift (160) Nails	Uplift (160) Bolts	Down (100)	Code Ref.
ABA44	4x4	16	16	3 9/16	3 1/8	3 1/16	—	1/2	6-10d	—	—	555	—	6000	I3, F1
ABE44	4x4	16	16	3 9/16	3 1/2	2 3/4	—	1/2	6-10d	—	—	520	—	6665	I3, L18, F1
ABU44	4x4	16	12	3 9/16	3	5 1/2	1 3/4	5/8	12-16d	2	1/2	2200	2160	6665	I3, L18, F1
ABA44R	RGH 4x4	16	16	4 1/16	3 1/8	2 13/16	—	1/2	6-10d	—	—	555	—	8000	I3, F1
ABE44R	RGH 4x4	16	16	4	3 1/2	2 9/16	—	1/2	6-10d	—	—	400	—	6665	170
ABE46	4x6	12	16	3 9/16	5 7/16	4 1/16	—	5/8	8-16d	—	—	810	—	7335	I3, F1
ABA46	4x6	14	14	3 9/16	5 3/16	3 1/8	—	5/8	8-16d	—	—	700	—	9435	I3, F1
ABU46	4x6	12	12	3 9/16	5	7	2 5/8	5/8	12-16d	2	1/2	2300	2300	10335	I3, L18, F1
ABE46R	RGH 4x6	12	16	4 1/16	5 7/16	3 9/16	—	5/8	8-16d	—	—	810	—	7335	170
ABA46R	RGH 4x6	14	14	4 1/16	5 3/16	2 7/8	—	5/8	8-16d	—	—	700	—	12000	I3, F1
ABA66	6x6	14	14	5 1/2	5 1/4	3 1/8	—	5/8	8-16d	—	—	720	—	10665	
ABE66	6x6	12	14	5 1/2	5 7/16	3 1/8	—	5/8	8-16d	—	—	900	—	12000	I3, F1
ABU66	6x6	12	10	5 1/2	5	6 1/16	1 3/4	5/8	12-16d	2	1/2	2300	2300	12000	I3, L18, F1
ABA66R	RGH 6x6	14	14	6	5 3/16	2 7/8	—	5/8	8-16d	—	—	720	—	12665	I3, F1
ABE66R	RGH 6x6	12	14	6 1/16	5 7/16	2 7/8	—	5/8	8-16d	—	—	900	—	12000	170
ABU88[4]	8x8	14	12	7 1/2	7	7	—	2-5/8	18-16d	—	—	2320	—	24335	I3, F1
ABU88R[4]	RGH 8x8	14	12	8	7	7	—	2-5/8	18-16d	—	—	2320	—	24335	170

1. Uplift loads have been increased for wind or earthquake load durations with no further increase allowed; reduce where other load durations govern.
2. Downloads may not be increased for short-term loading.
3. Specifier to design concrete for shear capacity.
4. ABU products may be installed with either bolts OR nails *(not both)* to achieve table loads. ABU88 and ABU88R may be installed with 8-SDS 1/4"x3" wood screws *(sold separately)* for the same table load.
5. For AB bases, higher download can be achieved by solidly packing grout under 1" standoff plate before installation. Base download on column, grout, or concrete according to the code.
6. HB dimension is the distance from the bottom of the post up to the first bolt hole.
7. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners for these products should always be installed in the wide face.
8. **NAILS:** 16d = 0.162" dia. x 3 1/2" long, 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.

EPB44T/EPB44PHDG *Elevated Post Bases*

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

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

FINISH: EPB44T: Base—Galvanized, Threaded Rod—Zinc Plate
EPB44PHDG: HDG; see Corrosion Information, page 10-11.

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

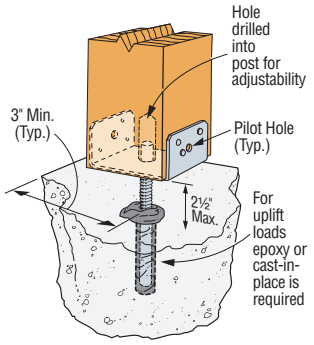
- **Supported by a Nut**: EPB44T—Drill a ¾" hole 2½" deep minimum into concrete. Install a ⅝-11 NC nut and cut washer on the threaded rod. *(Nut and washer not supplied)*. Insert EPB44T into the hole and adjust to the desired height. EPB44PHDG—Drill a 1" diameter hole 3½" deep minimum. Insert the EPB44PHDG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

CODES: See page 12 for Code Reference Key Chart.

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

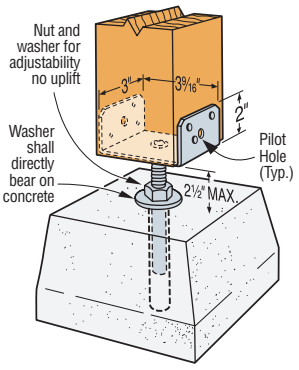
Model No.	Nails	Anchor Bolt	Allowable Loads (DF/SP)			Code Ref.
			Download (100)	Uplift (160)		
				SET	AT	
EPB44T	6-16d	⅝	3275	1130	1140	IL15[6]
EPB44PHDG	8-16d	¾	3670	1265	985	170[6]

1. Loads may not be increased for short term loading.
2. Uplift loads require the threaded rod to be set in wet concrete or attached to cured concrete with SET epoxy or AT adhesive. Uplift loads do not apply when installed to a pier block.
3. Specifier to design concrete for shear capacity.
4. Downloads shall be reduced where limited by buckling capacity of the post.
5. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners for these products should always be installed in the wide face.
6. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.
7. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.

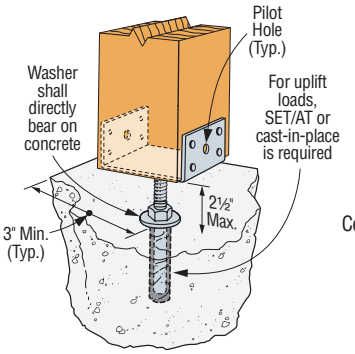


Typical EPB44T Installed with SET Epoxy or AT Adhesive

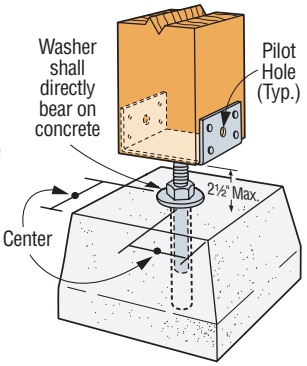
U.S. Patent 5,666,774



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



Typical EPB44PHDG Installed with SET Epoxy or AT Adhesive



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

EPB *Elevated Post Bases*

MATERIAL: EPB44A—14 gauge; others—12 gauge base plate, 1¹⁄₁₆" OD x 8" pipe

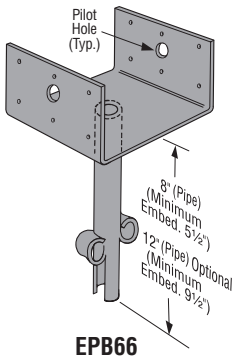
FINISH: EPB44A—Galvanized; all others—Simpson Strong-Tie® gray paint *(may be ordered HDG)*; see Corrosion Information, page 10-11.

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

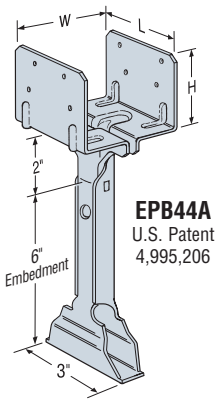
- Allows 1" to 2½" clearance above concrete, 2" for EPB44A.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.

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

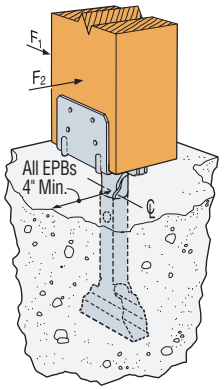
CODES: See page 12 for Code Reference Key Chart.



EPB66
(EPB44 and EPB46 similar)



EPB44A
U.S. Patent 4,995,206



Typical EPB44A 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.	W	L	H	Nails	Allowable Loads (DF/SP)				Code Ref.
					(160)			Down (100)	
					Uplift	F_1	F_2		
EPB44A	3⁹⁄₁₆	3	2⅜	8-16d	1100	815	935	2670	IL8[6]
EPB44	3⁹⁄₁₆	3¼	2⁵⁄₁₆	8-16d	800	985	1135	3465	IL8[6], L13
EPB46	5½	3⁵⁄₁₆	3	12-16d	800	985	1135	3465	
EPB66	5½	5½	3	12-16d	1500	985	1135	3465	

1. Loads may not be increased for short-term loading.
2. EPB44 and EPB46 have extra nail holes; only eight must be filled to achieve table loads.
3. Specifier to design concrete for shear capacity.
4. Downloads shall be reduced where limited by buckling capacity of the post.
5. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners for these products should always be installed in the wide face.
6. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.
7. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.

PB/PBS *Regular and Standoff Post Bases*

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

MATERIAL: PB—12 gauge; PBS—see table

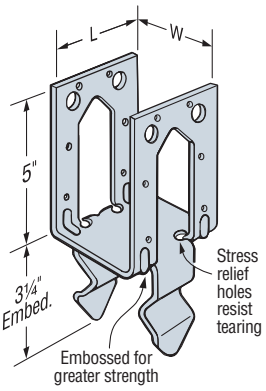
FINISH: Galvanized. Some products available in ZMAX® or HDG coating; see Corrosion Information, page 10-11.

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

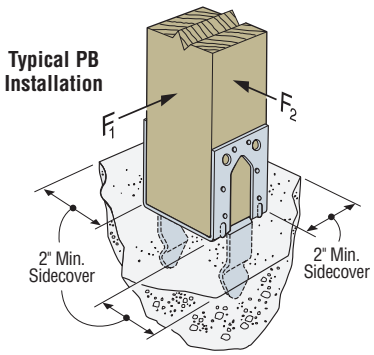
- Install either nails or bolts *(see page 13, note d)*.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.
- PB: Holes are provided for installation with either 16d commons or ½" bolts for PB66 and PB66R; all other models use 16d commons only. A 2" minimum sidecover is required to obtain the full load.
- PBS: Embed into wet concrete up to the bottom of the 1" standoff base plate. A 2" minimum side cover is required to obtain the full load. Holes in the bottom of the straps allow for free concrete flow.

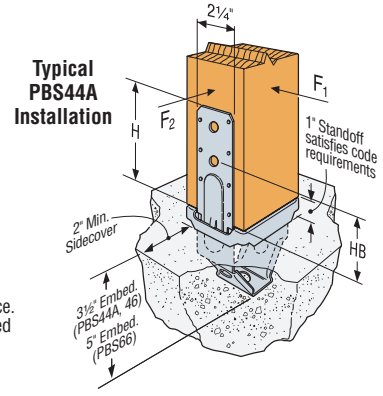
OPTIONS: PBS available in rough sizes, contact Simpson Strong-Tie.

CODES: See page 12 for Code Reference Key Chart.



PB





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

Model No.	Dimensions W	Dimensions L	Allowable Loads (DF/SP) 12-16d Nails (160) Uplift	F_1	F_2	2-½MB Uplift (160)	Code Ref.
PB44	3⁹⁄₁₆	3¼	1365	765	1325	—	IL16, L15[4]
PB44R	4	3¼	1365	765	1325	—	
PB46	5½	3¼	1365	765	1325	—	
PB66	5½	5¼	1640	765	1325	1640	
PB66R	6	5¼	1640	765	1325	1640	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Download capacity is based on either the post design or concrete design calculated per code.
3. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners for these products should always be installed in the wide face.
4. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.
5. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.

Model No.	Nominal Post Size	Material Base (Ga)	Material Strap (Ga)	Dimensions W	Dimensions L	Dimensions H	Dimensions HB	Fasteners Anch. Dia.	Fasteners Post Nails	Fasteners Post Machine Bolts Qty.	Fasteners Post Machine Bolts Dia.	Allowable Loads (DF/SP) Uplift (160) Nails	Uplift (160) Bolts	F_1 (160) Nails	F_1 (160) Bolts	F_2 (160) Nails	F_2 (160) Bolts	Down (100)	Code Ref.
PBS44A	4x4	12	14	3⁹⁄₁₆	3½	6¼	3⁷⁄₁₆	—	14-16d	2	½	2400	2400	1165	230	885	885	6665	IL9, L14[7]
PBS46	4x6	12	14	3⁹⁄₁₆	5⁷⁄₁₆	6⁹⁄₁₆	3⅜	—	14-16d	2	½	2400	2400	1165	360	885	885	9335	
PBS66	6x6	12	12	5½	5⅜	6½	3¹¹⁄₁₆	—	14-16d	2	½	3160	4000	1865	570	1700	1700	9335	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. PBS—Downloads may not be increased for short-term loading.
3. PBS—Designer to design concrete for shear capacity.
4. PBS—For higher downloads, solidly pack grout under 1" standoff plate before installing into concrete. Base download on column or concrete, according to the code.
5. Downloads shall be reduced where limited by buckling capacity of the post.
6. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners for these products should always be installed in the wide face.
7. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.
8. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.

EPS4Z *Column Bases*

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

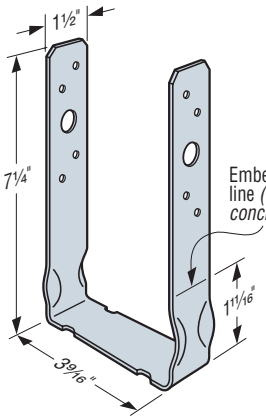
MATERIAL: 14 gauge

FINISH: ZMAX® coating; see Corrosion Information, page 10-11.

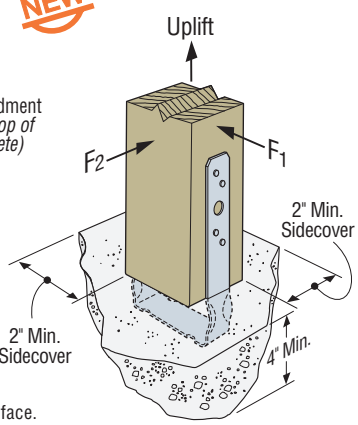
INSTALLATION: • Use all specified fasteners. See General Notes.

- 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 1" minimum side cover is required to obtain the full load.
- Posts shall be preservative-treated wood to meet building code requirements.

CODES: See page 12 for Code Reference Key Chart.



EPS4Z



Typical EPS4Z Installation

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

Model No.	Fasteners	Allowable Loads (DF/SP) Uplift (160)	F_1 (160)	F_2 (160)	Code Ref.
EPS4Z	8-10dx1½	1250	575	680	170[4]

1. Loads may not be increased for short-term loading.
2. Download capacity is based on either the post design or concrete design calculated per code.
3. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the table reflect installation into the wide face.
4. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.
5. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

CBSQ *Column Bases*

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

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

MATERIAL: See table

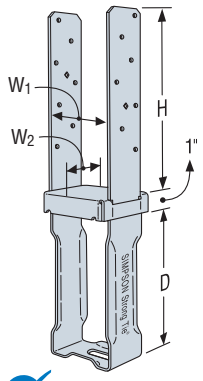
FINISH: Galvanized, available in HDG with HDG screws

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

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

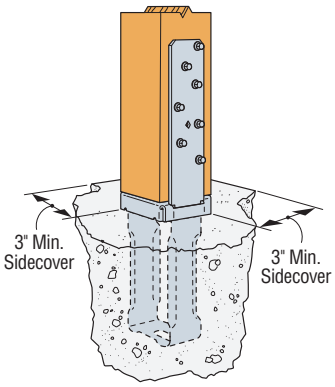
ORDERING: To order with screws, specify CBSQ-SDS2. To order without screws, specify CBSQ.

CODES: See page 12 for Code Reference Key Chart.



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		Dimensions				Number of Simpson Strong-Tie SDS Screws	Allowable Loads		Code Ref.
		Base (Ga)	Strap (Ga x Width)	W_1	W_2	D	H		Uplift (160)	Down (100)	
CBSQ44-SDS2	4x4	12	10 ga x 2¼	3⁹⁄₁₆	3½	7⅛	8⅜	14-SDS ¼"x2"	5335	10975	IL11, L16[5]
CBSQ46-SDS2	4x6	12	10 ga x 3	3⁹⁄₁₆	5⁵⁄₁₆	7¹³⁄₁₆	8¹¹⁄₁₆	14-SDS ¼"x2"	5335	14420	
CBSQ66-SDS2	6x6	12	10 ga x 3	5½	5½	6⅞	8¾	14-SDS ¼"x2"	6855	14420	
NEW CBSQ86-SDS2	6x8	12	7 ga x 3	7½	5⅜	6⅛	8¹¹⁄₁₆	12-SDS ¼"x2"	4580	20915	170[5]
NEW CBSQ88-SDS2	8x8	12	7 ga x 3	7½	7⅜	6⅛	8¹¹⁄₁₆	12-SDS ¼"x2"	4580	22225	

1. For higher downloads, solidly pack grout under 1" standoff plate before installing CBSQ into concrete. Base download on column or concrete, according to the code.
2. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details)*.
3. Downloads shall be reduced where limited by buckling capacity of the column.
4. Designer is responsible for concrete design.
5. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.

CBQ *Column Bases*

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

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

MATERIAL: See table

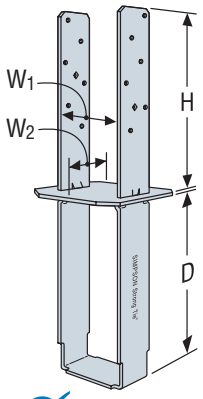
FINISH: Galvanized, available in HDG with HDG screws

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

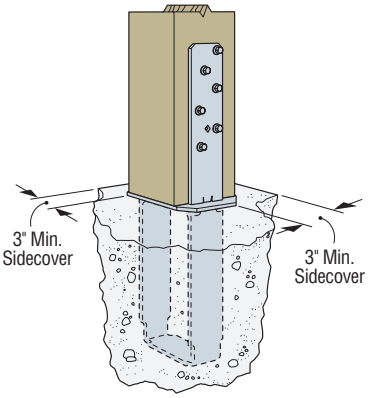
- Install Simpson Strong-Tie SDS ¼"x2" wood screws, which are provided with the column base. *(Lag screws will not achieve the same load.)*
- For full loads, a minimum of 3" side cover shall be provided.
- Install bottom of base plate flush with concrete surface.
- Post bases do not provide adequate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

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

CODES: See page 12 for Code Reference Key Chart.



CBQ-SDS2



Typical CBQ-SDS2 Installation

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

Model No.	Nominal Column Size	Material		Dimensions				Number of Simpson Strong-Tie SDS Screws	Allowable Loads	Code Ref.
		Base (Ga)	Strap (Ga x Width)	W_1	W_2	D	H		Uplift (160)	
CBQ44-SDS2	4x4	7	7 ga x 2	3⁹⁄₁₆	3⁹⁄₁₆	8	8¹¹⁄₁₆	12-SDS ¼"x2"	4200	IL11, L16[4]
CBQ46-SDS2	4x6	7	7 ga x 2	3⁹⁄₁₆	5½	8	8¹¹⁄₁₆	12-SDS ¼"x2"	4200	
CBQ66-SDS2	6x6	7	7 ga x 3	5½	5½	8	8¹¹⁄₁₆	12-SDS ¼"x2"	4200	

1. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details)*.
2. Download capacity is based on either the post design or concrete design calculated per code.
3. Designer is responsible for concrete design.
4. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.

LCB/CB *Column Bases*

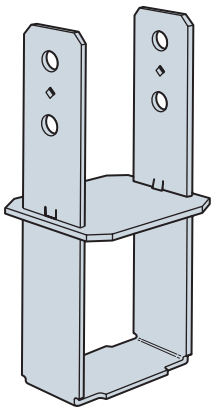
MATERIAL: See table

FINISH: LCB, CB44, CB46, CB66—galvanized; all other CB—Simpson Strong-Tie® gray paint or HDG

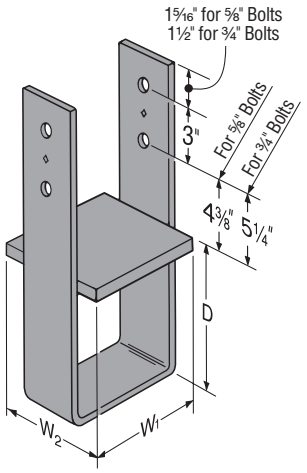
INSTALLATION: • Use all specified fasteners. See General Notes.
- For full loads, minimum side cover required is 3" for CB, 2" for LCB.
- Install all models with bottom of base plate flush with concrete.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and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

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

CODES: See page 12 for Code Reference Key Chart.



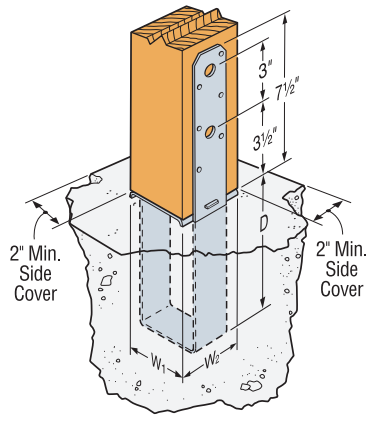
CB44
(CB46, CB66, CB88 similar)



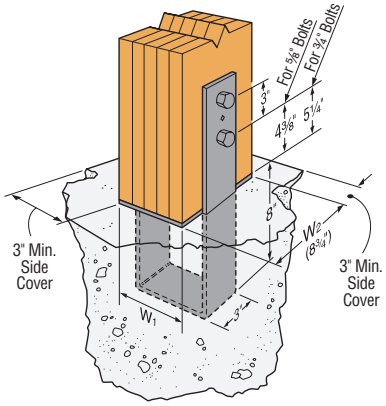
Configuration of all other CB sizes

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

Model No.	Nominal Column Size	Material: Strap (Ga x Width)	Material: Base (Ga)	Dimensions: W_1	Dimensions: W_2	Dimensions: D	Column Fasteners: Nails	Column Fasteners: Machine Bolts Qty.	Column Fasteners: Machine Bolts Dia.	Allowable Uplift Loads: Nails (160)	Allowable Uplift Loads: Bolts (160)	Code Ref.
LCB44	4x4	12 ga x 2	16	3⁹⁄₁₆	3½	6½	12-16d	2	½	2705	4250	IL8[6]
CB44	4x4	7 ga x 2	7	3⁹⁄₁₆	3⁹⁄₁₆	8	—	2	⅝	—	4200	
LCB46	4x6	12 ga x 2	16	3⁹⁄₁₆	5½	6½	12-16d	2	½	2705	4240	
CB46	4x6	7 ga x 2	7	3⁹⁄₁₆	5½	8	—	2	⅝	—	4200	
CB48	4x8	7 ga x 2	7	3⁹⁄₁₆	7½	8	—	2	⅝	—	4200	
CB5-4.5	GLULAM	7 ga x 3	7	4½	5⅛	8	—	2	⅝	—	4200	
CB5-6	GLULAM	7 ga x 3	7	6	5⅛	8	—	2	⅝	—	4200	
LCB66	6x6	12 ga x 2	16	5½	5½	5½	12-16d	2	½	2705	4230	
CB64	6x4	7 ga x 3	7	5½	3⁹⁄₁₆	8	—	2	⅝	—	4200	170[6]
CB66	6x6	7 ga x 3	7	5½	5½	8	—	2	⅝	—	4200	IL8[6]
CB6-7	6x	7 ga x 3	7	5½	7	8	—	2	⅝	—	4200	
CB7⅛-4	PSL	3 ga x 3	7	7⅛	3½	8	—	2	¾	—	6650	170[6]
CB7⅛-6	PSL	3 ga x 3	7	7⅛	5½	8	—	2	¾	—	6650	
CB7⅛-7	PSL	3 ga x 3	7	7⅛	7	8	—	2	¾	—	6650	
CB68	6x8	7 ga x 3	7	5½	7½	8	—	2	⅝	—	4200	IL8[6]
CB7-6	GLULAM	3 ga x 3	7	6	6¾	8	—	2	¾	—	6650	
CB7-7.5	GLULAM	3 ga x 3	7	7½	6¾	8	—	2	¾	—	6650	
CB7-9	GLULAM	3 ga x 3	7	9¹⁄₁₆	6¾	8	—	2	¾	—	6650	
CB7-10.5	GLULAM	3 ga x 3	7	10⁹⁄₁₆	6¾	8	—	2	¾	—	6650	
CB86	8x6	3 ga x 3	7	7½	5½	8	—	2	¾	—	6650	170[6]
CB88	8x8	3 ga x 3	7	7½	7½	8	—	2	¾	—	6650	IL8[6]
CB9-6	GLULAM	3 ga x 3	7	6	8¾	8	—	2	¾	—	6650	
CB9-7.5	GLULAM	3 ga x 3	7	7½	8¾	8	—	2	¾	—	6650	
CB9-9	GLULAM	3 ga x 3	7	9	8¾	8	—	2	¾	—	6650	
CB9-10.5	GLULAM	3 ga x 3	7	10½	8¾	8	—	2	¾	—	6650	
CB1010	10x10	3 ga x 3	3	9½	9½	8	—	2	¾	—	6650	
CB1012	10x12	3 ga x 3	3	9½	11½	8	—	2	¾	—	6650	
CB1212	12x12	3 ga x 3	3	11½	11½	8	—	2	¾	—	6650	



LCB



CB9
(CB5, CB7 similar)
for Glulam Column

1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. PSL is parallel strand lumber.
3. LCB products may be installed with either bolts OR nails (not both) to achieve table loads.
4. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details)*. LCB bases installed with nails must be installed into the wide face.
5. Designer is responsible for concrete design.
6. Testing to new ICC-ES acceptance criteria to be completed in 2009. Reference ***www.strongtie.com*** for latest loads and information.
7. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.

BC/BCS *Post Caps*

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

MATERIAL: 18 gauge

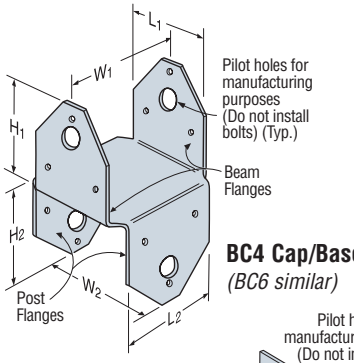
FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 10-11.

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

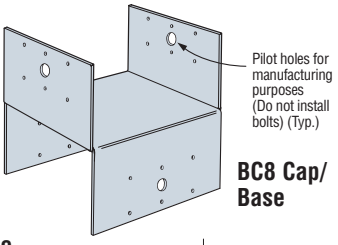
CODES: See page 12 for Code Reference Key Chart.

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

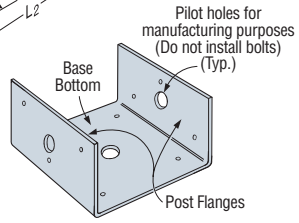
Model No.	Dimensions						Fasteners			Allowable Loads (160)[1]		Code Ref.
	W_1	W_2	L_1	L_2	H_1	H_2	Beam Flange	Post Flange	Base Bottom	Uplift	Lateral	
CAPS												
BC4	3⁹⁄₁₆	3⁹⁄₁₆	2⅞	2⅞	3	3	6-16d	6-16d	—	980	1000	I12, L20, F11
BC46	3⁹⁄₁₆	5½	4⅞	2⅞	3½	2½	12-16d	6-16d	—	980	1000	
BC4R	4	4	4	4	3	3	12-16d	12-16d	—	980	1000	
BC6	5½	5½	4⅜	4⅜	3⅜	3⅜	12-16d	12-16d	—	1050	2000	
BC6R	6	6	6	6	3	3	12-16d	12-16d	—	1050	2000	
BC8	7½	7½	7½	7½	4	4	12-16d	12-16d	—	1800	2000	
BCS2-2/4	3⅛	3⁹⁄₁₆	2⅞	2⅞	2¹⁵⁄₁₆	2¹⁵⁄₁₆	8-10d	6-10d	—	780	1025	
BCS2-3/6	4⅝	5⁹⁄₁₆	4⅜	2⅞	3⁵⁄₁₆	2¹⁵⁄₁₆	12-16d	6-16d	—	800	1495	
BASES												
BC40	3⁹⁄₁₆	—	3¼	—	2¼	—	—	6-16d	4-16d	510	735	170
BC40R	4	—	4	—	3	—	—	6-16d	4-16d	510	735	
BC460	5½	—	3⅜	—	3	—	—	6-16d	4-16d	450	735	
BC60	5½	—	5½	—	3	—	—	6-16d	4-16d	450	735	
BC60R	6	—	6	—	3	—	—	6-16d	4-16d	450	735	
BC80	7½	—	7½	—	4	—	—	6-16d	4-16d	450	735	
BC80R	8	—	8	—	4	—	—	6-16d	4-16d	450	735	



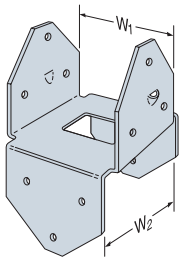
BC4 Cap/Base
(BC6 similar)



BC8 Cap/ Base

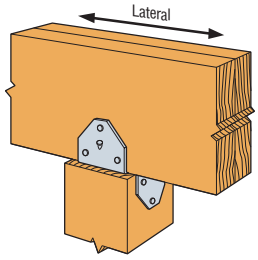


BC60 Half Base
(other similar)



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

1. Allowable loads have been increased 60% for wind or earthquake 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. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details)*.
3. Base allowable loads assumes nails have full penetration into supporting member. Loads do not apply to end grain post installations.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.



Typical BCS Installation

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

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

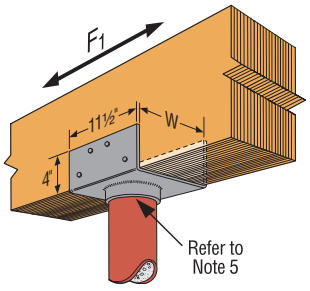
MATERIAL: LCC—12 gauge; CCOS—7 gauge **FINISH**: LCC—Simpson Strong-Tie® gray paint; CCOS—G90 Galvanized

INSTALLATION: • Use all specified fasteners. See General Notes.
- LCC—Fit the lally column cap over the lally column and attach to the girder.
- **CCOS—Attach steel column cap to column end plate with (4) Simpson Strong-Tie Quik Drive® self-tapping screws *(provided)* and attach to girder.**

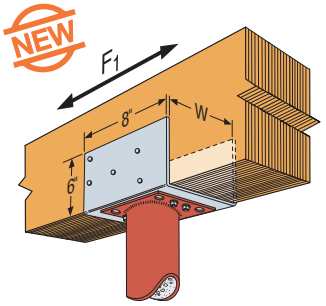
CODES: See page 12 for Code Reference Key Chart.

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

1. Loads may not be increased for short-term loading.
2. Allowable loads are determined using the lowest of the bearing loads using F_{C}-perp equal to 425 psi for SPF, 625 psi for DF and 700 psi for LVL/PSL/LSL.
3. Loads are for a continuous beam.
4. Spliced conditions for the LCC must be detailed by the Designer to transfer tension loads between spliced members by means other than the lally column. The splice condition load is 6750 lbs per beam side for LCC must be evenly loaded.
5. To achieve lateral loads, the LCC pipe must be welded to the column with an ⅛" fillet weld around the entire pipe.
6. The CCOS must be attached to end plate of the column with (4) Quik Drive XQ112S1224 self-tapping screws through the end plate and into the bottom of the CCOS.
7. All pipe columns need to be designed by a qualified Designer. CCOS minimum column diameter is 3".
8. CCOS caps can resist out-of-plane (F_2) forces up to 2200 lbs. provided the beam is braced to resist torsional rotation.
9. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.



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



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

AC/ACE/LPCZ/LCE *Post Caps*

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

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

FINISH: Galvanized. Some products available in ZMAX® coating and stainless steel; see Corrosion Information, page 10-11.

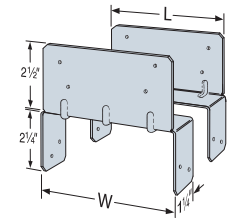
INSTALLATION: • Use all specified fasteners. See General Notes.
• Install all models in pairs. LPCZ—2½" beams may be used if 10dx1½" nails are substituted for 10d commons.

CODES: See page 12 for Code Reference Key Chart.

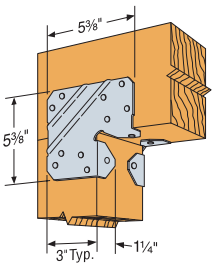
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Dimensions		Total No. Fasteners		Allowable Loads (160)[1]		Code Ref.
	W	L	Beam	Post	Uplift	Lateral	
AC4 (Min)	3⁹⁄₁₆	6½	12-16d	8-16d	1430	715	I12, L20, F11
AC4 (Max)	3⁹⁄₁₆	6½	14-16d	14-16d	2500	1070	
AC4R (Min)	4	7	12-16d	8-16d	1430	715	I12, F11
AC4R (Max)	4	7	14-16d	14-16d	2500	1070	
ACE4 (Min)	—	4½	8-16d	6-16d	1070	715	I12, L3, F11
ACE4 (Max)	—	4½	10-16d	10-16d	1785	1070	
LCE4	—	5⅜	14-16d	10-16d	1905[7]	1425	IP1, 160
AC6 (Min)	5½	8½	12-16d	8-16d	1430	715	I12, L3, F11
AC6 (Max)	5½	8½	14-16d	14-16d	2500	1070	
AC6R (Min)	6	9	12-16d	8-16d	1430	715	I12, F11
AC6R (Max)	6	9	14-16d	14-16d	2500	1070	
ACE6 (Min)	—	6½	8-16d	6-16d	1070	715	I12, L3, F11
ACE6 (Max)	—	6½	10-16d	10-16d	1785	1070	
LPC4Z	3⁹⁄₁₆	3½	8-10d	8-10d	760	325	I12, F11
LPC6Z	5⁹⁄₁₆	5½	8-10d	8-10d	915	490	I12, F11

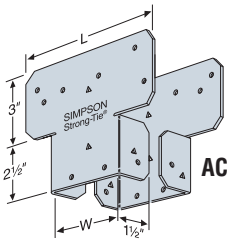
1. Allowable loads have been increased for wind or earthquake load durations with no further increase allowed; reduce where other load durations govern.
2. Loads apply only when used in pairs.
3. LPCZ lateral load is in the direction parallel to the beam.
4. MIN nailing quantity and load values—fill all round holes; MAX nailing quantities and load values—fill round and triangle holes.
5. Uplift loads do not apply to splice conditions.
6. Spliced conditions must be detailed by the Designer to transfer tension loads between spliced members by means other than the post cap.
7. LCE4 uplift load for mitered corner conditions is 985 lbs. (DF/SP) or 845 lbs. (SPF).
8. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details)*.
9. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.



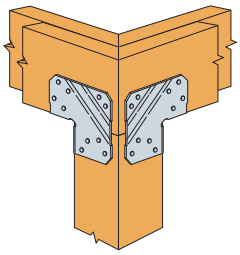
LPCZ

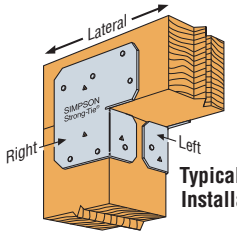


Typical LCE4 Installation
(For 4x or 6x lumber)



AC


Typical LCE4 Corner Installation ***(See note 7)***



Typical ACE Installation

PC/EPC *Post Caps*

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

MATERIAL: PC—12 gauge; PC-16—16 gauge

FINISH: Galvanized. Some products available in ZMAX coating; see Corrosion Information, page 10-11.

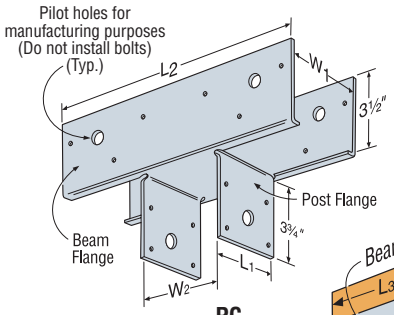
INSTALLATION: • Use all specified fasteners; see General Notes.
• Do not install bolts into pilot holes.

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

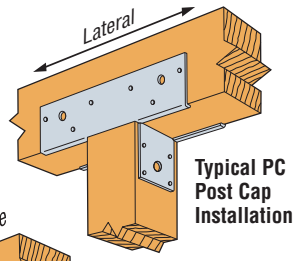
CODES: See page 12 for Code Reference Key Chart.

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

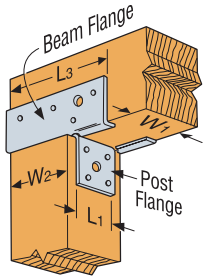
Model No.	Min. Post Size	Dimensions					Fasteners Each Side			Allowable Loads			Code Ref.
							Surfaces			Uplift PC/EPC	Lateral[2]		
		W_1	W_2	L_1	L_2	L_3	Post Flange	Beam Flange PC	Beam Flange EPC	(160)	PC (160)	EPC (160)	
PC44-16	4x4	3⁹⁄₁₆	3⁹⁄₁₆	2⅝	11	7⁵⁄₁₆	4-16d	6-16d	4-16d	1000	925	1000	I12, L20, F11
PC44	4x4	3⁹⁄₁₆	3⁹⁄₁₆	2⅝	11	7⁵⁄₁₆	4-16d	6-16d	4-16d	1700	925	1070	
PC46-16	4x6	3⁹⁄₁₆	5½	2⅝	13	9¼	4-16d	6-16d	4-16d	1000	925	1000	
PC46	4x6	3⁹⁄₁₆	5½	2⅝	13	9¼	4-16d	6-16d	4-16d	1700	925	1070	
PC48-16	4x8	3⁹⁄₁₆	7½	2⅝	15	11¼	4-16d	8-16d	6-16d	1000	1475	1285	
PC48	4x8	3⁹⁄₁₆	7½	2⅝	15	11¼	4-16d	8-16d	6-16d	1700	2075	1610	
PC64-16	4x6	5½	3⁹⁄₁₆	4⁹⁄₁₆	11	7⅜	4-16d	6-16d	4-16d	1000	925	1000	
PC64	4x6	5½	3⁹⁄₁₆	4⁹⁄₁₆	11	7⅜	4-16d	6-16d	4-16d	1700	925	1070	
PC66-16	6x6	5½	5½	4⁹⁄₁₆	13	9¼	4-16d	6-16d	6-16d	1000	925	1285	
PC66	6x6	5½	5½	4⁹⁄₁₆	13	9¼	4-16d	6-16d	6-16d	1700	925	1610	
PC68	6x8	5½	7½	4⁹⁄₁₆	15	11¼	4-16d	8-16d	6-16d	1700	2075	1610	
PC84	4x8	7½	3⁹⁄₁₆	6⁹⁄₁₆	11	7⅜	4-16d	6-16d	6-16d	1700	925	1610	
PC86	6x8	7½	5½	6⁹⁄₁₆	13	9¼	4-16d	6-16d	6-16d	1700	925	1610	
PC88	8x8	7½	7½	6⁹⁄₁₆	15	11¼	4-16d	8-16d	6-16d	1700	2075	1610	



PC



Typical PC Post Cap Installation



Typical EPC End Post Cap Installation

1. Allowable loads have been increased for wind or earthquake load durations with no further increase allowed; reduce where other load durations govern.
2. Lateral loads are in the direction parallel to the beam.
3. Allowable loads are for nails only.
4. Uplift loads do not apply to splice conditions.
5. Spliced conditions must be detailed by the Designer to transfer tension loads between spliced members by means other than the post cap.
6. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details)*.
7. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.

CCQ/ECCQ *Column Caps*

SIMPSON Strong-Tie®

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

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

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

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

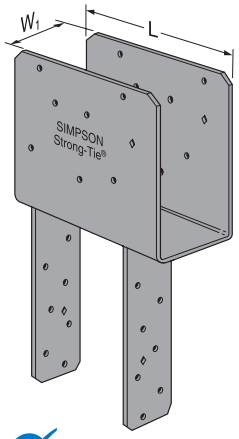
INSTALLATION:

- Install Simpson Strong-Tie SDS ¼"x2½" wood screws, which are provided with the column cap. *(Lag screws will not achieve the same load.)*
- CCOQ and ECCOQ column cap only *(no straps)* may be ordered for field-welding to pipe or other columns. Dimensions are same as CCQ and ECCQ. Load values do not apply.

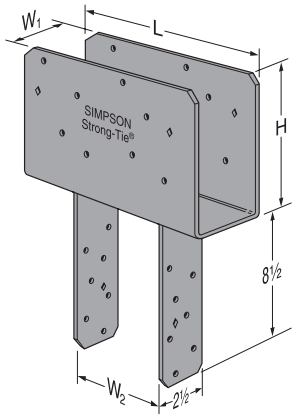
OPTIONS:

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

CODES: See page 12 for Code Reference Key Chart.



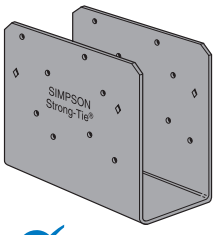
ECCQ46SDS2.5



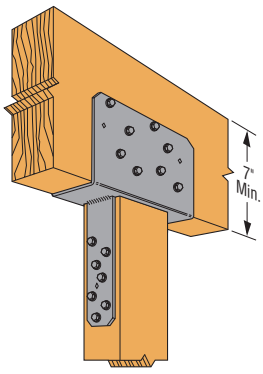
CCQ46SDS2.5

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.	Beam Width	Dimensions W1	Dimensions W2	Dimensions L CCQ	Dimensions L ECCQ	Dimensions H	No. of[8] SDS ¼"x2½" Screws Beam	No. of[8] SDS ¼"x2½" Screws Post	Allowable Loads CCQ Uplift (160)	Allowable Loads CCQ Down (100)	Allowable Loads ECCQ Uplift (160)	Allowable Loads ECCQ Down (100)	Code Ref.	CCOQ Model No. (No Legs) Loads Do Not Apply
CCQ3-4SDS2.5	3⅛	3¼	3⅝	11	8½	7	16	14	5680	16980	3695	6125	I12, L20, F11	CCOQ3-SDS2.5
CCQ3-6SDS2.5	3⅛	3¼	5½	11	8½	7	16	14	5680	19250	3695	9625		
CCQ44SDS2.5	4x	3⅝	3⅝	11	8½	7	16	14	5680	19020	4040	7655		CCOQ4-SDS2.5
CCQ46SDS2.5	4x	3⅝	5½	11	8½	7	16	14	7145	24065	4040	12030		
CCQ48SDS2.5	4x	3⅝	7½	11	8½	7	16	14	7145	24065	4040	16405		
CCQ5-4SDS2.5	5⅛	5¼	3⅝	11	8½	7	16	14	5680	26635	4040	10045		CCOQ5-SDS2.5
CCQ5-6SDS2.5	5⅛	5¼	5½	11	8½	7	16	14	7245	28190	5535	15785		
CCQ5-8SDS2.5	5⅛	5¼	7½	11	8½	7	16	14	7245	31570	5535	21525		
CCQ64SDS2.5	6x	5½	3⅝	11	8½	7	16	14	5680	28585	4040	12030		CCOQ6-SDS2.5
CCQ66SDS2.5	6x	5½	5½	11	8½	7	16	14	7145	30250	4040	18905		
CCQ68SDS2.5	6x	5½	7½	11	8½	7	16	14	7145	37815	4040	25780		
CCQ6-7.13SDS2.5	6x	5½	7⅛	11	8½	7	16	14	7145	37815	4040	24490	160	
CCQ74SDS2.5	6¾	6⅞	3⅝	11	8½	7	16	14	5680	33490	4040	13230	I12, L20, F11	CCOQ7-SDS2.5
CCQ76SDS2.5	6¾	6⅞	5½	11	8½	7	16	14	7245	37125	5535	20790		
CCQ77SDS2.5	6¾	6⅞	6⅞	11	8½	7	16	14	7245	41580	5535	25515		
CCQ78SDS2.5	6¾	6⅞	7½	11	8½	7	16	14	7245	41580	5535	28350		
CCQ7.1-4SDS2.5	7	7⅛	3⅝	11	8½	7	16	14	5680	34730	4040	18375	160	CCOQ7.1-SDS2.5
CCQ7.1-6SDS2.5	7	7⅛	5½	11	8½	7	16	14	7245	38500	5535	28875		
CCQ7.1-7.1SDS2.5	7	7⅛	7⅛	11	8½	7	16	14	7245	57750	5535	36750		
CCQ7.1-8SDS2.5	7	7⅛	7½	11	8½	7	16	14	7245	52500	5535	39375		
CCQ86SDS2.5	8x	7½	5½	11	8½	7	16	14	7245	41250	5535	25780		CCOQ8-SDS2.5
CCQ88SDS2.5	8x	7½	7½	11	8½	7	16	14	7245	51565	5535	35155		
CCQ96SDS2.5	8¾	8⅞	5½	11	8½	7	16	14	7245	48125	5535	26950		CCOQ9-SDS2.5
CCQ98SDS2.5	8¾	8⅞	7½	11	8½	7	16	14	7245	53900	5535	36750		
CCQ106SDS2.5	10x	9½	5½	11	8½	7	16	14	7245	52250	5535	32655		CCOQ10-SDS2.5



CCOQ4-SDS2.5



Typical CCQ46SDS2.5 Installation

1. Downloads are determined using Fc⊥ equal to: 560 psi for glulam sizes and 625 psi for all others; reduce where end grain bearing or buckling capacity of the column, or other criteria are limiting.
2. Spliced conditions must be detailed by the Designer to transfer tension loads between spliced members by means other than the column cap.
3. Uplift loads 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 for wind or earthquake load durations with no further increase allowed; reduce where other load durations govern.
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-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details)*.
8. ECCQ uses 14-SDS screws into the beam and 14-SDS screws into the post.
9. Beam depth must be a minimum 7".
10. For 5¼" engineered lumber, use CCQ 6X or ECCQ 6X models.

CC/ECC/ECCU *Column Caps*

SIMPSON Strong-Tie®

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

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

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

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

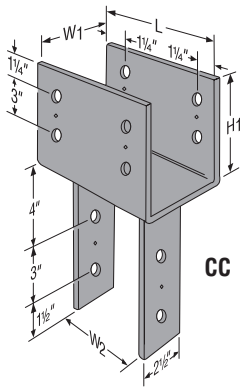
- Bolt holes shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt diameter *(per 2005 NDS, section 11.1.2)*.
- Contact engineered wood manufacturers for connections that are not through the wide face.

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

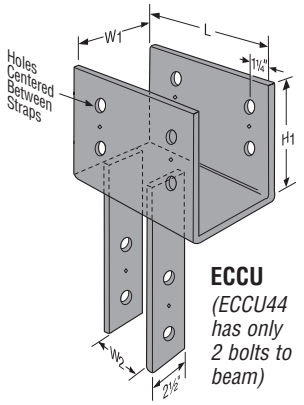
- For special, custom, or rough cut lumber sizes, provide dimensions. An optional W_2 dimension may be specified with any column size given *(note that the W_2 dimension on straps rotated 90° is limited by the W_1 dimension)*.
- **CCO/ECCO**—Column cap only *(no straps)* may be ordered for field-welding to pipe or other columns. No loads apply. CCO/ECCO dimensions are the same as CC/ECC.

  CCOB—Any two CCOs may be specified for back-to-back welding to create a cross beam connector. Use the table loads; the load is no greater than the lesser element employed.

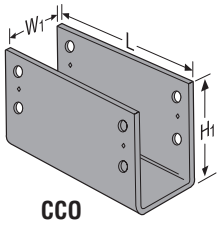
CODES: See page 12 for Code Reference Key Chart.



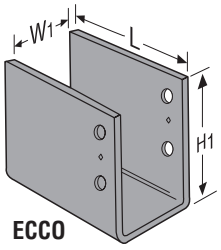
CC



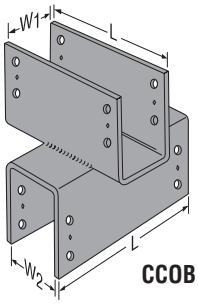
ECCU *(ECCU44 has only 2 bolts to beam)*



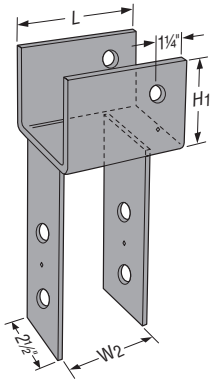
CCO



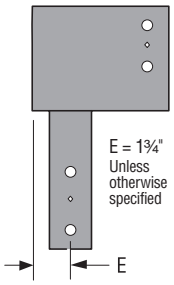
ECCO



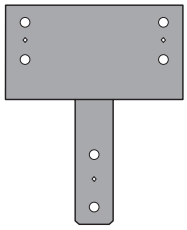
CCOB



ECC44



Optional ECC with straps rotated 90°


Optional CC with straps rotated 90°

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

Model No. (CC shown ECC/ECCU similar)	Beam Width	Dimensions						Machine Bolts					Allowable Loads				Code Ref.	CCO Model No. (No Legs)	ECCO Model No. (No Legs)
		W_1	W_2	L			H_1	Size	Beam			Post	Down		Uplift				
				CC	ECC	ECCU			CC	ECC	ECCU		CC	ECC/ ECCU	CC (160)	ECCU (160)			
CC3¼-4	3⅛	3¼	3⅝	11	7½	9½	6½	⅝	4	2	4	2	16980	6125	3640	1010	I12, L20, F11	CCO3¼	ECCO3¼
CC3¼-6	3⅛	3¼	5½	11	7½	9½	6½	⅝	4	2	4	2	19250	9625	3640	1010			
CC44	4x	3⅝	3⅝	7	5½	6½	4	⅝	2	1	2	2	15310	7655	1465	205		CCO4	ECCO4
CC46	4x	3⅝	5½	11	8½	9½	6½	⅝	4	2	4	2	24060	12030	2800	740		CCO4/6	ECCO4/6
CC48	4x	3⅝	7½	11	8½	9½	6½	⅝	4	2	4	2	24060	16405	2800	740	160		
CC5¼-4	5⅛	5¼	3⅝	13	9½	10½	8	¾	4	2	4	2	26635	10045	7530	2735	I12, L20, F11	CCO5¼	ECCO5¼
CC5¼-6	5⅛	5¼	5½	13	9½	10½	8	¾	4	2	4	2	28190	15785	7530	2735			
CC5¼-8	5⅛	5¼	7½	13	9½	10½	8	¾	4	2	4	2	37310	21525	7530	2735			
CC64	6x	5½	3⅝	11	7½	9½	6½	⅝	4	2	4	2	28586	12030	4040	1165		CCO6	ECCO6
CC66	6x	5½	5½	11	7½	9½	6½	⅝	4	2	4	2	30250	18905	4040	1165			
CC68	6x	5½	7½	11	9½	9½	6½	⅝	4	2	4	2	37810	25780	4040	1165			ECC068
CC6-7⅛	6x	5½	7⅛	11	9½	9½	6½	⅝	4	2	4	2	37810	24060	4040	1165	160		
CC7⅛-4	7	7⅛	3⅝	13	10½	10½	8	¾	4	2	4	2	34736	18375	7510	4855		CCO7⅛	ECCO7⅛
CC7⅛-6	7	7⅛	5½	13	10½	10½	8	¾	4	2	4	2	58500	28875	7585	4855			
CC7⅛-7⅛	7	7⅛	7⅛	13	10½	10½	8	¾	4	2	4	2	57750	36750	7585	4855			
CC7⅛-8	7	7⅛	7½	13	10½	10½	8	¾	4	2	4	2	52500	36750	7585	4855			
CC74	6¾	6⅞	3⅝	13	10½	10½	8	¾	4	2	4	2	33490	13230	7525	3605	170		
CC76	6¾	6⅞	5½	13	10½	10½	8	¾	4	2	4	2	37125	20790	7525	3605		CCO7	ECCO7
CC77	6¾	6⅞	6⅞	13	10½	10½	8	¾	4	2	4	2	49140	25515	7525	3605			
CC78	6¾	6⅞	7½	13	10½	10½	8	¾	4	2	4	2	49140	28350	7525	3605			
CC86	8x	7½	5½	13	10½	10½	8	¾	4	2	4	2	41250	23100	7440	2625		CCO8	ECCO8
CC88	8x	7½	7½	13	10½	10½	8	¾	4	2	4	2	54600	31500	7440	2625	I12, L20, F11		
CC96	8¾	8⅞	5½	13	10½	10½	8	¾	4	4	4	2	48125	26950	7515	4670		CCO9	ECCO9
CC98	8¾	8⅞	7½	13	10½	10½	8	¾	4	4	4	2	63700	36750	7515	4670			
CC106	10x	9½	5½	13	10½	10½	8	¾	4	4	4	2	52250	29260	7515	3325		CCO10	ECCO10

1. Post sides are assumed to lie in the same vertical plane as the beam sides.
2. Loads may not be increased for short-term loading.
3. Downloads are determined using $F_{c\perp}$ equal to: 560 psi for glulam sizes and CC86, CC88 and CC106; 750 psi for 7⅛" size; 625 psi for all others; reduce where end grain bearing or buckling capacity of the column, or other criteria are limiting.
4. Uplift loads have been increased for wind or earthquake load durations with no further increase allowed; reduce where other load durations govern. Uplift loads are limited by the beam shear capacity per 2005 NDS except CC76, CC78, and CC96 through CC106.
5. Beam splices with CC's must be detailed by the Designer to transfer tension loads between spliced members by means other than the column cap.
6. CC uplift loads do not apply to splice conditions.
7. Beam depth must be at least as tall as H_1.
8. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details)*.
9. For 5¼" engineered lumber, use CC 6X or ECC 6X models.

ECCLQ/CCCQ/CCTQ *Column Caps*

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

MATERIAL: 7 gauge

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

INSTALLATION:

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

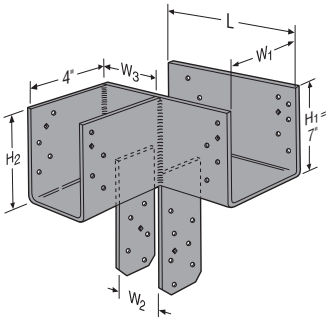
OPTIONS:

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

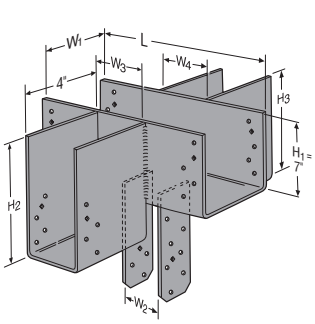
ORDERING:

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

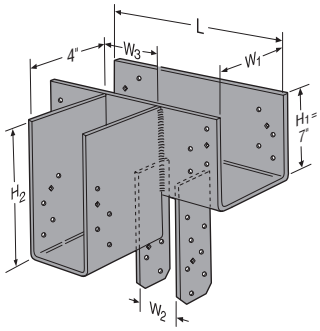
CODES: See page 12 for Code Reference Key Chart.



ECCLQ-SDS2.5
(Left direction shown)



CCCQ-SDS2.5



CCTQ-SDS2.5

Series	Allowable Loads			Code Ref.
	Uplift (160)		Download (100/115/125)	
	Main Beam	Side Beam	Total[2]	
ECCLQ-SDS2.5	2835	2835[3]	3795	Refer to note #4	170
CCCQ-SDS2.5	4780	2390[1]	4780		
CCTQ-SDS2.5	4910	2350	5315		

1. Allowable load is 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 allowable uplift load listed in the table.
3. Where noted, the ECCLQ side beam may deflect an additional ⅛" beyond the standard ⅛" limit at the maximum uplift.
4. The combined download for all of the carried beams shall not exceed the allowable download for the unmodified product on page 54 *(CCQ load for CCCQ and CCTQ, or ECCQ load for ECCLQ)*. The download for each side beam shall not exceed the lesser of 35% of the allowable download **or 9265 lbs.** for the unmodified product.
5. Column width in the direction of the beam width must be the same as the main beam width (W_1).

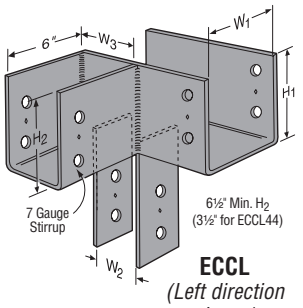
ECCL/CCC/CCT *Column Caps*

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

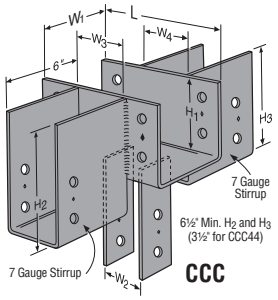
- The download capacity shall be determined from the capacity for the unmodified product *(see page 55)*. The side beam can take a maximum of 40% of the download and shall not exceed 10,665 lbs. The sum of the loads for the side beam(s) and main beam can not exceed the table load.
- Uplift loads do not apply for ECCL caps. For CCC and CCT, uplift loads from table apply for main beam only.
- The column width in the direction of the main beam width must be the same as the main beam width (W_1).
- Specify the stirrup height from the top of the cap. The minimum side stirrup heights (H_2 or H_3) is 6½" (3½" for 44's).
- The L dimension may vary depending on the width of the side stirrup (W_3 or W_4).
- Column caps may be ordered without the column straps for field welding to a column. No loads apply. Specify CCOC/CCOT/ECCOL.

Ordering Examples:

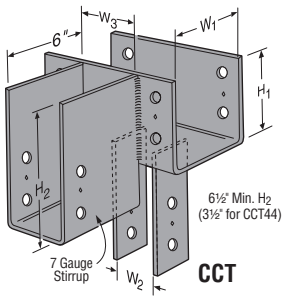
- A CCC66 with W_3 = 5½", H_2 and H_3 = 6½" is a CC66 column cap with 5½" beams on each side with all beam seats flush.
- An ECCLR66 with W_3 = 3⅝", H_2 = 7½" is an ECC66 end column cap with a 4x beam on the right side *(specify direction left (which is shown) or right for stirrup)* and stirrup seat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



ECCL
(Left direction shown)

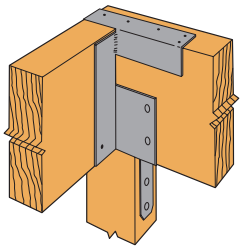


CCC

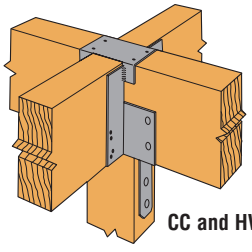


CCT

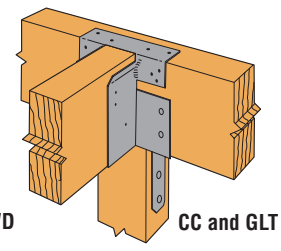
There are cost-effective alternatives for replacing column caps by using a combination of connectors. Here is an example. Designer must specify the options required.



ECC and HW *(Top Flange Offset Right)*



CC and HWD



CC and GLT

STRONG FRAME™ *Ordinary Moment Frame*

The Strong Frame Ordinary Moment Frame Catalog

All of the information you need on our latest lateral force-resisting solution is contained in the *Strong Frame Ordinary Moment Frame* catalog. Frame and anchorage design information, installation instructions, prescriptive wall bracing requirements and installation details are all included in this useful tool. Visit ***www.strongtie.com*** to download or request a copy or call (800) 999-5099.

For years moment frames have been a common method of providing high lateral-force resistance when limited wall space and large openings control the structural design. Traditionally, the disadvantage with moment frames has been that they are time-intensive to design and labor-intensive to install. Simpson Strong-Tie has taken these factors into consideration and has created a cost-effective alternative to traditional frames – the Strong Frame ordinary moment frame.

FEATURES:

- **Pre-designed moment frame solutions:** Designers can choose from 196 engineered frames, in sizes up to 16 feet wide and 19 feet tall, rather than having to spend hours designing one.
- **100% bolted connections:** Install frames faster with no field welding required. No need to have a welder on site, or a welding inspector.
- **Pre-installed wood nailers:** Eliminate the need to drill and bolt nailers in the field.
- **Frames fit in a standard 2x6 wall:** No thicker walls additional framing or furring required.
- **Greater quality control:** Frames are manufactured in a quality-controlled environment and field-bolted connections eliminate questions about field welds.
- **Convenient to store, ship and handle:** Disassembled frames are more compact, minimizing deliveries and simplifying handling on the jobsite.
- **Pre-assembled anchor-bolt assemblies:** Anchor bolts are pre-assembled on a shear-lug plate that mounts on the form. This helps ensures correct anchor placement and creates more efficient anchor performance.
- **Streamlined anchorage design:** No more tedious anchorage calculations – select an anchorage solution for your footing geometry from the anchorage tables and you are done.
- **Post-installed anchorage solutions available for prescriptive applications:** Simpson Strong-Tie® epoxy anchor solutions for higher load applications and solutions with the Simpson Strong-Tie Titen HD® screw anchor for prescriptive or lower-load applications.

Strong Frame OMFSL anchorage assemblies make design and installation faster and easier

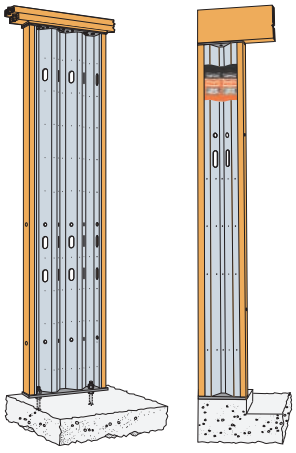
STRONG-WALL® SHEARWALLS

The Strong-Wall Shearwalls Catalog

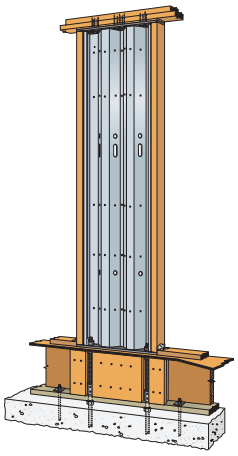
The Simpson Strong-Tie® *Strong-Wall Shearwalls* catalog (C-SW) is the tool you need when specifying, installing or inspecting prefabricated shearwalls. This guide contains complete technical and installation information for our extensive line of steel and wood walls as well prescriptive wall bracing requirements. Complete installation details are also included to aid in correct specification and installation. Visit ***www.strongtie.com*** to download or request a copy or call (800) 999-5099.

STEEL STRONG-WALL® PANEL

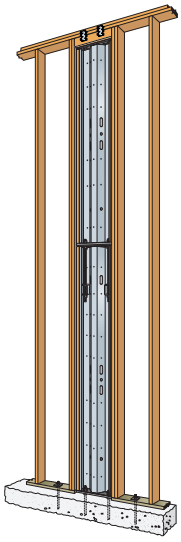
The shearwall that combines superior performance with the easiest and fastest installation now offers new applications with simpler and better solutions for maximum design flexibility.



Standard and Garage Applications on Concrete Foundations

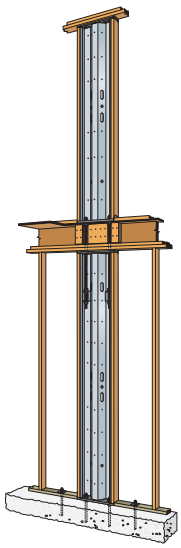


1st story Wood Floor Application

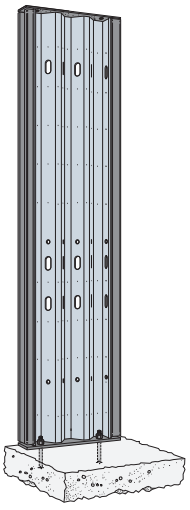


Balloon Framing Applications up to 20'

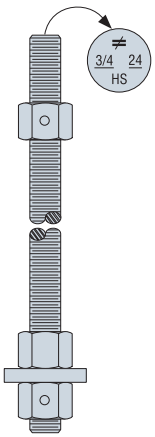
U.S. Patent Pending



Two Story Stacked-Wall Applications



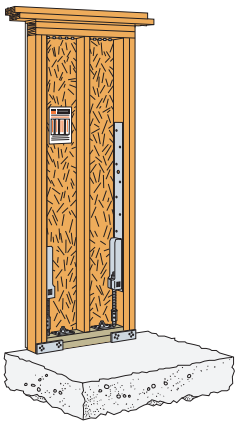
Cold-Formed Steel Applications



Complete Anchorage Solutions

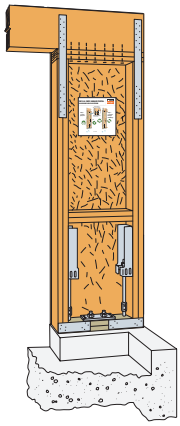
WOOD STRONG-WALL® PANEL

Ideal for applications around window and door openings, garage wing walls, interior walls or any other locations where additional lateral resistance is required.

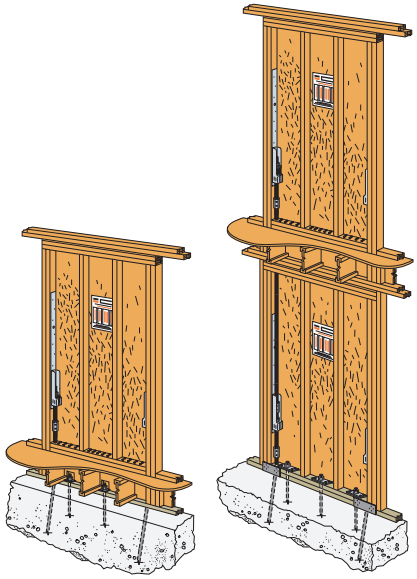


Standard Wood Strong-Wall

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



Garage Portal Systems



Raised Floor Walls for 1st and 2nd Story Applications

ATS *The Next Generation Anchor Tiedown System*

The Anchor Tiedown System (ATS) Catalog

The Simpson Strong-Tie® *Anchor Tiedown System for Multi-Story Overturning Restraint* catalog (C-ATS) puts all the product and design information right at your fingertips, including technical information, multi-story rod system design concepts and schematics for runs up to five stories. Visit ***www.strongtie.com*** to download or request a copy or call (800) 999-5099.

The new Coupling Take-Up Device utilizes fewer parts, thereby streamlining installation and reducing labor costs

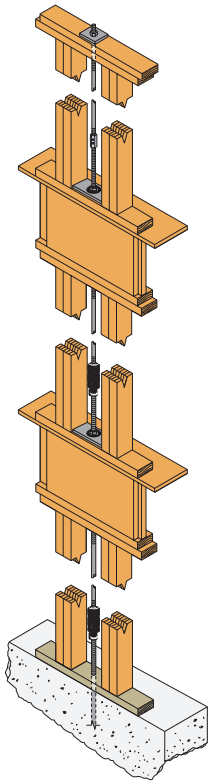
The ATS reduces installation time without sacrificing performance:

- Higher load capacities address more applications.
- The patent-pending Coupling Take-Up Device (CTUD) streamlines installation, eliminating up to 60–70% of labor costs when compared to other systems.
- Color-coded and stamped parts make it easy to match system components.

THE ATS SOLUTION

The Simpson Strong-Tie® Anchor Tie-down System (ATS) is designed to anchor stacked shearwalls in multi-story wood frame buildings while compensating for construction shrinkage and settling within the structure. The system resists overturning forces through bearing plates and Simpson Strong-Rod™ – connecting rods specifically designed for the ATS system. It is a high capacity restraint *(50,000 lbs. plus)* which exceeds bolted connections.

The Strong-Rods within the system are joined together by the new Coupling Take-Up Device (CTUD). The CTUD is a spring driven rod coupling device which contracts to compensate for rod movement caused by construction shrinkage and settling of the structure. This helps ensure that no gaps develop in the system that could compromise performance. The simplicity of the CTUD also greatly simplifies installation, reducing labor costs over alternative systems.



Simpson Strong-Tie® ATS Selector Software – Design Made Easier

The new ATS Selector software has been created with enhanced design versatility. The program allows engineers and architects to easily create a standard system design or customize the system to meet the specific needs of a project.

Easy to Use

The easy-to-use input screens make it simple to enter all the pertinent job details such as the project name and address as well as requirements such as number of stories *(up to 6)*, applicable building code, and demand loads.

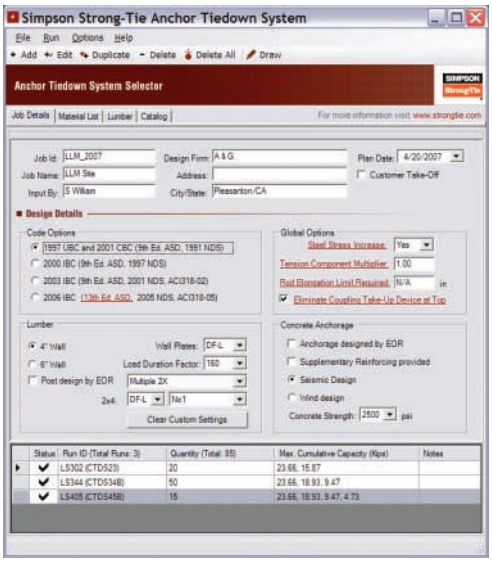
Customizable Solutions That Save Time

Based upon user inputs, the software recommends an ATS run to meet the requirements of your project. You can generate and save multiple runs and the program compiles a complete ATS materials list as well as a compression member lumber list.

Output the Way You Like It

Once results are saved, they can be sent electronically, exported into AutoCAD to generate drawings, and used to create a job summary which includes run configurations, calculations and an ATS material and lumber list.

Visit ***www.strongtie.com*** to download a free copy of the software or call 800-999-5099 to request a CD-ROM.



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

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

See Hanger tables on pages 62 to 68. See Hanger Options on pages 181-183 for hanger modifications, which may result in reduced loads.

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

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

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

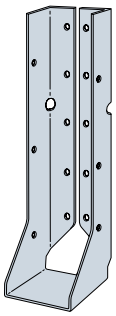
MATERIAL: See tables on pages 62 to 68.

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

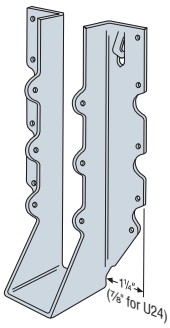
INSTALLATION:

- Use all specified fasteners. See General Notes.
- HU/HUC—can be installed filling round holes only, or filling round and triangle holes for maximum values.
- Joists sloped up to ¼:12 achieve table loads.
- For installations to masonry or concrete see page 140.
- HU/HUC hangers can be welded to a steel member. Allowable loads are the lesser of the values in the Hanger tables on pages 62-68 or the weld capacity – refer to technical bulletin T-HUHUC-W *(see page 191 for details).*

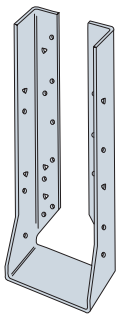
OPTIONS:
- HU hangers available with the header flanges turned in for 2⁵⁄₁₆" width and larger, with no load reduction–order HUC hanger.
- See Hanger Options on pages 181-183 for sloped and/or skewed U/HU models, and HUC *(concealed flange)* models.
- HU only—rough beam sizes available by special order.
- See page 68 for stocked U hanger rough sizes tables.
- Also see LUS and HUS series.



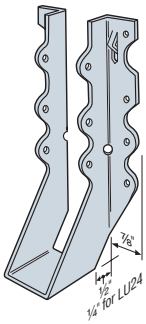
LUC210Z
(LUC26Z Similar)



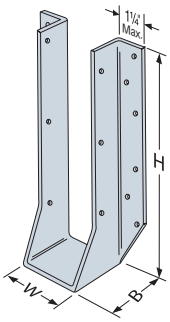
U210



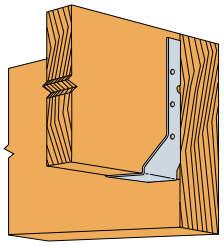
HUC412
Concealed Flanges



LU28
(except LU Roughs)

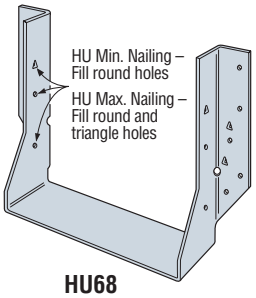


HU214
Projection seat on most models for maximum bearing and section economy.

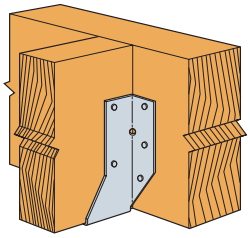


Typical LUCZ Installation

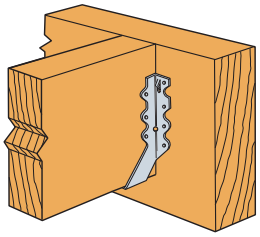
Model configurations may differ from those shown. Some HU models do not have triangle holes. Contact Simpson Strong-Tie.



HU68



Typical HU Installation



Typical LU28 Installation

HUCQ *Heavy Duty Joist Hangers*

The HUCQ series are heavy duty joist hangers that incorporate Simpson Strong-Tie® Strong-Drive® wood screws (SDS). Designed and tested for installation at the end of a beam or on a post, they provide a strong connection with fewer fasteners than nailed hangers. See page 83 for structural composite lumber hangers.

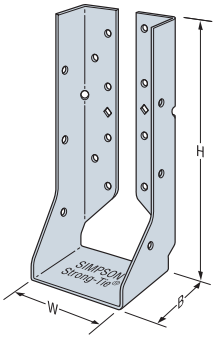
MATERIAL: 14 gauge

FINISH: Galvanized

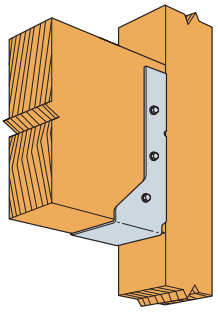
INSTALLATION: • Use all specified fasteners. See General Notes.
- Install Simpson Strong-Tie SDS ¼"x2½" wood screws, which are provided, in all round holes. *(Lag screws will not achieve the same load.)*
- For use on solid sawn wood members.

OPTIONS: • These hangers cannot be modified.

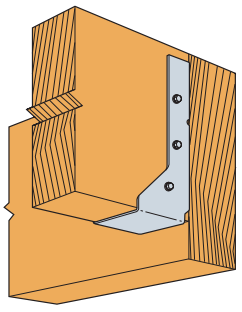
CODES: See page 12 for Code Reference Key Chart.



HUCQ410



Typical HUCQ Installation on a Post



Typical HUCQ Installation on a Beam

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

1. Uplift loads have been increased 60% for wind or earthquake loading, with no further increase allowed.
2. See page 83 for additional engineered wood products sizes.
3. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) *(see page 191 for details).*

LUS/HUS *Double Shear Joist Hangers*

SIMPSON Strong-Tie

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

See Hanger tables on pages 62 to 68. See Hanger Options on pages 181-183 for hanger modifications, which may result in reduced loads.

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

MATERIAL: See tables, pages 62 to 68.

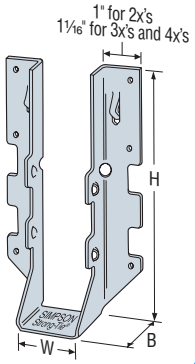
FINISH: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, page 10-11.

INSTALLATION • Use all specified fasteners. See General Notes.

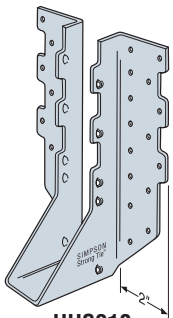
- Nails must be driven at an angle through the joist or truss into the header to achieve the table loads.
- Not designed for welded or nailer applications.
- 16d sinkers (0.148" dia. x 3¼" long) may be used where 10d commons are specified with no reduction in load. Where 16d commons are specified, 10d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

OPTIONS: • LUS hangers cannot be modified.

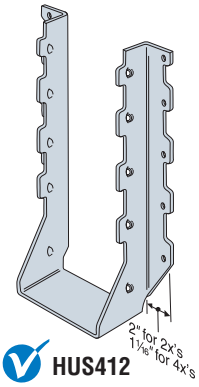
- HUS hangers available with the header flanges turned in for 2-2x (3⅛") and 4x only, with no load reduction. See the HUSC Concealed Flange illustration.
- See Hanger Options, pages 181-183.



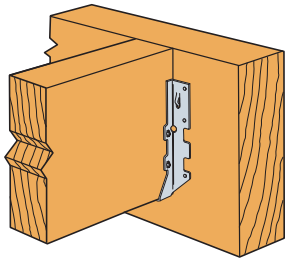
LUS28



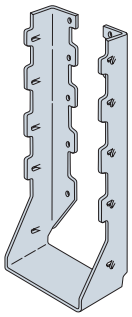
HUS210
(HUS26, HUS28, and HHUS similar)



HUS412

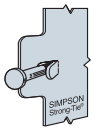


Typical LUS28 Installation
use .148x3" (10d common)
or .148x3¼" (16d sinker) nail

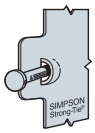


HUSC
Concealed Flanges
(not available for HHUS, HGUS and HUS2x)

Double Shear Nailing Top View



Double Shear Nailing Side View Do not bend tab



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

U.S. Patent 5,603,580

LOAD TABLE EXPLANATION

Joist Size: This shows the size of joist member.

Model No.: This is the Simpson product name.

Gauge: Product material

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

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

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

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

Uplift

Floor, Snow, Roof

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

Code Ref.: See page 12 for the Code Reference Key Chart, to determine which code reports include this product.

Joist Size	Model No.	Ga	Dimensions W	H	B	Min/Max	Fasteners Header 10d	Header 16d	Joist	DF/SP Allowable Loads Uplift (160)	Floor (100) 10d	Floor (100) 16d	Snow (115) 10d	Snow (115) 16d	Roof (125) 10d	Roof (125) 16d	Installed Cost Index (ICI)	Code Ref.
DBL 2x6	LUS26-2	18	3⅛	4⅞	2	—	—	4-16d	4-16d	1165	—	1000	—	1150	—	1250	Lowest	I7, L1, F6
	U26-2	16	3⅛	5	2	—	8-10d	8-16d	4-10d	710	890	1065	1020	1225	1110	1330	+65%	I7, F6
	HUS26-2	14	3⅛	5⅜16	2	—	—	4-16d	4-16d	1235	—	1005	—	1155	—	1255	+172%	I7, L1, F6
	HU26-2/HUC26-2	14	3⅛	5⅜	2½	Min	—	8-16d	4-10d	725	—	1070	—	1235	—	1340	+233%	I7, F6
		14	3⅛	5⅜	2½	Max	—	12-16d	6-10d	1085	—	1610	—	1850	—	2010	+254%	

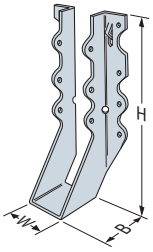
This icon identifies products that are available with additional corrosion protection. See pages 10-11 for additional information.

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

NAILS: 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

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

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



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

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

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

SIMPSON Strong-Tie®

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

CODES: See page 12 for Code Reference Key Chart.

Joist Size	Model No.	Ga	Dimensions W	H	B	Min/ Max	Fasteners Header 10d	Header 16d	Joist	DF/SP Allowable Loads Uplift (160)	Floor (100) 10d	Floor (100) 16d	Snow (115) 10d	Snow (115) 16d	Roof (125) 10d	Roof (125) 16d	Installed Cost Index (ICI)	Code Ref.
SAWN LUMBER SIZES																		
2x4	LU24	20	1⁹⁄₁₆	3⅛	1½	—	4-10d	4-16d	2-10dx1½	265	445	530	510	610	555	665	Lowest	I7, F6
	LUS24	18	1⁹⁄₁₆	3⅛	1¾	—	4-10d	—	2-10d	490	640	—	735	—	800	—	+3%	I7, L3, F6
	U24	16	1⁹⁄₁₆	3⅛	1½	—	4-10d	4-16d	2-10dx1½	290	445	530	510	610	555	665	+67%	I7, F6
	HU26	14	1⁹⁄₁₆	3¹⁄₁₆	2¼	—	—	4-16d	2-10dx1½	290	—	535	—	615	—	670	+295%	
DBL 2x4	LUS24-2	18	3⅛	3⅛	2	—	—	4-16d	2-16d	440	—	765	—	880	—	960	Lowest	I7, L1, F6
	U24-2	16	3⅛	3	2	—	4-10d	4-16d	2-10d	355	445	530	510	610	555	665	+33%	I7, F6
	HU24-2/HUC24-2	14	3⅛	3¹⁄₁₆	2½	—	—	4-16d	2-10d	360	—	535	—	615	—	670	+240%	
2x6	LUS26	18	1⁹⁄₁₆	4¾	1¾	—	4-10d	—	4-10d	1115	830	—	955	—	1040	—	Lowest	I7, L3, F6
	LU26	20	1⁹⁄₁₆	4¾	1½	—	6-10d	6-16d	4-10dx1½	565	665	800	765	920	830	1000	+6%	I7, F6
	U26	16	1⁹⁄₁₆	4¾	2	—	6-10d	6-16d	4-10dx1½	575	665	800	765	920	830	1000	+43%	
	LUC26Z	18	1⁹⁄₁₆	4¾	1¾	—	6-10d	6-16d	4-10dx1½	730	710	845	810	965	875	1040	+160%	I2, F22
	HU26	14	1⁹⁄₁₆	3¹⁄₁₆	2¼	—	—	4-16d	2-10dx1½	290	—	535	—	615	—	670	+179%	I7, F6
	HUS26	16	1⅝	5⅜	3	—	—	14-16d	6-16d	1550	—	2565	—	2950	—	3205	+276%	I7, L3, F6
DBL 2x6	LUS26-2	18	3⅛	4⅞	2	—	—	4-16d	4-16d	1165	—	1000	—	1150	—	1250	Lowest	I7, L1, F6
	U26-2	16	3⅛	5	2	—	8-10d	8-16d	4-10d	710	890	1065	1020	1225	1110	1330	+65%	I7, F6
	HUS26-2	14	3⅛	5³⁄₁₆	2	—	—	4-16d	4-16d	1235	—	1005	—	1155	—	1255	+172%	I7, L1, F6
	HU26-2/HUC26-2	14	3⅛	5⅜	2½	Min	—	8-16d	4-10d	725	—	1070	—	1235	—	1340	+233%	I7, F6
		14	3⅛	5⅜	2½	Max	—	12-16d	6-10d	1085	—	1610	—	1850	—	2010	+254%	
TPL 2x6	LUS26-3	18	4⅝	4⅛	2	—	—	4-16d	4-16d	1165	—	1000	—	1150	—	1250	*	IL18
	U26-3	16	4⅝	4¼	2	—	8-10d	8-16d	4-10d	710	890	1065	1020	1225	1110	1330	*	170
	HU26-3/HUC26-3	14	4¹¹⁄₁₆	5½	2½	Min	—	8-16d	4-10d	725	—	1070	—	1235	—	1340	*	
		14	4¹¹⁄₁₆	5½	2½	Max	—	12-16d	6-10d	1085	—	1610	—	1850	—	2010	*	
2x8	LUS26	18	1⁹⁄₁₆	4¾	1¾	—	4-10d	—	4-10d	1115	830	—	955	—	1040	—	Lowest	I7, L3, F6
	LU26	20	1⁹⁄₁₆	4¾	1½	—	6-10d	6-16d	4-10dx1½	565	665	800	765	920	830	1000	+6%	I7, F6
	LUS28	18	1⁹⁄₁₆	6⅝	1¾	—	6-10d	—	4-10d	1115	1055	—	1210	—	1320	—	+23%	I7, L3, F6
	LU28	20	1⁹⁄₁₆	6⅜	1½	—	8-10d	8-16d	6-10dx1½	850	890	1065	1020	1225	1110	1300	+39%	I7, F6
	U26	16	1⁹⁄₁₆	4¾	2	—	6-10d	6-16d	4-10dx1½	575	665	800	765	920	830	1000	+43%	
	LUC26Z	18	1⁹⁄₁₆	4¾	1¾	—	6-10d	6-16d	4-10dx1½	730	710	845	810	965	875	1040	+160%	I2, F22
	HU28	14	1⁹⁄₁₆	5¼	2¼	—	—	6-16d	4-10dx1½	575	—	805	—	925	—	1005	+251%	I7, F6
	HUS26	16	1⅝	5⅜	3	—	—	14-16d	6-16d	1550	—	2565	—	2950	—	3205	+276%	I7, L3, F6
	HUS28	16	1⅝	7	3	—	—	22-16d	8-16d	2000	—	3585	—	3700	—	3775	+409%	
DBL 2x8	LUS26-2	18	3⅛	4⅞	2	—	—	4-16d	4-16d	1165	—	1000	—	1150	—	1250	Lowest	I7, L1, F6
	LUS28-2	18	3⅛	7	2	—	—	6-16d	4-16d	1165	—	1265	—	1455	—	1585	+8%	
	U26-2	16	3⅛	5	2	—	8-10d	8-16d	4-10d	710	890	1065	1020	1225	1110	1330	+65%	I7, F6
	HUS28-2	14	3⅛	7³⁄₁₆	2	—	—	6-16d	6-16d	1550	—	1505	—	1730	—	1885	+188%	I7, L1, F6
	HU28-2/HUC28-2	14	3⅛	7	2½	Min	—	10-16d	4-10d	725	—	1340	—	1540	—	1675	+397%	I7, F6
		14	3⅛	7	2½	Max	—	14-16d	6-10d	1085	—	1875	—	2155	—	2345	+418%	
TPL 2x8	LUS28-3	18	4⅝	6¼	2	—	—	6-16d	4-16d	1165	—	1265	—	1455	—	1585	*	IL18
	U26-3	16	4⅝	4¼	2	—	8-10d	8-16d	4-10d	710	890	1065	1020	1225	1110	1330	*	170
	HU26-3/HUC26-3	14	4¹¹⁄₁₆	5½	2½	Min	—	8-16d	4-10d	725	—	1070	—	1235	—	1340	*	
		14	4¹¹⁄₁₆	5½	2½	Max	—	12-16d	6-10d	1085	—	1610	—	1850	—	2010	*	
NEW QUAD 2x8	HU28-4/HUC28-4	14	6⅛	6⅝	2½	Min	—	10-16d	4-16d	860	—	1340	—	1540	—	1675	*	
		14	6⅛	6⅝	2½	Max	—	14-16d	6-16d	1285	—	1875	—	2155	—	2345	*	
2x10	LUS28	18	1⁹⁄₁₆	6⅝	1¾	—	6-10d	—	4-10d	1115	1055	—	1210	—	1320	—	Lowest	I7, L3, F6
	LU28	20	1⁹⁄₁₆	6⅜	1½	—	8-10d	8-16d	6-10dx1½	850	890	1065	1020	1225	1110	1300	+13%	I7, F6
	LUS210	18	1⁹⁄₁₆	7¹³⁄₁₆	1¾	—	8-10d	—	4-10d	1115	1275	—	1470	—	1595	—	+15%	I7, L3, F6
	LU210	20	1⁹⁄₁₆	7¹³⁄₁₆	1½	—	10-10d	10-16d	6-10dx1½	850	1110	1330	1275	1530	1390	1660	+28%	I7, F6
	U210	16	1⁹⁄₁₆	7¹³⁄₁₆	2	—	10-10d	10-16d	6-10dx1½	865	1110	1330	1275	1530	1390	1660	+76%	
	LUC210Z	18	1⁹⁄₁₆	7¾	1¾	—	10-10d	10-16d	6-10dx1½	1100	1185	1410	1345	1605	1455	1735	+180%	I2, F22
	HU210	14	1⁹⁄₁₆	7⅛	2¼	—	—	8-16d	4-10dx1½	575	—	1070	—	1235	—	1340	+225%	I7, F6
	HUS210	16	1⅝	9	3	—	—	30-16d	10-16d	3000	—	3775	—	3920	—	4020	+450%	I7, L3, F6
DBL 2x10	LUS28-2	18	3⅛	7	2	—	—	6-16d	4-16d	1165	—	1265	—	1455	—	1585	Lowest	I7, L1, F6
	LUS210-2	18	3⅛	9	2	—	—	8-16d	6-16d	1745	—	1765	—	2030	—	2210	+34%	
	U210-2	16	3⅛	8½	2	—	14-10d	14-16d	6-10d	1065	1555	1860	1785	2140	1940	2330	+88%	I7, F6
	HUS210-2	14	3⅛	9³⁄₁₆	2	—	—	8-16d	8-16d	2590	—	2010	—	2310	—	2510	+217%	I7, L1, F6
	HU210-2/HUC210-2	14	3⅛	8¹³⁄₁₆	2½	Min	—	14-16d	6-10d	1085	—	1875	—	2155	—	2345	+441%	I7, F6
		14	3⅛	8¹³⁄₁₆	2½	Max	—	18-16d	10-10d	1810	—	2410	—	2775	—	3015	+467%	
	HHUS210-2	14	3⁵⁄₁₆	8⅞	3	—	—	30-16d	10-16d	3430	—	5190	—	5900	—	5900	*	
TPL 2x10	LUS28-3	18	4⅝	6¼	2	—	—	6-16d	4-16d	1165	—	1265	—	1455	—	1585	*	IL18
	LUS210-3	18	4⅝	8¹³⁄₁₆	2	—	—	8-16d	6-16d	1745	—	1765	—	2030	—	2210	*	
	U210-3	16	4⅝	7¾	2	—	14-10d	14-16d	6-10d	1065	1555	1860	1785	2140	1940	2330	*	I7, F6
	HU210-3/HUC210-3	14	4¹¹⁄₁₆	8⁹⁄₁₆	2½	Min	—	14-16d	6-10d	1085	—	1875	—	2155	—	2345	*	
		14	4¹¹⁄₁₆	8⁹⁄₁₆	2½	Max	—	18-16d	10-10d	1810	—	2410	—	2775	—	3015	*	
	HHUS210-3	14	4¹¹⁄₁₆	9	3	—	—	30-16d	10-16d	3430	—	5190	—	5900	—	5900	*	
	HGUS210-3	12	4¹⁵⁄₁₆	9⅛	4	—	—	46-16d	16-16d	3630	—	8780	—	8940	—	8940	*	F23

See footnotes on page 64.

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

SIMPSON Strong-Tie®

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

CODES: See page 12 for Code Reference Key Chart.

Joist Size	Model No.	Ga	Dimensions W	Dimensions H	Dimensions B	Min/ Max	Fasteners Header 10d	Fasteners Header 16d	Fasteners Joist	DF/SP Allowable Loads Uplift (160)	Floor (100) 10d	Floor (100) 16d	Snow (115) 10d	Snow (115) 16d	Roof (125) 10d	Roof (125) 16d	Installed Cost Index (ICI)	Code Ref.
SAWN LUMBER SIZES																		
QUAD 2x10	HU210-4/HUC210-4	14	6⅛	8⅜	2½	Min	—	14-16d	6-16d	1285	—	1875	—	2155	—	2345	*	170
		14	6⅛	8⅜	2½	Max	—	18-16d	8-16d	1715	—	2410	—	2775	—	3015	*	
	HHUS210-4	14	6⅛	8⅞	3	—	—	30-16d	10-16d	3430	—	5190	—	5900	—	5900	*	F23
	HGUS210-4	12	6 11⁄16	9⅛	4	—	—	46-16d	16-16d	3630	—	8780	—	8940	—	8940	*	
2x12	LUS210	18	1 9⁄16	7 13⁄16	1¾	—	8-10d	—	4-10d	1115	1275	—	1470	—	1595	—	Lowest	I7, L3, F6
	LU210	20	1 9⁄16	7 13⁄16	1½	—	10-10d	10-16d	6-10dx1½	850	1110	1330	1275	1530	1390	1660	+11%	I7, F6
	U210	16	1 9⁄16	7 13⁄16	2	—	10-10d	10-16d	6-10dx1½	865	1110	1330	1275	1530	1390	1660	+53%	
	LUC210Z	18	1 9⁄16	7¾	1¾	—	10-10d	10-16d	6-10dx1½	1100	1185	1410	1345	1605	1455	1735	+180%	I2, F22
	HU212	14	1 9⁄16	9	2¼	—	—	10-16d	6-10dx1½	865	—	1340	—	1540	—	1675	+347%	I7, F6
	HUS210	16	1⅝	9	3	—	—	30-16d	10-16d	3000	—	3775	—	3920	—	4020	+378%	I7, L3, F6
DBL 2x12	LUS210-2	18	3⅛	9	2	—	—	8-16d	6-16d	1550	—	1765	—	2030	—	2210	Lowest	I7, L1, F6
	U210-2	16	3⅛	8½	2	—	14-10d	14-16d	6-10d	1065	1555	1860	1785	2140	1940	2330	+40%	I7, F6
	LUS214-2	18	3⅛	10 5⁄16	2	—	—	10-16d	6-16d	1550	—	2030	—	2335	—	2540	+56%	I7, L1, F6
	HUS210-2	14	3⅛	9 3⁄16	2	—	—	8-16d	8-16d	2590	—	2010	—	2310	—	2510	+136%	
	HUS212-2	14	3⅛	10¾	2	—	—	10-16d	10-16d	3240	—	2510	—	2885	—	3140	+156%	
	HU212-2/HUC212-2	14	3⅛	10 9⁄16	2½	Min	—	16-16d	6-10d	1085	—	2145	—	2465	—	2680	+387%	I7, F6
		14	3⅛	10 9⁄16	2½	Max	—	22-16d	10-10d	1810	—	2950	—	3390	—	3685	+411%	
TPL 2x12	LUS210-3	18	4⅝	8 3⁄16	2	—	—	8-16d	6-16d	1550	—	1765	—	2030	—	2210	*	IL18
	HU212-3/HUC212-3	14	4 11⁄16	10 5⁄16	2½	Min	—	16-16d	6-10d	1085	—	2145	—	2465	—	2680	*	I7, F6
		14	4 11⁄16	10 5⁄16	2½	Max	—	22-16d	10-10d	1810	—	2950	—	3390	—	3685	*	
	U210-3	16	4⅝	7¾	2	—	14-10d	14-16d	6-10d	1065	1555	1860	1785	2140	1940	2330	*	
2x14	LUS210	18	1 9⁄16	7 13⁄16	1¾	—	8-10d	—	4-10d	1115	1275	—	1470	—	1595	—	Lowest	I7, L3, F6
	LU210	20	1 9⁄16	7 13⁄16	1¾	—	10-10d	10-16d	6-10dx1½	850	1110	1330	1275	1530	1390	1660	+11%	I7, F6
	U210	16	1 9⁄16	7 13⁄16	2	—	10-10d	10-16d	6-10dx1½	865	1110	1330	1275	1530	1390	1660	+53%	
	HU214	14	1 9⁄16	10⅛	2¼	—	—	12-16d	6-10dx1½	865	—	1610	—	1850	—	2010	+88%	
	U214	16	1 9⁄16	10	2	—	12-10d	12-16d	8-10dx1½	1150	1330	1595	1530	1835	1665	1995	+147%	
DBL 2x14	U210-2	16	3⅛	8½	2	—	14-10d	14-16d	6-10d	1065	1555	1860	1785	2140	1940	2330	Lowest	I7, F6
	LUS214-2	18	3⅛	10 5⁄16	2	—	—	10-16d	6-16d	1745	—	2030	—	2335	—	2540	+12%	I7, L1, F6
	HUS212-2	14	3⅛	10¾	2	—	—	10-16d	10-16d	3240	—	2510	—	2885	—	3140	+83%	
	HU212-2/HUC212-2	14	3⅛	10 9⁄16	2½	Min	—	16-16d	6-10d	1085	—	2145	—	2465	—	2680	+248%	I7, F6
		14	3⅛	10 9⁄16	2½	Max	—	22-16d	10-10d	1810	—	2950	—	3390	—	3685	+265%	
	HU214-2/HUC214-2	14	3⅛	12 13⁄16	2½	Min	—	18-16d	8-10d	1505	—	2410	—	2775	—	3015	+259%	
		14	3⅛	12 13⁄16	2½	Max	—	24-16d	12-10d	2170	—	3215	—	3700	—	4020	+276%	
TPL 2x14	U210-3	16	4⅝	7¾	2	—	14-10d	14-16d	6-10d	1065	1555	1860	1785	2140	1940	2330	*	
	HU214-3/HUC214-3	14	4 11⁄16	12 1⁄16	2½	Min	—	18-16d	8-10d	1445	—	2410	—	2775	—	3015	*	
		14	4 11⁄16	12 1⁄16	2½	Max	—	24-16d	12-10d	2170	—	3215	—	3700	—	4020	*	
2x16	U214	16	1 9⁄16	10	2	—	12-10d	12-16d	8-10dx1½	1150	1330	1595	1530	1835	1665	1995	Lowest	
	HU214	14	1 9⁄16	10⅛	2¼	—	—	12-16d	6-10dx1½	865	—	1610	—	1850	—	2010	+130%	
	HU216	14	1 9⁄16	12 5⁄16	2¼	—	—	18-16d	8-10dx1½	1155	—	2410	—	2775	—	3015	+130%	170
DBL 2x16	HUS212-2	14	3⅛	10¾	2	—	—	10-16d	10-16d	3240	—	2510	—	2885	—	3140	Lowest	I7, L1, F6
	HU216-2/HUC216-2	14	3⅛	13⅞	2½	Min	—	20-16d	8-10d	1445	—	2680	—	3080	—	3350	+111%	I7, F6
		14	3⅛	13⅞	2½	Max	—	26-16d	12-10d	2015	—	3485	—	4005	—	4355	+120%	
TPL 2x16	HU216-3/HUC216-3	14	4 11⁄16	13⅞	2½	Min	—	20-16d	8-10d	1445	—	2680	—	3080	—	3350	*	
		14	4 11⁄16	13⅞	2½	Max	—	26-16d	12-10d	2015	—	3485	—	4005	—	4355	*	
3x4	U34	16	2 9⁄16	3⅜	2	—	4-10d	4-16d	2-10dx1½	265	445	530	510	610	555	665	*	
	HU34/HUC34	14	2 9⁄16	3⅜	2½	—	—	4-16d	2-10dx1½	290	—	535	—	615	—	670	*	
3x6	U36	16	2 9⁄16	5⅜	2	—	8-10d	8-16d	4-10dx1½	575	890	1065	1020	1225	1110	1330	*	
	LUS36	18	2 9⁄16	5¼	2	—	—	4-16d	4-16d	1160	—	1000	—	1150	—	1250	*	F23
	HU36/HUC36	14	2 9⁄16	5⅜	2½	—	—	8-16d	4-10dx1½	575	—	1070	—	1235	—	1340	*	I7, F6
3x8	U36	16	2 9⁄16	5⅜	2	—	8-10d	8-16d	4-10dx1½	575	890	1065	1020	1225	1110	1330	*	
	LUS36	18	2 9⁄16	5¼	2	—	—	4-16d	4-16d	1160	—	1000	—	1150	—	1250	*	F23
	HU38/HUC38	14	2 9⁄16	7⅛	2½	—	—	10-16d	4-10dx1½	575	—	1340	—	1540	—	1675	*	I7, F6
3x10	U310	16	2 9⁄16	8⅞	2	—	14-10d	14-16d	6-10dx1½	865	1555	1860	1785	2140	1940	2330	*	
	LUS310	18	2 9⁄16	7¼	2	—	—	6-16d	4-16d	1160	—	1265	—	1455	—	1585	*	F23
	HU310/HUC310	14	2 9⁄16	8⅞	2½	—	—	14-16d	6-10dx1½	865	—	1875	—	2155	—	2345	*	I7, F6
3x12	U310	16	2 9⁄16	8⅞	2	—	14-10d	14-16d	6-10dx1½	865	1555	1860	1785	2140	1940	2330	*	
	HU312/HUC312	14	2 9⁄16	10⅝	2½	—	—	16-16d	6-10dx1½	865	—	2145	—	2465	—	2680	*	
3x14	U314	16	2 9⁄16	10½	2	—	16-10d	16-16d	6-10dx1½	865	1775	2130	2040	2445	2220	2660	*	
	HU314/HUC314	14	2 9⁄16	12⅜	2½	—	—	18-16d	8-10dx1½	1150	—	2410	—	2775	—	3015	*	
3x16	U314	16	2 9⁄16	10½	2	—	16-10d	16-16d	6-10dx1½	865	1775	2130	2040	2445	2220	2660	*	
	HU316/HUC316	14	2 9⁄16	14⅛	2½	—	—	20-16d	8-10dx1½	1150	—	2680	—	3080	—	3350	*	
4x4	LUS44	18	3 9⁄16	3	2	—	—	4-16d	2-16d	440	—	765	—	880	—	960	Lowest	I7, L1, F6
	U44	16	3 9⁄16	2⅞	2	—	4-10d	4-16d	2-10d	355	445	530	510	610	555	665	+20%	I7, F6
	HU44/HUC44	14	3 9⁄16	2⅞	2½	—	—	4-16d	2-10d	360	—	535	—	615	—	670	+161%	

See footnotes on page 64.

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

SIMPSON Strong-Tie®

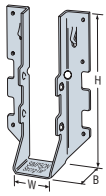
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

CODES: See page 12 for Code Reference Key Chart.

Joist Size	Model No.	Ga	Dimensions W	Dimensions H	Dimensions B	Min/ Max	Fasteners Header 10d	Fasteners Header 16d	Fasteners Joist	DF/SP Allowable Loads Uplift (160)	Floor (100) 10d	Floor (100) 16d	Snow (115) 10d	Snow (115) 16d	Roof (125) 10d	Roof (125) 16d	Installed Cost Index (ICI)	Code Ref.
SAWN LUMBER SIZES																		
4x6	LUS46	18	3⁹⁄₁₆	4¾	2	—	—	4-16d	4-16d	1160	—	1000	—	1150	—	1250	Lowest	I7, L1, F6
	U46	16	3⁹⁄₁₆	4⅞	2	—	8-10d	8-16d	4-10d	710	890	1065	1020	1225	1110	1330	+37%	I7, F6
	HUS46	14	3⁹⁄₁₆	5	2	—	—	4-16d	4-16d	1235	—	1005	—	1155	—	1255	+152%	
	HU46/HUC46	14	3⁹⁄₁₆	5³⁄₁₆	2½	Min	—	8-16d	4-10d	725	—	1070	—	1235	—	1340	+163%	
		14	3⁹⁄₁₆	5³⁄₁₆	2½	Max	—	12-16d	6-10d	1085	—	1610	—	1850	—	2010	+185%	
4x8	LUS46	18	3⁹⁄₁₆	4¾	2	—	—	4-16d	4-16d	1165	—	1000	—	1150	—	1250	Lowest	I7, L1, F6
	U46	16	3⁹⁄₁₆	4⅞	2	—	8-10d	8-16d	4-10d	710	890	1065	1020	1225	1110	1330	+37%	I7, F6
	LUS48	18	3⁹⁄₁₆	6¾	2	—	—	6-16d	4-16d	1165	—	1265	—	1455	—	1585	+40%	I7, L1, F6
	HUS48	14	3⁹⁄₁₆	6¹⁵⁄₁₆	2	—	—	6-16d	6-16d	1550	—	1505	—	1730	—	1885	+203%	
	HU48/HUC48	14	3⁹⁄₁₆	6¹³⁄₁₆	2½	Min	—	10-16d	4-10d	725	—	1340	—	1540	—	1675	+213%	I7, F6
		14	3⁹⁄₁₆	6¹³⁄₁₆	2½	Max	—	14-16d	6-10d	1085	—	1875	—	2155	—	2345	+235%	
4x10	LUS48	18	3⁹⁄₁₆	6¾	2	—	—	6-16d	4-16d	1165	—	1265	—	1455	—	1585	Lowest	I7, L1, F6
	LUS410	18	3⁹⁄₁₆	8¾	2	—	—	8-16d	6-16d	1745	—	1765	—	2030	—	2210	+19%	
	U410	16	3⁹⁄₁₆	8⅜	2	—	14-10d	14-16d	6-10d	1065	1555	1860	1785	2140	1940	2330	+74%	I7, F6
	HUS410	14	3⁹⁄₁₆	8¹⁵⁄₁₆	2	—	—	8-16d	8-16d	2590	—	2010	—	2310	—	2510	+154%	
	HU410/HUC410	14	3⁹⁄₁₆	8⅝	2½	Min	—	14-16d	6-10d	1085	—	1875	—	2155	—	2345	+232%	
		14	3⁹⁄₁₆	8⅝	2½	Max	—	18-16d	10-10d	1810	—	2410	—	2775	—	3015	+253%	
4x12	LUS410	18	3⁹⁄₁₆	8¾	2	—	—	8-16d	6-16d	1745	—	1765	—	2030	—	2210	Lowest	I7, L1, F6
	LUS414	18	3⁹⁄₁₆	10¾	2	—	—	10-16d	6-16d	1745	—	2030	—	2335	—	2540	+33%	
	U410	16	3⁹⁄₁₆	8⅜	2	—	14-10d	14-16d	6-10d	1065	1555	1860	1785	2140	1940	2330	+46%	I7, F6
	HUS410	14	3⁹⁄₁₆	8¹⁵⁄₁₆	2	—	—	8-16d	8-16d	2590	—	2010	—	2310	—	2510	+114%	
	HUS412	14	3⁹⁄₁₆	10½	2	—	—	10-16d	10-16d	3240	—	2510	—	2885	—	3140	+129%	
	HU412/HUC412	14	3⁹⁄₁₆	10⁵⁄₁₆	2½	Min	—	16-16d	6-10d	1085	—	2145	—	2465	—	2680	+268%	
		14	3⁹⁄₁₆	10⁵⁄₁₆	2½	Max	—	22-16d	10-10d	1810	—	2950	—	3390	—	3685	+290%	
4x14	LUS410	18	3⁹⁄₁₆	8¾	2	—	—	8-16d	6-16d	1745	—	1765	—	2030	—	2210	Lowest	I7, L1, F6
	LUS414	18	3⁹⁄₁₆	10¾	2	—	—	10-16d	6-16d	1745	—	2030	—	2335	—	2540	+33%	
	U414	16	3⁹⁄₁₆	10	2	—	16-10d	16-16d	6-10d	1065	1775	2130	2040	2445	2220	2660	+93%	I7, F6
	HUS412	14	3⁹⁄₁₆	10½	2	—	—	10-16d	10-16d	3240	—	2510	—	2885	—	3140	+129%	
	HU414/HUC414	14	3⁹⁄₁₆	12⅝	2½	Min	—	18-16d	8-10d	1445	—	2410	—	2775	—	3015	+333%	
		14	3⁹⁄₁₆	12⅝	2½	Max	—	24-16d	12-10d	2170	—	3215	—	3700	—	4020	+355%	
4x16	U414	16	3⁹⁄₁₆	10	2	—	16-10d	16-16d	6-10d	1065	1775	2130	2040	2445	2220	2660	Lowest	
	HUS412	14	3⁹⁄₁₆	10½	2	—	—	10-16d	10-16d	3240	—	2510	—	2885	—	3140	+19%	
	HU416/HUC416	14	3⁹⁄₁₆	13⅝	2½	Min	—	20-16d	8-10d	1445	—	2680	—	3080	—	3350	+167%	
		14	3⁹⁄₁₆	13⅝	2½	Max	—	26-16d	12-10d	2170	—	3485	—	4005	—	4355	+178%	
6x6	U66	16	5½	5	2	—	8-10d	8-16d	4-10d	710	890	1065	1020	1225	1110	1330	*	
	HU66/HUC66	14	5½	4³⁄₁₆	2½	Min	—	8-16d	4-16d	860	—	1070	—	1235	—	1340	*	
		14	5½	4³⁄₁₆	2½	Max	—	12-16d	6-16d	1285	—	1610	—	1850	—	2010	*	
6x8	U66	16	5½	5	2	—	8-10d	8-16d	4-10d	710	890	1065	1020	1225	1110	1330	*	
	HU68/HUC68	14	5½	5¹³⁄₁₆	2½	Min	—	10-16d	4-16d	860	—	1340	—	1540	—	1675	*	
		14	5½	5¹³⁄₁₆	2½	Max	—	14-16d	6-16d	1285	—	1875	—	2155	—	2345	*	
6x10	U610	16	5½	8½	2	—	14-10d	14-16d	6-10d	1065	1555	1860	1785	2140	1940	2330	*	
	HU610/HUC610	14	5½	7⅝	2½	Min	—	14-16d	6-16d	1285	—	1875	—	2155	—	2345	*	
		14	5½	7⅝	2½	Max	—	18-16d	8-16d	1715	—	2410	—	2775	—	3015	*	
6x12	HU612/HUC612	14	5½	9⅜	2½	Min	—	16-16d	6-16d	1285	—	2145	—	2465	—	2680	*	
		14	5½	9⅜	2½	Max	—	22-16d	8-16d	1715	—	2950	—	3390	—	3685	*	
6x14	HU614/HUC614	14	5½	11⅝	2½	Min	—	18-16d	8-16d	1715	—	2410	—	2775	—	3015	*	
		14	5½	11⅝	2½	Max	—	24-16d	12-16d	2575	—	3215	—	3700	—	4020	*	
6x16	HU616/HUC616	14	5½	12¹¹⁄₁₆	2½	Min	—	20-16d	8-16d	1715	—	2680	—	3080	—	3350	*	
		14	5½	12¹¹⁄₁₆	2½	Max	—	26-16d	12-16d	2575	—	3485	—	4005	—	4355	*	
8x8	HU88/HUC88	14	7½	6⅝	2½	Min	—	10-16d	4-16d	860	—	1340	—	1540	—	1675	*	
		14	7½	6⅝	2½	Max	—	14-16d	6-16d	1285	—	1875	—	2155	—	2345	*	
8x10	HU810/HUC810	14	7½	8⅜	2½	Min	—	14-16d	6-16d	1285	—	1875	—	2155	—	2345	*	
		14	7½	8⅜	2½	Max	—	18-16d	8-16d	1715	—	2410	—	2775	—	3015	*	
8x12	HU812/HUC812	14	7½	10⅛	2½	Min	—	16-16d	6-16d	1285	—	2145	—	2465	—	2680	*	
		14	7½	10⅛	2½	Max	—	22-16d	8-16d	1715	—	2950	—	3390	—	3685	*	
8x14	HU814/HUC814	14	7½	11⅞	2½	Min	—	18-16d	8-16d	1715	—	2410	—	2775	—	3015	*	
		14	7½	11⅞	2½	Max	—	24-16d	12-16d	2575	—	3215	—	3700	—	4020	*	
8x16	HU816/HUC816	14	7½	13⅝	2½	Min	—	20-16d	8-16d	1715	—	2680	—	3080	—	3350	*	
		14	7½	13⅝	2½	Max	—	26-16d	12-16d	2575	—	3485	—	4005	—	4355	*	

1. 10d commons or 16d sinkers may be used instead of the specified 16d at 0.84 of the table load value.
2. 16d sinkers may be used instead of the specified 10d commons with no load reduction. *(16d sinkers are not acceptable for HDG applications.)*
3. Uplift loads apply to 10d and 16d header fasteners. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6.
4. MIN nailing quantity and load values—fill all round holes; MAX nailing quantity and load values—fill all round and triangle holes.
5. DF/SP loads can be used for SCL that has fastener holding capacity of Doug Fir.
6. Truss chord cross-grain tension may limit allowable loads. Refer to technical bulletins T-ANSITPISPF, T-ANSITPISP and T-ANSITPIDF for allowable loads that consider ANSI/TPI 1-2007 wood member design criteria *(see page 191 for details)*.
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

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



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

SIMPSON Strong-Tie®

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

Joist Size	Model No.	Ga	Dimensions W	Dimensions H	Dimensions B	Min/ Max	Fasteners Header 10d	Fasteners Header 16d	Fasteners Joist	SPF/HF Allowable Loads Uplift (160)	Floor (100) 10d	Floor (100) 16d	Snow (115) 10d	Snow (115) 16d	Roof (125) 10d	Roof (125) 16d
SAWN LUMBER SIZES																
2x4	LU24	20	1⁹⁄₁₆	3⅛	1½	—	4-10d	4-16d	2-10dx1½	255	385	460	440	530	480	575
2x4	LUS24	18	1⁹⁄₁₆	3⅛	1¾	—	4-10d	—	2-10d	465	540	—	625	—	675	—
2x4	U24	16	1⁹⁄₁₆	3⅛	1½	—	4-10d	4-16d	2-10dx1½	250	385	460	440	530	480	575
2x4	HU26	14	1⁹⁄₁₆	3¹⁄₁₆	2¼	—	—	4-16d	2-10dx1½	250	—	465	—	535	—	580
DBL 2x4	LUS24-2	18	3⅛	3⅛	2	—	—	4-16d	2-16d	440	—	640	—	735	—	800
DBL 2x4	U24-2	16	3⅛	3	2	—	4-10d	4-16d	2-10d	305	385	460	440	530	480	575
DBL 2x4	HU24-2	14	3⅛	3¹⁄₁₆	2½	—	—	4-16d	2-10d	315	—	465	—	535	—	580
2x6	LUS26	18	1⁹⁄₁₆	4¾	1¾	—	4-10d	—	4-10d	935	700	—	805	—	875	—
2x6	LU26	20	1⁹⁄₁₆	4¾	1½	—	6-10d	6-16d	4-10dx1½	505	575	690	660	795	720	860
2x6	U26	16	1⁹⁄₁₆	4¾	2	—	6-10d	6-16d	4-10dx1½	500	575	690	660	795	720	860
2x6	LUC26Z	18	1⁹⁄₁₆	4¾	1¾	—	6-10d	6-16d	4-10dx1½	630	610	725	695	825	750	895
2x6	HU26	14	1⁹⁄₁₆	3¹⁄₁₆	2¼	—	—	4-16d	2-10dx1½	250	—	465	—	535	—	580
2x6	HUS26	16	1⅝	5⅛	3	—	—	14-16d	6-16d	1550	—	2155	—	2475	—	2540
DBL 2x6	LUS26-2	18	3⅛	4⅞	2	—	—	4-16d	4-16d	1115	—	820	—	945	—	1025
DBL 2x6	U26-2	16	3⅛	5	2	—	8-10d	8-16d	4-10d	615	770	920	885	1060	960	1150
DBL 2x6	HUS26-2	14	3⅛	5¾₁₆	2	—	—	4-16d	4-16d	1055	—	825	—	950	—	1030
DBL 2x6	HU26-2/HUC26-2	14	3⅛	5⅜	2½	Min	—	8-16d	4-10d	625	—	930	—	1065	—	1160
DBL 2x6	HU26-2/HUC26-2	14	3⅛	5⅜	2½	Max	—	12-16d	6-10d	940	—	1390	—	1600	—	1740
TPL 2x6	LUS26-3	18	4⅝	4⅛	2	—	—	4-16d	4-16d	1115	—	820	—	945	—	1025
TPL 2x6	U26-3	16	4⅝	4¼	2	—	8-10d	8-16d	4-10d	615	770	920	885	1060	960	1150
TPL 2x6	HU26-3/HUC26-3	14	4¹¹⁄₁₆	5½	2½	Min	—	8-16d	4-10d	625	—	930	—	1065	—	1160
TPL 2x6	HU26-3/HUC26-3	14	4¹¹⁄₁₆	5½	2½	Max	—	12-16d	6-10d	940	—	1390	—	1600	—	1740
2x8	LUS26	18	1⁹⁄₁₆	4¾	1¾	—	4-10d	—	4-10d	935	700	—	805	—	875	—
2x8	LU26	20	1⁹⁄₁₆	4¾	1½	—	6-10d	6-16d	4-10dx1½	505	575	690	660	795	720	860
2x8	LUS28	18	1⁹⁄₁₆	6⅝	1¾	—	6-10d	—	4-10d	935	890	—	1025	—	1115	—
2x8	LU28	20	1⁹⁄₁₆	6⅜	1½	—	8-10d	8-16d	6-10dx1½	760	770	920	885	1060	960	1150
2x8	U26	16	1⁹⁄₁₆	4¾	2	—	6-10d	6-16d	4-10dx1½	500	575	690	660	795	720	860
2x8	LUC26Z	18	1⁹⁄₁₆	4¾	1¾	—	6-10d	6-16d	4-10dx1½	630	610	725	695	825	750	895
2x8	HU28	14	1⁹⁄₁₆	5¼	2¼	—	—	6-16d	4-10dx1½	500	—	695	—	800	—	870
2x8	HUS26	16	1⅝	5⅛	3	—	—	14-16d	6-16d	1550	—	2155	—	2475	—	2540
2x8	HUS28	16	1⅝	7	3	—	—	22-16d	8-16d	2000	—	2580	—	2680	—	2745
DBL 2x8	LUS26-2	18	3⅛	4⅞	2	—	—	4-16d	4-16d	1115	—	820	—	945	—	1025
DBL 2x8	LUS28-2	18	3⅛	7	2	—	—	6-16d	4-16d	1115	—	1050	—	1210	—	1315
DBL 2x8	U26-2	16	3⅛	5	2	—	8-10d	8-16d	4-10d	615	770	920	885	1060	960	1150
DBL 2x8	HUS28-2	14	3⅛	7³⁄₁₆	2	—	—	6-16d	6-16d	1550	—	1240	—	1425	—	1550
DBL 2x8	HU28-2/HUC28-2	14	3⅛	7	2½	Min	—	10-16d	4-10d	625	—	1160	—	1335	—	1450
DBL 2x8	HU28-2/HUC28-2	14	3⅛	7	2½	Max	—	14-16d	6-10d	940	—	1625	—	1870	—	2030
TPL 2x8	LUS28-3	18	4⅝	6¼	2	—	—	6-16d	4-16d	1115	—	1050	—	1210	—	1315
TPL 2x8	U26-3	16	4⅝	4¼	2	—	8-10d	8-16d	4-10d	615	770	920	885	1060	960	1150
TPL 2x8	HU26-3/HUC26-3	14	4¹¹⁄₁₆	5½	2½	Min	—	8-16d	4-10d	625	—	930	—	1065	—	1160
TPL 2x8	HU26-3/HUC26-3	14	4¹¹⁄₁₆	5½	2½	Max	—	12-16d	6-10d	940	—	1390	—	1600	—	1740
NEW QUAD 2x8	HU28-4	14	6⅛	6⅝	2½	Min	—	10-16d	4-16d	860	—	1160	—	1335	—	1450
NEW QUAD 2x8	HU28-4	14	6⅛	6⅝	2½	Max	—	14-16d	6-16d	1285	—	1625	—	1870	—	2030
2x10	LUS28	18	1⁹⁄₁₆	6⅝	1¾	—	6-10d	—	4-10d	935	890	—	1025	—	1115	—
2x10	LU28	20	1⁹⁄₁₆	6⅜	1½	—	8-10d	8-16d	6-10dx1½	760	770	920	885	1060	960	1150
2x10	LUS210	18	1⁹⁄₁₆	7¹³⁄₁₆	1¾	—	8-10d	—	4-10d	935	1085	—	1245	—	1355	—
2x10	LU210	20	1⁹⁄₁₆	7¹³⁄₁₆	1½	—	10-10d	10-16d	6-10dx1½	760	960	1150	1105	1320	1200	1440
2x10	U210	16	1⁹⁄₁₆	7¹³⁄₁₆	2	—	10-10d	10-16d	6-10dx1½	750	960	1150	1105	1320	1200	1440
2x10	LUC210Z	18	1⁹⁄₁₆	7¾	1¾	—	10-10d	10-16d	6-10dx1½	945	1020	1210	1160	1380	1250	1490
2x10	HU210	14	1⁹⁄₁₆	7⅞	2¼	—	—	8-16d	4-10dx1½	500	—	930	—	1065	—	1160
2x10	HUS210	16	1⅝	9	3	—	—	30-16d	10-16d	2780	—	2745	—	2870	—	2955
DBL 2x10	LUS28-2	18	3⅛	7	2	—	—	6-16d	4-16d	1115	—	1050	—	1210	—	1315
DBL 2x10	LUS210-2	18	3⅛	9	2	—	—	8-16d	6-16d	1670	—	1465	—	1680	—	1830
DBL 2x10	U210-2	16	3⅛	8½	2	—	14-10d	14-16d	6-10d	920	1345	1610	1545	1850	1680	2010
DBL 2x10	HUS210-2	14	3⅛	9³⁄₁₆	2	—	—	8-16d	8-16d	2105	—	1650	—	1900	—	2065
DBL 2x10	HU210-2/HUC210-2	14	3⅛	8¹³⁄₁₆	2½	Min	—	14-16d	6-10d	940	—	1625	—	1870	—	2030
DBL 2x10	HU210-2/HUC210-2	14	3⅛	8¹³⁄₁₆	2½	Max	—	18-16d	10-10d	1570	—	2090	—	2400	—	2610
DBL 2x10	HHUS210-2	14	3⁵⁄₁₆	8⅞	3	—	—	30-16d	10-16d	2940	—	4475	—	5145	—	5145
TPL 2x10	LUS28-3	18	4⅝	6¼	2	—	—	6-16d	4-16d	1115	—	1050	—	1210	—	1315
TPL 2x10	LUS210-3	18	4⅝	8³⁄₁₆	2	—	—	8-16d	6-16d	1670	—	1465	—	1680	—	1830
TPL 2x10	U210-3	16	4⅝	7¾	2	—	14-10d	14-16d	6-10d	920	1345	1610	1545	1850	1680	2010
TPL 2x10	HU210-3/HUC210-3	14	4¹¹⁄₁₆	8⁹⁄₁₆	2½	Min	—	14-16d	6-10d	940	—	1625	—	1870	—	2030
TPL 2x10	HU210-3/HUC210-3	14	4¹¹⁄₁₆	8⁹⁄₁₆	2½	Max	—	18-16d	10-10d	1570	—	2090	—	2400	—	2610
TPL 2x10	HHUS210-3	14	4¹¹⁄₁₆	9	3	—	—	30-16d	10-16d	2940	—	4475	—	5145	—	5145
NEW QUAD 2x10	HU210-4	14	6⅛	8⅜	2½	Min	—	14-16d	6-16d	1285	—	1625	—	1870	—	2030
NEW QUAD 2x10	HU210-4	14	6⅛	8⅜	2½	Max	—	18-16d	8-16d	1715	—	2090	—	2400	—	2610
QUAD 2x10	HHUS210-4	14	6⅛	8⅞	3	—	—	30-16d	10-16d	2795	—	4385	—	5040	—	5480

See footnotes on page 67.

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

SIMPSON Strong-Tie®

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

Joist Size	Model No.	Ga	Dimensions			Min/ Max	Fasteners			SPF/HF Allowable Loads						
			W	H	B		Header		Joist	Uplift	Floor (100)		Snow (115)		Roof (125)	
							10d	16d		(160)	10d	16d	10d	16d	10d	16d
SAWN LUMBER SIZES																
2x12	LUS210	18	1 9/16	7 13/16	1 3/4	—	8-10d	—	4-10d	935	1085	—	1245	—	1355	—
	LU210	20	1 9/16	7 13/16	1 1/2	—	10-10d	10-16d	6-10dx1 1/2	760	960	1150	1105	1320	1200	1440
	U210	16	1 9/16	7 13/16	2	—	10-10d	10-16d	6-10dx1 1/2	750	960	1150	1105	1320	1200	1440
	LUC210Z	18	1 9/16	7 3/4	1 3/4	—	10-10d	10-16d	6-10dx1 1/2	945	1020	1210	1160	1380	1250	1490
	HU212	14	1 9/16	9	2 1/4	—	—	10-16d	6-10dx1 1/2	750	—	1160	—	1335	—	1440
	HUS210	16	1 5/8	9	3	—	—	30-16d	10-16d	2780	—	2745	—	2870	—	2955
DBL 2x12	LUS210-2	18	3 1/8	9	2	—	—	8-16d	6-16d	1670	—	1465	—	1680	—	1830
	U210-2	16	3 1/8	8 1/2	2	—	14-10d	14-16d	6-10d	920	1345	1610	1545	1850	1680	2010
	LUS214-2	18	3 1/8	10 15/16	2	—	—	10-16d	6-16d	1670	—	1695	—	1945	—	2115
	HUS210-2	14	3 1/8	9 3/16	2	—	—	8-16d	8-16d	2105	—	1650	—	1900	—	2065
	HUS212-2	14	3 1/8	10 3/4	2	—	—	10-16d	10-16d	2630	—	2065	—	2375	—	2580
	HU212-2/HUC212-2	14	3 1/8	10 9/16	2 1/2	Min	—	16-16d	6-10d	940	—	1855	—	2135	—	2320
		14	3 1/8	10 9/16	2 1/2	Max	—	22-16d	10-10d	1570	—	2550	—	2935	—	3190
TPL 2x12	LUS210-3	18	4 5/8	8 3/16	2	—	—	8-16d	6-16d	1670	—	1465	—	1680	—	1830
	HU212-3/HUC212-3	14	4 11/16	10 5/16	2 1/2	Min	—	16-16d	6-10d	940	—	1855	—	2135	—	2320
		14	4 11/16	10 5/16	2 1/2	Max	—	22-16d	10-10d	1570	—	2550	—	2935	—	3190
	U210-3	16	4 5/8	7 3/4	2	—	14-10d	14-16d	6-10d	920	1345	1610	1545	1850	1680	2010
2x14	LUS210	18	1 9/16	7 13/16	1 3/4	—	8-10d	—	4-10d	935	1085	—	1245	—	1355	—
	LU210	20	1 9/16	7 13/16	1 3/4	—	10-10d	10-16d	6-10dx1 1/2	760	960	1150	1105	1320	1200	1440
	U210	16	1 9/16	7 13/16	2	—	10-10d	10-16d	6-10dx1 1/2	750	960	1150	1105	1320	1200	1440
	HU214	14	1 9/16	10 1/8	2 1/4	—	—	12-16d	6-10dx1 1/2	750	—	1390	—	1600	—	1740
	U214	16	1 9/16	10	2	—	12-10d	12-16d	8-10dx1 1/2	1000	1150	1380	1325	1585	1440	1725
DBL 2x14	U210-2	16	3 1/8	8 1/2	2	—	14-10d	14-16d	6-10d	920	1345	1610	1545	1850	1680	2010
	LUS214-2	18	3 1/8	10 15/16	2	—	—	10-16d	6-16d	1670	—	1695	—	1945	—	2115
	HUS212-2	14	3 1/8	10 3/4	2	—	—	10-16d	10-16d	2630	—	2065	—	2375	—	2580
	HU212-2/HUC212-2	14	3 1/8	10 9/16	2 1/2	Min	—	16-16d	6-10d	940	—	1855	—	2135	—	2320
		14	3 1/8	10 9/16	2 1/2	Max	—	22-16d	10-10d	1570	—	2550	—	2935	—	3190
	HU214-2/HUC214-2	14	3 1/8	12 13/16	2 1/2	Min	—	18-16d	8-10d	1255	—	2090	—	2400	—	2610
		14	3 1/8	12 13/16	2 1/2	Max	—	24-16d	12-10d	1880	—	2785	—	3200	—	3480
TPL 2x14	U210-3	16	4 5/8	7 3/4	2	—	14-10d	14-16d	6-10d	920	1345	1610	1545	1850	1680	2010
	HU214-3/HUC214-3	14	4 11/16	12 1/16	2 1/2	Min	—	18-16d	8-10d	1255	—	2090	—	2400	—	2610
		14	4 11/16	12 1/16	2 1/2	Max	—	24-16d	12-10d	1880	—	2785	—	3200	—	3480
2x16	U214	16	1 9/16	10	2	—	12-10d	12-16d	8-10dx1 1/2	1000	1150	1380	1325	1585	1440	1725
	HU214	14	1 9/16	10 1/8	2 1/4	—	—	12-16d	6-10dx1 1/2	750	—	1390	—	1600	—	1740
	HU216	14	1 9/16	12 15/16	2 1/4	—	—	18-16d	8-10dx1 1/2	1000	—	2090	—	2400	—	2610
DBL 2x16	HUS212-2	14	3 1/8	10 3/4	2	—	—	10-16d	10-16d	2630	—	2065	—	2375	—	2580
	HU216-2/HUC216-2	14	3 1/8	13 7/8	2 1/2	Min	—	20-16d	8-10d	1255	—	2320	—	2670	—	2900
		14	3 1/8	13 7/8	2 1/2	Max	—	26-16d	12-10d	1880	—	3015	—	3470	—	3770
TPL 2x16	HU216-3/HUC216-3	14	4 11/16	13 7/8	2 1/2	Min	—	20-16d	8-10d	1255	—	2320	—	2670	—	2900
		14	4 11/16	13 7/8	2 1/2	Max	—	26-16d	12-10d	1880	—	3015	—	3470	—	3770
3x4	U34	16	2 9/16	3 3/8	2	—	4-10d	4-16d	2-10dx1 1/2	250	385	460	440	530	480	575
	HU34	14	2 9/16	3 3/8	2 1/2	—	—	4-16d	2-10dx1 1/2	250	—	465	—	535	—	580
3x6	U36	16	2 9/16	5 3/8	2	—	8-10d	8-16d	4-10dx1 1/2	500	770	920	885	1060	960	1150
	LUS36	18	2 9/16	5 1/4	2	—	—	4-16d	4-16d	1115	—	820	—	945	—	1025
	HU36	14	2 9/16	5 3/8	2 1/2	—	—	8-16d	4-10dx1 1/2	500	—	930	—	1065	—	1160
3x8	U36	16	2 9/16	5 3/8	2	—	8-10d	8-16d	4-10dx1 1/2	500	770	920	885	1060	960	1150
	HU38	14	2 9/16	7 1/8	2 1/2	—	—	10-16d	4-10dx1 1/2	500	—	1160	—	1335	—	1450
3x10	U310	16	2 9/16	8 7/8	2	—	14-10d	14-16d	6-10dx1 1/2	750	1345	1610	1545	1850	1680	2010
	LUS310	18	2 9/16	7 1/4	2	—	—	6-16d	4-16d	1115	—	1050	—	1210	—	1315
	HU310	14	2 9/16	8 7/8	2 1/2	—	—	14-16d	6-10dx1 1/2	750	—	1625	—	1870	—	2030
3x12	U310	16	2 9/16	8 7/8	2	—	14-10d	14-16d	6-10dx1 1/2	750	1345	1610	1545	1850	1680	2010
	HU312	14	2 9/16	10 5/8	2 1/2	—	—	16-16d	6-10dx1 1/2	750	—	1855	—	2135	—	2320
3x14	U314	16	2 9/16	10 1/2	2	—	16-10d	16-16d	6-10dx1 1/2	750	1535	1840	1765	2115	1920	2300
	HU314	14	2 9/16	12 3/8	2 1/2	—	—	18-16d	8-10dx1 1/2	1000	—	2090	—	2400	—	2610
3x16	U314	16	2 9/16	10 1/2	2	—	16-10d	16-16d	6-10dx1 1/2	750	1535	1840	1765	2115	1920	2300
	HU316	14	2 9/16	14 1/8	2 1/2	—	—	20-16d	8-10dx1 1/2	1000	—	2320	—	2670	—	2900
4x4	LUS44	18	3 9/16	3	2	—	—	4-16d	2-16d	440	—	640	—	735	—	800
	U44	16	3 9/16	2 7/8	2	—	4-10d	4-16d	2-10d	305	385	460	440	530	480	575
	HU44	14	3 9/16	2 7/8	2 1/2	—	—	4-16d	2-10d	315	—	465	—	535	—	580

See footnotes on page 67.

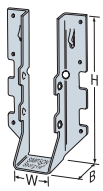
FACE MOUNT HANGERS – SOLID SAWN LUMBER (SPF/HF)

SIMPSON Strong-Tie®

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

Joist Size	Model No.	Ga	Dimensions W	Dimensions H	Dimensions B	Min/ Max	Fasteners Header 10d	Fasteners Header 16d	Fasteners Joist	SPF/HF Allowable Loads Uplift (160)	Floor (100) 10d	Floor (100) 16d	Snow (115) 10d	Snow (115) 16d	Roof (125) 10d	Roof (125) 16d
SAWN LUMBER SIZES																
4x6	LUS46	18	3 9/16	4 3/4	2	—	—	4-16d	4-16d	1115	—	820	—	945	—	1025
	U46	16	3 9/16	4 7/8	2	—	8-10d	8-16d	4-10d	615	770	920	885	1060	960	1150
	HUS46	14	3 9/16	5	2	—	—	4-16d	4-16d	1055	—	825	—	950	—	1030
	HU46/HUC46	14	3 9/16	5 5/16	2 1/2	Min	—	8-16d	4-10d	625	—	930	—	1065	—	1160
		14	3 9/16	5 3/16	2 1/2	Max	—	12-16d	6-10d	940	—	1390	—	1600	—	1740
4x8	LUS46	18	3 9/16	4 3/4	2	—	—	4-16d	4-16d	1115	—	820	—	945	—	1025
	U46	16	3 9/16	4 7/8	2	—	8-10d	8-16d	4-10d	615	770	920	885	1060	960	1150
	LUS48	18	3 9/16	6 3/4	2	—	—	6-16d	4-16d	1115	—	1050	—	1210	—	1315
	HUS48	14	3 9/16	6 15/16	2	—	—	6-16d	6-16d	1550	—	1240	—	1425	—	1550
	HU48/HUC48	14	3 9/16	6 13/16	2 1/2	Min	—	10-16d	4-10d	625	—	1160	—	1335	—	1450
		14	3 9/16	6 13/16	2 1/2	Max	—	14-16d	6-10d	940	—	1625	—	1870	—	2030
4x10	LUS48	18	3 9/16	6 3/4	2	—	—	6-16d	4-16d	1115	—	1050	—	1210	—	1315
	LUS410	18	3 9/16	8 3/4	2	—	—	8-16d	6-16d	1670	—	1465	—	1680	—	1830
	U410	16	3 9/16	8 3/8	2	—	14-10d	14-16d	6-10d	920	1345	1610	1545	1850	1680	2010
	HUS410	14	3 9/16	8 15/16	2	—	—	8-16d	8-16d	2105	—	1650	—	1900	—	2065
	HU410/HUC410	14	3 9/16	8 5/8	2 1/2	Min	—	14-16d	6-10d	940	—	1625	—	1870	—	2030
		14	3 9/16	8 5/8	2 1/2	Max	—	18-16d	10-10d	1570	—	2090	—	2400	—	2610
4x12	LUS410	18	3 9/16	8 3/4	2	—	—	8-16d	6-16d	1670	—	1465	—	1680	—	1830
	LUS414	18	3 9/16	10 3/4	2	—	—	10-16d	6-16d	1670	—	1695	—	1945	—	2115
	U410	16	3 9/16	8 3/8	2	—	14-10d	14-16d	6-10d	920	1345	1610	1545	1850	1680	2010
	HUS410	14	3 9/16	8 15/16	2	—	—	8-16d	8-16d	2105	—	1650	—	1900	—	2065
	HUS412	14	3 9/16	10 1/2	2	—	—	10-16d	10-16d	2630	—	2065	—	2375	—	2580
	HU412/HUC412	14	3 9/16	10 5/16	2 1/2	Min	—	16-16d	6-10d	940	—	1855	—	2135	—	2320
		14	3 9/16	10 5/16	2 1/2	Max	—	22-16d	10-10d	1570	—	2550	—	2935	—	3190
4x14	LUS410	18	3 9/16	8 3/4	2	—	—	8-16d	6-16d	1670	—	1465	—	1680	—	1830
	LUS414	18	3 9/16	10 3/4	2	—	—	10-16d	6-16d	1670	—	1695	—	1945	—	2115
	U414	16	3 9/16	10	2	—	16-10d	16-16d	6-10d	920	1535	1840	1765	2115	1920	2300
	HUS412	14	3 9/16	10 1/2	2	—	—	10-16d	10-16d	2630	—	2065	—	2375	—	2580
	HU414/HUC414	14	3 9/16	12 5/8	2 1/2	Min	—	18-16d	8-10d	1255	—	2090	—	2400	—	2610
		14	3 9/16	12 5/8	2 1/2	Max	—	24-16d	12-10d	1880	—	2785	—	3200	—	3480
4x16	U414	16	3 9/16	10	2	—	16-10d	16-16d	6-10d	920	1535	1840	1765	2115	1920	2300
	HUS412	14	3 9/16	10 1/2	2	—	—	10-16d	10-16d	2630	—	2065	—	2375	—	2580
	HU416/HUC416	14	3 9/16	13 5/8	2 1/2	Min	—	20-16d	8-10d	1255	—	2320	—	2670	—	2900
		14	3 9/16	13 5/8	2 1/2	Max	—	26-16d	12-10d	1880	—	3015	—	3470	—	3770
6x6	U66	16	5 1/2	5	2	—	8-10d	8-16d	4-10d	710	770	920	885	1060	960	1150
	HU66/HUC66	14	5 1/2	4 3/16	2 1/2	Min	—	8-16d	4-16d	860	—	930	—	1065	—	1160
		14	5 1/2	4 3/16	2 1/2	Max	—	12-16d	6-16d	1285	—	1390	—	1600	—	1740
6x8	U66	16	5 1/2	5	2	—	8-10d	8-16d	4-10d	710	770	920	885	1060	960	1150
	HU68/HUC68	14	5 1/2	5 13/16	2 1/2	Min	—	10-16d	4-16d	860	—	1160	—	1335	—	1450
		14	5 1/2	5 13/16	2 1/2	Max	—	14-16d	6-16d	1285	—	1625	—	1870	—	2030
6x10	U610	16	5 1/2	8 1/2	2	—	14-10d	14-16d	6-10d	1065	1345	1610	1545	1850	1680	2010
	HU610/HUC610	14	5 1/2	7 5/8	2 1/2	Min	—	14-16d	6-16d	1285	—	1625	—	1870	—	2030
		14	5 1/2	7 5/8	2 1/2	Max	—	18-16d	8-16d	1715	—	2090	—	2400	—	2610
6x12	HU612/HUC612	14	5 1/2	9 3/8	2 1/2	Min	—	16-16d	6-16d	1285	—	1855	—	2135	—	2320
		14	5 1/2	9 3/8	2 1/2	Max	—	22-16d	8-16d	1715	—	2550	—	2935	—	3190
6x14	HU614/HUC614	14	5 1/2	11 5/8	2 1/2	Min	—	18-16d	8-16d	1715	—	2090	—	2400	—	2610
		14	5 1/2	11 5/8	2 1/2	Max	—	24-16d	12-16d	2575	—	2785	—	3200	—	3480
6x16	HU616/HUC616	14	5 1/2	12 11/16	2 1/2	Min	—	20-16d	8-16d	1715	—	2320	—	2670	—	2900
		14	5 1/2	12 11/16	2 1/2	Max	—	26-16d	12-16d	2575	—	3015	—	3470	—	3770
8x8	HU88/HUC88	14	7 1/2	6 5/8	2 1/2	Min	—	10-16d	4-16d	860	—	1160	—	1335	—	1450
		14	7 1/2	6 5/8	2 1/2	Max	—	14-16d	6-16d	1285	—	1625	—	1870	—	2030
8x10	HU810/HUC810	14	7 1/2	8 3/8	2 1/2	Min	—	14-16d	6-16d	1285	—	1625	—	1870	—	2030
		14	7 1/2	8 3/8	2 1/2	Max	—	18-16d	8-16d	1715	—	2090	—	2400	—	2610
8x12	HU812/HUC812	14	7 1/2	10 1/8	2 1/2	Min	—	16-16d	6-16d	1285	—	1855	—	2135	—	2320
		14	7 1/2	10 1/8	2 1/2	Max	—	22-16d	8-16d	1715	—	2550	—	2935	—	3190
8x14	HU814/HUC814	14	7 1/2	11 7/8	2 1/2	Min	—	18-16d	8-16d	1715	—	2090	—	2400	—	2610
		14	7 1/2	11 7/8	2 1/2	Max	—	24-16d	12-16d	2575	—	2785	—	3200	—	3480
8x16	HU816/HUC816	14	7 1/2	13 5/8	2 1/2	Min	—	20-16d	8-16d	1715	—	2320	—	2670	—	2900
		14	7 1/2	13 5/8	2 1/2	Max	—	26-16d	12-16d	2575	—	3015	—	3470	—	3770

1. 10d commons or 16d sinkers may be used instead of the specified 16d at 0.84 of the table load value.
2. 16d sinkers may be used instead of the specified 10d commons with no load reduction. *(16d sinkers are not acceptable for HDG applications.)*
3. Uplift loads apply to 10d and 16d header fasteners. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6.
4. MIN nailing quantity and load values—fill all round holes;
   MAX nailing quantity and load values—fill all round and triangle holes.
5. Truss chord cross-grain tension may limit allowable loads. Refer to technical bulletins T-ANSITPISPF, T-ANSITPISP and T-ANSITPIDF for allowable loads that consider ANSI/TPI 1-2007 wood member design criteria *(see page 191 for details)*.
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



FACE MOUNT HANGERS – ROUGH LUMBER (DF & SP)

SIMPSON Strong-Tie®

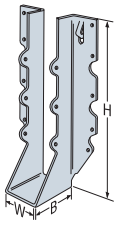
Joist Size	Model No.	Ga	Dimensions			Fasteners			DF/SP Allowable Loads							Code Ref.
			W	H	B	Header		Joist	Uplift	Floor (100)		Snow (115)		Roof (125)		
						10d	16d		(160)	10d	16d	10d	16d	10d	16d	
ROUGH LUMBER SIZES																
2x4(R)	LU24R-18	18	2	3 11/16	1½	—	4-16d	2-10dx1½	265	—	530	—	610	—	665	IL8
	U24R	16	2	3⅝	2	4-10d	4-16d	2-10dx1½	265	445	530	510	610	555	665	I7, F6
2x6(R)	LU26R-18	18	2	4 9/16	1½	—	6-16d	4-10dx1½	565	—	800	—	920	—	1000	IL8
	U26R	16	2	5⅝	2	8-10d	8-16d	4-10dx1½	575	890	1065	1020	1225	1110	1330	I7, F6
2x8(R)	LU28R-18	18	2	6⅜	1½	—	8-16d	6-10dx1½	865	—	1065	—	1225	—	1330	IL8
	U26R	16	2	5⅝	2	8-10d	8-16d	4-10dx1½	575	890	1065	1020	1225	1110	1330	I7, F6
2x10(R)	LU210R-18	18	2	7 9/16	2	—	10-16d	6-10dx1½	850	—	1330	—	1530	—	1660	IL8
	U210R	16	2	9⅛	2	14-10d	14-16d	6-10dx1½	865	1555	1860	1785	2140	1940	2330	I7, F6
2x12(R)	U210R	16	2	9⅛	2	14-10d	14-16d	6-10dx1½	865	1555	1860	1785	2140	1940	2330	
2x14(R)	U210R	16	2	9⅛	2	14-10d	14-16d	6-10dx1½	865	1555	1860	1785	2140	1940	2330	
4x4(R)	U44R	16	4	2⅝	2	4-10d	4-16d	2-16d	425	445	530	510	610	555	665	
4x6(R)	U46R	16	4	4⅝	2	8-10d	8-16d	4-16d	850	890	1065	1020	1225	1110	1330	
4x8(R)	U46R	16	4	4⅝	2	8-10d	8-16d	4-16d	850	890	1065	1020	1225	1110	1330	
4x10(R)	U410R	16	4	8⅛	2	14-10d	14-16d	6-16d	1115	1555	1860	1785	2140	1940	2330	
4x12(R)	U410R	16	4	8⅛	2	14-10d	14-16d	6-16d	1115	1555	1860	1785	2140	1940	2330	
4x14(R)	U410R	16	4	8⅛	2	14-10d	14-16d	6-16d	1115	1555	1860	1785	2140	1940	2330	
6x6(R)	U66R	16	6	5	2	8-10d	8-16d	4-16d	850	890	1065	1020	1225	1110	1330	
6x8(R)	U66R	16	6	5	2	8-10d	8-16d	4-16d	850	890	1065	1020	1225	1110	1330	
6x10(R)	U610R	16	6	8½	2	14-10d	14-16d	6-16d	1115	1555	1860	1785	2140	1940	2330	
6x12(R)	U610R	16	6	8½	2	14-10d	14-16d	6-16d	1115	1555	1860	1785	2140	1940	2330	
6x14(R)	U610R	16	6	8½	2	14-10d	14-16d	6-16d	1115	1555	1860	1785	2140	1940	2330	

FACE MOUNT HANGERS – ROUGH LUMBER (SPF/HF)

Joist Size	Model No.	Ga	Dimensions			Fasteners			SPF/HF Allowable Loads						
			W	H	B	Header		Joist	Uplift	Floor (100)		Snow (115)		Roof (125)	
						10d	16d		(160)	10d	16d	10d	16d	10d	16d
ROUGH LUMBER SIZES															
2x4(R)	LU24R-18	18	2	3 11/16	1½	—	4-16d	2-10dx1½	255	—	460	—	530	—	575
	U24R	16	2	3⅝	2	4-10d	4-16d	2-10dx1½	250	385	460	440	530	480	575
2x6(R)	LU26R-18	18	2	4 9/16	1½	—	6-16d	4-10dx1½	505	—	690	—	795	—	860
	U26R	16	2	5⅝	2	8-10d	8-16d	4-10dx1½	500	575	690	660	795	720	860
2x8(R)	LU28R-18	18	2	6⅜	1½	—	8-16d	6-10dx1½	760	—	920	—	1060	—	1150
	U26R	16	2	5⅝	2	8-10d	8-16d	4-10dx1½	500	575	690	660	795	720	860
2x10(R)	LU210R-18	18	2	7 9/16	2	—	10-16d	6-10dx1½	760	—	1150	—	1320	—	1440
	U210R	16	2	9⅛	2	14-10d	14-16d	6-10dx1½	750	960	1150	1105	1320	1200	1440
2x12(R)	U210R	16	2	9⅛	2	14-10d	14-16d	6-10dx1½	750	960	1150	1105	1320	1200	1440
2x14(R)	U210R	16	2	9⅛	2	14-10d	14-16d	6-10dx1½	750	960	1150	1105	1320	1200	1440
4x4(R)	U44R	16	4	2⅝	2	4-10d	4-16d	2-16d	305	385	460	440	530	480	575
4x6(R)	U46R	16	4	4⅝	2	8-10d	8-16d	4-16d	615	770	920	885	1060	960	1150
4x8(R)	U46R	16	4	4⅝	2	8-10d	8-16d	4-16d	615	770	920	885	1060	960	1150
4x10(R)	U410R	16	4	8⅛	2	14-10d	14-16d	6-16d	920	1345	1610	1545	1850	1680	2010
4x12(R)	U410R	16	4	8⅛	2	14-10d	14-16d	6-16d	920	1345	1610	1545	1850	1680	2010
4x14(R)	U410R	16	4	8⅛	2	14-10d	14-16d	6-16d	920	1345	1610	1545	1850	1680	2010
6x6(R)	U66R	16	6	5	2	8-10d	8-16d	4-16d	710	770	920	885	1060	960	1150
6x8(R)	U66R	16	6	5	2	8-10d	8-16d	4-16d	710	770	920	885	1060	960	1150
6x10(R)	U610R	16	6	8½	2	14-10d	14-16d	6-16d	1065	1345	1610	1545	1850	1680	2010
6x12(R)	U610R	16	6	8½	2	14-10d	14-16d	6-16d	1065	1345	1610	1545	1850	1680	2010
6x14(R)	U610R	16	6	8½	2	14-10d	14-16d	6-16d	1065	1345	1610	1545	1850	1680	2010

1. 10d commons or 16d sinkers may be used instead of the specified 16d at 0.84 of the table load value.
2. 16d sinkers may be used instead of the specified 10d commons with no load reduction.
3. Uplift loads apply to 10d and 16d header fasteners. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6.
4. DF/SP loads can be used for SCL that has fastener holding capacity of Doug Fir.
5. HU's can be ordered in rough sizes at full table loads. Add "X" to the model designation ex: HU28X and specify rough width or height. Maximum width 8".
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

CODES: See page 12 for Code Reference Key Chart.



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

SIMPSON Strong-Tie®

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

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

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

See tables on pages 71 to 73. See Hanger Options on pages 181-183 for hanger modifications, which may result in reduced loads.

MATERIAL: See tables, pages 71 to 73.

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

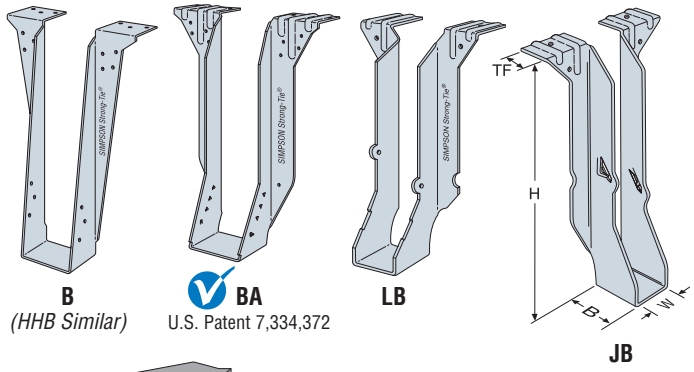
INSTALLATION: • Use specified fasteners. See General Notes and nailer table.

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

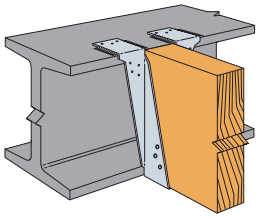
OPTIONS: • **B and HHB**

- Other widths are available; specify W dimension *(the minimum W dimension is 1⁹⁄16" for B and 3¼" for HHB)*.
- See Hanger Options, pages 181-183. BA, JB and LB hangers cannot be modified. Use LBV as an alternative for the JB/LB.

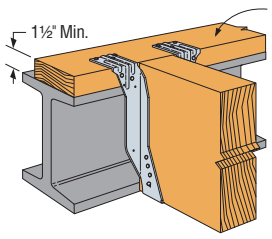
CODES: See page 12 for Code Reference Key Chart.



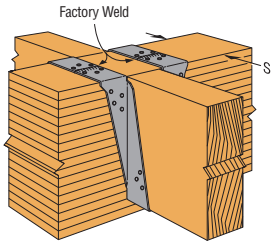
B *(HHB Similar)* **BA** U.S. Patent 7,334,372 **LB** **JB**



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



Typical BA Installation on Wood Nailer



Typical BD Saddle Installation

NAILER TABLE

Model No.	Nailer	Top Flange Nailing	Allowable Loads Uplift[2] (160)	DF/SP	SPF/HF
LB26	2x	4-10dx1½	—	850	—
LB28	2x	4-10dx1½	—	915	—
LB210	2x	4-10dx1½	—	915	—
LB212	2x	4-10dx1½	—	915	—
LB214	2x	4-10dx1½	—	915	—
LB216	2x	4-10dx1½	—	1150	—
BA	2x	10-10dx1½	265[4]	2220	1755
	2-2x	14-10d	265[4]	2695	2235
	3x	14-16dx2½	265[4]	3230	—
	4x	14-16d	265[4]	3300[1]	—
B	2-2x	14-10d	710[5]	3615	2770
	3x	14-16dx2½	830[5]	3725	—
	4x	14-16d	830[5]	3800	—

1. Based on an additional 1⁄32" beyond the normal ⅛" deflection limit.
2. Uplift values are for DF/SP members only. Refer to technical bulletin T-NAILERUPLFT for SPF values *(see page 191 for details)*.
3. Refer to page 80 for proper nailer installation.
4. Refer to technical bulletin T-NAILERUPLFT for higher uplift value options *(see page 191 for details)*.
5. B hangers require 6-10dx1½ joist nails to achieve published loads. For joist members 2½" or wider, 16dx2½" joist nails should be installed for additional uplift loads on the 3x and 4x nailer applications of 970 lbs. and 1010 lbs. respectively.
6. Attachment of nailer to supporting member is the responsibility of the Designer.

B SERIES WITH VARIOUS HEADER APPLICATIONS

Model Series	Fasteners Top	Face	Joist	Allowable Loads Header Type Uplift (160)	LVL	PSL	DF/SP	SPF/HF	Code Ref.
BA Min.	6-10d	10-10d	2-10dx1½	265	3230	3630	3080	2425	I1, F21
	6-16d	10-16d	2-10dx1½	265	4015	3705	3435	2665	
BA Max.	6-10d	10-10d	8-10dx1½	1170	3555	3630	3625	2465	
	6-16d	10-16d	8-10dx1½	1170	4715	4320	3800	2665	
B	6-10d	8-10d	6-10dx1½	990	3575	3195	3625	2190	
	6-16d	8-16d	6-10d[4]	1010	4135	3355	3800	2650	

1. Uplift loads are based on DF/SP lumber and have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6. For SPF use 0.86 x DF/SP uplift load.
3. Code values are based on DF/SP header species.
4. **Where noted for single-ply joist hangers use 6-10dx1½" nails.**
5. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

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

See dimensions, material, loads on table pages.

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

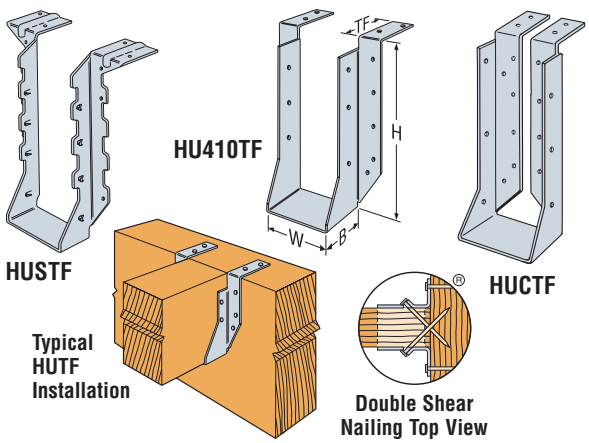
FINISH: Galvanized. See Corrosion Information, page 10-11.

INSTALLATION:

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

OPTIONS:

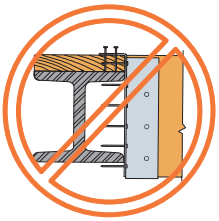
- HUTF Rough beam sizes are available by special order.
- See Hanger Options on pages 181-183 for skewed hangers.
- Available with flanges turned in *(2-2x and 4x only for HUSCTF. 2⁹⁄16" or greater for HUCTF)*.



Typical HUTF Installation

Double Shear Nailing Top View

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



Nailer application is NOT acceptable. Fasteners cannot be installed

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

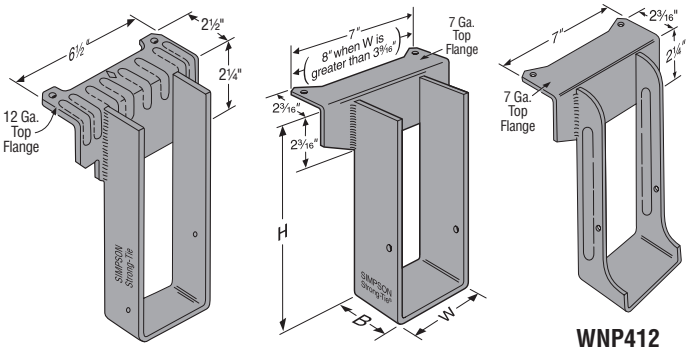
The W, WPU, HWU and HW series purlin hangers offer the greatest design flexibility and versatility. WMs are designed for use on standard 8" grouted masonry block wall construction.

MATERIAL: See tables on pages 71 to 73.

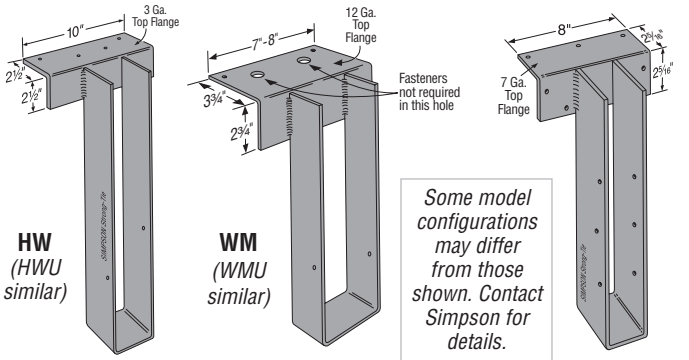
FINISH: Simpson Strong-Tie® gray paint; hot-dip galvanized available: specify HDG, contact Simpson Strong-Tie.

INSTALLATION:
- Use all specified fasteners. WM—two 16d duplex nails must be installed into the top flange and embedded into the grouted wall. Verify that the grouted wall can take the required fasteners specified in the table.
- H dimensions are sized to account for normal joist shrinkage. W dimensions are for dressed timber widths.
- Hangers may be welded to steel headers with weld size to match material thickness *(approximate thickness shown)* ⅛" for W, 3⁄16" for WNP/WPU and ¼" for HW/HWU, by 1½" fillet welds located at each end of the top flange *(see page 14 for welding information)*. Weld-on applications produce maximum allowable load listed. For uplift loads refer to T-WELDUPLFT *(HWU and WPU hangers only)*.
- Hangers can support multi-ply carried members; the individual members must be secured together to work as a single unit before installation into the hanger.
- Embed WM into block with a minimum of one course above and one course below the top flange with one #5 vertical rebar minimum 24" long in each cell. Minimum grout strength is 2000 psi.
- Refer to technical bulletin T-SLOPEJST for information regarding load reductions on selected hangers which can be used without modification to support joists which have shallow slopes (≤¾:12).
- See Hanger Options, page 181-183 for hanger modifications and associated load reductions.

CODES: See page 12 for Code Reference Key Chart.



W **WP** **WNP412 and WNP414**



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

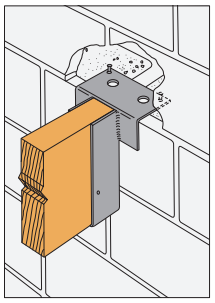
Some model configurations may differ from those shown. Contact Simpson for details.

Model	Nailer	Top Flange Nailing	Uplift[1] (160)	Allowable Down Loads		
				DF/SP	SPF/HF	LSL
W	2x	2-10dx1½	—	1600	1600	—
	2-2x	2-10d	—	1665	1665	—
	3x	2-16dx2½	—	1765	—	—
	4x	2-10d	—	2200	—	—
WP and WNP	2x	2-10dx1½	—	2525	2500	3375
	2-2x	2-10d	—	3255	3255	—
	3x	2-16dx2½	—	3000	2510	3375
	4x	2-10d	—	3255	3255	—
WPU	2-2x	7-10d	700	3255	—	—
	3x	7-16dx2½	775	3000	—	—
	4x	7-16d	775	3255	—	—
HW	2-2x	4-10d	—	4845	—	—
	3x	4-16dx2½	—	4860	—	—
	4x	4-16d	—	5285	—	—
HWU	2-2x	8-16dx2½	710	5430	—	—
	3x	8-16dx2½	810	5430	—	—
	4x	8-16d	810	5430	—	—

NAILER TABLE

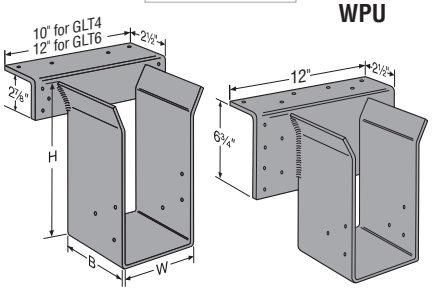
The table indicates the maximum allowable loads for W, WNP and HW hangers used on wood nailers. Nailers are wood members attached to the top of a steel I-beam, concrete or masonry wall.

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



Typical WM Mid-Wall Installation

Refer to page 139 for Top of Wall Installation Detail.

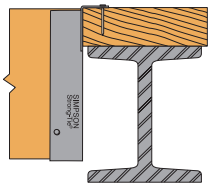


GLT *(fasteners included)* **HGLT** *(fasteners included)*

See page 114 for GLT and HGLT information.

W SERIES WITH VARIOUS HEADER APPLICATIONS

Model	Joist		Fasteners			Allowable Loads Header Type								Code Ref.
	Width	Depth	Top	Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/ HF	I-Joist	Masonry	
W	1½ to 4	3½ to 30	2-10dx1½	—	2-10dx1½	—	1635	1740	—	1600	1415	—	—	170
	1½ to 4	3½ to 30	2-10d	—	2-10dx1½	—	2150	2020	—	2200	1435	—	—	I10, F9
	1½ to 4	3½ to 30	2-16d	—	2-10dx1½	—	2335	1950	2335	1765	1435	—	—	
WM	1½ to 7½	3½ to 30	2-16d DPLX	—	2-10dx1½	—	MID-WALL INSTALLATION[5]						4175	IL12, L1
	1½ to 7½	3½ to 30	2-¼x1¾ Titens	—	2-10dx1½	—	TOP OF WALL INSTALLATION						3380	
WMU	1½ to 7½	9 to 28	2-16d DPLX	4-¼x1¾ Titens	6-10dx1½	625	MID-WALL INSTALLATION[5]						4175	170
	1½ to 7½	9 to 28	2-¼x1¾ Titens	4-¼x1¾ Titens	6-10dx1½	545	TOP OF WALL INSTALLATION						3380	
WP/ WNP	1½ to 7½	3½ to 30	3-10dx1½	—	2-10dx1½	—	2865	3250	—	2500	2000	2030	—	
	1½ to 7½	3½ to 30	3-10d	—	2-10dx1½	—	2525	3250	3650	3255	2525	—	—	I10, I19, F9, F18
	1½ to 7½	3½ to 30	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	—	—	
WPU/ WNPU	1½ to 5½	7¼ to 18	3-16d	4-16d	6-10dx1½	775	4700	4880	3650	4165	4165	—	—	
	1½ to 5½	18½ to 22½	3-16d	4-16d	6-10dx1½	485	4700	4880	3650	4165	4165	—	—	
	1½ to 5½	23 to 28	3-16d	4-16d	6-10dx1½	315	4700	4880	3650	4165	4165	—	—	
HW	1½ to 7½	3½ to 32	4-10d	—	2-10dx1½	—	3100	4000	—	5285	3100	—	—	
	1½ to 7½	3½ to 32	4-16d	—	2-10dx1½	—	5100	4000	4500	5285	3665	—	—	
HWU	1½ to 3½	9 to 18	4-16d	4-16d	6-10dx1½	810	6335	5500	5535	6335	5415	—	—	I10, F9, F18
	1½ to 3½	18½ to 22½	4-16d	4-16d	6-10dx1½	765	6335	5500	5535	6335	5415	—	—	
	1½ to 3½	23 to 28	4-16d	4-16d	6-10dx1½	635	6335	5500	5535	6335	5415	—	—	
	1½ to 3½	28½ to 32	4-16d	4-16d	8-10dx1½	1005	6335	5500	5535	6335	5415	—	—	
	4½ to 7	9 to 18	4-16d	4-16d	6-10dx1½	810	6000	5500	5535	6000	5415	—	—	
	4½ to 7	18½ to 22½	4-16d	4-16d	6-10dx1½	765	6000	5500	5535	6000	5415	—	—	
	4½ to 7	23 to 28	4-16d	4-16d	6-10dx1½	635	6000	5500	5535	6000	5415	—	—	
	4½ to 7	28½ to 32	4-16d	4-16d	8-10dx1½	1005	6000	5500	5535	6000	5415	—	—	



Installation on Wood Nailer

1. 16d sinkers (0.148" dia. x 3¼" long) may be used where 10d commons are called out with no load reduction.
2. Code values are based on DF/SP header species.
3. WMU, WPU and HWU uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6.
4. For hanger heights exceeding the joist height, the allowable load is 0.50 of the table load.
5. Mid-wall Installation requires minimum of one grouted course above and below the hanger.
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

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

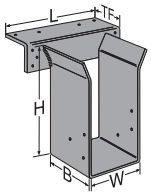
SIMPSON Strong-Tie®

Joist or Purlin Size	Model No.	Ga	Dimensions				Fasteners		DF/SP Allowable Loads				Installed Cost Index (ICI)	Code Ref.
			W	H	B	TF	Header	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)		
SAWN LUMBER SIZES														
2x4	HU24TF	12	1⁹⁄₁₆	3⁷⁄₁₆	2¼	2½	6-16d	2-10dx1½	295	2090	2100	2100	Lowest	I10, F9
DBL 2x4	HU24-2TF	12	3⅛	3⁷⁄₁₆	2½	2½	8-16d	2-10d	375	2600	2600	2600	Lowest	
2x6	JB26	18	1⁹⁄₁₆	5⅜	1½	1⁵⁄₁₆	4-10d	2 PRONG	—	1040	1040	1040	Lowest	I10, L13, F9
	LB26	14	1⁹⁄₁₆	5⅜	1½	1½	4-16d	2-10dx1½	290	1380	1380	1380	+117%	
	HU26TF	12	1⁹⁄₁₆	5⅜	2¼	2½	10-16d	4-10dx1½	590	2275	2330	2335	+568%	I10, F9
	W26	12	1⁹⁄₁₆	5⅜	2½	2½	2-10d	2-10dx1½	—	2200	2200	2200	+890%	
	WM26	12	1⁹⁄₁₆	5⅜	4½	3¾	2-16d DPLX	2-10dx1½	—	2540	2565	2590	*	IL12
DBL 2x6	HUS26-2TF	14	3⅛	5⅜	2	1¾	6-16d	4-16d	1235	2820	3000	3000	Lowest	I10, L1, F9
	WNP26-2	12	3⅛	5⅜	2½	2³⁄₁₆	2-10d	2-10d	—	3255	3255	3255	+33%	I10, F9
	HU26-2TF	12	3⅛	5⅜	2½	2½	10-16d	4-10d	750	3725	3900	3900	+87%	
	WM26-2	12	3⅛	5⅜	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12
2x8	JB28	18	1⁹⁄₁₆	7¼	1½	1⁵⁄₁₆	4-10d	2 PRONG	—	1050	1050	1050	Lowest	I10, L13, F9
	LB28	14	1⁹⁄₁₆	7¼	1½	1½	4-16d	2-10dx1½	290	1270	1270	1270	+98%	
	HU28TF	12	1⁹⁄₁₆	7⅛	2¼	2½	10-16d	4-10dx1½	590	2335	2335	2335	+563%	I10, F9
	W28	12	1⁹⁄₁₆	7⅛	2½	2½	2-10d	2-10dx1½	—	2200	2200	2200	+570%	
	WM28	12	1⁹⁄₁₆	7⅛	4½	3¾	2-16d DPLX	2-10dx1½	—	2540	2565	2590	*	IL12
DBL 2x8	HUS28-2TF	14	3⅛	7¼	2	1⅞	8-16d	6-16d	1550	3455	3720	3895	Lowest	I10, L1, F9
	WNP28-2	12	3⅛	7⅛	2½	2³⁄₁₆	2-10d	2-10d	—	3255	3255	3255	+16%	I10, F9
	HU28-2TF	12	3⅛	7⅛	2½	2½	12-16d	4-10d	750	3900	3900	3900	+75%	
	WM28-2	12	3⅛	7⅛	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12
2x10	JB210	18	1⁹⁄₁₆	9¼	2	1³⁄₁₆	4-16d	2 PRONG	—	1255	1255	1255	Lowest	I10, L13, F9
	LB210	14	1⁹⁄₁₆	9¼	2	1½	4-16d	2-10dx1½	290	1550	1550	1550	+35%	
	HU210TF	12	1⁹⁄₁₆	9⅛	2¼	2½	12-16d	4-10dx1½	590	2335	2335	2335	+359%	I10, F9
	W210	12	1⁹⁄₁₆	9⅛	2½	2½	2-10d	2-10dx1½	—	2200	2200	2200	+360%	
	WM210	12	1⁹⁄₁₆	9⅛	4½	3¾	2-16d DPLX	2-10dx1½	—	2540	2565	2590	*	IL12
DBL 2x10	HUS210-2TF	14	3⅛	9¼	2	1½	10-16d	8-16d	2590	3585	3925	4155	Lowest	I10, L1, F9
	WNP210-2	12	3⅛	9⅛	2½	2³⁄₁₆	2-10d	2-10d	—	3255	3255	3255	+9%	I10, F9
	HU210-2TF	12	3⅛	9⅛	2½	2½	14-16d	6-10d	1125	4170	4170	4170	+67%	
	WM210-2	12	3⅛	9⅛	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12
TPL 2x10	HU210-3TF	12	4¹¹⁄₁₆	9⅛	2½	2½	14-16d	6-16d	1325	4150	4150	4150	Lowest	I10, F9
2x12	JB212	18	1⁹⁄₁₆	11⅞	2	1³⁄₁₆	6-16d	2 PRONG	—	1540	1540	1540	Lowest	I10, L13, F9
	LB212	14	1⁹⁄₁₆	11⅞	2	1½	4-16d	2-10dx1½	290	1580	1580	1580	+27%	
	W212	12	1⁹⁄₁₆	11	2½	2½	2-10d	2-10dx1½	—	2200	2200	2200	+317%	I10, F9
	HU212TF	12	1⁹⁄₁₆	11	2¼	2½	14-16d	6-10dx1½	885	2335	2335	2335	+339%	
	WM212	12	1⁹⁄₁₆	11	4½	3¾	2-16d DPLX	2-10dx1½	—	2540	2565	2590	*	IL12
DBL 2x12	HUS212-2TF	14	3⅛	11⅞	2	2¼	10-16d	8-16d	2000	4435	4535	4605	Lowest	I10, L1, F9
	WNP212-2	12	3⅛	11	2½	2³⁄₁₆	2-10d	2-10d	—	3255	3255	3255	+12%	I10, F9
	HU212-2TF	12	3⅛	11	2½	2½	16-16d	6-10d	1125	4325	4660	4880	+48%	
	WM212-2	12	3⅛	11	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12
TPL 2x12	HU212-3TF	12	4¹¹⁄₁₆	11	2½	2½	16-16d	6-16d	1325	4550	4885	5105	Lowest	I10, F9
2x14	LB214	14	1⁹⁄₁₆	13⅛	2	1½	4-16d	2-10dx1½	290	1425	1425	1425	Lowest	I10, L13, F9
	JB214	18	1⁹⁄₁₆	13⅛	2	1¼	6-16d	2-10dx1½	235	1505	1505	1505	+117%	
	W214	12	1⁹⁄₁₆	13	2½	2½	2-10d	2-10dx1½	—	2200	2200	2200	+188%	I10, F9
	HU214TF	12	1⁹⁄₁₆	13	2¼	2½	16-16d	6-10dx1½	885	2660	2745	2800	+189%	
	WM214	12	1⁹⁄₁₆	13	4½	3¾	2-16d DPLX	2-10dx1½	—	2540	2565	2590	*	IL12
DBL 2x14	HUS214-2TF	14	3⅛	13⅛	2	2¼	12-16d	8-16d	2590	4435	4535	4605	Lowest	I10, L1, F9
	WNP214-2	12	3⅛	13	2½	2³⁄₁₆	2-10d	2-10d	—	3255	3255	3255	+2%	I10, F9
	HU214-2TF	12	3⅛	13	2½	2½	18-16d	8-10d	1500	4335	4335	4335	+33%	
	WM214-2	12	3⅛	13	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12
TPL 2x14	HU214-3TF	12	4¹¹⁄₁₆	13	2½	2½	18-16d	8-16d	1765	4835	5050	5050	Lowest	I10, F9
2x16	LB216	14	1⁹⁄₁₆	15⅛	2	1½	4-16d	2-10dx1½	290	1425	1425	1425	Lowest	I10, L13, F9
	W216	12	1⁹⁄₁₆	15	2½	2½	2-10d	2-10dx1½	—	2200	2200	2200	+122%	I10, F9
	HU216TF	12	1⁹⁄₁₆	15	2¼	2½	18-16d	8-10dx1½	1180	2845	2955	3030	+199%	
	WM216	12	1⁹⁄₁₆	15	4½	3¾	2-16d DPLX	2-10dx1½	—	2540	2565	2585	*	IL12
DBL 2x16	WNP216-2	12	3⅛	15	2½	2³⁄₁₆	2-10d	2-10d	—	3255	3255	3255	Lowest	I10, F9
	HU216-2TF	12	3⅛	15	2½	2½	20-16d	8-10d	1500	4335	4335	4335	+34%	
	WM216-2	12	3⅛	15	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12

1. N54A fasteners are supplied with hangers.
2. 16d sinkers may be used where 10d commons are called out with no load reduction.
3. Uplift loads are based on DF/SP lumber and have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6. For SPF use 0.86 x DF/SP uplift load.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

CODES: See page 12 for Code Reference Key Chart.

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



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

SIMPSON Strong-Tie®

Joist or Purlin Size	Model No.	Ga	Dimensions				Fasteners		DF/SP Allowable Loads				Installed Cost Index (ICI)	Code Ref.
			W	H	B	TF	Header	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)		
SAWN LUMBER SIZES														
TPL 2x16	HU216-3TF	12	4 11/16	15	2½	2½	20-16d	8-16d	1765	5050	5050	5050	Lowest	
3x4	HU34TF	12	2 9/16	3 7/16	2½	2½	8-16d	2-10dx1½	295	2600	2600	2600	*	I10, F9
3x6	W36	12	2 9/16	5 3/8	2	2½	2-10d	2-10dx1½	—	2200	2200	2200	*	
	WM36	12	2 9/16	5 3/8	3	3¾	2-16d DPLX	2-10dx1½	—	4100	4130	4150	*	IL12
	HU36TF	12	2 9/16	5 3/8	2½	2½	10-16d	4-10dx1½	590	3725	3900	3900	*	I10, F9
3x8	W38	12	2 9/16	7 1/8	2	2½	2-10d	2-10dx1½	—	2200	2200	2200	*	
	WM38	12	2 9/16	7 1/8	3	3¾	2-16d DPLX	2-10dx1½	—	4100	4130	4150	*	IL12
	HU38TF	12	2 9/16	7 1/8	2½	2½	12-16d	4-10dx1½	590	3900	3900	3900	*	I10, F9
	B38	12	2 9/16	7 1/8	2½	2½	14-16d	6-16dx2½	1010	3800	3800	3800	*	I1
3x10	W310	12	2 9/16	9 1/8	2	2½	2-10d	2-10dx1½	—	2200	2200	2200	*	I10, F9
	WM310	12	2 9/16	9 1/8	3	3¾	2-16d DPLX	2-10dx1½	—	4100	4130	4150	*	IL12
	HU310TF	12	2 9/16	9 1/8	2½	2½	14-16d	6-10dx1½	885	4170	4170	4170	*	I10, F9
	B310	12	2 9/16	9 1/8	2½	2½	14-16d	6-16dx2½	1010	3800	3800	3800	*	I1, F21
3x12	WNP312	12	2 9/16	11	2½	2 3/16	2-10d	2-10dx1½	—	3255	3255	3255	*	I10, F9
	WM312	12	2 9/16	11	3	3¾	2-16d DPLX	2-10dx1½	—	4100	4130	4150	*	IL12
	HU312TF	12	2 9/16	11	2½	2½	16-16d	6-10dx1½	885	4335	4335	4335	*	I10, F9
	B312	12	2 9/16	11	2½	2½	14-16d	6-16dx2½	1010	3800	3800	3800	*	I1, F21
3x14	WNP314	12	2 9/16	13	2½	2 3/16	2-10d	2-10dx1½	—	3255	3255	3255	*	I10, F9
	WM314	12	2 9/16	13	3	3¾	2-16d DPLX	2-10dx1½	—	4100	4130	4150	*	IL12
	HU314TF	12	2 9/16	13	2½	2½	18-16d	8-10dx1½	1180	4335	4335	4335	*	I10, F9
	B314	12	2 9/16	13	2½	2½	14-16d	6-16dx2½	1010	3800	3800	3800	*	I1, F21
3x16	WNP316	12	2 9/16	15	2½	2 3/16	2-10d	2-10dx1½	—	3255	3255	3255	*	I10, F9
	WM316	12	2 9/16	15	3	3¾	2-16d DPLX	2-10dx1½	—	4100	4130	4150	*	IL12
	HU316TF	12	2 9/16	15	2½	2½	20-16d	8-10dx1½	1180	4335	4335	4335	*	I10, F9
	B316	12	2 9/16	15	2½	2½	14-16d	6-16dx2½	1010	3800	3800	3800	*	I1, F21
4x4	HU44TF	12	3 9/16	3 7/16	2½	2½	8-16d	2-10d	375	2600	2600	2600	Lowest	I10, F9
4x6	HUS46TF	14	3 9/16	5 3/8	2	1½	6-16d	4-16d	1235	2700	2890	3000	Lowest	I10, IL12, L1, F9
	W46	12	3 9/16	5 3/8	2½	2½	2-10d	2-10d	—	2200	2200	2200	+12%	
	HU46TF	12	3 9/16	5 3/8	2½	2½	10-16d	4-10d	750	3165	3165	3165	+28%	I10, F9
	HW46	11	3 9/16	5 3/8	2½	2½	4-10d	2-10d	—	5285	5285	5285	+83%	
	WM46	12	3 9/16	5 3/8	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12
4x8	BA48 (Min)	14	3 9/16	7 1/8	3	2½	16-16d	2-10dx1½	265	3435	3435	3435	Lowest	I1, F21
	BA48 (Max)	14	3 9/16	7 1/8	3	2½	16-16d	8-10dx1½	1170	3800	3800	3800	+7%	
	HUS48TF	14	3 9/16	7¼	2	1 11/16	8-16d	6-16d	1550	3225	3495	3670	+33%	I10, IL12, L1, F9
	B48	12	3 9/16	7 1/8	2½	2½	14-16d	6-16d	1010	3800	3800	3800	+35%	I1, F21
	W48	12	3 9/16	7 1/8	2½	2½	2-10d	2-10d	—	2200	2200	2200	+54%	
	HU48TF	12	3 9/16	7 1/8	2½	2½	12-16d	4-10d	750	3500	3500	3500	+95%	I10, F9
	HW48	11	3 9/16	7 1/8	2½	2½	4-10d	2-10d	—	5285	5285	5285	+130%	
	WM48	12	3 9/16	7 1/8	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12
4x10	BA410 (Min)	14	3 9/16	9 1/8	3	2½	16-16d	2-10dx1½	265	3435	3435	3435	Lowest	I1, F21
	BA410 (Max)	14	3 9/16	9 1/8	3	2½	16-16d	8-10dx1½	1170	3800	3800	3800	+7%	
	HUS410TF	14	3 9/16	9¼	2	1¼	10-16d	8-16d	2590	3365	3710	3935	+21%	I10, L1, F9
	B410	12	3 9/16	9 1/8	2½	2½	14-16d	6-16d	1010	3800	3800	3800	+35%	I1, F21
	W410	12	3 9/16	9 1/8	2½	2½	2-10d	2-10d	—	2200	2200	2200	+49%	
	HU410TF	12	3 9/16	9 1/8	2½	2½	14-16d	6-10d	1125	4150	4150	4150	+86%	I10, F9
	HW410	11	3 9/16	9 1/8	2½	2½	4-10d	2-10d	—	5285	5285	5285	+130%	
	WM410	12	3 9/16	9 1/8	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12
	GLT4	7	3 9/16	7½ Min	5	2½	10-N54A	6-N54A	1745	7000	7000	7000	*	I19, F18
	HGLT4	7	3 9/16	7½ Min	6	2½	18-N54A	6-N54A	1745	12750	12750	12750	*	
4x12	BA412 (Min)	14	3 9/16	11	3	2½	16-16d	2-10dx1½	265	3435	3435	3435	Lowest	I1, F21
	BA412 (Max)	14	3 9/16	11	3	2½	16-16d	8-10dx1½	1170	3800	3800	3800	+6%	
	HUS412TF	14	3 9/16	11⅛	2	2	10-16d	8-16d	2000	4420	4760	4990	+14%	I10, L1, F9
	B412	12	3 9/16	11	2½	2½	14-16d	6-16d	1010	3800	3800	3800	+27%	I1, F21
	WNP412	12	3 9/16	11	2½	2 3/16	2-10d	2-10d	—	3255	3255	3255	+32%	
	HU412TF	12	3 9/16	11	2½	2½	16-16d	6-10d	1125	4550	4885	5105	+84%	I10, F9
	HW412	11	3 9/16	11	2½	2½	4-10d	2-10d	—	5285	5285	5285	+115%	
	HHB412	7	3 9/16	11	3	2½	4-N54A	2-N54A	580	4185	4185	4185	+174%	I19, F18
	WM412	12	3 9/16	11	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12
	GLT4	7	3 9/16	7½ Min	5	2½	10-N54A	6-N54A	1745	7000	7000	7000	*	I19, F18
	HGLT4	7	3 9/16	7½ Min	6	2½	18-N54A	6-N54A	1745	12750	12750	12750	*	

See footnotes on page 71.

CODES: See page 12 for Code Reference Key Chart.

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

SIMPSON Strong-Tie®

Joist or Purlin Size	Model No.	Ga	Dimensions				Fasteners		DF/SP Allowable Loads				Installed Cost Index (ICI)	Code Ref.
			W	H	B	TF	Header	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)		
SAWN LUMBER SIZES														
4x14	HUS414TF	14	3⁹⁄₁₆	13⅛	2	2	12-16d	8-16d	2160	4765	5100	5100	Lowest	I10, L1, F9
	B414	12	3⁹⁄₁₆	13	2½	2½	14-16d	6-16d	1010	3800	3800	3800	+8%	I1, F21
	WNP414	12	3⁹⁄₁₆	13	2½	2³⁄₁₆	2-10d	2-10d	—	3255	3255	3255	+13%	I10, F9
	HU414TF	12	3⁹⁄₁₆	13	2½	2½	18-16d	8-10d	1500	4830	5050	5050	+89%	
	HW414	11	3⁹⁄₁₆	13	2½	2½	4-10d	2-10d	—	5285	5285	5285	+108%	
	HHB414	7	3⁹⁄₁₆	13	3	2½	6-N54A	4-N54A	1165	5135	5135	5135	+150%	I19, F18
	WM414	12	3⁹⁄₁₆	13	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12
	GLT4	7	3⁹⁄₁₆	7½ Min	5	2½	10-N54A	6-N54A	1745	7000	7000	7000	*	I19, F18
	HGLT4	7	3⁹⁄₁₆	7½ Min	6	2½	18-N54A	6-N54A	1745	12750	12750	12750	*	
4x16	WNP416	12	3⁹⁄₁₆	15	2½	2³⁄₁₆	2-10d	2-10d	—	3255	3255	3255	Lowest	I10, F9
	B416	12	3⁹⁄₁₆	15	2½	2½	14-16d	6-16d	1010	3800	3800	3800	+23%	I1, F21
	HU416TF	12	3⁹⁄₁₆	15	2½	2½	20-16d	8-10d	1500	5050	5050	5050	+81%	I10, F9
	HW416	11	3⁹⁄₁₆	15	2½	2½	4-10d	2-10d	—	5285	5285	5285	+108%	
	HHB416	7	3⁹⁄₁₆	15	3	2½	6-N54A	4-N54A	1165	5135	5135	5135	+109%	I19, F18
	WM416	12	3⁹⁄₁₆	15	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12
	GLT4	7	3⁹⁄₁₆	7½ Min	5	2½	10-N54A	6-N54A	1745	7000	7000	7000	*	I19, F18
	HGLT4	7	3⁹⁄₁₆	7½ Min	6	2½	18-N54A	6-N54A	1745	12750	12750	12750	*	
6x6	WNP66	12	5½	5⅜	2½	2⁵⁄₁₆	3-10d	2-10d	—	3255	3255	3255	*	I10, F9
	WM66	12	5½	5⅜	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12
	HU66TF	12	5½	5⅜	2½	2½	10-16d	4-16d	885	3165	3165	3165	*	I10, F9
	HW66	11	5½	5⅜	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	
6x8	WNP68	12	5½	7⅛	2½	2⁵⁄₁₆	3-10d	2-10d	—	3255	3255	3255	*	
	WM68	12	5½	7⅛	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12
	HU68TF	12	5½	7⅛	2½	2½	12-16d	4-16d	885	3500	3500	3500	*	I10, F9
	HHB68	7	5½	7⅛	3	2½	4-N54A	2-N54A	580	4185	4185	4185	*	170
	HW68	11	5½	7⅛	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	I10, F9
6x10	WNP610	12	5½	9⅛	2½	2⁵⁄₁₆	3-10d	2-10d	—	3255	3255	3255	*	
	WM610	12	5½	9⅛	2½	3¾	2-16d DPLX	2-10d	—	4175	4175	4175	*	IL12
	B610	12	5½	9⅛	2½	2½	14-16d	6-16d	1010	3800	3800	3800	*	I1, F21
	HHB610	7	5½	9⅛	3	2½	4-N54A	2-N54A	580	4185	4185	4185	*	170
	HU610TF	12	5½	9⅛	2½	2½	14-16d	6-16d	1325	4150	4150	4150	*	I10, F9
	HW610	11	5½	9⅛	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	
	GLT6	7	5⁹⁄₁₆	7½ Min	5	2½	10-N54A	6-N54A	1745	7000	7000	7000	*	I19, F18
	HGLT6	7	5⁹⁄₁₆	7½ Min	6	2½	18-N54A	6-N54A	1745	12750	12750	12750	*	
6x12	HW612	11	5½	11	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	I10, F9
	B612	12	5½	11	2½	2½	14-16d	6-16d	1010	3800	3800	3800	*	I1, F21
	HHB612	7	5½	11	3	2½	10-N54A	6-N54A	1745	6235	6235	6235	*	I19, F18
	HU612TF	12	5½	11	2½	2½	16-16d	6-16d	1325	4550	4885	5105	*	I10, F9
	GLT6	7	5⁹⁄₁₆	7½ Min	5	2½	10-N54A	6-N54A	1745	7000	7000	7000	*	I19, F18
	HGLT6	7	5⁹⁄₁₆	7½ Min	6	2½	18-N54A	6-N54A	1745	12750	12750	12750	*	
6x14	HW614	11	5½	13	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	I10, F9
	B614	12	5½	13	2½	2½	14-16d	6-16d	1010	3800	3800	3800	*	I1, F21
	HHB614	7	5½	13	3	2½	10-N54A	6-N54A	1745	6235	6235	6235	*	I19, F18
	HU614TF	12	5½	13	2½	2½	18-16d	8-16d	1765	4830	5200	5450	*	I10, F9
	GLT6	7	5⁹⁄₁₆	7½ Min	5	2½	10-N54A	6-N54A	1745	7000	7000	7000	*	I19, F18
	HGLT6	7	5⁹⁄₁₆	7½ Min	6	2½	18-N54A	6-N54A	1745	12750	12750	12750	*	
6x16	HW616	11	5½	15	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	I10, F9
	B616	12	5½	15	2½	2½	14-16d	6-16d	1010	3800	3800	3800	*	I1, F21
	HHB616	7	5½	15	3	2½	10-N54A	6-N54A	1745	6235	6235	6235	*	I19, F18
	HU616TF	12	5½	15	2½	2½	20-16d	8-16d	1765	5105	5520	5795	*	I10, F9
	GLT6	7	5⁹⁄₁₆	7½ Min	5	2½	10-N54A	6-N54A	1745	7000	7000	7000	*	I19, F18
	HGLT6	7	5⁹⁄₁₆	7½ Min	6	2½	18-N54A	6-N54A	1745	12750	12750	12750	*	
8x6	HW86	7	7½	5⅜	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	I10, F9
8x8	HW88	7	7½	7⅛	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	
8x10	HW810	7	7½	9⅛	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	
8x12	HW812	7	7½	11	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	
	HHB812	7	7½	11	3	2½	10-N54A	6-N54A	1745	6235	6235	6235	*	I19, F18
8x14	HW814	7	7½	13	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	I10, F9
	HHB814	7	7½	13	3	2½	10-N54A	6-N54A	1745	6235	6235	6235	*	I19, F18
8x16	HW816	7	7½	15	2½	2½	4-10d	2-10d	—	5285	5285	5285	*	I10, F9
	HHB816	7	7½	15	3	2½	10-N54A	6-N54A	1745	6235	6235	6235	*	I19, F18

See footnotes on page 71.

CODES: See page 12 for Code Reference Key Chart.

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

SIMPSON Strong-Tie®

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

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

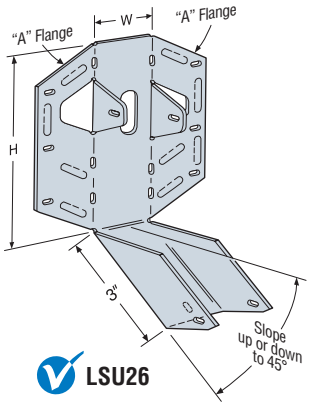
MATERIAL: See table

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 10-11.

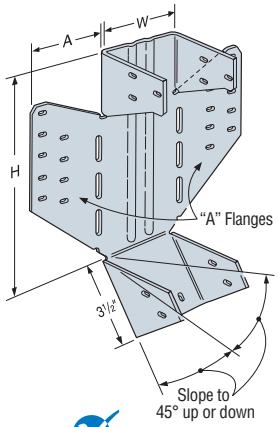
INSTALLATION:

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

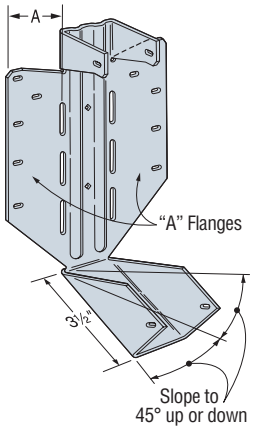
CODES: See page 12 for Code Reference Key Chart.



LSU26



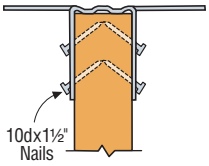
LSSU410
(LSSU210-2 similar)



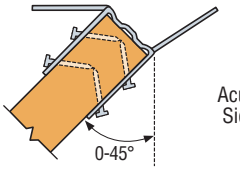
LSSU28

LSU and LSSU INSTALLATION SEQUENCE

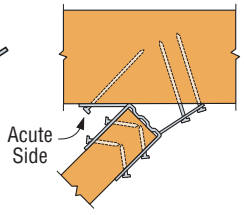
(For Skewed or Sloped/Skewed Applications)



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



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



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

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

Joist Width	Model No.	Ga	Dimensions			Fasteners		DF/SP Allowable Loads				SPF/HF Allowable Loads				Code Ref.
			W	H	A	Face	Joist	Uplift[2] (160)	Floor (100)	Snow (115)	Roof (125)	Uplift[2] (160)	Floor (100)	Snow (115)	Roof (125)	
Sloped Only Hangers																
1½	LSU26	18	1⁹⁄₁₆	4⅞	1½	6-10d	5-10dx1½	535	665	765	800	415	575	660	690	I8, L1, F7
1½	LSSU28	18	1⁹⁄₁₆	7⅛	1½	10-10d	5-10dx1½	535	1110	1275	1390	415	960	1105	1200	I8, L2, F7
1½	LSSU210	18	1⁹⁄₁₆	8½	1⅝	10-10d	7-10dx1½	875	1110	1275	1390	625	960	1105	1200	I8, L1, F7
2½	LSSUH310	16	2⁹⁄₁₆	8½	3⅛	18-16d	12-10dx1½	1150	2295	2295	2295	990	1930	1930	1930	170
3	LSSU210-2	16	3⅛	8½	2⅞	18-16d	12-10dx1½	1150	2430	2795	3035	990	2160	2485	2700	I8, L2, F7
3½	LSSU410	16	3⁹⁄₁₆	8½	2⅝	18-16d	12-10dx1½	1150	2430	2795	3035	990	2160	2485	2700	I8, L3, F7
Skewed Hangers or Sloped and Skewed																
1½	LSU26	18	1⁹⁄₁₆	4⅞	1½	6-10d	5-10dx1½	535	665	765	800	415	575	660	690	I8, L1, F7
1½	LSSU28	18	1⁹⁄₁₆	7⅛	1½	9-10d	5-10dx1½	450	885	885	885	415	765	765	765	I8, L2, F7
1½	LSSU210	18	1⁹⁄₁₆	8½	1⅝	9-10d	7-10dx1½	785	995	1145	1205	625	860	995	1050	I8, L1, F7
2½	LSSUH310	16	2⁹⁄₁₆	8½	3⅛	14-16d	12-10dx1½	1150	1600	1600	1600	990	1385	1385	1385	170
3	LSSU210-2	16	3⅛	8½	2⅞	14-16d	12-10dx1½	1150	1625	1625	1625	990	1365	1365	1365	I8, L2, F7
3½	LSSU410	16	3⁹⁄₁₆	8½	2⅝	14-16d	12-10dx1½	1150	1625	1625	1625	990	1365	1365	1365	I8, L3, F7

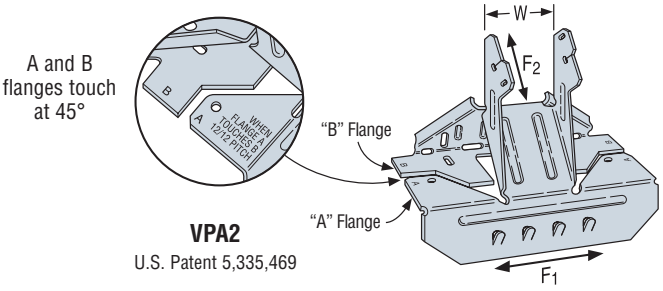
1. Roof loads are 125% of floor loads unless limited by other criteria.
2. Uplift loads include a 60% increase for wind or earthquake loading with no further increase is allowed; reduce when other loads govern.
3. Truss chord cross-grain tension may limit allowable loads. Refer to technical bulletins T-ANSITPISPF, T-ANSITPISP and T-ANSITPIDF *(see page 191 for details)* for allowable loads that consider ANSI/TPI 1-2007 wood member design criteria.
4. For skewed LSSU hangers, the inner most face fasteners on the acute angle side are not installed.
5. 10dx1½" nails may not be used for face nails on skewed or sloped and skewed LSU and LSSU hangers.
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

VPA *Variable Pitch Connectors*

The VPA may be sloped in the field, offering a versatile solution for attaching rafters to the top plate. It will adjust to accommodate slopes between 3:12 and 12:12, making it a complement to the versatile LSSU. This connector eliminates the need for notched rafters, beveled top plates and toe nailing.

MATERIAL: 18 gauge
FINISH: Galvanized
INSTALLATION:
- Use all specified fasteners. See General Notes.

CODES: See page 12 for Code Reference Key Chart.

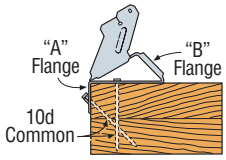


VPA2
U.S. Patent 5,335,469

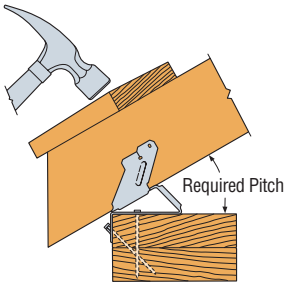
Joist Width	Model No.	W	Fasteners		DF/SP Allowable Loads				SPF/HF Allowable Loads				Code Ref.
			Carrying Member	Carried Member	Uplift	Download	Lateral (160)		Uplift	Download	Lateral (160)		
					(160)		F_1	F_2	(160)		F_1	F_2	
1½	VPA2	1⁹⁄₁₆	8-10d	2-10dx1½	295	1050	375	250	250	870	325	250	I8, F7
2½	VPA3	2⁹⁄₁₆	9-10d	2-10dx1½	295	1230	375	250	250	1020	325	250	
3½	VPA4	3⁹⁄₁₆	11-10d	2-10dx1½	295	1230	375	250	250	1020	325	250	

1. Uplift loads include a 60% increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Loads may not be increased for short-term loading.
3. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

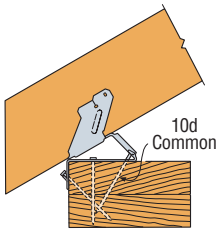
VPA INSTALLATION SEQUENCE



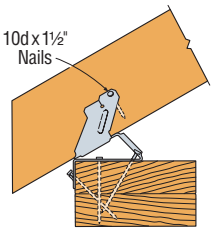
STEP 1
Install top nails and face PAN nails in "A" flange to outside wall top plate.



STEP 2
Seat rafter with a hammer, adjusting "B" flange to the required pitch.



STEP 3
Install "B" flange nails in the obround nail holes, locking the pitch.



STEP 4
Install 10dx1½" nail into tab nail hole. Hammer nail in at a slight angle to prevent splitting.

HCP *Hip Corner Plates*

The HCP connects a rafter or joist to double top plates at a 45° angle.

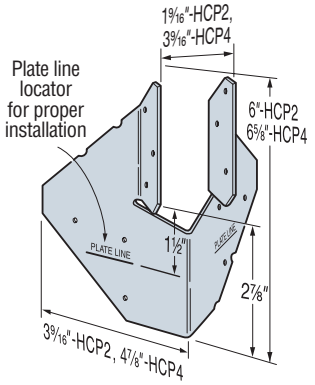
MATERIAL: 18 gauge
FINISH: HCP2—galvanized or ZMAX® coating; HCP4Z—ZMAX coating
INSTALLATION: • Use all specified fasteners. See General Notes.
- Attach HCP to double top plates; birdsmouth not required for table loads.
- Install rafter and complete nailing. Rafter may be sloped to 45°.

CODES: See page 12 for Code Reference Key Chart.

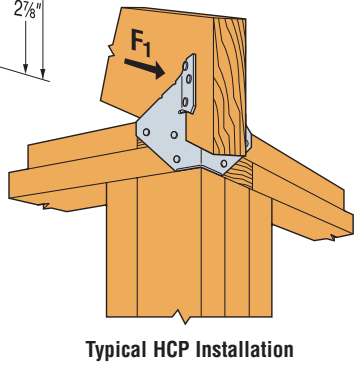
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Member Size	Model No.	Fasteners		DF/SP Allowable Loads (160)		SPF/HF Allowable Loads (160)		Code Ref.
		To Rafters	To Plates	Uplift	F_1	Uplift	F_1	
2x	HCP2	6-10dx1½	6-10dx1½	645	300	555	260	I8, F7
4x	HCP4Z	8-10d	8-10d	1000	265	860	230	I8

1. Loads include a 60% increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. The HCP can be installed on the inside and the outside of the wall with a flat bottom chord truss and achieve twice the load capacity.
3. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



HCP2
(HCP4Z similar)
U.S. Patent 5,380,115



Typical HCP Installation

HRC *Hip Ridge Connectors*

The HRC series are field slopeable connectors that attach hips to ridge members or trusses. The HRC may be sloped to 45° with no reduction in loads.

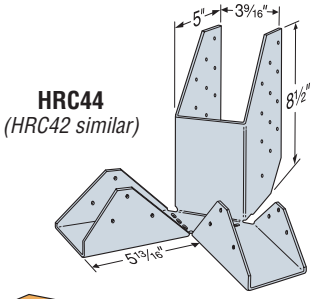
MATERIAL: HRC22, HRC42–16 gauge; HRC44–14 gauge

FINISH: Galvanized

INSTALLATION:

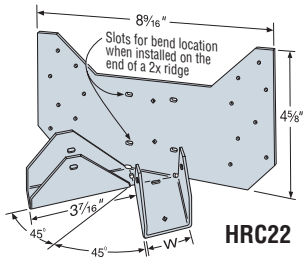
- Use all specified fasteners. See General Notes.
- On end of ridge—use optional diamond holes on HRC22 and HRC42 to secure the HRC. Bend face flanges on HRC22 back flush with ridge, and complete nailing.
- HRC22 on face of ridge—adjust to correct height and install nails.
- Double bevel-cut hip members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

CODES: See page 12 for Code Reference Key Chart.

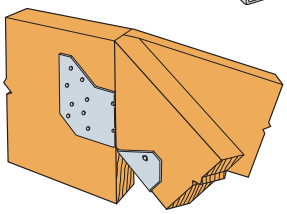


HRC44
(HRC42 similar)

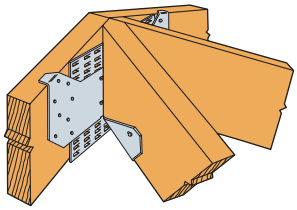
U.S. Patent 5,380,116



HRC22



Typical HRC22 Installation on the end of a ridge



Optional Installation for HRC22 only

Model No.	Member Size		Fasteners		DF/SP Allowable Loads				SPF/HF Allowable Loads				Code Ref.
	W	Ridge	Carrying Member	Each Hip	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	
HRC22	1⁹⁄₁₆	2x or 1¾" wide	16-10dx1½	2-10dx1½	290	720	830	900	250	625	720	780	I8, F7
HRC42	1⁹⁄₁₆	4x	16-16d	2-10dx1½	290	1050	1050	1050	250	905	905	905	
HRC44	3⁹⁄₁₆	4x	24-16d	6-16d	480	1610	1775	1775	410	1385	1525	1525	

1. Allowable loads shown are for each hip. Total load carried by the connector is double this number.
2. Uplift loads include a 60% increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. Roof loads are 125% of floor loads unless limited by other criteria.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

PF *Post Frame Hangers*

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

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

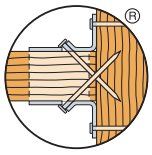
FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 10-11.

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

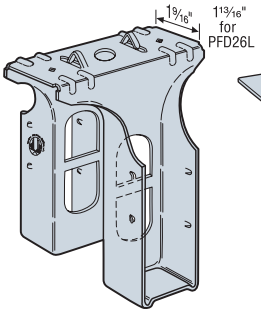
- Diamond holes on PFD allow optional top flange nailing.
- Carried member nails must be driven at an angle through the joist into the header to achieve the table loads.

OPTIONS: These hangers cannot be modified.

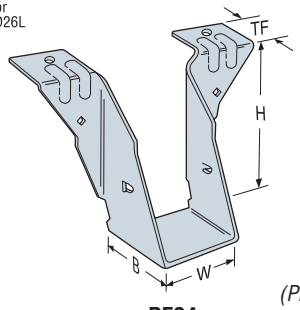
CODES: See page 12 for Code Reference Key Chart.



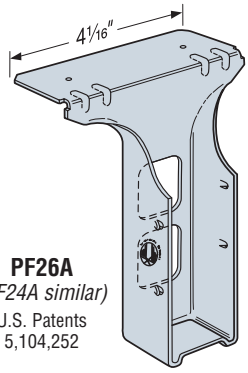
Double Shear Nailing *(Top View)*



PFD26
(PFD24, PFDS24, PFDS26, PFD26L similar)
U.S. Patent 5,104,252



PF24
(PF26 similar)



PF26A
(PF24A similar)
U.S. Patents 5,104,252

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

Model No.	Dimensions				Fasteners		DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
	W	H	B	TF	Carrying Member	Carried Member	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (133)	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (133)	
PF24	1⁹⁄₁₆	3⅜	1½	1¹¹⁄₁₆	2-10d	2-10d	310	955	955	955	955	230	650	660	660	660	I10, L13, F9
PF24A	1⁹⁄₁₆	3⅜	1¼	1½	2-10d	2-10d	280	840	865	885	895	230	650	660	660	660	I10, F9
PFD24	1⁹⁄₁₆	3⅜	1¼	1⁹⁄₁₆	2 PRONGS	2-10d	280	840	865	885	895	230	650	675	690	700	
NEW PFDS24	1⁹⁄₁₆	3⅜	1¼	3¼	2 PRONGS	2-10d	280	840	865	885	895	230	650	660	660	660	170
PF26	1⁹⁄₁₆	5⅜	1½	1¹¹⁄₁₆	2-10d	2-10d	310	955	955	955	955	455	805	850	880	905	I10, L13, F9
PF26A	1⁹⁄₁₆	5⅜	1¼	1½	2-10d	4-10d	620	970	1020	1050	1075	505	765	770	770	770	I10, F9
PFD26	1⁹⁄₁₆	5⅜	1¼	1⁹⁄₁₆	2 PRONGS	4-10d	560	1015	1070	1105	1130	455	805	850	880	905	
PFD26L	1⁹⁄₁₆	5⅜	1½	1¹³⁄₁₆	2-10d	2-10d	310	955	955	955	955	455	805	850	880	905	170
PFDS26	1⁹⁄₁₆	5⅜	1¼	3¼	4-10d	4-10d	620	970	1020	1050	1075	505	765	805	835	855	I10, F9

1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. **NAILS:** 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.

THA/THAC/THAR/L *Adjustable Truss Hangers*

SIMPSON Strong-Tie®

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

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

Designed for 4x2 floor trusses and 4x beams, the THAR/L422 has a standard skew of 45°. Straps must be bent for top flange hanger installation. PAN nailing helps eliminate splitting of 4x2 truss bottom chords.

MATERIAL: See table

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 10-11.

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

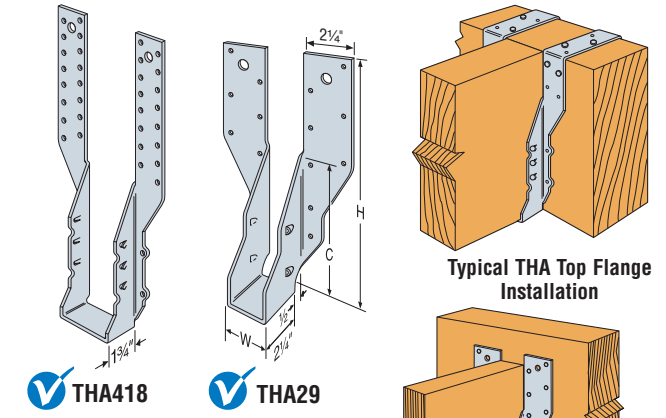
The following installation methods may be used:

- **Top Flange Installation**—The straps must be field formed over the header – see table for minimum top flange requirements. Install top and face nails according to the table. Top nails shall not be within ¼" from the edge of the top flange members.

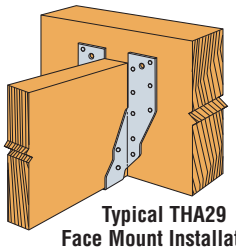
  For the THA29, nails used for joist attachment must be driven at an angle so that they penetrate through the corner of the joist and into the header. For all other top flange installations, straighten the double shear nailing tabs and install the nails straight into the joist.
- **Face Mount Installation**—Install all face nails according to the table. Not all nail holes will be filled on all models. On models where there are more nail holes than required, the lowest 4 face holes must be filled. Nails used for the joist attachment must be driven at an angle so that they penetrate through the corner of the joist into the header.
- **Alternate Installation— The THA 4x hangers may be installed in a top flange configuration using the tabulated fasteners for face mount installation and achieve the face mount installation loads. Install the tabulated face nails into the face and top of the carrying member. Nails used for the joist attachment must be driven at an angle so that they penetrate through the corner of the joist into the header.**

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

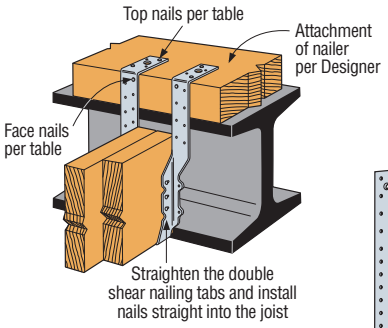
CODES: See page 12 for Code Reference Key Chart.



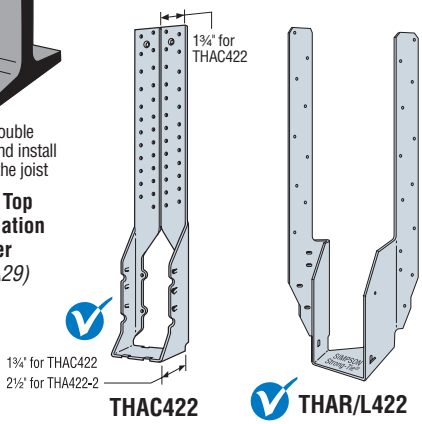
Typical THA Top Flange Installation



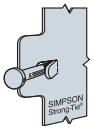
Typical THA29 Face Mount Installation



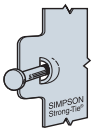
Typical THA Top Flange Installation on a Nailer *(except THA29)*



Double Shear Nailing Top View



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



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

U.S. Patent 5,603,580

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

Minimum Carried Member	Model No.	Ga	Dimensions W	Dimensions H	Dimensions C	Min.[7] Top Flange	Min. Header Depth	Fasteners[1] Carrying Member Top	Fasteners[1] Carrying Member Face	Fasteners[1] Carried Member Straight	Fasteners[1] Carried Member Slant	DF/SP Allowable Loads[4] Uplift[2] (160)	DF/SP Floor (100)	DF/SP Snow (115)	DF/SP Roof (125)	SPF/HF Allowable Loads[4] Uplift[2] (160)	SPF/HF Floor (100)	SPF/HF Snow (115)	SPF/HF Roof (125)	Code Ref.
TOP FLANGE INSTALLATION																				
2x4	THA29	18	1⅝	9 11/16	5⅛	2 7/16	—	4-10d	4-10d	—	4-10d	560	2260	2310	2350	480	1740	1785	1815	I8, L1, F7
2x6	THA213	18	1⅝	13 5/16	5½	1½	—	4-10d	2-10d	4-10dx1½	—	—	1615	1615	1615	—	1280	1280	1280	
2x6	THA218	18	1⅝	17 3/16	5½	2	—	4-10d	2-10d	4-10dx1½	—	—	1615	1615	1615	—	1280	1280	1280	
(2) 2x10	THA218-2	16	3⅛	17 11/16	8	2	—	4-16d	2-16d	6-10d	—	—	2250	2250	2250	—	1935	1935	1935	
(2) 2x10	THA222-2	16	3⅛	22 3/16	8	2	—	4-16d	2-16d	6-10d	—	—	2250	2250	2250	—	1935	1935	1935	
4x6	THA413	18	3⅝	13 5/16	4½	1½	—	4-10d	2-10d	4-10d	—	—	1615	1615	1615	—	1280	1280	1280	
4x10	THA418	16	3⅝	17½	7⅛	2	—	4-16d	2-16d	6-10d	—	—	2250	2250	2250	—	1935	1935	1935	
4x10	THA422	16	3⅝	22	7⅛	2	—	4-16d	2-16d	6-10d	—	—	2250	2250	2250	—	1935	1935	1935	I8, F7
4x10	THA426	14	3⅝	26	7⅛	2	—	4-16d	4-16d	6-16d	—	—	2435	2435	2435	—	2095	2095	2095	F23
4x10	THAR/L422	16	3⅝	22⅝	8	2½	—	4-10d	2-10d	1-10d	2-10dx1½	—	1090	1090	1090	—	915	915	915	I8, F7
4x10	THAR/L422	16	3⅝	22⅝	8	2½	—	4-10d	8-10d	1-10d	2-10dx1½	310	1675	1675	1675	260	1405	1405	1405	
FACE MOUNT INSTALLATION																				
2x4	THA29	18	1⅝	9 11/16	5⅛	—	9 11/16	—	16-10d	—	4-10d	560	2125	2310	2350	480	1740	1785	1815	I8, L1, F7
2x6	THA213	18	1⅝	13 5/16	5½	—	13 5/16	—	14-10d	—	4-10d	930	1795	1840	1870	780	1385	1425	1450	
2x6	THA218	18	1⅝	17 3/16	5½	—	17 3/16	—	18-10d	—	4-10d	930	1795	1840	1870	780	1385	1425	1450	
(2) 2x10	THA218-2	16	3⅛	17 11/16	8	—	14 1/16	—	22-16d	—	6-16d	1855	3705	3705	3705	1595	3185	3185	3185	
(2) 2x10	THA222-2	16	3⅛	22 3/16	8	—	14 1/16	—	22-16d	—	6-16d	1855	3705	3705	3705	1595	3185	3185	3185	
4x6	THA413	18	3⅝	13 5/16	4½	—	13⅜	—	14-10d	—	4-10d	930	1940	2235	2400	780	1660	1910	2075	
4x10	THA418	16	3⅝	17½	7⅛	—	14 1/16	—	22-16d	—	6-16d	1855	3705	3705	3705	1595	3185	3185	3185	
4x10	THA422	16	3⅝	22	7⅛	—	14 1/16	—	22-16d	—	6-16d	1855	3705	3705	3705	1595	3185	3185	3185	I8, F7
4x10	THA426	14	3⅝	26	7⅛	—	16 1/16	—	30-16d	—	6-16d	1855	4550	4550	4550	1595	3915	3915	3915	F23

1. 16d sinkers may be used to replace 16d commons at 0.85 of table load.
2. Uplift has been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. Roof loads are 125% of floor loads unless limited by other criteria.
4. THAR/L422 with 4-10d top nails and 2-10d face nails: When the hanger height is between 9" to 12", the allowable download is 1440 lbs. for DFL and 1210 lbs. for SPF. No further increase allowed.
5. For top flange installation on a nailer *(see detail above)*, install joist nails straight by bending the double shear tabs.
6. **For single 2x nailers, the following THA hangers can be installed using 10dx1½" top nails and 2-16d face nails with reduced allowable loads as noted: 1415 lbs. for THA418 and THA422, and 2255 lbs. for THA426.**
7. Min. Top Flange refers to the minimum length of strap that must be field-formed over the header.
8. **NAILS:** 16d = 0.162" dia. x 3½" long, 16dx2½ = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

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

SIMPSON Strong-Tie®

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

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

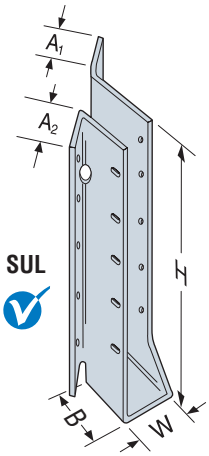
MATERIAL: SUR and SUL–16 gauge; HSUR and HSUL–14 gauge

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 10-11.

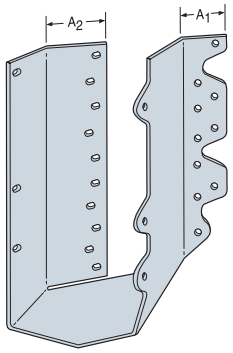
INSTALLATION: • Use all specified fasteners. See General Notes.
- These hangers will normally accommodate a 40° to 50° skew.
- Illustration shows left and right skews SUR/L *(SUR=skewed right; SUL=skewed left)*.
- The joist end may be square cut or bevel cut.
- For installations to concrete/masonry walls see page 140.

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

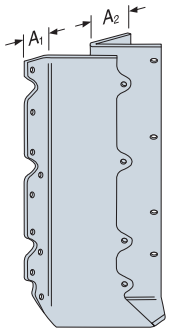
CODES: See page 12 for Code Reference Key Chart.



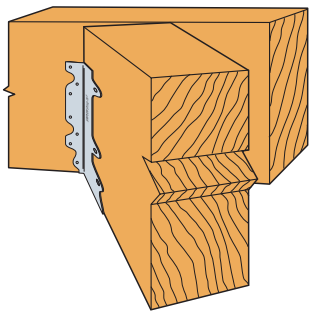
SUL



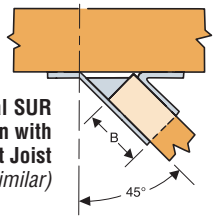
HSULC
Available for 2-2x and 4x models only



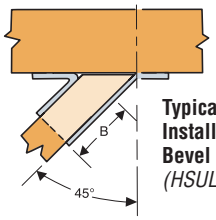
HSUR



Typical SUR410 Installation



Typical SUR Installation with Square Cut Joist *(HSUR similar)*



Typical SUL Installation with Bevel Cut Joist *(HSUL similar)*

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

Joist Size	Model No.	Dimensions					Fasteners		DF/SP Species Header Allowable Loads				SPF/HF Species Header Allowable Loads				Code Ref.
		W	H	B	A_1	A_2	Face	Joist	Uplift (160)	Floor (100)	Roof Snow (115)	Roof Const (125)	Uplift (160)	Floor (100)	Roof Snow (115)	Roof Const (125)	
2x4	SUR/L24	1⁹⁄₁₆	3½	2	1⅛	1¼	4-16d	4-10dx1½	450	530	610	665	450	460	530	575	I7, F6
2x6, 8	SUR/L26	1⁹⁄₁₆	5	2	1⅛	1⁵⁄₁₆	6-16d	6-10dx1½	765	800	960	1000	750	690	795	860	
2x10, 12	SUR/L210	1⁹⁄₁₆	8⅛	2	1⅛	1⁵⁄₁₆	10-16d	10-10dx1½	1250	1330	1530	1660	1250	1150	1320	1440	
2x14	SUR/L214	1⁹⁄₁₆	10	2	1⅛	1⁵⁄₁₆	12-16d	12-10dx1½	1730	1595	1835	1995	1500	1380	1585	1725	
3x10, 12	SUR/L2.56/9	2⁹⁄₁₆	8¹³⁄₁₆	3⅜	1½	2	14-16d	2-10dx1½	225	2015	2280	2465	190	1735	1960	2120	170
3x14	SUR/L2.56/11	2⁹⁄₁₆	11¾₁₆	3⅜	1⅛	2⅛	16-16d	2-10dx1½	225	2305	2610	2665	180	1980	2245	2290	
(2) 2x6, 8	SUR/L26-2	3⅛	4¹⁵⁄₁₆	2⅝	1⁷⁄₁₆	2⅜	8-16d	4-16dx2½	815	1065	1225	1330	735	920	1005	1005	I7, F6
(2) 2x6, 8	HSUR/L26-2	3⅛	4¹⁵⁄₁₆	2⁷⁄₁₆	1¼	2³⁄₁₆	12-16d	4-16dx2½	815	1610	1850	2000	740	1390	1600	1740	
(2) 2x10, 12	SUR/L210-2	3⅛	8¹¹⁄₁₆	2⅝	1⁷⁄₁₆	2⅜	14-16d	6-16dx2½	1275	1860	2140	2330	1105	1610	1850	2010	
(2) 2x10, 12	HSUR/L210-2	3⅛	8¹¹⁄₁₆	2⁷⁄₁₆	1¼	2³⁄₁₆	20-16d	6-16dx2½	1285	2680	3080	3350	1115	2320	2670	2900	
(2) 2x14	HSUR/L214-2	3⅛	12¹¹⁄₁₆	2⁷⁄₁₆	1¼	2³⁄₁₆	26-16d	8-16dx2½	1715	3485	4005	4355	1485	3015	3470	3770	
4x6, 8	SUR/L46	3⁹⁄₁₆	4¾	2⅝	1	2⅜	8-16d	4-16d	815	1065	1225	1330	735	920	1005	1005	170
4x6, 8	HSUR/L46	3⁹⁄₁₆	4¾	2⁷⁄₁₆	1	2³⁄₁₆	12-16d	4-16d	815	1610	1850	2000	740	1390	1600	1740	I7, F6
4x10, 12	SUR/L410	3⁹⁄₁₆	8½	2⅝	1	2⅜	14-16d	6-16d	1275	1860	2140	2330	1105	1610	1850	2010	I9, F8
4x10, 12	HSUR/L410	3⁹⁄₁₆	8½	2⁷⁄₁₆	1	2³⁄₁₆	20-16d	6-16d	1285	2680	3080	3350	1115	2320	2670	2900	
4x14	SUR/L414	3⁹⁄₁₆	12½	2⅝	1	2⅜	18-16d	8-16d	1700	2395	2500	2500	1470	1795	1795	1795	I7, F6
4x14	HSUR/L414	3⁹⁄₁₆	12½	2⁷⁄₁₆	1	2³⁄₁₆	26-16d	8-16d	1715	3485	4005	4355	1485	3015	3470	3770	

1. Uplift loads have been increased by 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Roof loads are 125% of floor loads unless limited by other criteria.
3. Truss chord cross-grain tension may limit allowable loads. Refer to technical bulletins T-ANSITPISPF, T-ANSITPISP and T-ANSITPIDF for allowable loads that consider ANSI/TPI 1-2007 wood member design criteria *(see page 191 for details)*.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 16dx2½ = 0.162" dia. x 2½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

HFN/F *Panelized Construction Hangers*

The HF24N, HF26N, HF34N and HF36N hangers are designed for panels or components using jigs or similar devices for precision fabrication. Grip-groove feature provides positive lock into the 2x or 3x member without nailing. F series panel hangers are engineered components for panelized construction only.

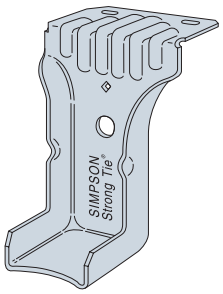
MATERIAL: 18 gauge

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 10-11.

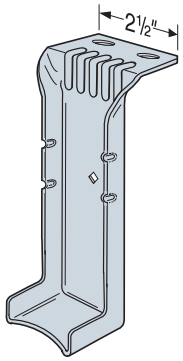
INSTALLATION:

- Use all specified fasteners. See General Notes.
- In panelized construction, it is acceptable to nail through the sheathing into the hanger's top flange using one 10dx2⅛" nail placed in the middle third of the top flange, no closer than ¼" from the back edge of the hanger. See technical bulletin T-HFHANGER for additional information *(see page 191 for details)*.
- On the F-series hanger, the seat nail is non-structural and does not contribute to the load.
- For additional information on retrofit options see flier F-RUZNRUZ *(see page 191 for details)*.

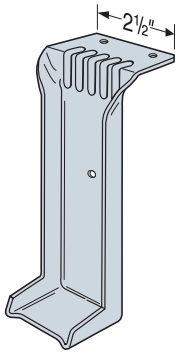
CODES: See page 12 for Code Reference Key Chart.



HF24N
(HF34N similar)
U.S. Patent 6,260,402



HF26N
(HF36N similar)
Dimples hold joist securely in place
U.S. Patent 6,260,402

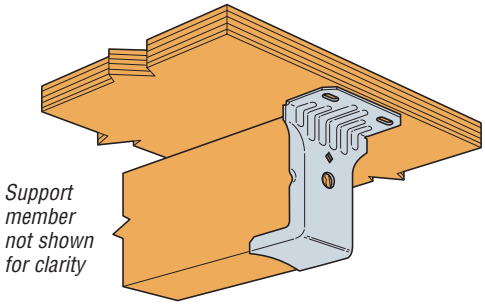


F26P

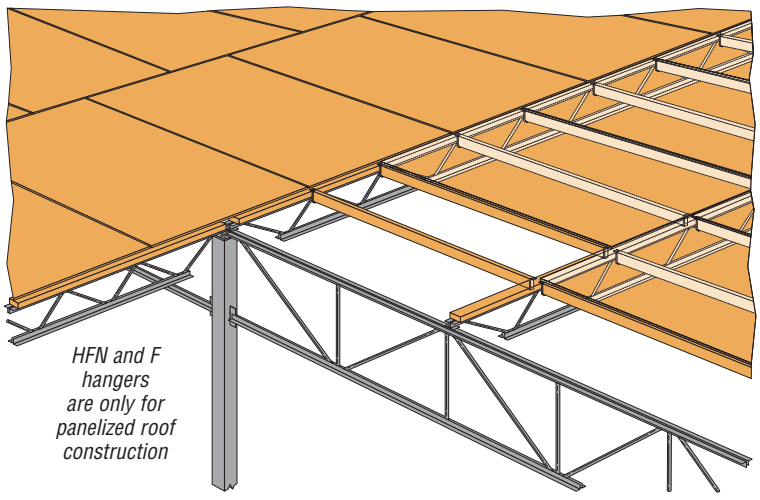
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Joist Size	Dimensions W	Dimensions H	Dimensions TF	Fasteners Header	Allowable Roof Loads (125)	Code Ref.
HF24N	2x4	1⁹⁄₁₆	3⅜	1¼	2-10dx2⅛	580	I15, F14
F26P	2x6	1²¹⁄₃₂	5⅜	1³⁄₁₆	2-10d	585	I15, L3, F14
HF26N	2x6	1⁹⁄₁₆	5⅜	1¼	2-10dx2⅛	635	I15, F14
HF34N	3x4	2⁹⁄₁₆	3⅜	1¼	2-10dx2⅛	690	
HF36N	3x6	2⁹⁄₁₆	5⅜	1¼	2-10dx2⅛	725	
F24-2	(2) 2x4	3¼	3¹⁵⁄₃₂	1⅜	2-10d	735	I15, L3, F14
F26-2	(2) 2x6	3¼	5⅜	1³⁄₁₆	2-10d	800	
F44	4x4	3⁹⁄₁₆	3⁷⁄₁₆	1½	2-10d	880	
F46	4x6	3⁹⁄₁₆	5⅜	1⁷⁄₁₆	2-10d	785	

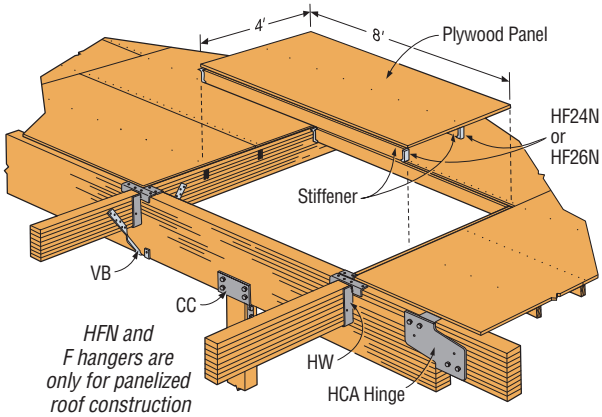
1. 10d common nails can be used for specified 10dx2⅛ nails.
2. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx2⅛ = 0.148" dia. x 2⅛" long. See page 16-17 for other nail sizes and information.



Typical HF24N Installation
(HF34N similar)



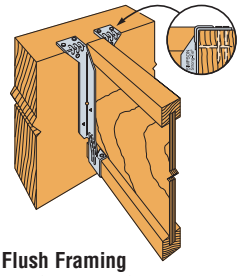
Typical Hybrid Panelized Roof System



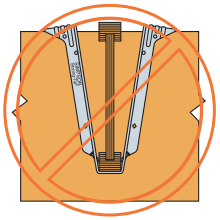
Typical Wood Framed Panelized Roof System

GENERAL CONNECTOR INSTALLATION

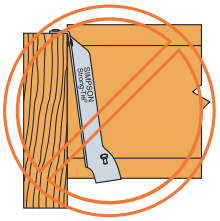
TOP FLANGE HANGERS



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



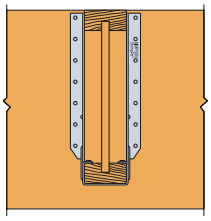
Hanger Over-Spread
If the hanger is over-spread, it can raise the I-joist above the header and may cause uneven surfaces and squeaky floors.



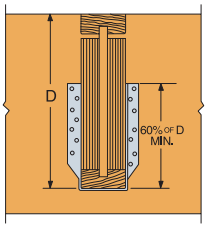
Hanger Not Plumb
A hanger "kicked-out" from the header can cause uneven surfaces and squeaky floors.

PREVENT ROTATION

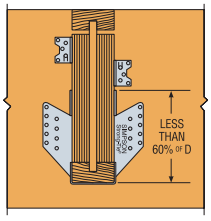
Hangers provide some joist rotation resistance; however, additional lateral restraint may be required for deep joists.



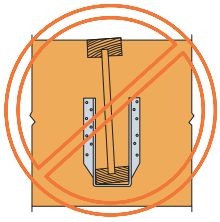
No Web Stiffener Installed
Hanger side flange supports joist top flange.



Web Stiffener Required
Hanger side flange should be at least 60% of joist depth or potential joist rotation must be addressed.

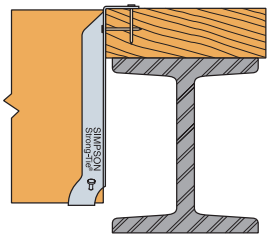


Rotation Resistance
If non-skewed hanger side flange is less than 60% of joist depth, attach staggered A34 framing anchors above the hanger.

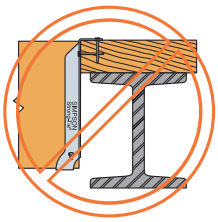


No Web Stiffener Results in Rotation
Hanger side flange is below the joist top flange. No web stiffener results in rotation, unless restrained by other means.

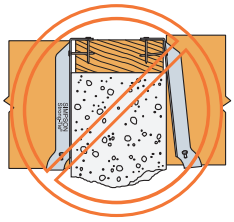
WOOD NAILERS



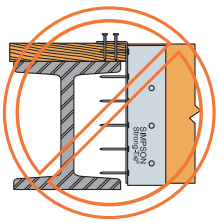
Correct Attachment



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

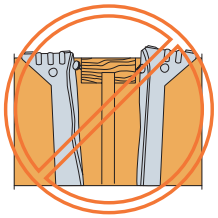


Nailer Too Narrow
A maximum mismatch of ⅛" for normal installations is allowed.



Nailer Too Thin
or the wrong hanger for the application.

TOE-NAILING



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

WOOD I-JOISTS

SLOPED JOISTS
For sloped joists up to ¼:12 there is no reduction. For slopes greater than ¼:12 see individual product pages or refer to technical bulletin T-SLOPEJST *(see page 191 for details)*.

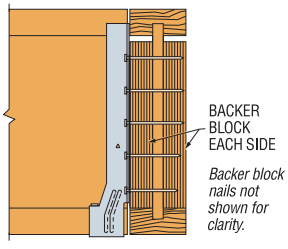
MULTIPLE JOISTS
Multiple joists should be adequately connected together to act as one unit.

FASTENERS
Use the correct nails. Wood may split if the nails are too large. Hanger nails into flanges should not exceed 10d common *(0.148 dia.)*, no longer than 1½". Nails into web stiffeners should not exceed 16d commons *(0.162 dia.)*.

ECCENTRICALLY-LOADED I-JOISTS
Supporting a top flange hanger may require bottom flange restraining straps, blocking or directly-applied ceiling systems to prevent rotation at the hanger location.

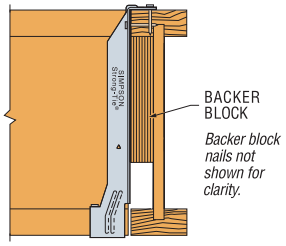
SKEWED JOISTS
Joists may be skewed up to 2½ degrees in a non-skewed hanger without any load reduction. Refer to individual hanger descriptions for information allowing any further skew applications.

I-JOIST AS A HEADER INSTALLATIONS



Face Mount Hanger

When face mount hangers are attached to I-joist headers, backer blocks must be installed to provide a nailing surface for the hanger nails. The backer blocks should be installed on both sides of the web and attached together with a minimum of 10-10d nails. The hanger nails should extend through the web. Contact the I-Joist manufacturer for additional design considerations.

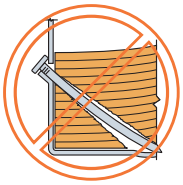


Top Flange Hanger

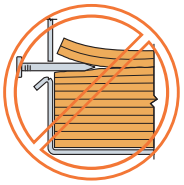
When top flange hangers are attached to I-joist headers, a backer block must be installed to prevent the top flange from rotating under load. The backer blocks should be installed with a minimum of 10-10d nails clinched. Check with the joist manufacturer for additional design considerations.

POSITIVE ANGLE NAILING

Correct Nailing
Approx. 45° angle



Nail too long



Nail at wrong angle

STRONG-DRIVE® SCREW INSTALLATION FOR LVL, PSL and LSL

SIMPSON Strong-Tie®

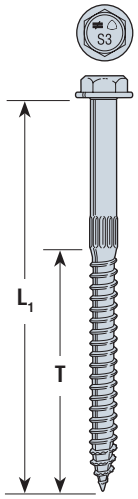
Simpson Strong-Tie® Strong-Drive screws (SDS) are an easy to install method for joining multiple SCL members to make a beam.

INSTALLATION:

- No pre-drilling required.
- See illustrations for SDS positioning on different assemblies.
- SDS screws install best with a low speed ½" drill with a ⅜" hex head driver.
- Do not over-drive the SDS screws.

DESIGN:

- SDS allowable load values are from ICC ESR-2236. The Designer shall apply adjustment factors per the NDS. Loads shown are C_D = 1.0. Increase as allowed per code to a maximum C_D = 1.60.
- This document uses Douglas Fir-Larch values *(G = 0.5)*, as per the LVL, PSL and LSL manufacturer's instructions.
- The Designer shall specify the location of all screws *(stagger screws on opposite faces)*. Minimum recommended spacing—Wide Face: end distance 4", edge distance 1½", spacing parallel to grain 4", spacing perpendicular to grain 2".
- Uniform loads in the table below are based on the capacity of the fasteners to transfer loads between plies. The capacity of the LVL beam may be less and should be checked by a qualified Designer or with the manufacturer's literature.
- **LSL applications that require 4½" and 6" screws *(Assembly B2, C and F)* are limited to interior-dry use only.**

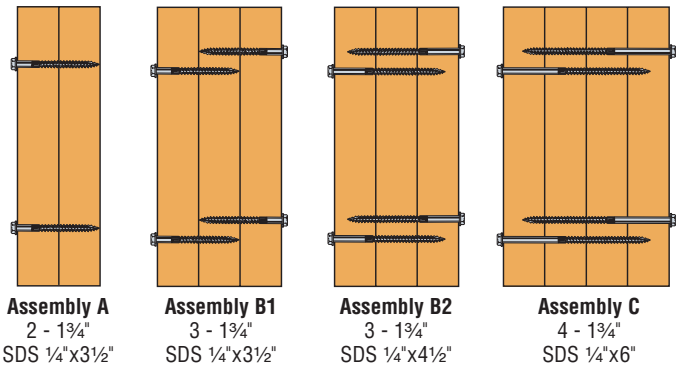


Simpson Strong-Tie Strong-Drive Screw

These products feature additional corrosion protection.

Model No.	L_1	T	Head Stamp
SDS25312	3½	2¼	S3.5
SDS25412	4½	2¾	S4.5
SDS25600	6	3¼	S6

For more information, refer to technical bulletin T-SDSCREWAPPS *(see page 191 for details)*.Also see Connector Selector Software page 194.

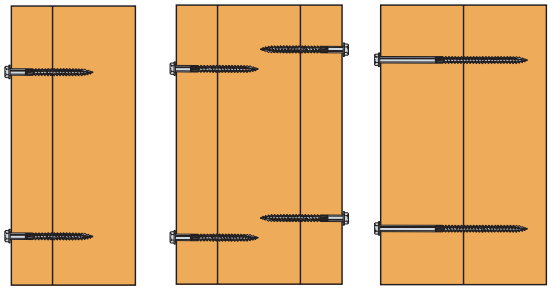


Assembly A
2 - 1¾"
SDS ¼"x3½"

Assembly B1
3 - 1¾"
SDS ¼"x3½"

Assembly B2
3 - 1¾"
SDS ¼"x4½"

Assembly C
4 - 1¾"
SDS ¼"x6"



Assembly D
1 - 1¾", 1 - 3½"
SDS ¼"x3½"

Assembly E
2 - 1¾", 1 - 3½"
SDS ¼"x3½"

Assembly F
2 - 3½"
SDS ¼"x6"

MAXIMUM ALLOWABLE UNIFORM LOAD (LBS PER LINEAL FT)							
Multiple Members		SDS Screws, 12" OC		SDS Screws, 16" OC		SDS Screws, 24" OC	
Assembly	Components	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows
A	2 pieces (all 1¾)	1360	2040	1020	1530	680	1020
B1	3 pieces (all 1¾)	1020	1530	765	1150	510	765
B2[4]	3 pieces (all 1¾)	1290	1935	970	1450	645	970
C[4]	4 pieces (all 1¾)	1110	1665	835	1250	555	835
D	2 pieces (1¾ - 3½)	1020	1530	765	1150	510	765
E	3 pieces (1¾ - 3½ - 1¾)	905	1360	680	1020	455	680
F[4]	2 pieces (3½ - 3½)	1360	2040	1020	1530	680	1020

1. If 7" wide beams are not equally loaded on each side, the plf load from the lesser side should be at least 25% of the opposite side.
2. Quantity and spacing of screws in table are for each screw head side of the assembly as shown in the Assembly figures above.
3. The design professional shall ensure that adequate lateral bracing is provided to prevent displacement of the beam due to the torsion created by the structural members framing into the side of the beam assembly.
4. **LSL applications involving Assemblies B2, C and F are limited to interior-dry use only.**

CSC *Ceiling Support Clip* /FSS *Furring Stabilizer Strap*

Provides 1" separation between the furring channel and joist to allow for the use of Thermafiber® insulation and the attachment of the furring channel to all joists. Provides an efficient sound barrier, and a one hour U.L. listed fire rating.

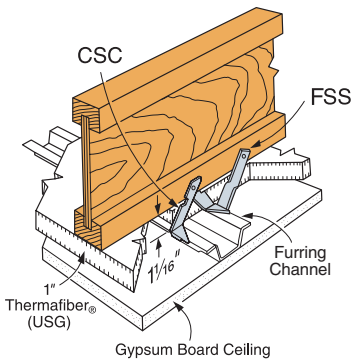
- UL Listed. See Underwriters Laboratory, Inc. Design No. L530 for USG gypsum board and Weyerhaeuser/TJI® joists.
- Check ICC-ES reports for individual I-joist manufacturer approvals.

MATERIAL: 24 gauge (minimum)

FINISH: Galvanized

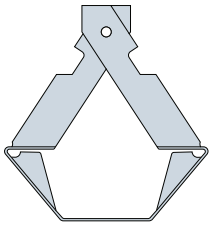
INSTALLATION: • For CSC use 1-8dx1½ nail.

- For FSS use #8 self-tapping steel screw *(not provided)* into channel, twist 90°, bend upward and fasten to the side of joist bottom flange with screw or nail.

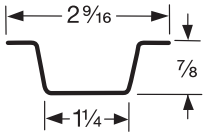


Typical CSC and FSS Installation

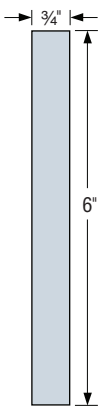
Thermafiber® and TJI® are registered trademarks of US Gypsum Company and Weyerhaeuser, respectively.



CSC



Furring Channel Detail



FSS
(See Installation Notes)

IUS/IUT/MIU *I-Joist Hangers*

SIMPSON Strong-Tie®

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

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

I-joists with flange thicknesses between 1⅛" and 1½" achieve the full allowable table loads including uplift values and joist nails are not required! The IUS is a hybrid hanger that incorporates the advantages of the face mount and top mount hanger. Installation is fast with the Strong-Grip™ seat, easy-to-reach face nails and self-jigging locator tabs.

The MIU series hangers are designed for commercial and high load I-joist applications without requiring web stiffeners. The MIU features Positive Angle Nailing (PAN), which minimizes splitting of the flanges while permitting time-saving nailing from a better angle.

The IUT features a bend-tab which nails into the I-joist's bottom flange when web stiffeners are not used, or directly into the web stiffener. I-joist flange thickness for bend-tab application is 1⅛" to 1½". This constrains the member, helping to reduce squeaks resulting from joist movement.

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

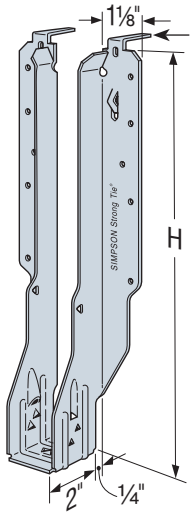
MATERIAL: See table page 84-86. **FINISH**: Galvanized

UPLIFT LOADS: • Models have optional triangle joist nail holes for additional uplift. Properly attached web stiffeners are required.
- IUT—add two additional 10dx1½" joist nails for a total uplift load of 575 lbs.
- MIU—add four additional 10dx1½" joist nails for a total uplift load of 975 lbs.
- IUS—add web fillers and two 10dx1½" joist nails in the triangle holes for a total uplift of **355** lbs.

INSTALLATION: • Use all specified fasteners. Verify that the header can take the required fasteners specified in the table. See page 80 for more installation information.
- IUS—fasten hanger to header. Position I-joist into hanger and snap into place. No joist nailing required. Some IUS models have triangle and round header nail holes. To achieve Max. download, fill both round and triangle holes.
- IUS—Locator tabs are not structural. They may be bent back to adjust for hanger placement.
- IUS—for rimboard applications see technical bulletin T-RIMBDHGR *(see page 191 for details)*.
- IUS— I-joists with web stiffeners or rectangular sections can be used with the installation of 2-10dx1½" nails into the optional triangle joist nails.
- IUT—optional seat diamond hole allows alternate attachment of hanger. Refer to technical bulletin T-OPTUPLIFT *(see page 191 for details)*.
- Web stiffeners are not required with I-joists when the joist top flange is laterally supported by the sides of the hanger. I-joist manufacturers may require web stiffeners.

OPTIONS:

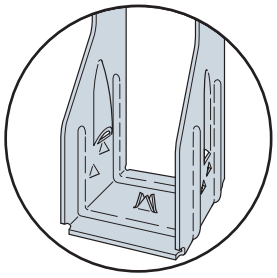
These hangers cannot be modified. However, these models will normally accommodate a skew of up to 5°. For sloped joists up to ¼:12 there is no reduction, between ¼:12 and up to ½:12, tests show a 10% reduction in ultimate hanger strength. Local crushing of the bottom flange or excessive deflection may be limiting; check with joist manufacturer for specific limitations on bearing of this type.



IUS

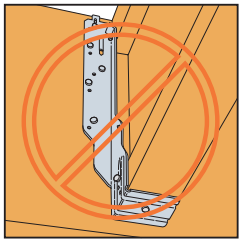
(Some IUS models have triangle holes in header flanges for Min/Max nailing)

U.S. Patent 6,523,321



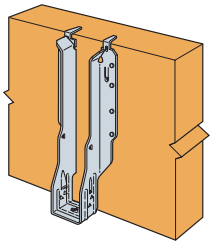
The Strong-Grip™ seat secures I-joists in position without joist nails

AVOID A MISINSTALLATION

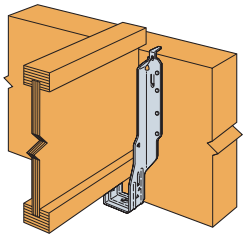


Do not make your own holes. Do not nail the bottom flange.

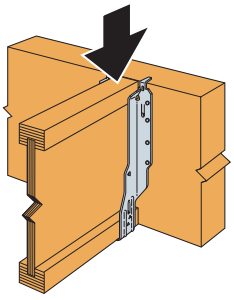
IUS INSTALLATION SEQUENCE



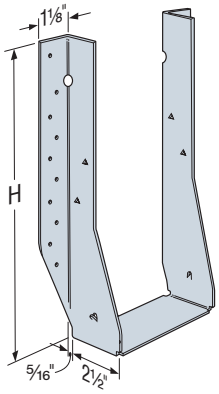
STEP 1
Attach the IUS to the header

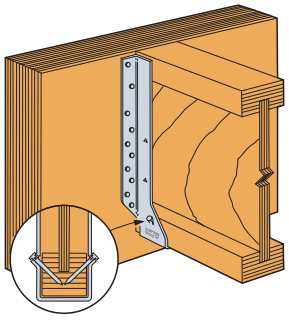


STEP 2
Slide the I-joist downward into the IUS until it rests above the large teardrop.



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

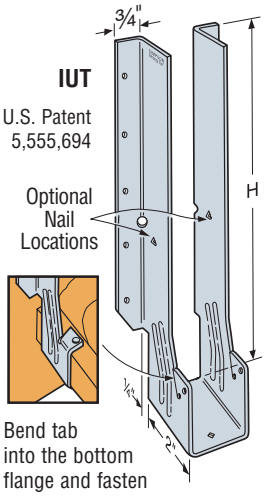




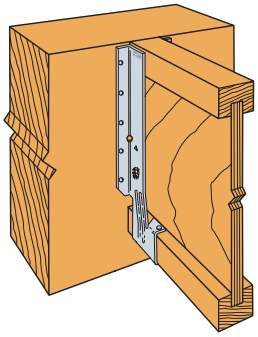
MIU with correct PAN installation

IUT

U.S. Patent 5,555,694



Bend tab into the bottom flange and fasten with 10dx1½" nails at approximately 45°.



Typical IUT Installation

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

SIMPSON Strong-Tie®

See Hanger tables on pages 84 to 88. See Hanger Options on pages 181-183 for hanger modifications, which may result in reduced loads.

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

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

HUCQ—Features concealed flanges so it can be installed close to the end of the supporting beam or on a post. They install with Simpson Strong-Tie® Strong-Drive® screws (SDS) *(supplied with the hanger)* for high capacity and ease of installation.

MATERIAL: See tables on pages 84 to 88.

FINISH: Galvanized

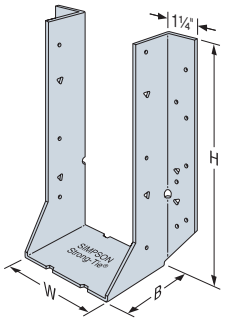
INSTALLATION: • Use all specified fasteners. See General Notes.

- HU/HUC—can be installed filling round holes only, or filling round and triangle holes for maximum values.
- HUCQ—When using structural composite lumber columns, the capacities shown in the tables are for fasteners applied to the wide face of the column. **See technical bulletin T-SCLCOLUMN for more information** ***(see page 191 for details).***
- Web Stiffeners are required for all I-joists used with these hangers.
- For installation to masonry or concrete, see page 140.
- HU/HUC hangers can be welded to a steel member. Allowable loads are the lesser of the values in the Hanger tables on pages 84-88 or the weld capacity – refer to technical bulletin T-HUHUC-W *(see page 191 for details)*.

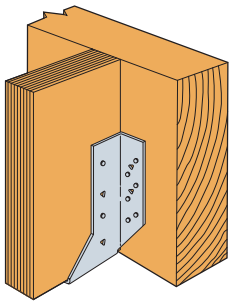
OPTIONS: • HU hangers available with the header flanges turned in for 2⁵⁄₁₆" and larger widths, with no load reduction—order HUC hanger.

- See Hanger Options on pages 181-183 for sloped and/or skewed U/HU models, and HUC *(concealed flange)* models.
- See also HUS series.

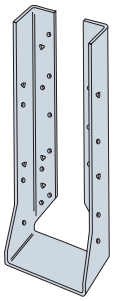
Model configurations may differ from those shown. Some HU models do not have triangle holes. Contact Simpson Strong-Tie for details.



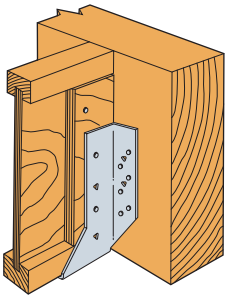
HU410



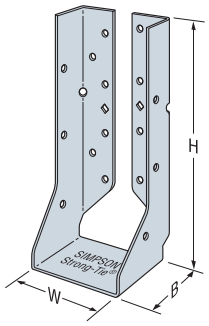
Typical HU7 Installation



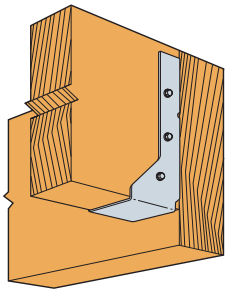
HUC412 Concealed Flanges



Typical HU7 Installation



HUCQ



Typical HUCQ Installed on End of a Beam

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

See Hanger tables on pages 87-88. See Hanger Options on pages 180-181 for hanger modifications, which may result in reduced loads.

These hangers are designed for applications where higher loads are needed *(also see HUC and HUCQ)*.

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

MATERIAL: See tables, pages 87-88.

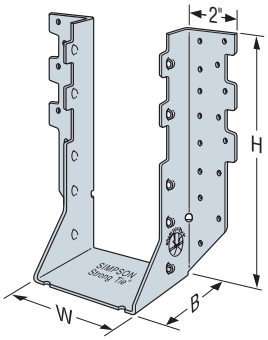
FINISH: Galvanized. Some products available in stainless steel or ZMAX®; see Corrosion Information, page 10-11.

INSTALLATION • Use all specified fasteners. See General Notes.

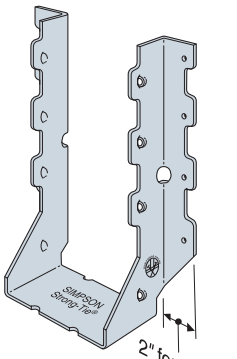
- Do not use double shear hangers with I-joists.
- Nails must be driven at an angle through the joist or truss into the header to achieve the table loads.
- Not designed for welded or nailer applications.
- 16d sinkers (0.148" dia. x 3¼" long) may be used where 10d commons are specified with no reduction in load. Where 16d commons are specified, 10d commons or 16d sinkers (0.148" dia. x 3¼" long) may be used at 0.85 of the table load.
- With 3x carrying members, use 16dx2½" *(Simpson Strong-Tie® N16)* nails into the header and 16d commons into the joist with no load reduction. With 2x carrying members, use 10dx1½" nails into the header and 10d commons into the joist, and reduce the load to 0.64 of the table value.

OPTIONS: • HUS hangers available with the header flanges turned in for 3½" wide joist only, with no load reduction. See HUSC Concealed Flange illustration.

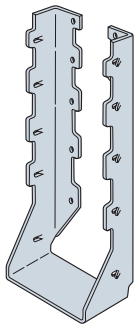
- Concealed flanges are not available for HGUS, HUS1.81/10 and HHUS.
- See Hanger Options, pages 181-183, for sloped and/or skewed HHUS and HGUS models.
- Other sizes available; contact Simpson Strong-Tie for details.



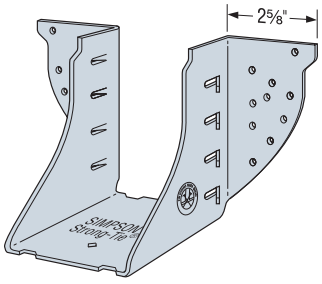
HHUS410



HUS410



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



HGUS46

FACE MOUNT HANGERS – I-JOISTS

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[6] Stiff Reqd	Ga	Dimensions			Min/ Max	Fasteners		Allowable Loads							Code Ref.
										DF/SP Species Header				SPF/HF Species Header			
				W	H	B		Face	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Floor (100)	Snow (115)	Roof (125)	
1½ x 9½	IUS1.56/9.5	—	18	1⅝	9½	2	—	8-10d	—	75	935	1075	1170	810	930	1010	I9, L11, F8
	IUT29	—	18	1⁹⁄₁₆	9	2	—	8-10dx1½	2-10dx1½	255	730	835	910	625	720	780	I9, L5, F8
				1⁹⁄₁₆	9	2	—	8-10d	2-10dx1½	255	890	1020	1110	770	885	960	
	MIU1.56/9	—	16	1⁹⁄₁₆	8¹⁵⁄₁₆	2½	—	16-16d	2-10dx1½	230	2270	2615	2840	1970	2265	2460	I9, F3
1½ x 11¼ - 11⅞	IUS1.56/11.88	—	18	1⅝	11⅞	2	—	10-10d	—	75	1170	1345	1465	1010	1160	1265	I9, L11, F8
	IUT211	—	18	1⁹⁄₁₆	11⅞	2	—	10-10dx1½	2-10dx1½	255	910	1045	1140	780	895	975	I9, L5, F8
				1⁹⁄₁₆	11⅞	2	—	10-10d	2-10dx1½	255	1110	1275	1390	960	1105	1200	
	MIU1.56/11	—	16	1⁹⁄₁₆	11¹⁄₁₆	2½	—	20-16d	2-10dx1½	230	2840	3265	3550	2460	2830	3075	I9, F3
1½ x 14	IUT214	—	18	1⁹⁄₁₆	13¾	2	—	14-10dx1½	2-10dx1½	255	1275	1465	1590	1090	1255	1365	I9, L5, F8
				1⁹⁄₁₆	13¾	2	—	14-10d	2-10dx1½	255	1555	1785	1875	1345	1545	1680	
1¾ x 9½	IUS1.81/9.5	—	18	1⅞	9½	2	—	8-10d	—	75	935	1075	1170	810	930	1010	I9, L11, F8
1¾ x 9¼ - 9½	IUT9	—	18	1¹³⁄₁₆	9	2	—	8-10dx1½	2-10dx1½	255	730	835	910	625	720	780	I9, L5, F8
				1¹³⁄₁₆	9	2	—	8-10d	2-10dx1½	255	890	1020	1110	770	885	960	
	MIU1.81/9	—	16	1¹³⁄₁₆	8¹³⁄₁₆	2½	—	16-16d	2-10dx1½	230	2270	2615	2840	1970	2265	2460	I9, F3
1¾ x 11⅞	IUS1.81/11.88	—	18	1⅞	11⅞	2	—	10-10d	—	75	1170	1345	1465	1010	1160	1265	I9, L11, F8
	IUT11	—	18	1¹³⁄₁₆	11⅛	2	—	10-10dx1½	2-10dx1½	255	910	1045	1140	780	895	975	I9, L5, F8
				1¹³⁄₁₆	11⅛	2	—	10-10d	2-10dx1½	255	1110	1275	1390	960	1105	1200	
	MIU1.81/11	—	16	1¹³⁄₁₆	11¹⁄₁₆	2½	—	20-16d	2-10dx1½	230	2840	3265	3550	2460	2830	3075	I9, F3
1¾ x 14	IUS1.81/14	—	18	1⅞	14	2	Min	12-10d	—	75	1405	1615	1755	1210	1395	1515	I9, L11, F8
				1⅞	14	2	Max	14-10d	—	75	1640	1885	1980	1415	1625	1770	
	IUT14	—	18	1¹³⁄₁₆	13¾	2	—	14-10dx1½	2-10dx1½	255	1275	1465	1590	1090	1255	1365	I9, L5, F8
				1¹³⁄₁₆	13¾	2	—	14-10d	2-10dx1½	255	1555	1785	1940	1345	1545	1680	
	MIU1.81/14	—	16	1¹³⁄₁₆	13⁵⁄₁₆	2½	—	22-16d	2-10dx1½	230	3125	3595	3905	2705	3110	3385	I9, F3
1¾ x 16	IUS1.81/16	—	18	1⅞	16	2	Min	14-10d	—	75	1640	1885	1980	1415	1625	1770	I9, L5, F8
				1⅞	16	2	Max	16-10d	—	75	1870	1980	1980	1615	1860	1980	
	MIU1.81/16	—	16	1¹³⁄₁₆	15⁵⁄₁₆	2½	—	24-16d	2-10dx1½	230	3410	3920	4005	2950	3395	3690	I9, F3
1¾ x 18 - 20	MIU1.81/18	—	16	1¹³⁄₁₆	17⁵⁄₁₆	2½	—	26-16d	2-10dx1½	230	3690	4005	4005	3200	3680	4000	
2 x 9½	IUS2.06/9.5	—	18	2⅛	9½	2	—	8-10d	—	75	935	1075	1170	810	930	1010	I9, F8
	IUT2.06/9	—	18	2¹⁄₁₆	9³⁄₁₆	2	—	8-10d	2-10dx1½	255	890	1020	1110	770	885	960	I9, L5, F8
2 x 11⅞	IUS2.06/11.88	—	18	2⅛	11⅞	2	—	10-10d	—	75	1170	1345	1465	1010	1160	1265	I9, L11, F8
	IUT2.06/11	—	18	2¹⁄₁₆	11³⁄₁₆	2	—	10-10d	2-10dx1½	255	1110	1275	1390	960	1105	1200	I9, L5, F8
2 x 14	IUS2.06/14	—	18	2⅛	14	2	Min	12-10d	—	75	1405	1615	1755	1210	1395	1515	I9, L11, F8
		—	18	2⅛	14	2	Max	14-10d	—	75	1640	1885	1980	1415	1625	1770	
	IUT2.06/14	—	18	2¹⁄₁₆	13¹³⁄₁₆	2	—	14-10d	2-10dx1½	255	1555	1785	1940	1345	1545	1680	I9, L5, F8
2 x 16	IUS2.06/16	—	18	2⅛	16	2	Min	14-10d	—	75	1640	1885	1980	1415	1625	1770	I9, L11, F8
		—	18	2⅛	16	2	Max	16-10d	—	75	1870	1980	1980	1615	1860	1980	
2¹⁄₁₆ x 9½	IUS2.06/9.5	—	18	2⅛	9½	2	—	8-10d	—	75	935	1075	1170	810	930	1010	I9, F8
	HU2.1/9	✓	14	2⅛	9	2½	—	14-16d	6-10dx1½	865	1875	2155	2345	1625	1870	2030	
2¹⁄₁₆ x 11⅞	IUS2.06/11.88	—	18	2⅛	11⅞	2	—	10-10d	—	75	1170	1345	1465	1010	1160	1265	I9, L11, F8
	HU2.1/11	✓	14	2⅛	11	2½	—	16-16d	6-10dx1½	865	2145	2465	2680	1855	2135	2320	I9, F8
2¹⁄₁₆ x 14	IUS2.06/14	—	18	2⅛	14	2	—	12-10d	—	75	1405	1615	1755	1210	1395	1515	I9, L11, F8
2¹⁄₁₆ x 16	IUS2.06/16	—	18	2⅛	16	2	—	14-10d	—	75	1640	1885	1980	1415	1625	1770	
2¼ x 9½ to 20	2¼" wide joists use the same hangers as 2⁵⁄₁₆" wide joists with the following load adjustments to the table loads: IUS and IUT download is the lesser of the table load or 1400 lbs. IUS uplift is 55 lbs. MIU and U downloads are the lesser of the table load or 2140 lbs.																
2⁵⁄₁₆ x 9½	IUS2.37/9.5	—	18	2⁷⁄₁₆	9½	2	—	8-10d	—	75	935	1075	1170	810	930	1010	170
	IUT3510	—	18	2⅜	9	2	—	8-10dx1½	2-10dx1½	255	730	835	910	625	720	780	I9, L5, F8
				2⅜	9	2	—	8-10d	2-10dx1½	255	890	1020	1110	770	885	960	
	MIU2.37/9	—	16	2⅜	9	2½	—	16-16d	2-10dx1½	230	2270	2615	2840	1970	2265	2460	I9, F3
	U3510/14	✓	16	2⁵⁄₁₆	9	2	—	14-16d	6-10dx1½	865	1860	2140	2330	1610	1850	2010	I9, F8
	HU359/HUC359	✓	14	2⅜	8¹⁵⁄₁₆	2½	Min	14-16d	6-10dx1½	865	1875	2155	2345	1625	1870	2030	
		✓	14	2⅜	8¹⁵⁄₁₆	2½	Max	18-16d	10-10dx1½	1440	2410	2775	3015	2090	2400	2610	
2⁵⁄₁₆ x 11⅞	IUS2.37/11.88	—	18	2⁷⁄₁₆	11⅞	2	—	10-10d	—	75	1170	1345	1465	1010	1160	1265	I9, L11, F8
	IUT3512	—	18	2⅜	11⅛	2	—	10-10dx1½	2-10dx1½	255	910	1045	1140	780	895	975	I9, L5, F8
				2⅜	11⅛	2	—	10-10d	2-10dx1½	255	1110	1275	1390	960	1105	1200	
	MIU2.37/11	—	16	2⅜	11¹⁄₁₆	2½	—	20-16d	2-10dx1½	230	2840	3265	3550	2460	2830	3075	I9, F3
	U3516/20	✓	16	2⁵⁄₁₆	10⁹⁄₁₆	2	—	16-16d	6-10dx1½	865	2130	2445	2660	1840	2115	2300	I9, F8
	HU3511/HUC3511	✓	14	2⅜	11¹⁄₁₆	2½	Min	16-16d	6-10dx1½	865	2145	2465	2680	1855	2135	2320	
		✓	14	2⅜	11¹⁄₁₆	2½	Max	22-16d	10-10dx1½	1440	2950	3390	3685	2550	2935	3190	
2⁵⁄₁₆ x 14	IUS2.37/14	—	18	2⁷⁄₁₆	14	2	Min	12-10d	—	75	1405	1615	1755	1210	1395	1515	I9, L11, F8
				2⁷⁄₁₆	14	2	Max	14-10d	—	75	1640	1885	1980	1415	1625	1770	
	IUT3514	—	18	2⅜	13¾	2	—	14-10dx1½	2-10dx1½	255	1275	1465	1590	1090	1255	1365	I9, L5, F8
				2⅜	13¾	2	—	14-10d	2-10dx1½	255	1555	1785	1940	1345	1545	1680	
	MIU2.37/14	—	16	2⅜	13½	2½	—	22-16d	2-10dx1½	230	3125	3595	3905	2705	3110	3385	I9, F3
	HU3514/HUC3514	✓	14	2⅜	13½	2½	Min	18-16d	8-10dx1½	1150	2410	2775	3015	2090	2400	2610	I9, F8
		✓	14	2⅜	13½	2½	Max	24-16d	12-10dx1½	1730	3215	3700	4020	2785	3200	3480	

See footnotes on opposite page.

CODES: See page 12 for Code Reference Key Chart.

FACE MOUNT HANGERS – I-JOISTS

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[6] Stiff Reqd	Ga	Dimensions W	H	B	Min/ Max	Fasteners Face	Joist	Allowable Loads DF/SP Species Header Uplift (160)	Floor (100)	Snow (115)	Roof (125)	SPF/HF Species Header Floor (100)	Snow (115)	Roof (125)	Code Ref.
2⅝ x 16	IUS2.37/16	—	18	2⅞	16	2	Min	14-10d	—	75	1640	1885	1980	1415	1625	1770	I9, L11, F8
				2⅞	16	2	Max	16-10d	—	75	1870	1980	1980	1615	1860	1980	
	IUT3516	—	18	2⅜	15⅞	2	—	16-10d	2-10dx1½	255	1775	1865	2165	1535	1765	1920	IL6
	MIU2.37/16	—	16	2⅜	15½	2½	—	24-16d	2-10dx1½	230	3410	3920	4005	2950	3395	3690	I9, F3
	HU3516/22/HUC3516/22	✓	14	2⅜	14¼	2½	—	20-16d	8-10dx1½	1150	2680	3080	3350	2320	2670	2900	I9, F8
2⅝ x 18	MIU2.37/18	—	16	2⅜	17½	2½	—	26-16d	2-10dx1½	230	3690	4005	4005	3200	3680	4000	I9, F3
	HU3524/30	✓	14	2⅜	18	2½	Min	18-16d	8-10dx1½	1150	2410	2775	3015	2090	2400	2610	I9, F8
		✓	14	2⅜	18	2½	Max	24-16d	14-10dx1½	2015	3215	3700	4020	2785	3200	3480	
2⅝ x 20	MIU2.37/20	—	16	2⅜	19½	2½	—	28-16d	2-10dx1½	230	3975	4005	4005	3445	3960	4005	I9, F3
2⅝ x 22 - 30	MIU2.37/20	✓	16	2⅜	19½	2½	—	28-16d	2-10dx1½	230	3975	4005	4005	3445	3960	4005	I9, F3
	HU3524/30		14	2⅜	18	2½	Min	18-16d	8-10dx1½	1150	2410	2775	3015	2090	2400	2610	I9, F8
				2⅜	18	2½	Max	24-16d	14-10dx1½	2015	3215	3700	4020	2785	3200	3480	
2⅞ x 9½ to 16	2⅞" wide joists use the same hangers as 2½" wide joists with the following load adjustments to the table loads: IUT/IUS download is same as table but not to exceed 1400 lbs. IUS uplift is 55 lbs. MIU download is same as table but not to exceed 2140 lbs.																
2½ x 9½	IUS2.56/9.5	—	18	2⅝	9½	2	—	8-10d	—	75	935	1070	1170	810	930	1010	I9, L11, F8
2½ x 9¼ - 9½	IUT310	—	18	2⅝	9⅛	2	—	8-10dx1½	2-10dx1½	255	730	835	910	625	720	780	I9, L5, F8
				2⅝	9⅛	2	—	8-10d	2-10dx1½	255	890	1020	1110	770	885	960	
	MIU2.56/9		16	2⅝	8¹⁵⁄₁₆	2½	—	16-16d	2-10dx1½	230	2270	2615	2840	1970	2265	2460	I9, F3
	HU310/HUC310	✓	14	2⅝	8⅞	2½	—	14-16d	6-10dx1½	865	1875	2155	2345	1625	1870	2030	I9, F8
2½ x 11⅞	IUS2.56/11.88	—	18	2⅝	11⅞	2	—	10-10d	—	75	1170	1345	1465	1010	1160	1265	I9, L11, F8
2½ x 11¼ - 11⅞	IUT312	—	18	2⅝	11¼	2	—	10-10dx1½	2-10dx1½	255	910	1045	1140	780	895	975	I9, L5, F8
				2⅝	11¼	2	—	10-10d	2-10dx1½	255	1110	1275	1390	960	1105	1200	
	MIU2.56/11		16	2⅝	11¹⁄₁₆	2½	—	20-16d	2-10dx1½	230	2840	3265	3550	2460	2830	3075	I9, F3
	HU312/HUC312	✓	14	2⅝	10⅝	2½	—	16-16d	6-10dx1½	865	2145	2465	2680	1855	2135	2320	I9, F8
2½ x 13	IUT313	—	18	2⅝	12¾	2	—	12-10d	2-10dx1½	255	1330	1530	1665	1150	1325	1440	IL17, L5
2½ x 14	IUS2.56/14	—	18	2⅝	14	2	Min	12-10d	—	75	1405	1615	1755	1210	1395	1575	I9, L11, F8
				2⅝	14	2	Max	14-10d	—	75	1640	1885	1980	1415	1625	1770	
	IUT314	—	18	2⅝	13¹³⁄₁₆	2	—	14-10dx1½	2-10dx1½	255	1275	1465	1590	1090	1255	1365	I9, L5, F8
				2⅝	13¹³⁄₁₆	2	—	14-10d	2-10dx1½	255	1555	1785	1940	1345	1545	1680	
	MIU2.56/14		16	2⅝	13⅞	2½	—	22-16d	2-10dx1½	230	3125	3595	3905	2705	3110	3385	I9, F3
	HU314/HUC314	✓	14	2⅝	12⅜	2½	—	18-16d	8-10dx1½	1150	2410	2775	3015	2090	2400	2610	I9, F8
2½ x 16	IUS2.56/16	—	18	2⅝	16	2	Min	14-10d	—	75	1640	1885	1980	1415	1625	1770	I9, L11, F8
				2⅝	16	2	Max	16-10d	—	75	1870	1980	1980	1615	1860	1980	
	IUT316	—	18	2⅝	15¾	2	—	16-10d	2-10dx1½	255	1775	2040	2220	1535	1765	1920	IL6
	MIU2.56/16		16	2⅝	15⅞	2½	—	24-16d	2-10dx1½	230	3410	3920	4005	2950	3395	3690	I9, F3
	HU316/HUC316	✓	14	2⅝	14⅛	2½	—	20-16d	8-10dx1½	1150	2680	3080	3350	2320	2670	2900	I9, F8
2½ x 18	MIU2.56/18	—	16	2⅝	17⅞	2½	—	26-16d	2-10dx1½	230	3690	4005	4005	3200	3680	4000	I9, F3
2½ x 20	MIU2.56/20	—	16	2⅝	19⅞	2½	—	28-16d	2-10dx1½	230	3975	4005	4005	3445	3960	4005	
2½ x 22 - 26	MIU2.56/20	✓	16	2⅝	19⅞	2½	—	28-16d	2-10dx1½	230	3975	4005	4005	3445	3960	4005	
3 x 9¼ - 9½	MIU3.12/9	—	16	3⅛	9¹⁄₁₆	2½	—	16-16d	2-10dx1½	230	2270	2615	2840	1970	2265	2460	
	HU210-2/HUC210-2	✓	14	3⅛	8¹³⁄₁₆	2½	Min	14-16d	6-10d	1085	1875	2155	2345	1625	1870	2030	I7, F6
				3⅛	8¹³⁄₁₆	2½	Max	18-16d	10-10d	1810	2410	2775	3015	2090	2400	2610	
3 x 11¼ - 11⅞	MIU3.12/11	—	16	3⅛	11⅛	2½	—	20-16d	2-10dx1½	230	2840	3265	3550	2460	2830	3075	I9, F3
	HU212-2/HUC212-2	✓	14	3⅛	10⁹⁄₁₆	2½	Min	16-16d	6-10d	1085	2145	2465	2680	1855	2135	2320	I7, F6
				3⅛	10⁹⁄₁₆	2½	Max	22-16d	10-10d	1810	2950	3390	3685	2550	2935	3190	
3 x 14 - 20	MIU3.12/11	✓	16	3⅛	11⅛	2½	—	20-16d	2-10dx1½	230	2840	3265	3550	2460	2830	3075	I9, F3
	HU212-2/HUC212-2		14	3⅛	10⁹⁄₁₆	2½	Min	16-16d	6-10d	1085	2145	2465	2680	1855	2135	2320	I7, F6
				3⅛	10⁹⁄₁₆	2½	Max	22-16d	10-10d	1810	2950	3390	3685	2550	2935	3190	
3½ x 9½	IUS3.56/9.5	—	18	3⅝	9½	2	—	10-10d	—	75	1170	1345	1465	1010	1160	1265	170
3½ x 9¼ - 9½	IUT410	—	18	3⁹⁄₁₆	9¼	2	—	8-10dx1½	2-10dx1½	255	730	835	910	625	720	780	I9, L5, F8
				3⁹⁄₁₆	9¼	2	—	8-10d	2-10dx1½	255	890	1020	1110	770	885	960	
	MIU3.56/9		16	3⁹⁄₁₆	8¹³⁄₁₆	2½	—	16-16d	2-10dx1½	230	2270	2615	2840	1970	2265	2460	I9, F3
3½ x 11⅞	IUS3.56/11.88	—	18	3⅝	11⅞	2	—	12-10d	—	75	1405	1615	1725	1210	1395	1515	I9, L11, F8
3½ x 11¼ - 11⅞	IUT412	—	18	3⁹⁄₁₆	11¼	2	—	10-10dx1½	2-10dx1½	255	910	1045	1140	780	895	975	I9, L5, F8
				3⁹⁄₁₆	11¼	2	—	10-10d	2-10dx1½	255	1110	1275	1390	960	1105	1200	
	MIU3.56/11		16	3⁹⁄₁₆	11⅛	2½	—	20-16d	2-10dx1½	230	2840	3265	3550	2460	2830	3075	I9, F3

1. 10d commons or 16d sinkers may be used instead of the specified 16d at 0.84 of the table load value.
2. 16d sinkers may be used instead of the specified 10d commons with no load reduction.
3. Uplift loads based on DF/SP lumber and have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6. For SPF/HF use 0.86 x DF/SP uplift load.
4. MIN nailing quantity and load values—fill all round holes; MAX nailing quantity and load values—fill all round and triangle holes.
5. Hangers sorted in order of recommended selection for best overall performance and installation value.
6. Web stiffeners are required where noted in the table or when either the joist top flange isn't supported laterally by the hanger or when supporting double I-joists with flanges less than 1⅝" thick.
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

CODES: See page 12 for Code Reference Key Chart.

FACE MOUNT HANGERS – I-JOISTS

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[6] Stiff Reqd	Ga	Dimensions			Min/ Max	Fasteners		Allowable Loads							Code Ref.
										DF/SP Species Header				SPF/HF Species Header			
				W	H	B		Face	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Floor (100)	Snow (115)	Roof (125)	
3½ x 14	IUS3.56/14	—	18	3⅝	14	2	Min	12-10d	—	75	1405	1615	1725	1210	1395	1515	I9, L11, F8
				3⅝	14	2	Max	14-10d	—	75	1640	1725	1725	1415	1625	1725	
	IUT414			3⁹⁄₁₆	13¾	2	—	14-10dx1½	2-10dx1½	255	1275	1465	1590	1090	1255	1365	I9, L5, F8
				3⁹⁄₁₆	13¾	2	—	14-10d	2-10dx1½	255	1555	1785	1940	1345	1545	1680	
	MIU3.56/14		16	3⁹⁄₁₆	13⁵⁄₁₆	2½	—	22-16d	2-10dx1½	230	3125	3595	3905	2705	3110	3385	I9, F3
3½ x 16	IUS3.56/16	—	18	3⅝	16	2	Min	14-10d	—	75	1640	1725	1725	1415	1625	1725	I9, L11, F8
				3⅝	16	2	Max	16-10d	—	75	1725	1725	1725	1615	1725	1725	
	IUT416			3⁹⁄₁₆	15¾	2	—	16-10dx1½	2-10dx1½	255	1455	1675	1820	1250	1435	1560	IL6
				3⁹⁄₁₆	15¾	2	—	16-10d	2-10dx1½	255	1775	2040	2165	1535	1765	1920	
	MIU3.56/16		16	3⁹⁄₁₆	15⁵⁄₁₆	2½	—	24-16d	2-10dx1½	230	3410	3920	4005	2950	3395	3690	I9, F3
3½ x 18	MIU3.56/18	—	16	3⁹⁄₁₆	17⁵⁄₁₆	2½	—	26-16d	2-10dx1½	230	3690	4005	4005	3200	3680	4000	
3½ x 20	MIU3.56/20	—	16	3⁹⁄₁₆	19⁵⁄₁₆	2½	—	28-16d	2-10dx1½	230	3975	4005	4005	3445	3960	4005	
3½ x 22 - 30	MIU3.56/20	✓	16	3⁹⁄₁₆	19⁵⁄₁₆	2½	—	28-16d	2-10dx1½	230	3975	4005	4005	3445	3960	4005	
4 x 9½	MIU4.12/9	—	16	4⅛	9¹⁄₁₆	2½	—	16-16d	2-10dx1½	230	2270	2615	2840	1970	2265	2460	
	HU4.12/9/HUC4.12/9	✓	14	4⅛	8⅝	2½	Min	14-16d	6-10d	1085	1875	2155	2345	1625	1870	2030	I9, F8
		✓	14	4⅛	8⅝	2½	Max	18-16d	10-10d	1810	2410	2775	3015	2090	2400	2610	
4 x 11⅞ - 16	MIU4.12/11	—	16	4⅛	11⅛	2½	—	20-16d	2-10dx1½	230	2840	3265	3550	2460	2830	3075	I9, F3
	HU4.12/11/HUC4.12/11	✓	14	4⅛	10⁵⁄₁₆	2½	Min	16-16d	6-10d	1085	2145	2465	2680	1855	2135	2320	I9, F8
		✓	14	4⅛	10⁵⁄₁₆	2½	Max	22-16d	10-10d	1810	2950	3390	3685	2550	2935	3190	
4 x 14	MIU4.12/14	—	16	4⅛	13⁹⁄₁₆	2½	—	22-16d	2-10dx1½	230	3125	3595	3905	2705	3110	3385	I9, F3
4 x 16	MIU4.12/16	—	16	4⅛	15⁹⁄₁₆	2½	—	24-16d	2-10dx1½	230	3410	3920	4005	2950	3395	3690	
4⅛ x 9½	MIU4.28/9	—	16	4⁹⁄₃₂	9	2½	—	16-16d	2-10dx1½	230	2270	2615	2840	1970	2265	2460	
	HU4.28/9/HUC4.28/9	✓	14	4⁹⁄₃₂	9	2½	—	18-16d	8-10d	1445	2410	2775	3015	2070	2400	2610	I9, F8
4⅛ x 11⅞	MIU4.28/11	—	16	4⁹⁄₃₂	11⅛	2½	—	20-16d	2-10dx1½	230	2840	3265	3550	2460	2830	3075	I9, F3
	HU4.28/11/HUC4.28/11	✓	14	4⁹⁄₃₂	11	2½	—	22-16d	8-10d	1445	2950	3390	3685	2550	2935	3190	170
4⅛ x 14	MIU4.28/14	—	16	4⁹⁄₃₂	13½	2½	—	22-16d	2-10dx1½	230	3125	3595	3905	2705	3110	3385	I9, F3
4⅛ x 16	MIU4.28/16	—	16	4⁹⁄₃₂	15½	2½	—	24-16d	2-10dx1½	230	3410	3920	4005	2950	3395	3690	
4½ x 9½ to 20[10]	4½" wide joists use the same hangers as 4⅝" wide joists with the following loads adjustments: MIU and U downloads are the lesser of the table load or 2140 lbs.																
4⅝ x 9¼ - 9½	MIU4.75/9	—	16	4¾	9¹⁄₁₆	2½	—	16-16d	2-10dx1½	230	2270	2615	2840	1970	2265	2460	I9, F3
	U3510-2	✓	16	4¾	8¾	2	—	14-16d	6-10d	1065	1860	2140	2330	1610	1850	2010	I9, F8
	HU4.75/9/HUC4.75/9	✓	14	4¾	9	2½	—	18-16d	8-10d	1445	2410	2775	3015	2070	2400	2610	
4⅝ x11¼ - 11⅞	MIU4.75/11	—	16	4¾	11¹⁄₁₆	2½	—	20-16d	2-10dx1½	230	2840	3265	3550	2460	2830	3075	I9, F3
	U3512-2	✓	16	4¾	11¼	2	—	16-16d	6-10d	1065	2130	2445	2660	1840	2115	2300	I9, F8
	HU4.75/11/HUC4.75/11	✓	14	4¾	11	2½	—	22-16d	8-10d	1445	2950	3390	3685	2550	2935	3190	170
4⅝ x 14	MIU4.75/14	—	16	4¾	13½	2½	—	22-16d	2-10dx1½	230	3125	3595	3905	2705	3110	3385	I9, F3
	HU3514-2/HUC3514-2	✓	14	4¾	13¼	2½	—	18-16d	8-10d	1445	2410	2775	3015	2090	2400	2610	I9, F8
4⅝ x 16	MIU4.75/16	—	16	4¾	15½	2½	—	24-16d	2-10dx1½	230	3410	3920	4005	2950	3395	3690	I9, F3
	HU3516-2/HUC3516-2	✓	14	4¾	15¼	2½	Min	20-16d	8-10d	1445	2680	3080	3350	2320	2670	2900	I9, F8
				4¾	15¼	2½	Max	26-16d	12-10d	2015	3485	4005	4355	3015	3470	3770	
4⅝ x 18	MIU4.75/18	—	16	4¾	17½	2½	—	26-16d	2-10dx1½	230	3690	4005	4005	3200	3680	4000	I9, F3
4⅝ x 20	MIU4.75/20	—	16	4¾	19½	2½	—	28-16d	2-10dx1½	230	3975	4005	4005	3445	3960	4005	
	HU3520-2	✓	14	4¾	19¼	2½	Min	20-16d	8-10d	1445	2680	3080	3350	2320	2670	2900	I9, F8
				4¾	19¼	2½	Max	26-16d	12-10d	2170	3485	4005	4355	3015	3470	3770	
4⅝ x 22 - 30	MIU4.75/20	✓	16	4¾	19½	2½	—	28-16d	2-10dx1½	230	3975	4005	4005	3445	3960	4005	I9, F3
	HU3520-2		14	4¾	19¼	2½	Min	20-16d	8-10d	1445	2680	3080	3350	2320	2670	2900	I9, F8
				4¾	19¼	2½	Max	26-16d	12-10d	2170	3485	4005	4355	3015	3470	3770	
5 x 9¼ - 9½	MIU5.12/9	—	16	5⅛	8¹³⁄₁₆	2½	—	16-16d	2-10dx1½	230	2270	2615	2840	1970	2265	2460	I9, F3
	HU310-2/HUC310-2	✓	14	5⅛	8⅞	2½	—	14-16d	6-10d	1085	1875	2155	2345	1625	1870	2030	I9, F8
5 x 11¼ - 11⅞	MIU5.12/11	—	16	5⅛	11⅛	2½	—	20-16d	2-10dx1½	230	2840	3265	3550	2460	2830	3075	I9, F3
	HU312-2/HUC312-2	✓	14	5⅛	10⅝	2½	—	16-16d	6-10d	1085	2145	2465	2680	1855	2135	2320	I9, F8
5 x 14	MIU5.12/14	—	16	5⅛	13⁵⁄₁₆	2½	—	22-16d	2-10dx1½	230	3125	3595	3905	2705	3110	3385	I9, F3
5 x 16	MIU5.12/16	—	16	5⅛	15⁵⁄₁₆	2½	—	24-16d	2-10dx1½	230	3410	3920	4005	2950	3395	3690	
5 x 18	MIU5.12/18	—	16	5⅛	17⁵⁄₁₆	2½	—	26-16d	2-10dx1½	230	3690	4005	4005	3200	3680	4000	
5 x 20	MIU5.12/20	—	16	5⅛	19⁵⁄₁₆	2½	—	28-16d	2-10dx1½	230	3975	4005	4005	3445	3960	4005	
5 x 22 - 30	MIU5.12/20	✓	16	5⅛	19⁵⁄₁₆	2½	—	28-16d	2-10dx1½	230	3975	4005	4005	3445	3960	4005	
7 x 9¼ - 9½	HU410-2/HUC410-2	✓	14	7⅛	9⅛	2½	Min	14-16d	6-16d	1285	1875	2155	2345	1625	1870	2030	I9, F8
		✓	14	7⅛	9⅛	2½	Max	18-16d	8-16d	1715	2410	2775	3015	2090	2400	2610	
7 x 11¼ - 11⅞	HU412-2/HUC412-2	✓	14	7⅛	11⅛	2½	Min	16-16d	6-16d	1285	2145	2465	2680	1855	2135	2320	I9, F8
		✓	14	7⅛	11⅛	2½	Max	22-16d	8-16d	1715	2950	3390	3685	2550	2935	3190	
7 x 14	HU414-2/HUC414-2	✓	14	7⅛	13⅞	2½	Min	20-16d	8-16d	1715	2680	3080	3350	2320	2670	2900	
		✓	14	7⅛	13⅞	2½	Max	26-16d	12-16d	2575	3485	4005	4355	3015	3470	3770	

See footnotes on page 85.

CODES: See page 12 for Code Reference Key Chart.

FACE MOUNT HANGERS – STRUCTURAL COMPOSITE LUMBER

SIMPSON Strong-Tie®

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

CODES: See page 12 for Code Reference Key Chart.

Actual Joist Size	Model No.	Ga	Dimensions			Min/ Max	Fasteners		Allowable Loads							Code Ref.
									DF/SP Species Header				SPF/HF Species Header			
			W	H	B		Face	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Floor (100)	Snow (115)	Roof (125)	
1¾ x 5½	HU1.81/5	14	1 13/16	5 3/8	2½	Min	12-16d	4-10dx1½	575	1610	1850	2010	1390	1600	1740	170
			1 13/16	5 3/8	2½	Max	16-16d	6-10dx1½	865	2145	2465	2680	1855	2135	2320	
1¾ x 7¼	HU7	14	1 13/16	6 11/16	2½	Min	12-16d	4-10dx1½	575	1610	1850	2010	1390	1600	1740	I9, F8
			1 13/16	6 11/16	2½	Max	16-16d	8-10dx1½	1150	2145	2465	2680	1855	2135	2320	
1¾ x 9½	HUS1.81/10	16	1 13/16	8 3/8	3	—	30-16d	10-16d	3000	4900	5045	5145	4355	5010	5145	F23
	HU9	14	1 13/16	9 5/16	2½	Min	18-16d	6-10dx1½	865	2410	2775	3015	2090	2400	2610	I9, F8
			1 13/16	9 5/16	2½	Max	24-16d	10-10dx1½	1440	3215	3700	4020	2785	3200	3480	
	HUCQ1.81/9-SDS		1 13/16	9	3	—	8-SDS ¼"x1¾"	4-SDS ¼"x1¾"	1505	2000	2300	2500	1490	1655	1800	F23
1¾ x 11¼ - 11⅞	HUS1.81/10	16	1 13/16	8 3/8	3	—	30-16d	10-16d	3000	4900	5045	5145	4355	5010	5145	
	HU11	14	1 13/16	11 1/16	2½	Min	22-16d	6-10dx1½	865	2950	3390	3685	2550	2935	3190	170
			1 13/16	11 1/16	2½	Max	30-16d	10-10dx1½	1440	4020	4315	4405	3480	4000	4350	
	HUCQ1.81/11-SDS		1 13/16	11	3	—	10-SDS ¼"x1¾"	4-SDS ¼"x1¾"	1505	2500	2875	3125	1800	2070	2250	F23
1¾ x 14	HUS1.81/10	16	1 13/16	8 3/8	3	—	30-16d	10-16d	3000	4900	5045	5145	4355	5010	5145	
	U14		1 13/16	10¼	2	—	14-16d	6-10dx1½	865	1860	2140	2330	1610	1850	2010	
	HU14	14	1 13/16	13 11/16	2½	Min	28-16d	8-10dx1½	1150	3750	4110	4180	3250	3735	4060	I9, F8
			1 13/16	13 11/16	2½	Max	36-16d	14-10dx1½	2015	4540	4730	4855	4175	4730	4855	
	HUCQ1.81/11-SDS		1 13/16	11	3	—	10-SDS ¼"x1¾"	4-SDS ¼"x1¾"	1505	2500	2875	3125	1800	2070	2250	F23
2 11/16 x 9¼ - 9½	HU2.75/10/ HUC2.75/10	14	2¾	9	2½	Min	14-16d	6-10dx1½	865	1875	2155	2345	1625	1870	2030	I9, F8
			2¾	9	2½	Max	18-16d	10-10dx1½	1440	2410	2775	3015	2090	2400	2610	
	HGUS2.75/10	12	2¾	8 15/16	4	—	46-16d	16-16d	3630	7940	8220	8410	5980	6195	6335	F23
2 11/16 x 11¼ - 11⅞	HU2.75/12/ HUC2.75/12	14	2¾	10¾	2½	Min	16-16d	6-10dx1½	865	2145	2465	2680	1855	2135	2320	I9, F8
			2¾	10¾	2½	Max	22-16d	10-10dx1½	1440	2950	3390	3685	2550	2935	3190	
	HGUS2.75/12	12	2¾	10 15/16	4	—	56-16d	20-16d	4055	8410	8760	8995	6335	6600	6775	F23
2 11/16 x 14	HU2.75/14/ HUC2.75/14	14	2¾	13	2½	Min	18-16d	8-10dx1½	1150	2410	2775	3015	2090	2400	2610	I9, F8
			2¾	13	2½	Max	24-16d	14-10dx1½	2015	3215	3700	4020	2785	3200	3480	
	HGUS2.75/14	12	2¾	12 15/16	4	—	66-16d	22-16d	5380	8645	9030	9285	6510	6800	6995	F23
2 11/16 x 16	HU2.75/16/ HUC2.75/16	14	2¾	14 1/16	2½	Min	20-16d	8-10dx1½	1150	2680	3080	3350	2320	2670	2900	I9, F8
			2¾	14 1/16	2½	Max	26-16d	14-10dx1½	2015	3485	4005	4355	3015	3470	3770	
	HGUS2.75/14	12	2¾	12 15/16	4	—	66-16d	22-16d	5380	8645	9030	9285	6510	6800	6995	F23
3½ x 7¼	HU48/HUC48	14	3 9/16	6 13/16	2½	Min	10-16d	4-10d	725	1340	1540	1675	1160	1335	1365	I7, F6
			3 9/16	6 13/16	2½	Max	14-16d	6-10d	1085	1875	2155	2345	1625	1870	2030	
	HGUS46	12	3⅝	4 7/16	4	—	20-16d	8-16d	2325	3940	4535	4930	3410	3920	4260	IL14, F23
	HHUS48	14	3⅝	7⅛	3	—	22-16d	8-16d	2000	3885	4465	4885	3275	3765	4095	I9, F8
	HGUS48	12	3⅝	7 1/16	4	—	36-16d	12-16d	3220	6805	7830	7925	5890	6655	6655	IL14, F23
3½ x 9¼ - 9½	U410	16	3 9/16	8⅜	2	—	14-16d	6-10d	1065	1860	2140	2330	1610	1850	2010	I9, F8
	HUS410	14	3 9/16	8 15/16	2	—	8-16d	8-16d	2590	2010	2310	2510	1650	1900	2065	
	HU410/HUC410		3 9/16	8⅝	2½	Min	14-16d	6-10d	1085	1875	2155	2345	1625	1870	2030	
			3 9/16	8⅝	2½	Max	18-16d	10-10d	1810	2410	2775	3015	2090	2400	2610	
	HHUS410		3⅝	9	3	—	30-16d	10-16d	3430	5190	5900	5900	4385	5040	5480	
	HUCQ410-SDS		3 9/16	9	3	—	12-SDS ¼"x2½"	6-SDS ¼"x2½"	3155	4680	4955	4955	3370	3570	3570	F23
	HGUS48	12	3⅝	7 1/16	4	—	36-16d	12-16d	3220	6805	7830	7925	5890	6655	6655	IL14, F23
	HGUS410		3⅝	9 1/16	4	—	46-16d	16-16d	3630	8780	8940	8940	7365	7510	7510	
3½ x 11¼ - 11⅞	U410	16	3 9/16	8⅜	2	—	14-16d	6-10d	1065	1860	2140	2330	1610	1850	2010	I9, F8
	HUS412	14	3 9/16	10½	2	—	10-16d	10-16d	3240	2510	2885	3140	2065	2375	2580	
	HU412/HUC412		3 9/16	10 5/16	2½	Min	16-16d	6-10d	1085	2145	2465	2680	1855	2135	2320	
			3 9/16	10 5/16	2½	Max	22-16d	10-10d	1810	2950	3390	3685	2550	2935	3190	
	HHUS410		3⅝	9	3	—	30-16d	10-16d	3430	5190	5900	5900	4385	5040	5480	
	HUCQ412-SDS		3 9/16	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	3155	5460	5560	5560	3930	4005	4005	F23
	HGUS48	12	3⅝	7 1/16	4	—	36-16d	12-16d	3220	6805	7830	7925	5890	6655	6655	IL14, F23
	HGUS410		3⅝	9 1/16	4	—	46-16d	16-16d	3630	8780	8940	8940	7365	7510	7510	
	HGUS412		3⅝	10 7/16	4	—	56-16d	20-16d	4055	9155	9155	9155	7690	7690	7690	F23
3½ x 14	U414	16	3 9/16	10	2	—	16-16d	6-10d	1065	2130	2445	2660	1840	2115	2300	I9, F8
	HU416/HUC416	14	3 9/16	13⅝	2½	Min	20-16d	8-10d	1445	2680	3080	3350	2320	2670	2900	
			3 9/16	13⅝	2½	Max	26-16d	12-10d	2015	3485	4005	4355	3015	3470	3770	
	HHUS410		3⅝	9	3	—	30-16d	10-16d	3430	5190	5900	5900	4385	5040	5480	
	HGUS410	12	3⅝	9	4	—	46-16d	16-16d	3630	8780	8940	8940	7365	7510	7510	IL14, F23
	HGUS414		3⅝	12 7/16	4	—	66-16d	22-16d	5380	10015	10015	10015	7890	8185	8380	F23
	HUCQ412-SDS	14	3 9/16	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	3155	5460	5560	5560	3930	4005	4005	

1. 10d commons or 16d sinkers may be used instead of the specified 16d at 0.84 of the table load value.
2. 16d sinkers may be used instead of the specified 10d commons with no load reduction.
3. Uplift loads based on DF/SP lumber and have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6. For SPF/HF, use 0.86 x DF/SP Uplift Load for products requiring nails and 0.72 x DF/SP Uplift Load for products requiring screws.
4. MIN nailing quantity and load values—fill all round holes; MAX nailing quantity and load values—fill all round and triangle holes.
5. Hangers sorted in order of recommended selection for best overall performance and installation value.
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

FACE MOUNT HANGERS – STRUCTURAL COMPOSITE LUMBER

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Ga	Dimensions			Min/ Max	Fasteners		Allowable Loads							Code Ref.
									DF/SP Species Header				SPF/HF Species Header			
			W	H	B		Face	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Floor (100)	Snow (115)	Roof (125)	
3½ x 16	HU416/HUC416	14	3⁹⁄₁₆	13⅝	2½	Min	20-16d	8-10d	1445	2680	3080	3350	2320	2670	2900	I9, F8
			3⁹⁄₁₆	13⅝	2½	Max	26-16d	12-10d	2015	3485	4005	4355	3015	3470	3770	
	HGUS410	12	3⅝	9	4	—	46-16d	16-16d	3630	8780	8940	8940	7365	7510	7510	IL14, F23
	HGUS412		3⅝	10⁷⁄₁₆	4	—	56-16d	20-16d	4055	9155	9155	9155	7690	7690	7690	F23
	HGUS414		3⅝	12⁷⁄₁₆	4	—	66-16d	22-16d	5380	10015	10015	10015	7890	8185	8380	
	HUCQ412-SDS	14	3⁹⁄₁₆	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	3155	5315	5315	5315	3825	3825	3825	
3½ x 18	HU416/HUC416	14	3⁹⁄₁₆	13⅝	2½	Min	20-16d	8-10d	1445	2680	3080	3350	2320	2670	2900	I9, F8
			3⁹⁄₁₆	13⅝	2½	Max	26-16d	12-10d	2015	3485	4005	4050	3015	3470	3485	
	HGUS412	12	3⅝	10⁷⁄₁₆	4	—	56-16d	20-16d	4055	9155	9155	9155	7690	7690	7690	F23
	HGUS414		3⅝	12⁷⁄₁₆	4	—	66-16d	22-16d	5380	10015	10015	10015	7890	8185	8380	
	HUCQ412-SDS	14	3⁹⁄₁₆	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	3155	5315	5315	5315	3825	3825	3825	
5¼ x 7¼	HU68/HUC68	14	5½	5¹³⁄₁₆	2½	Min	10-16d	4-16d	860	1340	1540	1675	1160	1335	1450	I7, F6
			5½	5¹³⁄₁₆	2½	Max	14-16d	6-16d	1285	1875	2155	2345	1625	1870	2030	
5¼ x 9¼ - 9½	HU610/HUC610	14	5½	7⅝	2½	Min	14-16d	6-16d	1285	1875	2155	2345	1625	1870	2030	I9, F8
			5½	7⅝	2½	Max	18-16d	8-16d	1715	2410	2775	3015	2090	2400	2610	
	HHUS5.50/10		5½	9	3	—	30-16d	10-16d	3430	5190	5970	6490	4385	5040	5480	F23
	HUCQ610-SDS		5½	9	3	—	12-SDS ¼"x2½"	6-SDS ¼"x2½"	3025	4680	5315	5315	3370	3825	3825	
	HGUS5.50/10	12	5½	8¹⁵⁄₁₆	4	—	46-16d	16-16d	3630	8780	8940	8940	7510	7510	7510	
5¼ x 11¼ - 11⅞	HU612/HUC612	14	5½	9⅜	2½	Min	16-16d	6-16d	1285	2145	2465	2680	1855	2135	2320	I9, F8
			5½	9⅜	2½	Max	22-16d	8-16d	1715	2950	3390	3685	2550	2935	3190	
	HHUS5.50/10		5½	9	3	—	30-16d	10-16d	3430	5190	5970	6490	4385	5040	5480	F23
	HUCQ612-SDS		5½	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	3025	5315	5315	5315	3825	3825	3825	
	HGUS5.50/12	12	5½	10½	4	—	56-16d	20-16d	4055	9155	9155	9155	7690	7690	7690	
5¼ x 14	HU616/HUC616	14	5½	12¹¹⁄₁₆	2½	Min	20-16d	8-16d	1715	2680	3080	3350	2320	2670	2900	I9, F8
			5½	12¹¹⁄₁₆	2½	Max	26-16d	12-16d	2575	3485	4005	4255	3015	3470	3770	
	HHUS5.50/10		5½	9	3	—	30-16d	10-16d	3430	5190	5970	6490	4385	5040	5480	F23
	HUCQ612-SDS		5½	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	3025	5315	5315	5315	3825	3825	3825	
	HGUS5.50/14	12	5½	12½	4	—	66-16d	22-16d	5380	10015	10015	10015	8415	8415	8415	
5¼ x 16	HU616/HUC616	14	5½	12¹¹⁄₁₆	2½	Min	20-16d	8-16d	1715	2680	3080	3350	2320	2670	2900	I9, F8
			5½	12¹¹⁄₁₆	2½	Max	26-16d	12-16d	2575	3485	4005	4355	3015	3470	3770	
	HHUS5.50/10		5½	9	3	—	30-16d	10-16d	3430	5190	5970	6490	4385	5040	5480	F23
	HUCQ612-SDS		5½	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	3025	5315	5315	5315	3825	3825	3825	
	HGUS5.50/14	12	5½	12½	4	—	66-16d	22-16d	5380	10015	10015	10015	8415	8415	8415	
5¼ x 18	HU616/HUC616	14	5½	12¹¹⁄₁₆	2½	Min	20-16d	8-16d	1715	2680	3080	3350	2320	2670	2900	I9, F8
			5½	12¹¹⁄₁₆	2½	Max	26-16d	12-16d	2575	3485	4005	4255	3015	3470	3770	
	HHUS5.50/10		5½	9	3	—	30-16d	10-16d	3430	5190	5970	6490	4385	5040	5480	F23
	HUCQ612-SDS		5½	11	3	—	14-SDS ¼"x2½"	6-SDS ¼"x2½"	3025	5315	5315	5315	3825	3825	3825	
	HGUS5.50/14	12	5½	12½	4	—	66-16d	22-16d	5380	10015	10015	10015	8415	8415	8415	
7 x 9¼ - 9½	HU410-2/ HUC410-2	14	7⅛	9⅛	2½	Min	14-16d	6-16d	1285	1875	2155	2345	1625	1870	2030	I9, F8
			7⅛	9⅛	2½	Max	18-16d	8-16d	1715	2410	2775	3015	2090	2400	2610	
	HHUS7.25/10		7¼	9	3⁵⁄₁₆	—	30-16d	10-16d	3430	5190	5970	6490	4385	5040	5480	F23
	HGUS7.25/10	12	7¼	8⅝	4	—	46-16d	16-16d	3630	8780	9625	9625	7595	8085	8085	
7 x 11¼ - 11⅞	HU412-2/ HUC412-2	14	7⅛	11⅛	2½	Min	16-16d	6-16d	1285	2145	2465	2680	1855	2135	2320	I9, F8
			7⅛	11⅛	2½	Max	22-16d	8-16d	1715	2950	3390	3685	2550	2935	3190	
	HHUS7.25/10		7¼	9	3⁵⁄₁₆	—	30-16d	10-16d	3430	5190	5970	6490	4385	5040	5480	F23
	HGUS7.25/12	12	7¼	10⅝	4	—	56-16d	20-16d	4055	9835	9835	9835	8260	8260	8260	
7 x 14	HU414-2 HUC414-2	14	7⅛	13⅞	2½	Min	20-16d	8-16d	1715	2680	3080	3350	2320	2670	2900	I9, F8
			7⅛	13⅞	2½	Max	26-16d	12-16d	2575	3485	4005	4355	3015	3470	3770	
	HHUS7.25/10		7¼	9	3⁵⁄₁₆	—	30-16d	10-16d	3430	5190	5970	6490	4385	5040	5480	F23
	HGUS7.25/14	12	7¼	12⅝	4	—	66-16d	22-16d	5380	11110	11110	11110	9330	9330	9330	
7 x 16	HU414-2/ HUC414-2	14	7⅛	13⅞	2½	Min	20-16d	8-16d	1715	2680	3080	3350	2320	2670	2900	I9, F8
			7⅛	13⅞	2½	Max	26-16d	12-16d	2575	3485	4005	4355	3015	3470	3770	
	HHUS7.25/10		7¼	9	3⁵⁄₁₆	—	30-16d	10-16d	3430	5190	5970	6490	4385	5040	5480	F23
	HGUS7.25/14	12	7¼	12⁷⁄₁₆	4	—	66-16d	22-16d	5380	11110	11110	11110	9330	9330	9330	
7 x 18	HU414-2/ HUC414-2	14	7⅛	13⅞	2½	Min	20-16d	8-16d	1715	2680	3080	3350	2320	2670	2900	I9, F8
			7⅛	13⅞	2½	Max	26-16d	12-16d	2575	3485	4005	4355	3015	3470	3770	
	HHUS7.25/10		7¼	9	3⁵⁄₁₆	—	30-16d	10-16d	3430	5190	5970	6490	4385	5040	5480	F23
	HGUS7.25/14	12	7¼	12⁷⁄₁₆	4	—	66-16d	22-16d	5380	11110	11110	11110	9330	9330	9330	

1. 10d commons or 16d sinkers may be used instead of the specified 16d at 0.84 of the table load value.
2. 16d sinkers may be used instead of the specified 10d commons with no load reduction.
3. Uplift loads based on DF/SP lumber and have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6. For SPF/HF, use 0.86 x DF/SP Uplift Load for products requiring nails and 0.72 x DF/SP Uplift Load for products requiring screws.
4. MIN nailing quantity and load values—fill all round holes; MAX nailing quantity and load values—fill all round and triangle holes.
5. Hangers sorted in order of recommended selection for best overall performance and installation value.
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, See page 16-17 for other nail sizes and information.

CODES: See page 12 for Code Reference Key Chart.

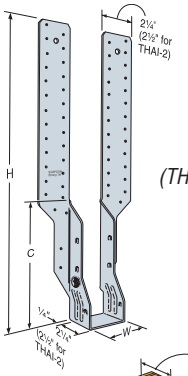
THAI *I-Joist & Structural Composite Lumber Hangers*

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.

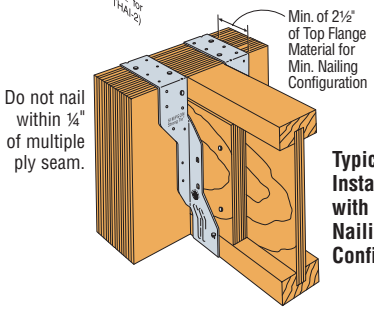
MATERIAL: THAI-2–14 gauge; all others–18 gauge **FINISH:** Galvanized

INSTALLATION:
- Use all specified fasteners. Verify that the header can take the fasteners specified in the table.
- Web stiffeners are required for all I-joists used with these hangers.
- When a total of 20 face nails are used in THAI straps, or 30 face nails are used in THAI-2 straps, the maximum load-carrying capacity is achieved.
- Reduce load given by allowable nail shear capacity for each nail less than maximum.
- A minimum nailing configuration is shown for top nailing installations. The strap must be field-formed over the top of the header by a minimum of 2½".

CODES: See page 12 for Code Reference Key Chart.



THAI
(THAI-2 similar)



Typical THAI Installation with Minimum Nailing Configuration

Joist Dimensions		Model No.	Hanger Dimensions			Code Ref.
Width	Depth		W[1]	H	C	
1½	9¼ - 14"	THAI222	1⁹⁄₁₆	22⅞	9⅜	I8, L5, F7
1¾	9¼ - 14"	THAI1.81/22	1¹³⁄₁₆	22¾	9¼	I8, L5
2	9¼ - 14"	THAI2.06/22	2¹⁄₁₆	22⅝	9⅛	I8, L5, F7
2¹⁄₁₆	9¼ - 14"	THAI2.1/22	2⅛	22⁹⁄₁₆	9⅛	
2¼ to 2⁵⁄₁₆	9¼ - 14"	THAI3522	2⁵⁄₁₆	22½	9	
2½	9¼ - 14"	THAI322	2⁹⁄₁₆	22⅜	8⅞	
3½	9¼ - 14"	THAI422	3⁹⁄₁₆	21⅞	8⅜	
3 to 5¼	9¼ - 14"	THAI-2	3⅛ to 5⁵⁄₁₆	21¹¹⁄₁₆	8¹³⁄₁₆	

1. The W dimension should be ordered at ⅛" to ⅛" greater than the joist width.

Nailing Options	Fasteners			Uplift (160)	Allowable Loads								
					LVL Header			DF/SP Header			SPF/HF Header		
	Top	Face	Joist		Floor (100)	Snow (115)	Roof (125)	Floor (100)	Snow (115)	Roof (125)	Floor (100)	Snow (115)	Roof (125)
THAI Minimum	4-10dx1½	2-10dx1½	2-10dx1½	—	1400	1400	1400	1400	1400	1400	1060	1060	1060
	4-10d	2-10d	2-10dx1½	—	1715	1715	1715	1835	1835	1835	1590	1590	1590
THAI Maximum	—	20-10d	2-10dx1½	215	2200	2200	2200	2200	2200	2200	1920	2200	2200
THAI-2 Minimum	4-10d	2-10d	2-10dx1½	—	2020	2020	2020	2020	2020	2020	2020	2020	2020
THAI-2 Maximum	—	30-10d	2-10dx1½	215	3390	3900	4135	3390	3900	4135	2940	3310	3310

1. Uplift loads are based on DF/SP lumber and have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie Connector® Selector™ software or conservatively divide the uplift load by 1.6. For SPF/HF use 0.86 x DF/SP uplift load.
2. Roof loads are 125% of floor loads unless limited by other criteria.
3. The minimum header depth to achieve the maximum nail configuration is 16".
4. **For the THAI3522 supporting a 2¼" joist, the download shall be the lesser of the table load or 1400 lbs.**
5. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information

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

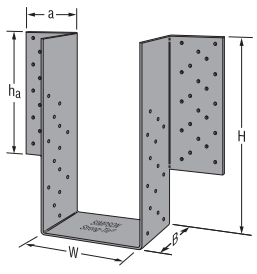
The GU hangers are a high-capacity girder hangers designed for situations where the header and joist are flush at top. This part can be used for retrofit on the framing members after they are temporarily placed in position. It uses Simpson Strong-Tie® Strong-Drive® screws (SDS) to make installation fast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

MATERIAL: See table **FINISH**: Galvanized, HHGU—Simpson Strong-Tie® gray paint

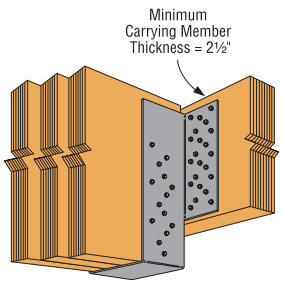
INSTALLATION:
- Use all specified fasteners. See General Notes.
- Install with Simpson Strong-Tie SDS ¼"x2½" screws, which are provided with the GU's. *(Note: lag screws will not achieve the same loads.)*
- All multiple members must be fastened together to act as a single unit.
- Multiple member headers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

OPTIONS:
- Hot-dip galvanized available. Order as "X" version, specify HDG.
- Other seat widths available. Order as "X" version, specify width.
- See Hanger Options, pages 181-183, for one flange concealed option *(all models except MGU3.63)*.

CODES: See page 12 for Code Reference Key Chart.



HHGU



Typical HHGU Installation

Actual Carried Beam Width	Model No.	Ga	Dimensions					Fasteners		Allowable Loads				Code Ref.
			W	H[2] (min)	B	h_a[3]	a	Face	Joist	DF/SP		SPF/HF		
										Uplift 160	Download 100/115/125	Uplift 160	Download 100/115/125	
3½	LGU3.63-SDS	10	3⅝	8	4½	7⅜	3¼	16-SDS ¼"x2½"	12-SDS ¼"x2½"	5555	6720	4000	4840	F23
3½	MGU3.63-SDS	10	3⅝	9¼	4½	8⅝	4	24-SDS ¼"x2½"	16-SDS ¼"x2½"	7260	9450	5225	6805	
5¼	MGU5.50-SDS	10	5½	9¼	4½	8⅝	4	24-SDS ¼"x2½"	16-SDS ¼"x2½"	7260	9450	5225	6805	
5¼	HGU5.50-SDS	7	5½	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	
5¼	HHGU5.50-SDS	3	5½	13	5¼	12⅜	4¾	44-SDS ¼"x2½"	28-SDS ¼"x2½"	14550	17845	10475	12850	
7	HGU7.25-SDS	7	7¼	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	
7	HHGU7.25-SDS	3	7¼	13	5¼	12⅜	4¾	44-SDS ¼"x2½"	28-SDS ¼"x2½"	14550	17845	10475	12850	

1. Uplift loads have been increased for earthquake and wind loading, with no further increase allowed.
2. Specify H dimension. Maximum H = 30".
3. Header height must be at least as tall as flange height (h_a).

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

SIMPSON Strong-Tie®

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

A dedicated range of Top Flange I-joist hangers meeting the unique needs of I-joists while offering superior performance and ease of installation.

ITS

The innovative ITS sets a new standard for engineered wood top flange hangers. The ITS installs faster and uses fewer nails than any other EWP top flange hanger. The new Strong-Grip™ seat and Funnel Flange™ features allow standard joist installation without requiring joist nails resulting in the lowest installed cost. The Strong-Grip seat firmly secures I-joists with flange thicknesses from 1⅛" to 1½". The ITS design maintains superior allowable download capacities equal to or greater than the ITT for Douglas Fir and all SCL headers.

ITT

The ITT's special bend-tabs constrains the I-joist, helping to reduce squeaks resulting from joist movement. I-joist flange thickness for bend-tab application is 1⅛" to 1½".

MIT/HIT - Patented Positive Angle Nailing (PAN)

PAN is specifically designed for I-joists when used with the MIT or HIT. With PAN, the nail hole material is not removed, but is formed to channel and confine the path of the nail at approximately 45°. PAN minimizes splitting of the flanges while permitting time-saving nailing from a better angle.

See Top Flange tables on pages 96 to 105.

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

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

FINISH: Galvanized

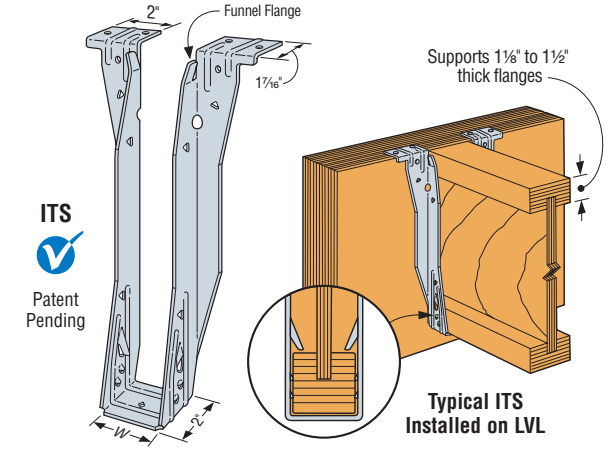
INSTALLATION: • Use all specified fasteners. Verify that the header can take the required fasteners specified in the table.

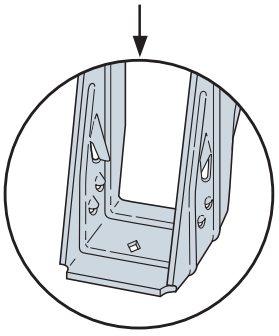
- See product specific installation drawings pages 90-91.
- ITS—no joist nailing required for standard I-joist installation without web stiffeners. When supporting I-joists with web stiffeners or rectangular SCL member 2-10dx1½" must be installed into optional triangle joist nail holes for standard installation values.
- ITS and ITT—optional triangle nail holes may be used for additional load. See allowable load tables. Refer to technical bulletin T-OPTUPLIFT for additional options *(see page 191 for details)*.
- ITT—bend tabs may be installed unbent into web stiffeners.
- MIT—optional triangle nail holes may be used for increased uplift capacity. See Optional Nailing For Increased Uplift table.
- HIT—closed PAN nail holes may be used for increased uplift capacity. See Optional Nailing For Increased Uplift table.
- For sloped joists up to ¼:12 there is no reduction, between ¼:12 and up to ½:12, tests show a 10% reduction in ultimate hanger strength. Local crushing of the bottom flange or excessive deflection may be limiting; check with joist manufacturer for specific limitations on bearing of this type.

ALLOWABLE LOADS: • The ITS, ITT, MIT and HIT hangers have locations for optional nails if additional uplift is needed. Optional uplift nailing requires the addition of properly-secured web stiffeners. See the load tables for minimum required fasteners and allowable uplift loads.

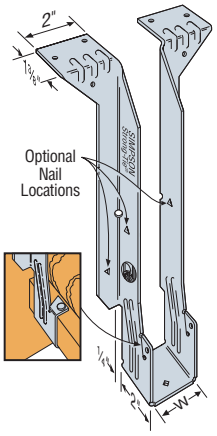
OPTIONS: • Because these hangers are fully die-formed, they cannot be modified. However these models will normally accommodate a skew of up to 5°.

CODES: See page 12 for Code Reference Key Chart.

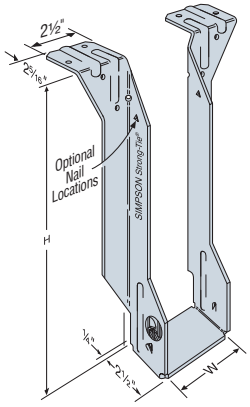




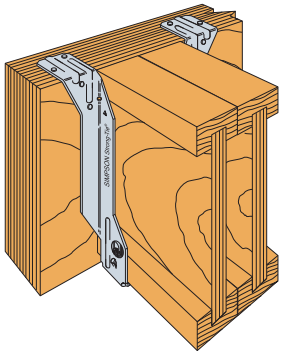
The Strong-Grip™ seat secures I-joists in position without joist nails



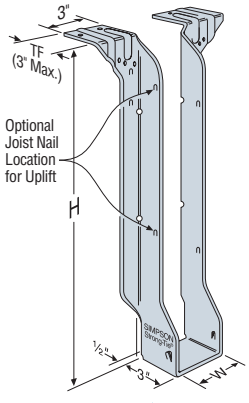
ITT
U.S. Patent 5,555,694



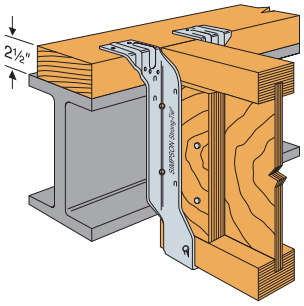
MIT



Typical MIT Installed on a Double LVL

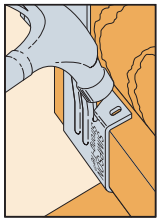


HIT

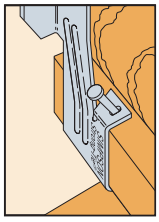


HIT Installation on a 3x Nailer mounted on a Steel Beam

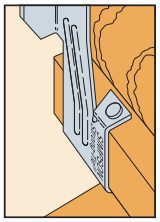
IUT & ITT INSTALLATION *(VPA SIMILAR)*



Bend the tab with a hammer.



Hammer 10dx1½ nail in at approximately 45°.

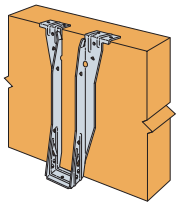


The tab is now correctly installed.

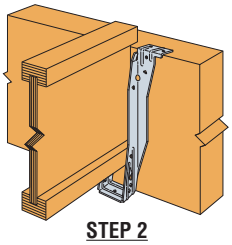
TOP FLANGE HANGERS ITS/ITT/MIT/HIT *Engineered Wood Products Hangers*

SIMPSON Strong-Tie®

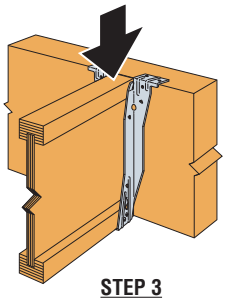
ITS INSTALLATION SEQUENCE



STEP 1
Attach the ITS to the header

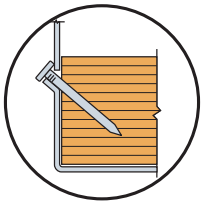


STEP 2
Slide the I-joist downward into the ITS until it rests above the Strong-Grip™ seat.



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

POSITIVE ANGLE NAILING



Correct Nailing
Approx. 45° angle

IT SERIES WITH VARIOUS HEADER APPLICATIONS

Model	Fasteners			Allowable Loads Header Type								Code Ref.
	Top	Face	Joist	Uplift[1] (160)	LVL[2]	PSL	LSL	DF/SP	SPF/HF	DF/SCL[3] I-Joist	SPF/HF I-Joist	
ITS Series[8] (Standard Installation)	4-10dx1½	2-10dx1½	—	105	1395	1245	1625	1440	1140	1085	940	I19, L12, F18
	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	—	—	
	4-16d	2-16d	—	105	1785	1735	1905	1635	1225	—	—	
ITS Series[5,8] (Alternate Installation)	4-10d	4-10d	—	105	1735	1595	1885	1955	1230	—	—	170
	4-16d	4-16d	—	105	1785	1735	1905	1955	1490	—	—	
	4-10d	4-10d	4-10dx1½	630	1735	1595	1885	1955	1230	—	—	
	4-16d	4-16d	4-10dx1½	630	1785	1735	1905	1955	1490	—	—	
ITT Series[8]	4-10dx1½	2-10dx1½	2-10dx1½	235	1235	1225	1435	1275	1065	1050	755	I19, L12, F18
	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	—	—	
	4-16d	2-16d	2-10dx1½	235	1500	1535	1500	1635	1315	—	—	
ITTM Series	**See page 142 for concrete and masonry installations.**											
MIT Series[8]	4-10dx1½	4-10dx1½	2-10dx1½	215	2035	1500	1605	2035	1115	1230	885	I19, L12, F18
	4-10d	4-10d	2-10dx1½	215	2335	2000	1605	2245	1665	—	—	
	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	—	—	
HIT Series	4-16d	6-16d	2-10dx1½	315	2550	2050	2500	2875	1950	—	—	

1. Uplift loads are based on DF/SP lumber and have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6. For SPF/HF use 0.86 x DF/SP uplift load.
2. Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from Spruce Pine Fir or similar less dense veneers, use the values found in the SPF/HF column.
3. DF I-joists include flanges made from solid sawn Douglas Fir, LVL made primarily of Douglas Fir/Southern Pine, or LSL. For flanges with thicknesses from 1⅝ to 1⅜, use 0.85 of the I-joist header load. For flanges with thicknesses from 1⅛ to 1¼, use 0.75 of the I-joist header load.
4. SCL *(structural composite lumber)* is LVL, LSL, and Parallam® PSL.
5. Web stiffeners required for the ITS Alternate Installation when installing optional joist nails for additional uplift load.
6. Code Values are based on DF/SP header species.
7. 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.
8. **For 2½" and 2⅞" wide joists, see tables on pages 96-105 for allowable loads.**

Parallam® is a registered trademark of iLevel by Weyerhaeuser.

NAILER TABLE

This table indicates various allowable loads for ITS/ITT/MIT/HIT hangers used on wood nailers. The header nail type must be substituted for those listed in other tables. See technical bulletin T-NAILERUPLFT for other uplift values and options *(see page 191 for details)*.

Model	Nailer	Top Flange Nailing	Joist Nailing	Uplift[2] (160)	Allowable Loads	
					DF/SP	SPF/HF
ITS Series	2x	6-10dx1½	—	105	1260	1260
	2x	6-10dx1½	2-10dx1½	310	1260	1260
	2-2x	6-10d	—	105	1220[1]	1220[1]
	2-2x	8-10d	4-10dx1½	615	1745	1530
	3x	6-16dx2½	—	105	1500[1]	—
	3x	8-16dx2½	4-10dx1½	615	1540	—
	4x	6-16d	—	105	1525[1]	—
	4x	8-16d	4-10dx1½	615	1905	—
ITT Series	2x	6-10dx1½	2-10dx1½	190	1215	1215
	2-2x	6-10d	2-10dx1½	190	1215	1150
	3x	6-16dx2½	2-10dx1½	190	1500	—
	4x	6-16d	2-10dx1½	190	1525	—
MIT Series	2x	6-10dx1½	2-10dx1½	215	1570[1]	1440
	2-2x	8-10d	2-10dx1½	215	1570	1255
	3x	8-16dx2½	2-10dx1½	215	1975[1]	—
	4x	8-16d	2-10dx1½	215	2250[1]	—
HIT Series	2-2x	10-10d	2-10dx1½	255	2525	—
	3x	10-16dx2½	2-10dx1½	255	2835	—
	4x	10-16d	2-10dx1½	255	3050[1]	—

1. These hangers may deflect an additional 1/32" at design load.
2. Uplift loads are based on DF/SP members only.

NAILS: 16d = 0.162" dia. x 3½" long, 16dx2½ = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long.
See page 16-17 for other nail sizes and information.

OPTIONAL NAILING FOR INCREASED UPLIFT

Model	Fasteners			Allowable Uplift Loads
	Top	Face	Joist	(160)
ITS	4-10d	4-10d	4-10dx1½	630
	4-16d	4-16d	4-10dx1½	630
ITT	4-10dx1½	4-10dx1½	4-10dx1½	575
	4-10d	4-10d	4-10dx1½	575
	4-16d	4-16d	4-10dx1½	575
MIT	4-10dx1½	4-10dx1½	4-10dx1½	575
	4-16d	4-16d	4-10dx1½	575
HIT	4-16d	6-16d	4-10dx1½	575
	4-16dx2½	6-16dx2½	4-10dx1½	575
	4-16d	6-16d	6-10dx1½	850

1. Loads are based on Doug Fir, and have been increased 60% 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.

TOP FLANGE HANGERS LBV/BA/B/HB *I-Joist & Structural Composite Lumber Hangers*

SIMPSON Strong-Tie®

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

The BA hanger is a cost effective hanger targeted at high capacity I-joists and common Structural Composite Lumber applications. A min/max joist nail option gives dual use of this hanger. Minimum values featuring positive angle nailing are targeted at I-joist without web stiffeners requirement and the maximum nailing generates higher loads to support structural composite lumber. The unique two level embossment provides added stiffness to the top flange.

The newly improved LBV, B and HB hangers offer wide versatility for I-joists and structural composite lumber. The enhanced load capacity widens the range of applications for these hangers. The LBV still features positive angle nailing and does not require the use of web stiffeners for standard non modified I-joist installations.

See Top Flange tables on pages 96 to 105. See Hanger Options on pages 181-183 for hanger modifications, which may result in reduced loads.

MATERIAL: See tables, pages 96 to 105.

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

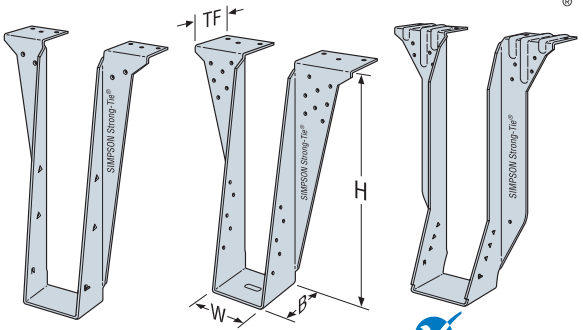
INSTALLATION: • Use all specified fasteners. See General Notes and nailer table.

- LBV, B, BA and HB may be used for weld-on applications. Weld size to match material thickness *(approximate thickness shown)*. The minimum required weld to the top flanges is ⅛" x 2" fillet weld to each side of each top flange tab for 14 and 12 gauge and 3⁄16" x 2" fillet weld to each side of each top flange tab for 7 gauge and 10 gauge. Distribute the weld equally on both top flanges. Welding cancels the top and face nailing requirements. Consult the code for special considerations when welding galvanized steel. The area should be well-ventilated, see page 14 for weld information. Weld on applications produce the maximum allowable down load listed. For uplift loads refer to T-WELDUPLFT.
- LBV hangers do not require the use of web stiffeners for non-sloped or non-skewed applications.
- B and HB hangers require the use of web stiffeners. BA MIN nailing does not require web stiffeners. BA MAX nailing requires the use of web stiffeners.
- Ledgers must be evaluated for each application separately. Check TF dimension, nail length and nail location on ledger.
- Refer to technical bulletin T-SLOPEJST for information regarding load reductions on selected hangers which can be used without modification to support joists which have shallow slopes (≤¾:12).

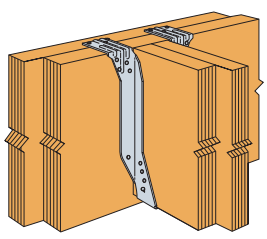
OPTIONS: • LBV, B and HB

- Other widths are available; specify W dimension *(the minimum W dimension is 1⅜")*.
- The coating on special B hangers will depend on the manufacturing process used. Check with your Simpson Strong-Tie representative for details. Hot-dip galvanized available: specify HDG.
- Refer to technical bulletin T-BSERIES for the complete line of LBV, BA, B and HB hangers, including models not shown here, their available modification combinations and their associated reduction factors.
- Modified hangers have reduced loads, see Hanger Options, pages 181-183.

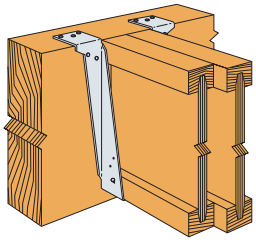
CODES: See page 12 for Code Reference Key Chart.



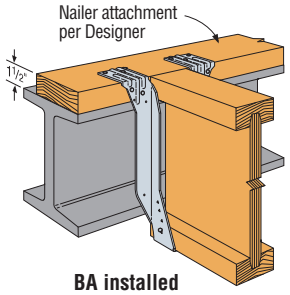
LBV **HB** *(B Similar)* **BA** U.S. Patent 7,334,372



BA Installed LVL to LVL Max Nailing

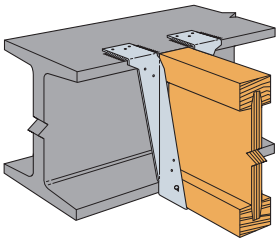


Typical Double LBV Hanger Installation



BA installed 2X nailer on steel beam minimum nailing

LBV features positive angle nailing, no web stiffeners are required



BA, B, HB and LBV are acceptable for weld-on applications *(LBV shown)*. See Installation Information.

Model No.	Nailer	Top Flange Nailing	Uplift[1] (160)	Allowable Loads DF/SP	Allowable Loads SPF/HF
LBV	2x	10-10dx1½	265	2280	2085
	2-2x	10-10d	265	1955	1530
	3x	10-16dx2½	265	2490	—
	4x	10-16d	255	2590	—
BA	2x	10-10dx1½	265	2220	1755
	2-2x	14-10d	265	2695	2235
	3x	14-16dx2½	265	3230	—
	4x	14-16d	265	3300	—
B	2-2x	14-10d	710	3615	2770
	3x	14-16dx2½	825	3725	—
	4x	14-16d	825	3800	—
HB	4x	22-16d	1550	5500	—

NAILS: 16d = 0.162" dia. x 3½" long, 16dx2½ = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

NAILER TABLE

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

1. Uplift values are for DF/SP members only. LBV and BA hangers resist more uplift when web stiffeners are used. Refer to technical bulletin T-NAILERUPLFT for additional information *(see page 191 for details)*.
2. See page 184 for reductions on modified hangers on nailers.
3. B hangers require 6-10dx1½ joist nails to achieve published loads. For joist members 2½" or wider, 16dx2½" joist nails should be installed for additional uplift loads on the 3x and 4x nailer applications of 970 lbs. and 1010 lbs. respectively.

B SERIES WITH VARIOUS HEADER APPLICATIONS

Model Series	Fasteners Top	Face	Joist	Allowable Loads Header Type Uplift[3] (160)	LVL[8]	PSL	LSL	DF/SP[2]	SPF/HF	I-Joist[9] DF/SCL	I-Joist[9] SPF/HF	Code Ref.
LBV (Min)	6-10dx1½	4-10dx1½	2-10dx1½	265	2295	2610	2270	1790	1835	1495	1340	I1, F21
	6-10d	4-10d	2-10dx1½	265	2295	2610	2645	2310	2060	—	—	
	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	—	—	
LBV (Max)	6-10dx1½	4-10dx1½	6-10dx1½	635	2295	2610	2270	1790	1835	1495	1350	
	6-10d	4-10d	6-10dx1½	785	2295	2610	2645	2310	2060	—	—	
	6-16d	4-16d	6-10dx1½	895	2910	2885	3190	2460	2060	—	—	
BA (Min)	6-10dx1½	10-10dx1½	2-10dx1½	—	—	—	—	—	—	1495	1495	
	6-10d	10-10d	2-10dx1½	265	3230	3630	4005	3080	2425	—	—	
	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	—	—	
BA (Max)	6-10d	10-10d	8-10dx1½	1170	3555	3630	4120	3625	2465	—	—	
	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	—	—	
B[2]	6-10d	8-10d	6-10dx1½	990	3575	3195	3640	3625	2190	—	—	
	6-16d	8-16d	6-16dx2½	1010	4135	3355	4500	3800	2650	—	—	
HB[2]	6-16d	16-16d	10-16dx2½	2610	5815	5640	6395	5650	3820	—	—	

1. This table assumes joists with Fc⊥ = 750 psi. For other joists, check that bearing and joist nails are adequate.
2. Loads for B's and HB's assume a joist width of 2½" or greater.
3. Uplift loads are based on DF/SP lumber and have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6. For SPF/HF use 0.86 x DF/SP uplift load.
4. Loads may not be increased for short term loading.
5. Web stiffeners required when more than two joist nails are used.
6. SCL *(structural composite lumber)* is LVL *(laminated veneer lumber)*, LSL *(laminated strand lumber)*, and Parallam® PSL.
7. Code values are based on DF/SP header species.
8. Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from Spruce-Pine-Fir or similar less dense veneers, use the values found in the SPF/HF column.
9. DF I-joists include flanges made from solid sawn Douglas Fir, LVL made primarily of Douglas Fir/ Southern Pine, or LSL. For flanges with thicknesses from 1⁵⁄16 to 1⅜, use 0.85 of the I-joist header load. For flanges with thicknesses from 1⅛ to 1¼, use 0.75 of the I-joist header load.

Parallam® is registered trademark of iLevel by Weyerhaeuser.

TOP FLANGE HANGERS W/WP/WPU/WM/WMU/HW/HWU

I-Joist & Structural Composite Lumber Hangers

SIMPSON Strong-Tie®

The W, WP, WPU, HWU and HW series are designed to hang joists, purlins or beams. WM and WMU hangers are designed for use on standard 8" grouted masonry block wall construction. Some models have an "I" in the model number which indicates a size specific for an I-Joist and have the same properties and modifications as the standard series.

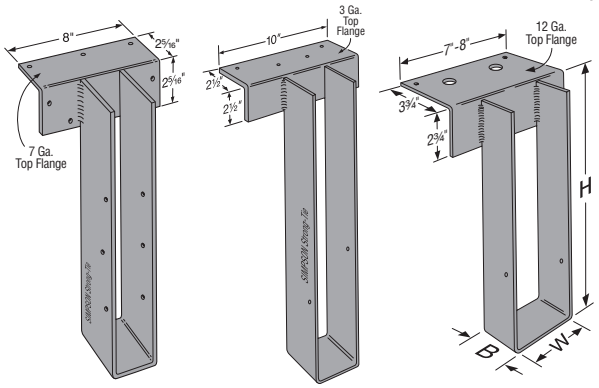
MATERIAL: See tables on pages 96 to 105.

FINISH: Simpson Strong-Tie® gray paint; HDG available. Contact Simpson Strong-Tie.

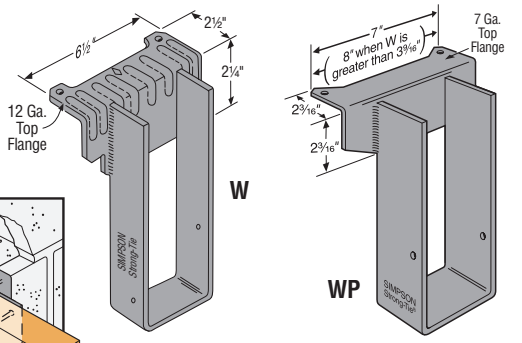
INSTALLATION:
- Use all specified fasteners. WM—two 16d duplex nails must be installed into the top flange and embedded into the grouted wall. Verify that the header can take the required fasteners specified in the table.
- Hangers may be welded to steel headers with ⅛" for W, 3⁄16" for WP, WPU, and ¼" for HW, HWU by 1½" fillet welds located at each end of the top flange, see page 14 for weld information. Weld-on applications produce maximum allowable load listed. For uplift loads refer to T-WELDUPLFT *(WPU and HWU hangers only)*.
- Hangers can support multi-ply carried members; the individual members must be secured together to work as a single unit before installation into the hanger.
- Hangers can support joists sloped up to ¼:12 using table loads. For joists sloping between ¼:12 and ¾:12 use 85% of the table loads.
- Web stiffeners are required for standard joist nailing configuration with these hangers.
- **MID-WALL INSTALLATION:** Installed between blocks with duplex nails cast into grout with a minimum of one grouted course above and below the top flange grouted and one #5 vertical rebar minimum 24" long in each adjacent cell.
- **TOP OF WALL INSTALLATION:** Install on top of wall to a grouted beam with masonry screws.

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 loads do not apply to this application.
- See Hanger Options, pages 181-183 for hanger modifications and associated load reductions.

CODES: See page 12 for Code Reference Key Chart.



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



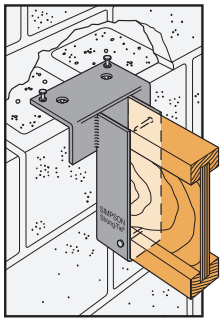
W | **WP**

Model	Nailer	Top Flange Nailing	Uplift[1] (160)	Allowable Loads DF/SP	Allowable Loads SPF/HF
W	2x	2-10dx1½	—	1600	1600
	2-2x	2-10d	—	1665	—
	3x	2-16dx2½	—	1765	—
	4x	2-10d	—	2200	—
WP	2x	2-10dx1½	—	2525	2500
	2-2x	2-10d	—	3255	3255
	3x	2-16dx2½	—	3000	2510
	4x	2-10d	—	3255	3255
WPU	2-2x	7-10d	700	3255	—
	3x	7-16dx2½	775	3000	—
	4x	7-16d	775	3255	—
HW	2-2x	4-10d	—	4845	—
	3x	4-16dx2½	—	4860	—
	4x	4-16d	—	5285	—
HWU	2-2x	8-16dx2½	710	5430	—
	3x	8-16dx2½	810	5430	—
	4x	8-16d	810	5430	—

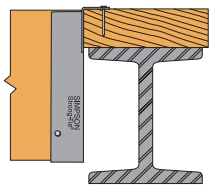
NAILER TABLE

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

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



Typical WM Installation with Alternate Nailing Pattern (ANP)



Correct Nailer Attachment

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

W SERIES WITH VARIOUS HEADER APPLICATIONS

Model	Joist Width	Joist Depth	Fasteners Top	Fasteners Face	Fasteners Joist	Allowable Loads Header Type Uplift (160)	LVL[4]	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[5]	Masonry	Code Ref.
W	1½ to 4	3½ to 30	2-10dx1½	—	2-10dx1½	—	1635	1740	—	1600	1415	—	—	170
	1½ to 4	3½ to 30	2-10d	—	2-10dx1½	—	2150	2020	—	2200	1435	—	—	I19, F18
	1½ to 4	3½ to 30	2-16d	—	2-10dx1½	—	2335	1950	2335	1765	1435	—	—	
WM	1½ to 4	3½ to 30	2-16d DPLX	—	2-10dx1½	—	MID-WALL INSTALLATION[8]						4175	IL12, L1
	1½ to 4	3½ to 30	2-¼x1¾" Titens	—	2-10dx1½	—	TOP OF WALL INSTALLATION						3380	
WMU	1½ to 7½	9 to 28	2-16d DPLX	4-¼x1¾" Titens	6-10dx1½	625	MID-WALL INSTALLATION[8]						4175	170
	1½ to 7½	9 to 28	2-¼x1¾" Titens	4-¼x1¾" Titens	6-10dx1½	545	TOP OF WALL INSTALLATION						3380	
WP	1½ to 7⅛	3½ to 30	3-10dx1½	—	2-10dx1½	—	2865	3250	—	2500	2000	2030	—	
	1½ to 7⅛	3½ to 30	3-10d	—	2-10dx1½	—	2525	3250	3650	3255	2525	—	—	
	1½ to 7⅛	3½ to 30	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	—	—	
WPU	1½ to 5½	7¼ to 18	3-16d	4-16d	6-10dx1½	775	4700	4880	3650	4165	4165	—	—	
	1½ to 5½	18½ to 22½	3-16d	4-16d	6-10dx1½	485	4700	4880	3650	4165	4165	—	—	
	1½ to 5½	23 to 28	3-16d	4-16d	6-10dx1½	315	4700	4880	3650	4165	4165	—	—	
HW	1½ to 7½	3½ to 32	4-10d	—	2-10dx1½	—	3100	4000	—	5285	3100	—	—	
	1½ to 7½	3½ to 32	4-16d	—	2-10dx1½	—	5100	4000	4500	5285	3665	—	—	
HWU	1¾ to 3½	9 to 18	4-16d	4-16d	6-10dx1½	810	6335	5500	5535	6335	5415	—	—	I19, F18
	1¾ to 3½	18½ to 22½	4-16d	4-16d	6-10dx1½	765	6335	5500	5535	6335	5415	—	—	
	1¾ to 3½	23 to 28	4-16d	4-16d	6-10dx1½	635	6335	5500	5535	6335	5415	—	—	
	1¾ to 3½	28½ to 32	4-16d	4-16d	8-10dx1½	1005	6335	5500	5535	6335	5415	—	—	
	4½ to 7	9 to 18	4-16d	4-16d	6-10dx1½	810	6000	5500	5535	6000	5415	—	—	
	4½ to 7	18½ to 22½	4-16d	4-16d	6-10dx1½	765	6000	5500	5535	6000	5415	—	—	
	4½ to 7	23 to 28	4-16d	4-16d	6-10dx1½	635	6000	5500	5535	6000	5415	—	—	
	4½ to 7	28½ to 32	4-16d	4-16d	8-10dx1½	1005	6000	5500	5535	6000	5415	—	—	

1. 16d sinkers (9 ga x 3") may be used where 10d commons are called out with no load reduction.
2. Uplift loads are based on DF/SP lumber and have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6. For SPF/HF use 0.86 x DF/SP uplift load.
3. SCL, structural composite lumber, is laminated veneer lumber, laminated strand lumber, and Parallam® PSL.
4. Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from Spruce Pine Fir or similar less dense veneers, use the values found in the SPF/HF column.
5. I-joist header with SPF/HF flanges will support 2030 lbs.
6. WP quantity of nail holes in top flange varies.
7. Top Flange Hangers on the following pages with "I" in the model name (e.g. HWI) use the same design information in the above tables for the models without the "I" in the name (e.g. HW).
8. Minimum f'_m = 1500 psi. Refer to Installation Notes for further explanation of applications.
9. For hanger heights exceeding the joist height, the allowable load is 0.50 of the table load.
10. **NAILS:** 16d and 16d DPLX = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

Parallam® is a registered trademark of iLevel by Weyerhaeuser.

GLTV/HGLTV *Heavy Duty Hangers*

GLTV and HGLTV hangers are designed for structural composite lumber header applications that require high loads. The top flange nails are sized and specifically located to prevent degradation of the header due to splitting of laminations.

For heavy loads with a face-mount application, see the HGUS and GU series.

MATERIAL: Top flange—3 gauge; Stirrups—7 gauge

FINISH: Simpson Strong-Tie® gray paint; HDG available. Contact Simpson Strong-Tie.

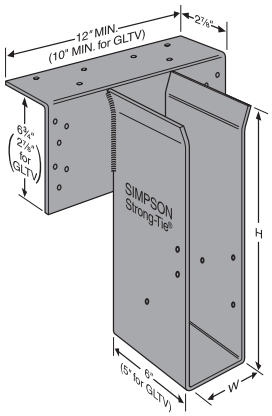
INSTALLATION: • Use all specified fasteners. Verify that the header can take the required fasteners specified in the table.

- This series may be used for weld-on applications. Minimum required weld is a 3⁄16" x 2½" fillet weld at each end of the top flange for GLTV, and a ¼" x 2½" fillet weld at each end of the top flange for HGLTV, see page 14 for weld information. Weld-on applications produce maximum loads listed. For uplift loads refer to T-WELDUPLFT.
- Web stiffeners are required with I-joists using this hanger style.
- GLTV hangers may be attached to a 4x nailer and achieve full table loads or they can be installed to a double 2x nailer or a 3x nailer with 16dx2½" nails and achieve 0.84 of the published loads. HGLTV hangers should not be attached to nailers. GLTV or HGLTV hangers may be installed on ledgers provided the ledgers are made of 4x solid sawn or 3½" SCL shown in the table below. Thinner lumber must be evaluated by the building Designer.

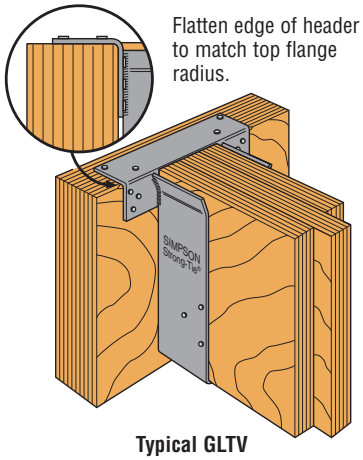
OPTIONS: • Hot-dip galvanized: specify HDG.

- See Hanger Options, pages 181-183. Saddle hanger versions are available in some engineered wood sizes.

CODES: See page 12 for Code Reference Key Chart.



HGLTV
(GLTV similar)



Typical GLTV Installation

Model No.	Fasteners			Allowable Loads Header Type						Code Ref.
	Top	Face	Joist	Uplift (160)	LVL[5]	PSL	LSL[4]	DF/SP	SPF/HF	
GLTV series	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	I19, L15, F18
HGLTV series	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	

1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6.
2. Uplift loads only apply when "H" is 28" or less.
3. For hanger heights exceeding the joist height, the allowable load is 0.50 of the table load.
4. HGLTV at maximum allowable load may have greater than ⅛" deflection.
5. Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from Spruce Pine Fir or similar less dense veneers, use the values found in the SPF/HF column.
6. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.

EGQ *High Capacity Hanger*

VALUE ENGINEERED

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

The EGQ hanger is a high capacity top flange connector designed for use with Structural Composite Lumber beams. It utilizes Simpson Strong-Tie® Strong-Drive® screws (SDS) for higher capacity and ease of installation. Available in standard SCL widths and made to specified heights. SDS screws are included.

MATERIAL: Top flange—3 gauge; Stirrups—7 gauge

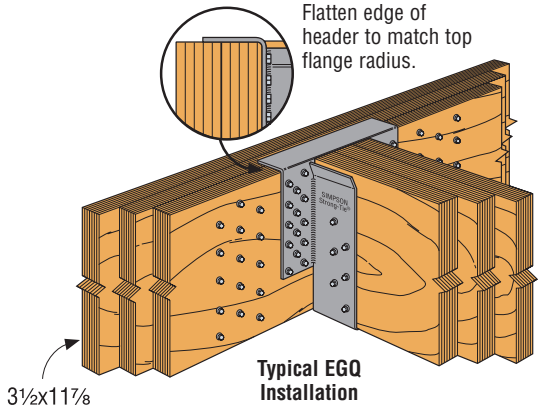
FINISH: Simpson Strong-Tie gray paint; HDG available. Contact Simpson Strong-Tie.

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

- Install with Simpson Strong-Tie SDS ¼"x3" wood screws, which are provided with the EGQ. *(Lag screws will not achieve the same load.)*
- All multiple members must be fastened together to act as a single unit.
- Multiple member headers may require additional fasteners at hanger locations. Quantity and location to be determined by designer. See SDS section for additional information and SDS screws applications.

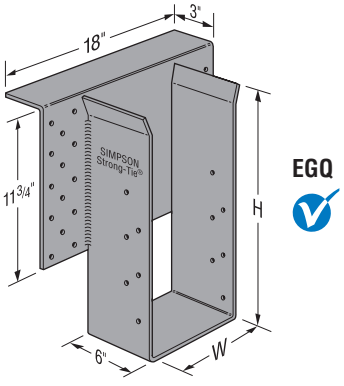
OPTIONS: • **See Hanger Options pages 181-183.**

CODES: See page 12 for Code Reference Key Chart.



Typical EGQ Installation

Model No.	Joist or Purlin Size	Dimensions		Fasteners		Allowable Loads Header Type			Code Ref.
		W	Min H	Header	Joist	Uplift (160)	LVL/LSL	PSL	
EGQ3.62-SDS3	3½	3⅝	11¼	28-SDS ¼"x3"	12-SDS ¼"x3"	6365	19800	18680	170
EGQ5.50-SDS3	5¼	5½	11¼	28-SDS ¼"x3"	12-SDS ¼"x3"	6365	19800	18680	
EGQ7.25-SDS3	7	7¼	11¼	28-SDS ¼"x3"	12-SDS ¼"x3"	6365	19800	18680	



1. Loads are based on 750 psi wood bearing for SCL.
2. "Min H" is the minimum H dimension that may be specified.
3. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading such as in cantilever construction use an uplift value of 4800 lbs.

MSC *Multiple Seat Connector*

The MSC supports the ridge and two valleys for roof construction. Ideal for dormer roof applications.

MATERIAL: Top flange—3 gauge, Stirrups—11 gauge (MSC2 and MSC1.81), 7 gauge (MSC4 and MSC5)

FINISH: Simpson Strong-Tie® gray paint; HDG available. Contact Simpson Strong-Tie.

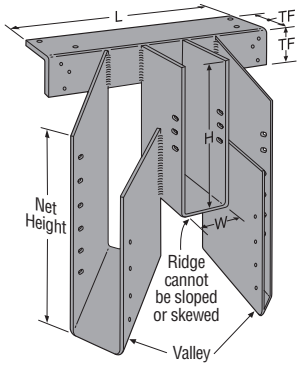
INSTALLATION: • Distribute the total load evenly about the centerline to avoid eccentric loading.
- Fasten all built-up members together as one unit.
- Net height will be calculated based on specified valley member depth and slope by the factory unless noted otherwise.

SLOPED AND/OR SKEWED VALLEYS
- The valley stirrups can be sloped to 45° and skewed from 25° to 45° . *(MSC5 skewed 20°-45°.)*
- The total design load of the hanger is split between the ridge (20%) and each valley (40%).
- MSC connectors can be used for two valley connections with no ridge member. Divide the total load by two for each valley load.

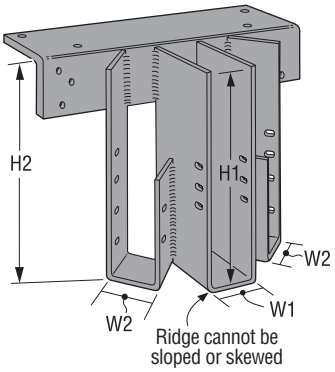
CODES: See page 12 for Code Reference Key Chart.

Model No.	Dimensions				Fasteners		Hips		Allowable Loads DF/SP			Code Ref.
	W	H (Min)	TF	L	Header	Joist	Max. Skew	Max. Slope	Floor/Snow/Roof (100/115/125) Valley	Ridge	Total	
MSC2	1⁹⁄₁₆	5½	2⅞	12	10-16d	18-10dx1½	45°	0°	2535	1265	6335	I19, F18
						26-10dx1½		45°	2010	1005	5025	
MSC1.81	1¹³⁄₁₆	5½	2⅞	12	10-16d	18-10dx1½	45°	0°	2535	1265	6335	
						26-10dx1½		45°	2010	1005	5025	
MSC4	3⁹⁄₁₆	7½	2⅞	18	10-16d	18-10d	45°	0°	3335	1665	8335	
						26-10d		45°	3335	1665	8335	
MSC5	5¼	9½	2⅞	26	13-16d	18-16d	45°	0°	6450	3220	16120	
						26-16d		45°	5340	2675	13355	

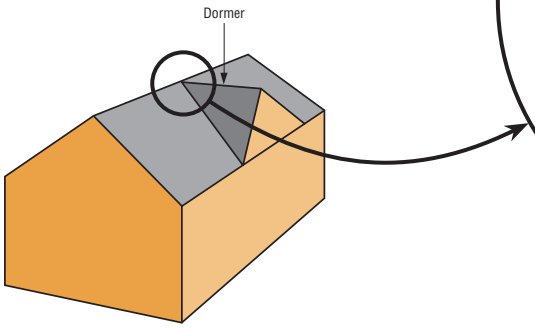
1. Valley loads are for each valley.
2. Other valley-ridge load distributions are allowed provided the sum of all three carried members is distributed symmetrically about the center of the hanger and combined do not exceed the total load.
3. MSC4 is also available in 3⅛" Glulam width.
4. MSC5 is also available in widths up to 5½". W_2 minimum width is 3⅛".
5. MSC4 is also available in widths down to 1⁹⁄₁₆". Use 10dx1½" nails and MSC2 allowable loads.
6. Refer to technical bulletin T-MSC-WS for the hip valley rafter pitch conversion table *(see page 191 for details)*.
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

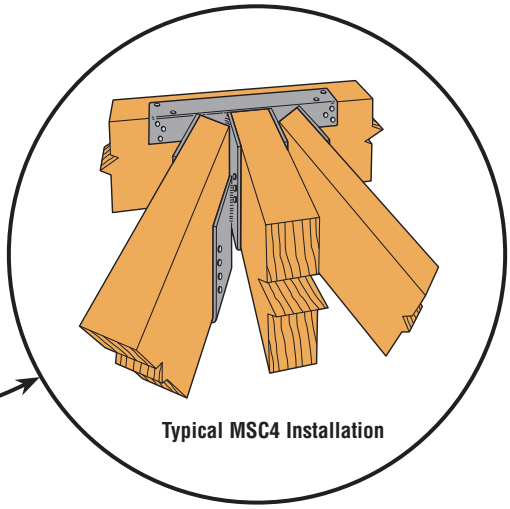


MSC4 with Valley Sloped and Skewed 45°



MSC1.81 with Valley Skewed 45° and Sloped 0°





Typical MSC4 Installation

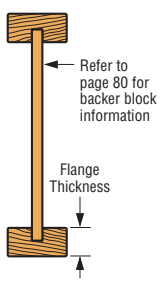
TOP FLANGE HANGERS – I-JOISTS & SCL

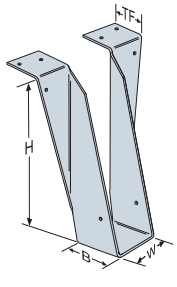
SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[8] Stiff Reqd	Ga	Dimensions W	H	B	TF	Fasteners[6] Solid Header Top	Solid Header Face	Joist	Allowable Loads Header Type[1,2,7] Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[4]	Masonry[3]
1½ x 9¼	ITS1.56/9.25	—	18	1⅝	9³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT29.25	—	18	1⁹⁄₁₆	9³⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV1.56/9.25	—	14	1⁹⁄₁₆	9¼	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	1925	1495	—
	WP29.25	✓	12	1⁹⁄₁₆	9¼	4	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM29.25[3]	✓	12	1⁹⁄₁₆	9¼	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
1½ x 9½	ITS1.56/9.5	—	18	1⅝	9⁷⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT29.5	—	18	1⁹⁄₁₆	9⁷⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT29.5	—	16	1⁹⁄₁₆	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV1.56/9.5	—	14	1⁹⁄₁₆	9½	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	1925	1495	—
	WP29.5	✓	12	1⁹⁄₁₆	9½	4	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM29.5[3]	✓	12	1⁹⁄₁₆	9½	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
1½ x 11¼	LBV1.56/11.25	—	14	1⁹⁄₁₆	11¼	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	1925	1495	—
	WP211.25	✓	12	1⁹⁄₁₆	11¼	4	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM211.25[3]	✓	12	1⁹⁄₁₆	11¼	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
1½ x 11⅞	ITS1.56/11.88	—	18	1⅝	11³¹³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT211.88	—	18	1⁹⁄₁₆	11³¹³⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT211.88	—	16	1⁹⁄₁₆	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV1.56/11.88	—	14	1⁹⁄₁₆	11⅞	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	1925	1495	—
	WP211.88	✓	12	1⁹⁄₁₆	11⅞	4	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM211.88[3]	✓	12	1⁹⁄₁₆	11⅞	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
1½ x 14	ITT214	—	18	1⁹⁄₁₆	13¹⁵⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV1.56/14	—	14	1⁹⁄₁₆	14	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	1925	1495	—
1½ x 16	LBV1.56/16	—	14	1⁹⁄₁₆	16	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	1925	1495	—
1¾ x 7¼	LBV1.81/7.25	—	14	1¹³⁄₁₆	7¼	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
	WP1.81/7.25	✓	12	1¹³⁄₁₆	7¼	3½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
1¾ x 9¼	LBV1.81/9.25	—	14	1¹³⁄₁₆	9¼	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
	WP9.25	✓	12	1¹³⁄₁₆	9¼	3½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WPU1.81/9.25	✓	12	1¹³⁄₁₆	9¼	4	2³⁄₁₆	3-16d	4-16d	6-10dx1½	775	4700	4880	3650	4165	4165	—	—
1¾ x 9½	ITS1.81/9.5	—	18	1⅞	9⁷⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT9.5	—	18	1¹³⁄₁₆	9⁷⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT9.5	—	16	1¹³⁄₁₆	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV1.81/9.5	—	14	1¹³⁄₁₆	9½	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
	WP9	✓	12	1¹³⁄₁₆	9½	3½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM93	✓	12	1¹³⁄₁₆	9½	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
1¾ x 11¼	LBV1.81/11.25	—	14	1¹³⁄₁₆	11¼	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
	WPU1.81/11.25	✓	12	1¹³⁄₁₆	11¼	4	2³⁄₁₆	3-16d	4-16d	6-10dx1½	775	4700	4880	3650	4165	4165	—	—
1¾ x 11⅞	ITS1.81/11.88	—	18	1⅞	11³¹³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT11.88	—	18	1¹³⁄₁₆	11³¹³⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT11.88	—	16	1¹³⁄₁₆	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	BA1.81/11.88 (Min)	—	14	1¹³⁄₁₆	11⅞	3	2½	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	1495	—
	BA1.81/11.88 (Max)	✓	14	1¹³⁄₁₆	11⅞	3	2½	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	1495	—
	LBV1.81/11.88	—	14	1¹³⁄₁₆	11⅞	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
	WP11	✓	12	1¹³⁄₁₆	11⅞	3½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM11[3]	✓	12	1¹³⁄₁₆	11⅞	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
	WPU1.81/11.88	✓	12	1¹³⁄₁₆	11¼	4	2³⁄₁₆	3-16d	4-16d	6-10dx1½	775	4700	4880	3650	4165	4165	—	—

1. Loads may not be increased for short-term loading.
2. Uplift loads are based on DF/SP lumber and have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6. For SPF/HF use 0.86 x DF/SP uplift load.
3. WM loads listed are based on embedded installation (mid-wall) into a masonry block wall. *(See page 70)*
4. When I-joist is used as header, all nails must be 10dx1½ and allowable loads assume flanges that are at least 1½" thick made of Douglas Fir, LVL or LSL. For other flange thicknesses, apply load adjustment factors found in the table below.
5. Hangers sorted in order of recommended selection for best overall performance and installation value.
6. Other nail schedules and loads are listed on pages 91-93.
7. See pages 91 to 95 for Code reference numbers.
8. Web stiffeners are required where noted and when supporting double I-joists with flanges less than 1⁵⁄₁₆" thick.
9. **For 2¼"x22" and 24" joist sizes, refer to technical bulletin T-BSERIES08 *(see page 191 for details).***
10. **NAILS:** 16d and 16d DPLX = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

I-Joist Header Load Adjustment Factors						
Flange Material or Thickness	Hanger Series ITS	ITT	MIT	LBV	WP	BA
1⅛ to 1¼	0.75	0.75	0.75	0.75	0.75	0.75
1⅝ to 1⅜	0.85	0.85	0.85	0.85	0.85	0.85
SPF	0.86	0.72	0.72	0.90	—	1.00





Parallam® is a registered trademark of iLevel by Weyerhaeuser.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[8] Stiff Reqd	Ga	Dimensions W	H	B	TF	Fasteners[6] Solid Header Top	Face	Joist	Allowable Loads Header Type[1,2,7] Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[4]	Masonry[3]
1¾ x 14	ITS1.81/14	—	18	1⅞	13 15/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT14	—	18	1 13/16	13 15/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT1.81/14	—	16	1 13/16	14	2½	2 5/16	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV1.81/14	—	14	1 13/16	14	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
	WP14	✓	12	1 13/16	14	3½	2 3/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM14[3]	✓	12	1 13/16	14	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
1¾ x 16	ITS1.81/16	—	18	1⅞	15 15/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT16	—	18	1 13/16	15 15/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT1.81/16	—	16	1 13/16	16	2½	2 5/16	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV1.81/16	—	14	1 13/16	16	3	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
	B1.81/16	✓	12	1 13/16	16	3	2½	6-16d	8-16d	6-10dx1½	990	4135	3355	4500	3640	2650	—	—
	WP16	✓	12	1 13/16	16	3½	2 3/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM16[3]	✓	12	1 13/16	16	4½	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
2 x 9½	ITS2.06/9.5	—	18	2⅛	9 7/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT2.06/9.5	—	18	2 1/16	9 7/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV2.06/9.5	—	14	2 1/16	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
2 x 11⅞	ITS2.06/11.88	—	18	2⅛	11 13/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT2.06/11.88	—	18	2 1/16	11 13/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV2.06/11.88	—	14	2 1/16	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
2 x 14	ITS2.06/14	—	18	2⅛	13 15/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT2.06/14	—	18	2 1/16	13 15/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV2.06/14	—	14	2 1/16	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
2 x 16	ITS2.06/16	—	18	2⅛	15 15/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT2.06/16	—	18	2 1/16	15 15/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV2.06/16	—	14	2 1/16	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
2 1/16 x 9½	ITS2.06/9.5	—	18	2⅛	9 7/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT2.1/9.5	—	18	2⅛	9 7/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV2.1/9.5	—	14	2⅛	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
2 1/16 x 11⅞	ITS2.06/11.88	—	18	2⅛	11 13/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT2.1/11.88	—	18	2⅛	11 13/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV2.1/11.88	—	14	2⅛	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
2 1/16 x 14	ITS2.06/14	—	18	2⅛	13 15/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT2.1/14	—	18	2⅛	13 15/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV2.1/14	—	14	2⅛	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
2 1/16 x 16	ITT2.1/16	—	18	2⅛	15 15/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV2.1/16	—	14	2⅛	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
2¼ x 9½ to 20[9]	2¼" wide joists use the same hangers as 2 5/16" wide joists with the following load adjustments to the table loads: ITS and ITT download is the lesser of the table load or 1400 lbs. ITS uplift is 85 lbs. MIT and HIT downloads are the lesser of the table load or 2140 lbs.																	
2 5/16 x 9½	ITS2.37/9.5	—	18	2 7/16	9 7/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT359.5	—	18	2⅜	9 7/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV2.37/9.5	—	14	2⅜	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
2 5/16 x 11⅞	ITS2.37/11.88	—	18	2 7/16	11 13/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT3511.88	—	18	2⅜	11 13/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT3511.88	—	16	2 5/16	11⅞	2½	2 5/16	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV2.37/11.88	—	14	2⅜	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
	W3511.88	✓	12	2 5/16	11⅞	2½	2½	2-16d	—	2-10dx1½	—	2335	1950	2335	1765	1435	—	—
	WM3511.88[3]	✓	12	2 5/16	11⅞	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
2 5/16 x 14	ITS2.37/14	—	18	2 7/16	13 15/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT3514	—	18	2⅜	13 15/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT3514	—	16	2 5/16	14	2½	2 5/16	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV2.37/14	—	14	2⅜	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
	WP3514	✓	12	2 5/16	14	2½	2 3/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM3514[3]	✓	12	2 5/16	14	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
2 5/16 x 16	ITS2.37/16	—	18	2 7/16	15 15/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	MIT3516	—	16	2 5/16	16	2½	2 5/16	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV2.37/16	—	14	2⅜	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
	WP3516	✓	12	2 5/16	16	2½	2 3/16	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM3516[3]	✓	12	2 5/16	16	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175

See footnotes on page 96.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[8] Stiff Reqd	Ga	Dimensions W	H	B	TF	Fasteners[6] Solid Header Top	Solid Header Face	Joist	Allowable Loads Header Type[1,2,7] Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[4]	Masonry[3]
2⁵⁄₁₆ x 18	MIT3518	—	16	2⁵⁄₁₆	18	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	HIT3518	—	16	2⁵⁄₁₆	18	3	3	4-16d	6-16d	2-10dx1½	315	2550	2050	2500	2875	1950	—	—
	LBV2.37/18	—	14	2⅜	18	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
	WP3518	✓	12	2⁵⁄₁₆	18	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM3518[3]	✓	12	2⁵⁄₁₆	18	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
2⁵⁄₁₆ x 20	MIT3520	—	16	2⁵⁄₁₆	20	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	HIT3520	—	16	2⁵⁄₁₆	20	3	3	4-16d	6-16d	2-10dx1½	315	2550	2050	2500	2875	1950	—	—
	LBV2.37/20	—	14	2⅜	20	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2590	2060	1495	—
	WP3520	✓	12	2⁵⁄₁₆	20	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM3520[3]	✓	12	2⁵⁄₁₆	20	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
2⁷⁄₁₆ x 9½ to 16	2⁷⁄₁₆" wide joists use the same hangers as 2½" wide joists with the following load adjustments to the table loads: ITS and ITT download is same as table but not to exceed 1400 lbs. ITS uplift is 85 lbs. MIT download is same as table but not to exceed 2140 lbs.																	
2½ x 9¼	ITS2.56/9.25	—	18	2⅝	9³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT39.25	—	18	2⁹⁄₁₆	9³⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV2.56/9.25	—	14	2⁹⁄₁₆	9¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WI39.25	✓	12	2⁹⁄₁₆	9¼	2	2½	2-16d	—	2-10dx1½	—	2335	1950	2335	1765	1435	—	—
2½ x 9⅜	ITS2.56/9.37	—	18	2⅝	9⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT39.37	—	18	2⁹⁄₁₆	9⁵⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV2.56/9.37	—	14	2⁹⁄₁₆	9⅜	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
2½ - 2⁹⁄₁₆ x 9½	ITS2.56/9.5	—	18	2⅝	9⁷⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT39.5	—	18	2⁹⁄₁₆	9⁷⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1450	1465	1200	1050	—
	LBV2.56/9.5	—	14	2⁹⁄₁₆	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WI39.5	✓	12	2⁹⁄₁₆	9½	2	2½	2-16d	—	2-10dx1½	—	2335	1950	2335	1765	1435	—	—
2½ x 11¼	ITS2.56/11.25	—	18	2⅝	11³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT311.25	—	18	2⁹⁄₁₆	11³⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV2.56/11.25	—	14	2⁹⁄₁₆	11¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WI311.25	✓	12	2⁹⁄₁₆	11¼	2	2½	2-16d	—	2-10dx1½	—	2335	1950	2335	1765	1435	—	—
2½ - 2⁹⁄₁₆ x 11⅞	ITS2.56/11.88	—	18	2⅝	11¹³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT311.88	—	18	2⁹⁄₁₆	11¹³⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT311.88	—	16	2⁹⁄₁₆	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	BA2.56/11.88 (Min)	—	14	2⁹⁄₁₆	11⅞	3	2½	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	1495	—
	BA2.56/11.88 (Max)	✓	14	2⁹⁄₁₆	11⅞	3	2½	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	1495	—
	LBV2.56/11.88	—	14	2⁹⁄₁₆	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WPI311.88	✓	12	2⁹⁄₁₆	11⅞	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3220	3695	3255	2600	2030	—
2½ x 13	ITS2.56/13	—	18	2⅝	12¹⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT313	—	18	2⁹⁄₁₆	12¹⁵⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV2.56/13	—	14	2⁹⁄₁₆	13	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
2½ - 2⁹⁄₁₆ x 14	ITS2.56/14	—	18	2⅝	13¹⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT314	—	18	2⁹⁄₁₆	13¹⁵⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT314	—	16	2⁹⁄₁₆	14	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	BA2.56/14 (Min)	—	14	2⁹⁄₁₆	14	3	2½	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	1495	—
	BA2.56/14 (Max)	✓	14	2⁹⁄₁₆	14	3	2½	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	1495	—
	LBV2.56/14	—	14	2⁹⁄₁₆	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WPI314	✓	12	2⁹⁄₁₆	14	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WMI314[3]	✓	12	2⁹⁄₁₆	14	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
2½ - 2⁹⁄₁₆ x 16	ITS2.56/16	—	18	2⅝	15¹⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT316	—	18	2⁹⁄₁₆	15¹⁵⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT316	—	16	2⁹⁄₁₆	16	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	BA2.56/16 (Min)	—	14	2⁹⁄₁₆	16	3	2½	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	1495	—
	BA2.56/16 (Max)	✓	14	2⁹⁄₁₆	16	3	2½	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	1495	—
	LBV2.56/16	—	14	2⁹⁄₁₆	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WPI316	✓	12	2⁹⁄₁₆	16	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WMI316[3]	✓	12	2⁹⁄₁₆	16	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
2½ x 18	MIT318	—	16	2⁹⁄₁₆	18	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	HIT318	—	16	2⁹⁄₁₆	18	3	2⅞	4-16d	6-16d	2-10dx1½	315	2550	2050	2500	2875	1950	—	—
	LBV2.56/18	—	14	2⁹⁄₁₆	18	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WPI318	✓	12	2⁹⁄₁₆	18	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WMI318[3]	✓	12	2⁹⁄₁₆	18	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175

See footnotes on page 96.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[8] Stiff Reqd	Ga	Dimensions				Fasteners[6]			Allowable Loads Header Type[1,2,7]							
				W	H	B	TF	Solid Header Top	Solid Header Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[4]	Masonry[3]
2½ x 20	MIT320	—	16	2⁹⁄₁₆	20	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	HIT320	—	16	2⁹⁄₁₆	20	3	2⅞	4-16d	6-16d	2-10dx1½	315	2550	2050	2500	2875	1950	—	—
	LBV2.56/20	—	14	2⁹⁄₁₆	20	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WPI320	✓	12	2⁹⁄₁₆	20	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WMI320[3]	✓	12	2⁹⁄₁₆	20	3	3¾	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175
2½ x 22	HIT322	✓	16	2⁹⁄₁₆	22	3	2⅞	4-16d	6-16d	2-10dx1½	315	2550	2050	2500	2875	1950	—	—
	LBV2.56/22	—	14	2⁹⁄₁₆	22	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WPI322	✓	12	2⁹⁄₁₆	22	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	HWI322	✓	11	2⁹⁄₁₆	22	4	2½	4-16d	—	4-10dx1½	—	5100	4000	4500	5285	3665	—	—
2½ x 24	HIT324	✓	16	2⁹⁄₁₆	24	3	2⅞	4-16d	6-16d	2-10dx1½	315	2550	2050	2500	2875	1950	—	—
	LBV2.56/24	—	14	2⁹⁄₁₆	24	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WPI324	✓	12	2⁹⁄₁₆	24	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
2½ x 26	HIT326	✓	16	2⁹⁄₁₆	26	3	2⅞	4-16d	6-16d	2-10dx1½	315	2550	2050	2500	2875	1950	—	—
	LBV2.56/26	—	14	2⁹⁄₁₆	26	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WPI326	✓	12	2⁹⁄₁₆	26	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
2½ x 28	LBV2.56/28	—	14	2⁹⁄₁₆	28	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WPI328	✓	12	2⁹⁄₁₆	28	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
2½ x 30	LBV2.56/30	—	14	2⁹⁄₁₆	30	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WPI330	✓	12	2⁹⁄₁₆	30	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
2½ - 2¹¹⁄₁₆ x 9¼	WPU2.75/9.25	✓	12	2¾	9¼	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	775	4700	4880	3650	4165	4165	—	—
	HWU2.75/9.25	✓	10	2¾	9¼	4	2½	4-16d	4-16d	6-10dx1½	810	6335	5500	5535	6335	5415	—	—
	GLTV2.75/9.25	✓	7	2¾	9¼	5	2⅞	4-16d	6-16d	6-16dx2½	1640	7500	7400	5750	7000	5145	—	—
2½- 2¹¹⁄₁₆ x 9½	WPU2.75/9.5	✓	12	2¾	9½	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	775	4700	4880	3650	4165	4165	—	—
	HWU2.75/9.5	✓	10	2¾	9½	4	2½	4-16d	4-16d	6-10dx1½	810	6335	5500	5535	6335	5415	—	—
	GLTV2.75/9.5	✓	7	2¾	9½	5	2⅞	4-16d	6-16d	6-16dx2½	1640	7500	7400	5750	7000	5145	—	—
2½ - 2¹¹⁄₁₆ x 11¼	WPU2.75/11.25	✓	12	2¾	11¼	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	775	4700	4880	3650	4165	4165	—	—
	HWU2.75/11.25	✓	10	2¾	11¼	4	2½	4-16d	4-16d	6-10dx1½	810	6335	5500	5535	6335	5415	—	—
	GLTV2.75/11.25	✓	7	2¾	11¼	5	2⅞	4-16d	6-16d	6-16dx2½	1640	7500	7400	5750	7000	5145	—	—
2½ - 2¹¹⁄₁₆ x 11⅞	WPU2.75/11.88	✓	12	2¾	11⅞	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	775	4700	4880	3650	4165	4165	—	—
	HWU2.75/11.88	✓	10	2¾	11⅞	4	2½	4-16d	4-16d	6-10dx1½	810	6335	5500	5535	6335	5415	—	—
	GLTV2.75/11.88	✓	7	2¾	11⅞	5	2⅞	4-16d	6-16d	6-16dx2½	1640	7500	7400	5750	7000	5145	—	—
2½ - 2¹¹⁄₁₆ x 14	WPU2.75/14	✓	12	2¾	14	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	775	4700	4880	3650	4165	4165	—	—
	HWU2.75/14	✓	10	2¾	14	4	2½	4-16d	4-16d	6-10dx1½	810	6335	5500	5535	6335	5415	—	—
	GLTV2.75/14	✓	7	2¾	14	5	2⅞	4-16d	6-16d	6-16dx2½	1640	7500	7400	5750	7000	5145	—	—
2½ - 2¹¹⁄₁₆ x 16	WPU2.75/16	✓	12	2¾	16	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	775	4700	4880	3650	4165	4165	—	—
	HWU2.75/16	✓	10	2¾	16	4	2½	4-16d	4-16d	6-10dx1½	810	6335	5500	5535	6335	5415	—	—
	GLTV2.75/16	✓	7	2¾	16	5	2⅞	4-16d	6-16d	6-16dx2½	1640	7500	7400	5750	7000	5145	—	—
3 x 9¼	LBV3.12/9.25	—	14	3⅛	9¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WP29.25-2	✓	12	3⅛	9¼	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM29.25-2[3]	✓	12	3⅛	9¼	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
3 x 9½	MIT29.5-2	—	16	3⅛	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2000	2115	2305	1665	1230	—
	LBV3.12/9.5	—	14	3⅛	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WP29.5-2	✓	12	3⅛	9½	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM29.5-2[3]	✓	12	3⅛	9½	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
3 x 11¼	LBV3.12/11.25	—	14	3⅛	11¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WP211.25-2	✓	12	3⅛	11¼	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM211.25-2[3]	✓	12	3⅛	11¼	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
3 x 11⅞	MIT211.88-2	—	16	3⅛	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2000	2115	2305	1665	1230	—
	LBV3.12/11.88	—	14	3⅛	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WP211.88-2	✓	12	3⅛	11⅞	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	WM211.88-2[3]	✓	12	3⅛	11⅞	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
3 x 14	LBV3.12/14	—	14	3⅛	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
3 x 16	LBV3.12/16	—	14	3⅛	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
3½ x 7¼	LBV3.56/7.25	—	14	3⁹⁄₁₆	7¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WPU3.56/7.25	✓	12	3⁹⁄₁₆	7¼	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	775	4700	4880	—	4165	4165	—	—

See footnotes on page 96.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[8] Stiff Reqd	Ga	Dimensions W	H	B	TF	Fasteners[6] Solid Header Top	Solid Header Face	Joist	Allowable Loads Header Type[1,2,7] Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[4]	Masonry[3]
3½ x 9¼	ITS3.56/9.25	—	18	3⅝	9³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT49.25	—	18	3⁹⁄₁₆	9³⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV3.56/9.25	—	14	3⁹⁄₁₆	9¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	HB3.56/9.25	✓	10	3⁹⁄₁₆	9¼	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI49.25	✓	12	3⁹⁄₁₆	9¼	2½	2⁵⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	HWI49.25	✓	11	3⁹⁄₁₆	9¼	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—	—
	HWU3.56/9.25	✓	10	3⁹⁄₁₆	9¼	3¼	2½	4-16d	4-16d	6-10d	1135	6335	5500	5535	6335	5415	—	—
	GLTV3.56/9.25	✓	7	3⁹⁄₁₆	9¼	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV3.56/9.25	✓	7	3⁹⁄₁₆	9¼	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
3½ x 9⅜	ITS3.56/9.37	—	18	3⅝	9⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT49.37	—	18	3⁹⁄₁₆	9⁵⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV3.56/9.37	—	14	3⁹⁄₁₆	9⅜	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
3½ x 9½	ITS3.56/9.5	—	18	3⅝	9⁷⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT49.5	—	18	3⁹⁄₁₆	9⁷⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT49.5	—	16	3⁹⁄₁₆	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV3.56/9.5	—	14	3⁹⁄₁₆	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	HB3.56/9.5	✓	10	3⁹⁄₁₆	9½	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI49.5	✓	12	3⁹⁄₁₆	9½	2½	2⁵⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	HWI49.5	✓	11	3⁹⁄₁₆	9½	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—	—
	HWU3.56/9.5	✓	10	3⁹⁄₁₆	9½	3¼	2½	4-16d	4-16d	6-10d	1135	6335	5500	5535	6335	5415	—	—
	GLTV3.59	✓	7	3⁹⁄₁₆	9½	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV3.59	✓	7	3⁹⁄₁₆	9½	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	WM3.56/9.5[3]	✓	12	3⁹⁄₁₆	9½	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
3½ x 11¼	ITS3.56/11.25	—	18	3⅝	11³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT411.25	—	18	3⁹⁄₁₆	11³⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV3.56/11.25	—	14	3⁹⁄₁₆	11¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	HB3.56/11.25	✓	10	3⁹⁄₁₆	11¼	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI411.25	✓	12	3⁹⁄₁₆	11¼	2½	2⁵⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	HWI411.25	✓	11	3⁹⁄₁₆	11¼	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—	—
	HWU3.56/11.25	✓	10	3⁹⁄₁₆	11¼	3¼	2½	4-16d	4-16d	6-10d	1135	6335	5500	5535	6335	5415	—	—
	GLTV3.56/11.25	✓	7	3⁹⁄₁₆	11¼	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV3.56/11.25	✓	7	3⁹⁄₁₆	11¼	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
3½ x 11⅞	ITS3.56/11.88	—	18	3⅝	11³⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT411.88	—	18	3⁹⁄₁₆	11³⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT411.88	—	16	3⁹⁄₁₆	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	BA3.56/11.88 (Min)	—	14	3⁹⁄₁₆	11⅞	3	2½	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	1495	—
	BA3.56/11.88 (Max)	✓	14	3⁹⁄₁₆	11⅞	3	2½	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	1495	—
	LBV3.56/11.88	—	14	3⁹⁄₁₆	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	B3.56/11.88	✓	12	3⁹⁄₁₆	11⅞	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB3.56/11.88	✓	10	3⁹⁄₁₆	11⅞	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI411.88	✓	12	3⁹⁄₁₆	11⅞	2½	2⁵⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3635	3255	2600	2030	—
	HUI411.88TF	✓	12	3⁹⁄₁₆	11⅞	2½	2½	4-16d	12-16d	6-10d	1125	4550	4550	4550	4550	—	—	—
	WPU3.56/11.88	✓	12	3⁹⁄₁₆	11⅞	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	775	4700	4880	—	4165	4165	—	—
	HWI411.88	✓	11	3⁹⁄₁₆	11⅞	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—	—
	HWU3.56/11.88	✓	10	3⁹⁄₁₆	11⅞	3¼	2½	4-16d	4-16d	6-10d	1135	6335	5500	5535	6335	5415	—	—
	GLTV3.511	✓	7	3⁹⁄₁₆	11⅞	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV3.511	✓	7	3⁹⁄₁₆	11⅞	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	ITTM411.88[3]	—	18	3⁹⁄₁₆	11³⁄₁₆	2	3½	—	—	2-10dx1½	—	—	—	—	—	—	—	1545
	WM3.56/11.88[3]	✓	12	3⁹⁄₁₆	11⅞	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
3½ x 12	LBV3.56/12	—	14	3⁹⁄₁₆	12	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	HB3.56/12	✓	10	3⁹⁄₁₆	12	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI412	✓	12	3⁹⁄₁₆	12	2½	2⁵⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	HWI412	✓	11	3⁹⁄₁₆	12	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—	—
	GLTV3.512	✓	7	3⁹⁄₁₆	12	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV3.512	✓	7	3⁹⁄₁₆	12	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	WMI412[3]	✓	12	3⁹⁄₁₆	12	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
3½ x 13	ITS3.56/13	—	18	3⅝	12¹⁵⁄₁₆	2	1⁷⁄₁₆	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT413	—	18	3⁹⁄₁₆	12¹⁵⁄₁₆	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	LBV3.56/13	—	14	3⁹⁄₁₆	13	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—

See footnotes on page 96.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[8] Stiff Reqd	Ga	Dimensions				Fasteners[6]			Allowable Loads Header Type[1,2,7]							
				W	H	B	TF	Solid Header Top	Solid Header Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[4]	Masonry[3]
3½ x 14	ITS3.56/14	—	18	3⅝	13 15/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT414	—	18	3 9/16	13 15/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT414	—	16	3 9/16	14	2½	2 5/16	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	BA3.56/14 (Min)	—	14	3 9/16	14	3	2½	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	1495	—
	BA3.56/14 (Max)	✓	14	3 9/16	14	3	2½	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	1495	—
	LBV3.56/14	—	14	3 9/16	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	B3.56/14	✓	12	3 9/16	14	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB3.56/14	✓	10	3 9/16	14	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI414	✓	12	3 9/16	14	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	HUI414TF	✓	12	3 9/16	14	2½	2½	4-16d	14-16d	8-10d	1500	4830	4830	4830	4830	—	—	—
	WPU3.56/14	✓	12	3 9/16	14	3	2 5/16	3-16d	4-16d	6-10dx1½	775	4700	4880	—	4165	4165	—	—
	HWI414	✓	11	3 9/16	14	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—	—
	HWU3.56/14	✓	10	3 9/16	14	3¼	2½	4-16d	4-16d	6-10d	1135	6335	5500	5535	6335	5415	—	—
	GLTV3.514	✓	7	3 9/16	14	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV3.514	✓	7	3 9/16	14	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	ITTM414[3]	—	18	3 9/16	13 15/16	2	3½	—	—	2-10dx1½	—	—	—	—	—	—	—	1545
	WMI414[3]	✓	12	3 9/16	14	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
3½ x 16	ITS3.56/16	—	18	3⅝	15 15/16	2	1 7/16	4-10d	2-10d	—	105	1550	1365	1780	1520	1150	1085	—
	ITT416	—	18	3 9/16	15 15/16	2	1⅜	4-10d	2-10d	2-10dx1½	235	1450	1300	1435	1465	1200	1050	—
	MIT416	—	16	3 9/16	16	2½	2 5/16	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	BA3.56/16 (Min)	—	14	3 9/16	16	3	2½	6-16d	10-16d	2-10dx1½	265	4015	3705	4005	3435	2665	1495	—
	BA3.56/16 (Max)	✓	14	3 9/16	16	3	2½	6-16d	10-16d	8-10dx1½	1170	4715	4320	4500	3800	2665	1495	—
	LBV3.56/16	—	14	3 9/16	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	B3.56/16	✓	12	3 9/16	16	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB3.56/16	✓	10	3 9/16	16	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI416	✓	12	3 9/16	16	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	WPU3.56/16	✓	12	3 9/16	16	3	2 5/16	3-16d	4-16d	6-10dx1½	775	4700	4880	—	4165	4165	—	—
	HWI416	✓	11	3 9/16	16	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—	—
	HWU3.56/16	✓	10	3 9/16	16	3¼	2½	4-16d	4-16d	6-10d	1135	6335	5500	5535	6335	5415	—	—
	GLTV3.516	✓	7	3 9/16	16	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	ITTM416[3]	—	18	3 9/16	15 15/16	2	3½	—	—	2-10dx1½	—	—	—	—	—	—	—	1545
	HGLTV3.516	✓	7	3 9/16	16	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	WMI416[3]	✓	12	3 9/16	16	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
3½ x 18	MIT418	—	16	3 9/16	18	2½	2 5/16	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	HIT418	—	16	3 9/16	18	3	2⅜	4-16d	6-16d	2-10dx1½	315	2550	2050	2500	2875	1950	—	—
	LBV3.56/18	—	14	3 9/16	18	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	HB3.56/18	✓	10	3 9/16	18	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI418	✓	12	3 9/16	18	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	WPU3.56/18	✓	12	3 9/16	18	3	2 5/16	3-16d	4-16d	6-10dx1½	775	4700	4880	—	4165	4165	—	—
	HWI418	✓	11	3 9/16	18	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—	—
	HWU3.56/18	✓	10	3 9/16	18	3¼	2½	4-16d	4-16d	6-10d	1135	6335	5500	5535	6335	5415	—	—
	GLTV3.518	✓	7	3 9/16	18	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV3.518	✓	7	3 9/16	18	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	WMI418[3]	✓	12	3 9/16	18	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
3½ x 18¾	GLTV3.56/18.75	✓	7	3 9/16	18¾	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV3.56/18.75	✓	7	3 9/16	18¾	6	2⅞	6-16d	12-16d	6-16d	1640	10500	7800	9000	8665	6770	—	—
3½ x 20	MIT420	—	16	3 9/16	20	2½	2 5/16	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	HIT420	—	16	3 9/16	20	3	2⅜	4-16d	6-16d	2-10dx1½	315	2550	2050	2500	2875	1950	—	—
	LBV3.56/20	—	14	3 9/16	20	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	HB3.56/20	✓	10	3 9/16	20	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI420	✓	12	3 9/16	20	2½	2 5/16	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	WPU3.56/20	✓	12	3 9/16	20	3	2 5/16	3-16d	4-16d	6-10dx1½	485	4700	4880	—	4165	4165	—	—
	HWI420	✓	11	3 9/16	20	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—	—
	HWU3.56/20	✓	10	3 9/16	20	3¼	2½	4-16d	4-16d	6-10d	765	6335	5500	5535	6335	5415	—	—
	GLTV3.520	✓	7	3 9/16	20	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV3.520	✓	7	3 9/16	20	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	WMI420[3]	✓	12	3 9/16	20	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175

See footnotes on page 96.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[8] Stiff Reqd	Ga	Dimensions				Fasteners[6]			Allowable Loads Header Type[1,2,7]							
				W	H	B	TF	Solid Header Top	Solid Header Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[4]	Masonry[3]
3½ x 22	HIT422	—	16	3⁹⁄₁₆	22	3	2⅜	4-16d	6-16d	2-10dx1½	315	2550	2050	2500	2875	1950	—	—
	LBV3.56/22	—	14	3⁹⁄₁₆	22	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	HB3.56/22	✓	10	3⁹⁄₁₆	22	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI422	✓	12	3⁹⁄₁₆	22	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	WPU3.56/22	✓	12	3⁹⁄₁₆	22	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	485	4700	4880	—	4165	4165	—	—
	HWI422	✓	11	3⁹⁄₁₆	22	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—	—
3½ x 24	HIT424	—	16	3⁹⁄₁₆	24	3	2⅜	4-16d	6-16d	2-10dx1½	315	2550	2050	2500	2875	1950	—	—
	LBV3.56/24	—	14	3⁹⁄₁₆	24	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	HB3.56/24	✓	10	3⁹⁄₁₆	24	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI424	✓	12	3⁹⁄₁₆	24	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	WPU3.56/24	✓	12	3⁹⁄₁₆	24	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	315	4700	4880	—	4165	4165	—	—
	HWI424	✓	11	3⁹⁄₁₆	24	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—	—
3½ x 26	HIT426	—	16	3⁹⁄₁₆	26	3	2⅜	4-16d	6-16d	2-10dx1½	315	2550	2050	2500	2875	1950	—	—
	LBV3.56/26	—	14	3⁹⁄₁₆	26	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	HB3.56/26	✓	10	3⁹⁄₁₆	26	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI426	✓	12	3⁹⁄₁₆	26	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	WPU3.56/26	✓	12	3⁹⁄₁₆	26	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	315	4700	4880	—	4165	4165	—	—
	HWI426	✓	11	3⁹⁄₁₆	26	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—	—
3½ x 28	LBV3.56/28	—	14	3⁹⁄₁₆	28	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	HB3.56/28	✓	10	3⁹⁄₁₆	28	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI428	✓	12	3⁹⁄₁₆	28	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	WPU3.56/28	✓	12	3⁹⁄₁₆	28	3	2⁵⁄₁₆	3-16d	4-16d	6-10dx1½	315	4700	4880	—	4165	4165	—	—
	HWI428	✓	11	3⁹⁄₁₆	28	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—	—
3½ x 30	LBV3.56/30	—	14	3⁹⁄₁₆	30	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	HB3.56/30	✓	10	3⁹⁄₁₆	30	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI430	✓	12	3⁹⁄₁₆	30	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	HWI430	✓	11	3⁹⁄₁₆	30	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—	—
3½ x 32	WPI432	✓	12	3⁹⁄₁₆	32	2½	2³⁄₁₆	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	HWI432	✓	11	3⁹⁄₁₆	32	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—	—
4 x 9½	MIT4.12/9.5	—	16	4⅛	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV4.12/9.5	—	14	4⅛	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
4 x 11⅞	MIT4.12/11.88	—	16	4⅛	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV4.12/11.88	—	14	4⅛	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
4 x 14	MIT4.12/14	—	16	4⅛	14	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV4.12/14	—	14	4⅛	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
4 x 16	LBV4.12/16	—	14	4⅛	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
4⅛ x 9½	MIT4.28/9.5	—	16	4⁹⁄₃₂	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV4.28/9.5	—	14	4⁹⁄₃₂	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
4⅛ x 11⅞	MIT4.28/11.88	—	16	4⁹⁄₃₂	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV4.28/11.88	—	14	4⁹⁄₃₂	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
4⅛ x 14	MIT4.28/14	—	16	4⁹⁄₃₂	14	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV4.28/14	—	14	4⁹⁄₃₂	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
4⅛ x 16	LBV4.28/16	—	14	4⁹⁄₃₂	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
4½ x 9½ to 20	4½" wide joists use the same hangers as 4⅝" wide joists with the following loads adjustments: MIT downloads are the lesser of the table load or 2140 lbs.																	
4⅝ x 9½	MIT359.5-2	—	16	4¾	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV4.75/9.5	—	14	4¾	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WP359.5-2	✓	12	4¾	9½	2½	2⁵⁄₁₆	3-16d	—	2-10d	—	3635	3320	3650	3255	2600	2030	—
4⅝ x 11⅞	MIT3511.88-2	—	16	4¾	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV4.75/11.88	—	14	4¾	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WP3511.88-2	✓	12	4¾	11⅞	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	WM3511.88-2[3]	✓	12	4¾	11⅞	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
4⅝ x 14	MIT3514-2	—	16	4¾	14	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV4.75/14	—	14	4¾	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WP3514-2	✓	12	4¾	14	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	WM3514-2[3]	✓	12	4¾	14	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
4⅝ x 16	MIT4.75/16	—	16	4¾	16	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV4.75/16	—	14	4¾	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WP3516-2	✓	12	4¾	16	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	WM3516-2[3]	✓	12	4¾	16	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175

See footnotes on page 96.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[8] Stiff Reqd	Ga	Dimensions W	H	B	TF	Fasteners[6] Solid Header Top	Solid Header Face	Joist	Allowable Loads Header Type[1,2,7] Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[4]	Masonry[3]
4⅝ x 18	LBV4.75/18	—	14	4¾	18	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WP3518-2	✓	12	4¾	18	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	WM3518-2[3]	✓	12	4¾	18	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
4⅝ x 20	LBV4.75/20	—	14	4¾	20	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WP3520-2	✓	12	4¾	20	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	WM3520-2[3]	✓	12	4¾	20	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
5 x 9¼	LBV5.12/9.25	—	14	5⅛	9¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
5 x 9½	MIT39.5-2	—	16	5⅛	9½	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV5.12/9.5	—	14	5⅛	9½	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WPI39.5-2	✓	12	5⅛	9½	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
5 x 11¼	LBV5.12/11.25	—	14	5⅛	11¼	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
5 x 11⅞	MIT311.88-2	—	16	5⅛	11⅞	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV5.12/11.88	—	14	5⅛	11⅞	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WPI311.88-2	✓	12	5⅛	11⅞	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
5 x 14	MIT314-2	—	16	5⅛	14	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV5.12/14	—	14	5⅛	14	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	WPI314-2	✓	12	5⅛	14	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
5 x 16	MIT5.12/16	—	16	5⅛	16	2½	2⁵⁄₁₆	4-16d	4-16d	2-10dx1½	215	2550	2140	2115	2305	1665	1230	—
	LBV5.12/16	—	14	5⅛	16	2½	2½	6-16d	4-16d	2-10dx1½	265	2910	2885	3190	2460	2060	1495	—
	HB5.12/16	✓	10	5⅛	16	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI316-2	✓	12	5⅛	16	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
5 x 18	B5.12/18	✓	12	5⅛	18	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB5.12/18	✓	10	5⅛	18	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI318-2	✓	12	5⅛	18	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
5 x 20	B5.12/20	✓	12	5⅛	20	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB5.12/20	✓	10	5⅛	20	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI320-2	✓	12	5⅛	20	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
5 x 22	B5.12/22	✓	12	5⅛	22	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB5.12/22	✓	10	5⅛	22	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI322-2	✓	12	5⅛	22	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
5 x 24	B5.12/24	✓	12	5⅛	24	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB5.12/24	✓	10	5⅛	24	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI324-2	✓	12	5⅛	24	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
5 x 26	B5.12/26	✓	12	5⅛	26	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB5.12/26	✓	10	5⅛	26	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI326-2	✓	12	5⅛	26	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
5 x 28	B5.12/28	✓	12	5⅛	28	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB5.12/28	✓	10	5⅛	28	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
5 x 30	B5.12/30	✓	12	5⅛	30	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB5.12/30	✓	10	5⅛	30	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
5¼ x 7¼	WPU5.50/7.25	✓	12	5½	7¼	3	2⁵⁄₁₆	3-16d	4-16d	6-10d	935	4700	4880	—	4165	4165	—	—
5¼ x 9¼	HB5.50/9.25	✓	10	5½	9¼	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	HWU5.50/9.25	✓	10	5½	9¼	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV5.50/9.25	✓	7	5½	9¼	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
5¼ x 9½	HB5.50/9.5	✓	10	5½	9½	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WP5.50/9.5	✓	12	5½	9½	2½	2⁵⁄₁₆	3-16d	—	2-10d	—	3635	3320	3650	3255	2600	2030	—
	HWU5.50/9.5	✓	10	5½	9½	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV5.59	✓	7	5⁹⁄₁₆	9½	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV5.59	✓	7	5⁹⁄₁₆	9½	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	WM5.50/9.5[3]	✓	12	5½	9½	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
5¼ x 11¼	HB5.50/11.25	✓	10	5½	11¼	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	HWU5.50/11.25	✓	10	5½	11¼	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV5.50/11.25	✓	7	5½	11¼	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—

See footnotes on page 96.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[8] Stiff Reqd	Ga	Dimensions				Fasteners[6]			Allowable Loads Header Type[1,2,7]							
				W	H	B	TF	Solid Header Top	Solid Header Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[4]	Masonry[3]
5¼ x 11⅞	HB5.50/11.88	✓	10	5½	11⅞	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WP5.50/11.88	✓	12	5½	11⅞	2½	2⁵⁄₁₆	3-16d	—	2-10d	—	3635	3320	3650	3255	2600	2030	—
	HWU5.50/11.88	✓	10	5½	11⅞	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV5.511	✓	7	5⁹⁄₁₆	11⅞	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV5.511	✓	7	5⁹⁄₁₆	11⅞	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	WM5.50/11.88[3]	✓	12	5½	11⅞	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
5¼ x 12	HB5.50/12	✓	10	5½	12	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	HWU5.50/12	✓	10	5½	12	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV5.512	✓	7	5⁹⁄₁₆	12	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV5.512	✓	7	5⁹⁄₁₆	12	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
5¼ x 14	HB5.50/14	✓	10	5½	14	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	HWU5.50/14	✓	10	5½	14	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV5.514	✓	7	5⁹⁄₁₆	14	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5700	7000	5145	—	—
	HGLTV5.514	✓	7	5⁹⁄₁₆	14	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
5¼ x 16	HB5.50/16	✓	10	5½	16	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	HWU5.50/16	✓	10	5½	16	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV5.516	✓	7	5⁹⁄₁₆	16	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV5.516	✓	7	5⁹⁄₁₆	16	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
5¼ x 18	HB5.50/18	✓	10	5½	18	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	HWU5.50/18	✓	10	5½	18	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV5.518	✓	7	5⁹⁄₁₆	18	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV5.518	✓	7	5⁹⁄₁₆	18	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
5¼ x 18¾	GLTV5.50/18.75	✓	7	5½	18¾	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV5.50/18.75	✓	7	5½	18¾	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
5¼ x 20	HB5.50/20	✓	10	5½	20	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	HWU5.50/20	✓	10	5½	20	3¼	2½	4-16d	4-16d	6-10d	765	6000	5500	5535	6000	5415	—	—
	GLTV5.520	✓	7	5⁹⁄₁₆	20	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV5.520	✓	7	5⁹⁄₁₆	20	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
7 x 7¼	HWU7.12/7.25	✓	10	7⅛	7¼	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
7 x 9¼	HB7.12/9.25	✓	10	7⅛	9¼	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI49.25-2	✓	12	7⅛	9¼	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	HWU7.12/9.25	✓	10	7⅛	9¼	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV49.25-2	✓	7	7⅛	9¼	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
7 x 9½	B7.12/9.5	✓	12	7⅛	9½	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB7.12/9.5	✓	10	7⅛	9½	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI49.5-2	✓	12	7⅛	9½	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	HWU7.12/9.5	✓	10	7⅛	9½	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV49.5-2	✓	7	7⅛	9½	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	WMI49.5-2[3]	✓	12	7⅛	9½	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
7 x 11¼	HB7.12/11.25	✓	10	7⅛	11¼	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI411.25-2	✓	12	7⅛	11¼	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	HWU7.12/11.25	✓	10	7⅛	11¼	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV411.25-2	✓	7	7⅛	11¼	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV411.25-2	✓	7	7⅛	11¼	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	WMI411.25-2[3]	✓	12	7⅛	11¼	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
7 x 11⅞	B7.12/11.88	✓	12	7⅛	11⅞	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB7.12/11.88	✓	10	7⅛	11⅞	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI411.88-2	✓	12	7⅛	11⅞	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	HWU7.12/11.88	✓	10	7⅛	11⅞	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV411.88-2	✓	7	7⅛	11⅞	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV411.88-2	✓	7	7⅛	11⅞	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	WMI411.88-2[3]	✓	12	7⅛	11⅞	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175

See footnotes on page 96.

TOP FLANGE HANGERS – I-JOISTS & SCL

SIMPSON Strong-Tie®

Actual Joist Size	Model No.	Web[8] Stiff Reqd	Ga	Dimensions				Fasteners[6]			Allowable Loads Header Type[1,2,7]							
				W	H	B	TF	Solid Header Top	Solid Header Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	DF/SCL I-Joist[4]	Masonry[3]
7 x 14	B7.12/14	✓	12	7⅛	14	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB7.12/14	✓	10	7⅛	14	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI414-2	✓	12	7⅛	14	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	HWU7.12/14	✓	10	7⅛	14	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV414-2	✓	7	7⅛	14	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV414-2	✓	7	7⅛	14	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	WMI414-2[3]	✓	12	7⅛	14	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
7 x 16	B7.12/16	✓	12	7⅛	16	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB7.12/16	✓	10	7⅛	16	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	WPI416-2	✓	12	7⅛	16	2½	2⁵⁄₁₆	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	2030	—
	HWU7.12/16	✓	10	7⅛	16	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV416-2	✓	7	7⅛	16	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV416-2	✓	7	7⅛	16	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	WMI416-2[3]	✓	12	7⅛	16	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
7 x 18	B7.12/18	✓	12	7⅛	18	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB7.12/18	✓	10	7⅛	18	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	HWI418-2	✓	11	7⅛	18	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—	—
	HWU7.12/18	✓	10	7⅛	18	3¼	2½	4-16d	4-16d	6-10d	1135	6000	5500	5535	6000	5415	—	—
	GLTV418-2	✓	7	7⅛	18	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV418-2	✓	7	7⅛	18	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	WMI418-2[3]	✓	12	7⅛	18	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
7 x 18¾	GLTV418.75-2	✓	7	7⅛	18¾	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	4260	—	—
7 x 20	B7.12/20	✓	12	7⅛	20	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB7.12/20	✓	10	7⅛	20	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	HWI420-2	✓	11	7⅛	20	2½	2½	4-16d	—	2-10d	—	5100	4000	4500	5285	3665	—	—
	HWU7.12/20	✓	10	7⅛	20	3¼	2½	4-16d	4-16d	6-10d	765	6000	5500	5535	6000	5415	—	—
	GLTV420-2	✓	7	7⅛	20	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5700	7000	5145	—	—
	HGLTV420-2	✓	7	7⅛	20	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
	WMI420-2[3]	✓	12	7⅛	20	2½	3¾	2-16d DPLX	—	2-10d	—	—	—	—	—	—	—	4175
7 x 22	B7.12/22	✓	12	7⅛	22	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB7.12/22	✓	10	7⅛	22	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	HWI422-2	✓	11	7⅛	22	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—	—
	GLTV422-2	✓	7	7⅛	22	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV7.12/22	✓	7	7⅛	22	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
7 x 24	B7.12/24	✓	12	7⅛	24	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB7.12/24	✓	10	7⅛	24	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	HWI424-2	✓	11	7⅛	24	2½	2½	4-16d	—	4-10d	—	5100	4000	4500	5285	3665	—	—
	GLTV424-2	✓	7	7⅛	24	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV7.12/24	✓	7	7⅛	24	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
7 x 26	B7.12/26	✓	12	7⅛	26	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB7.12/26	✓	10	7⅛	26	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	HWI426-2	✓	11	7⅛	26	2½	2½	4-16d	—	6-10d	—	5100	4000	4500	5285	3665	—	—
	GLTV426-2	✓	7	7⅛	26	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV426-2	✓	7	7⅛	26	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
7 x 28	B7.12/28	✓	12	7⅛	28	2½	2½	6-16d	8-16d	6-16d	1010	4135	3355	4500	3800	2650	—	—
	HB7.12/28	✓	10	7⅛	28	3½	3	6-16d	16-16d	10-16d	2610	5815	5640	6395	5650	3820	—	—
	HWI428-2	✓	11	7⅛	28	2½	2½	4-16d	—	6-10d	—	5100	4000	4500	5285	3665	—	—
	GLTV428-2	✓	7	7⅛	28	5	2⅞	4-16d	6-16d	6-16d	1640	7500	7400	5750	7000	5145	—	—
	HGLTV428-2	✓	7	7⅛	28	6	2⅞	6-16d	12-16d	6-16d	1640	10500	9485	9000	8665	6770	—	—
7 x 30	HWI430-2	✓	11	7⅛	30	2½	2½	4-16d	—	6-10d	—	5100	4000	4500	5285	3665	—	—
	GLTV430-2	✓	7	7⅛	30	5	2⅞	4-16d	6-16d	6-16d	—	7500	7400	5750	7000	5145	—	—
	HGLTV430-2	✓	7	7⅛	30	6	2⅞	6-16d	12-16d	6-16d	—	10500	9485	9000	8665	6770	—	—
7 x 32	HWI432-2	✓	11	7⅛	32	2½	2½	4-16d	—	6-10d	—	5100	4000	4500	5285	3665	—	—
	GLTV432-2	✓	7	7⅛	32	5	2⅞	4-16d	6-16d	6-16d	—	7500	7400	5750	7000	5145	—	—
	HGLTV432-2	✓	7	7⅛	32	6	2⅞	6-16d	12-16d	6-16d	—	10500	9485	9000	8665	6770	—	—

See footnotes on page 96.

LSU/LSSU/LSSUI *Light Slopeable/Skewable U Hangers for I-Joists and SCL*

SIMPSON Strong-Tie®

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

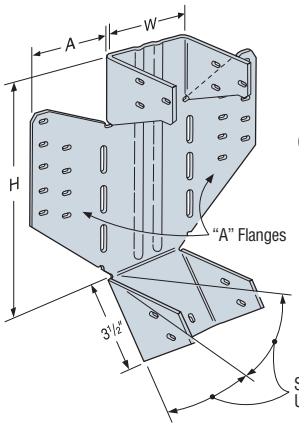
This series attaches joists or rafters to headers, sloped up or down, and skewed left or right, up to 45°.

MATERIAL: See table

FINISH: Galvanized

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

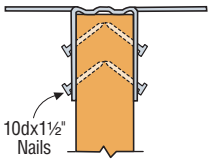
CODES: See page 12 for Code Reference Key Chart.



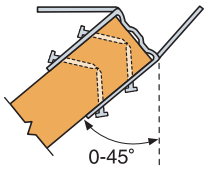
LSSU410
(LSSU210-2, LSSUH310 similar)

LSU and LSSU INSTALLATION SEQUENCE

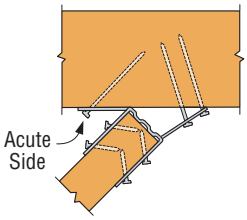
(For Skewed or Sloped/Skewed Applications)



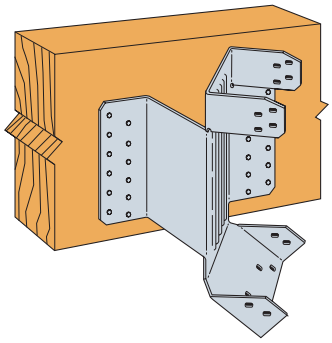
STEP 1
Nail hanger to slope-cut carried member, installing seat nail first. No bevel necessary. Install joist nails at 45° angle.



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



STEP 3
Attach hanger to the carrying member, acute angle side first *(see foonote 5)*. Install nails at an angle.



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

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

Actual Joist Width	Model No.	Ga	Dimensions W	H	A	Fasteners Face	Joist	Allowable Loads DF/SP Species Header Uplift (160)	Floor (100)	Roof Snow (115)	Roof Const. (125)	SPF/HF Species Header Uplift (160)	Floor (100)	Roof Snow (115)	Roof Const. (125)	Code Ref.
SLOPED ONLY HANGERS																
1½	LSSU210	18	1⁹⁄₁₆	8½	1⅝	10-10d	7-10dx1½	875	1110	1275	1390	625	960	1105	1200	I8, L2, F7
1¾	LSSUI25	18	1¹³⁄₁₆	8½	1½	10-10d	7-10dx1½	875	1110	1275	1390	625	960	1105	1200	
2	LSSUI2.06	18	2¹⁄₁₆	8½	1¾	10-10d	7-10dx1½	875	1110	1275	1390	625	960	1105	1200	170
2¹⁄₁₆	LSSU2.1	18	2⅛	8½	1¾	10-10d	7-10dx1½	875	1110	1275	1390	625	960	1105	1200	
2¼ - 2⁵⁄₁₆	LSSUI35	18	2⁵⁄₁₆	8½	1⅝	10-10d	7-10dx1½	875	1110	1275	1390	625	960	1105	1200	I8, L2, F7
2½ - 2⁹⁄₁₆	LSSUH310	16	2⁹⁄₁₆	8½	3⅛	18-16d	12-10dx1½	1150	2295	2295	2295	990	1930	1930	1930	170
3	LSSU210-2	16	3⅛	8½	2⅞	18-16d	12-10dx1½	1150	2430	2795	3035	990	2160	2485	2700	I8, L3, F7
3½	LSSU410	16	3⁹⁄₁₆	8½	2⅝	18-16d	12-10dx1½	1150	2430	2795	3035	990	2160	2485	2700	
4	LSU4.12	14	4⅛	9	2¼	24-16d	16-10dx1½	1150	3215	3700	4020	990	2785	3200	3480	
4⅛	LSU4.28	14	4¼	9	2⅜	24-16d	16-10dx1½	1150	3215	3700	4020	990	2785	3200	3480	170
4½ - 4¾	LSU3510-2	14	4¾	8⅞	3⅝	24-16d	16-10dx1½	1150	3215	3700	4020	990	2785	3200	3480	
5	LSU5.12	14	5⅛	9	2¼	24-16d	16-10dx1½	885	3215	3700	3785	760	2785	3200	3280	
SKEWED HANGERS OR SLOPED AND SKEWED HANGERS																
1½	LSSU210	18	1⁹⁄₁₆	8½	1⅝	9-10d	7-10dx1½	785	995	1145	1205	625	860	995	1050	I8, L2, F7
1¾	LSSUI25	18	1¹³⁄₁₆	8½	1½	9-10d	7-10dx1½	785	995	1145	1205	625	860	995	1050	
2	LSSUI2.06	18	2¹⁄₁₆	8½	1¾	9-10d	7-10dx1½	785	995	1145	1205	625	860	995	1050	170
2¹⁄₁₆	LSSU2.1	18	2⅛	8½	1¾	9-10d	7-10dx1½	785	995	1145	1205	625	860	995	1050	
2¼ - 2⁵⁄₁₆	LSSUI35	18	2⁵⁄₁₆	8½	1⅝	9-10d	7-10dx1½	785	995	1145	1205	625	860	995	1050	I8, L2, F7
2½ - 2⁹⁄₁₆	LSSUH310	16	2⁹⁄₁₆	8½	3⅛	14-16d	12-10dx1½	1150	1600	1600	1600	990	1385	1385	1385	170
3	LSSU210-2	16	3⅛	8½	2⅞	14-16d	12-10dx1½	1150	1625	1625	1625	990	1365	1365	1365	I8, L3, F7
3½	LSSU410	16	3⁹⁄₁₆	8½	2⅝	14-16d	12-10dx1½	1150	1625	1625	1625	990	1365	1365	1365	
4	LSU4.12[3]	14	4⅛	9	2¼	24-16d	16-10dx1½	1150	2300	2300	2300	990	1990	1990	1990	
4⅛	LSU4.28[3]	14	4¼	9	2⅜	24-16d	16-10dx1½	1150	2300	2300	2300	990	1990	1990	1990	170
4½ - 4¾	LSU3510-2[3]	14	4¾	8⅞	3⅝	24-16d	16-10dx1½	1150	2300	2300	2300	990	1990	1990	1990	
5	LSU5.12[3]	14	5⅛	9	2¼	24-16d	16-10dx1½	885	1790	1790	1790	760	1550	1550	1550	

1. Roof loads are 125% of floor loads unless limited by other criteria.
2. Uplift loads include a 60% increase for wind or earthquake loading with no further increase is allowed; reduce where other loads govern.
3. LSU3510-2, LSU4.12, LSU4.28 and LSU5.12 skew option must be factory-ordered.
4. Minimum 11" joist height for LSU3510-2, LSU4.12, LSU5.12; 9½" for all others.
5. For skewed LSSU/LSSUI hangers, the inner most face fasteners on the acute angle side are not installed.
6. 10dx1½" nails may not be used for face nails on skewed or sloped and skewed LSU/LSSU/LSSUI hangers.
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

VPA *Variable Pitch Connector*

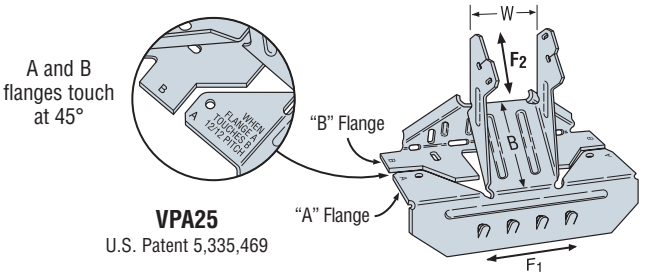
The VPA may be sloped in the field, offering a versatile solution for attaching rafters to the top plate. It will adjust to accommodate slopes between 3:12 and 12:12, making it a complement to the versatile LSSU. This connector eliminates the need for notched rafters, beveled top plates and toe nailing.

MATERIAL: 18 gauge

FINISH: Galvanized

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

CODES: See page 12 for Code Reference Key Chart.

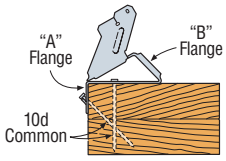


VPA25
U.S. Patent 5,335,469

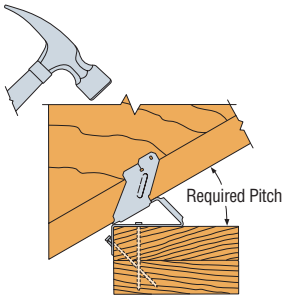
Actual Joist Width	Model No.	W	B	Fasteners		Allowable Loads								Code Ref.
						Uplift		Download		Lateral				
				Carrying Member	Carried Member	DF/SP Species	SPF Species			DF/SP Species (160)		SPF/HF Species (160)		
						(160)	(160)	DF/SP	SPF	F_1	F_2	F_1	F_2	
1½	VPA2	1⁹⁄₁₆	2	8-10d	2-10dx1½	295	250	1050	870	375	250	325	250	I8, F7
1¾	VPA25	1¹³⁄₁₆	2	8-10d	2-10dx1½	295	250	1050	870	375	250	325	250	
2	VPA2.06	2¹⁄₁₆	2	9-10d	2-10dx1½	295	250	1230	1020	375	250	325	250	170
2¹⁄₁₆	VPA2.1	2⅛	2	9-10d	2-10dx1½	295	250	1230	1020	375	250	325	250	
2¼ - 2⁵⁄₁₆	VPA35	2⁵⁄₁₆	2	9-10d	2-10dx1½	295	250	1230	1020	375	250	325	250	I8, F7
2½ - 2⁹⁄₁₆	VPA3	2⁹⁄₁₆	2	9-10d	2-10dx1½	295	250	1230	1020	375	250	325	250	
3½	VPA4	3⁹⁄₁₆	2	11-10d	2-10dx1½	295	250	1230	1020	375	250	325	250	

1. Uplift loads include a 60% increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Loads may not be increased for short-term loading.
3. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

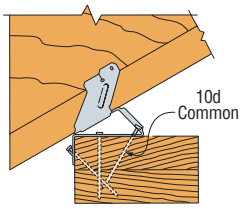
VPA INSTALLATION SEQUENCE



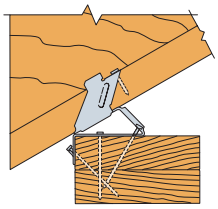
STEP 1
Install top nails and face PAN nails in "A" flange to outside wall top plate.



STEP 2
Seat rafter with a hammer, adjusting "B" flange to the required pitch.



STEP 3
Install "B" flange nails in the obround nail holes, locking the pitch.



STEP 4
Bend tab with hammer and install 10dx1½" nail into tab nail hole. Hammer nail in at an approximate 45° angle to limit splitting.

HCP *Hip Corner Plates*

For complementary ridge connection, see page 108

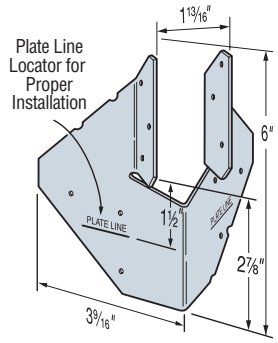
The HCP connects a rafter or joist to double top plates at a 45° angle.

MATERIAL: 18 gauge

FINISH: Galvanized

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

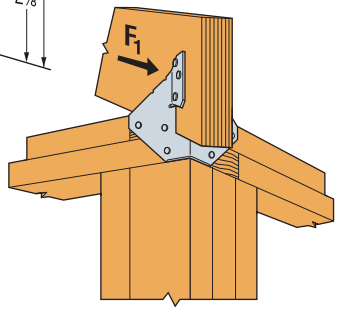
CODES: See page 12 for Code Reference Key Chart.



HCP1.81
U.S. Patent 5,380,115

Member Size	Model No.	Fasteners		DF/SP Allowable Loads (160)		SPF/HF Allowable Loads (160)		Code Ref.
		To Rafters	To Plates	Uplift	F_1	Uplift	F_1	
1¾	HCP1.81	6-10dx1½	6-10dx1½	645	300	555	260	I8, F7

1. Loads include a 60% increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. The HCP can be installed on the inside and the outside of the wall with a flat bottom chord truss and achieve twice the load capacity.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



Typical HCP Installation

HRC Hip Ridge Connectors

For complementary top plate connection, see page 107

The HRC series are field slopeable connectors that attach hips to ridge members or trusses. The HRC may be sloped to 45° with no reduction in loads.

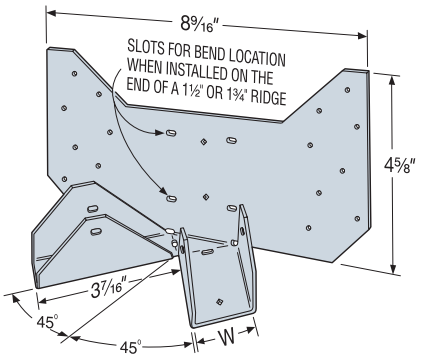
MATERIAL: 16 gauge

FINISH: Galvanized

INSTALLATION:

- Use all specified fasteners. See General Notes.
- On end of ridge–use optional diamond holes to secure the HRC. Bend face flanges back flush with ridge, and complete nailing.
- On face of ridge–adjust to correct height and install nails.
- Double bevel-cut hip members to achieve full bearing capacity.
- The HRC may be sloped to 45° with no reduction in loads.

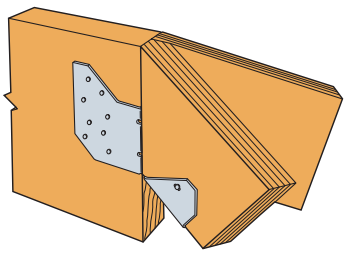
CODES: See page 12 for Code Reference Key Chart.



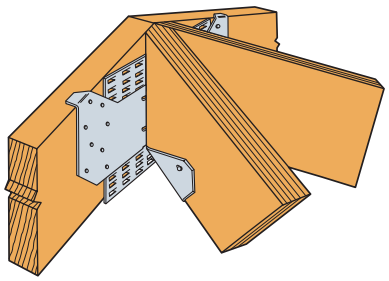
HRC1.81
U.S. Patent 5,380,116

Model No.	W	Member Size		Fasteners		DF/SP Allowable Loads				SPF/HF Allowable Loads				Code Ref.
		Hip	Ridge	Carrying Member	Each Hip	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	
HRC1.81	1¹³⁄₁₆	1¾"	2x or 1¾" wide	16-10dx1½	2-10dx1½	290	720	830	900	250	625	720	780	I8, F7

1. Allowable loads shown are for each hip. Total load carried by the connector is double this number.
2. Uplift loads include a 60% increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. Roof loads are 125% of floor loads unless limited by other criteria.
4. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



Typical HRC Installation on the End of a Ridge



Optional HRC1.81 Installation

SUR/SUL/HSUR/HSUL Skewed 45° Hangers for I-Joist and SCL

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

The SUR/L1.81, 2.06, 2.1, 2.37, 2.56 and HSUR/L series are 45° skewed hangers designed specifically to ease the installation of single and double I-joists. In addition to Positive Angle Nailing these hangers encapsulate the top flange of the I-joist, so no web stiffeners are required for standard installation.

The full range of 45° skewed hangers feature obround nail holes on the acute side allowing nails to be easily installed parallel to the joist. Installation is further simplified with no required bevel cuts.

MATERIAL: See table

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 10-11.

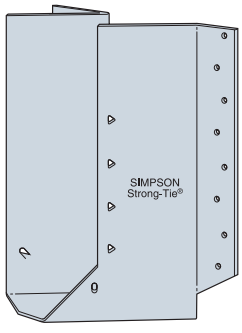
INSTALLATION: • Use all specified fasteners. See General Notes.

- Illustrations show left and right skews SUR/L *(SUR = skewed right; SUL = skewed left).*
- The joist end may be square cut or bevel cut.
- Fill all round and obround nail holes with specified fasteners to achieve table loads. Where noted, triangle holes in the joist flange may be filled for additional uplift capacity *(see footnote on page 109).*
- **For I-joists with flanges less than 1⁵⁄₁₆", web stiffeners are required for all double joist hangers when using hangers that are 14 gauge and lighter.**
- For installations to masonry or concrete, see page 140.

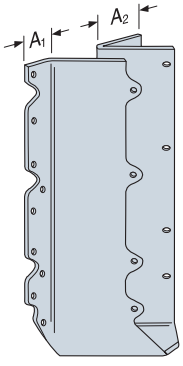
OPTIONS: • These hangers will accommodate a 40° to 50° skew.

- Available with the A_2 flange turned in on 2-2x and 4x models only *(see illustration)*. For example, specify HSURC410, HSULC410, SURC210-2, or SULC210-2.

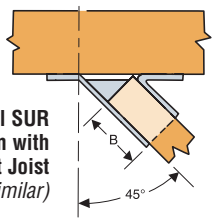
CODES: See page 12 for Code Reference Key Chart.



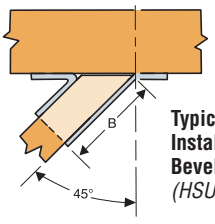
SUL2.56/11



HSUR414



Typical SUR Installation with Square Cut Joist *(HSUR similar)*

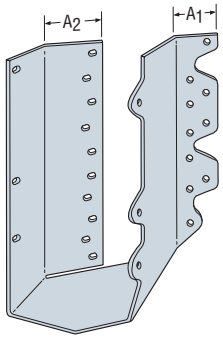


Typical SUL Installation with Bevel Cut Joist *(HSUL similar)*

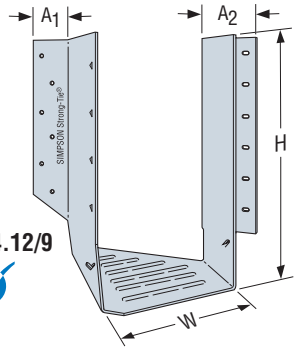
SUR/SUL/HSUR/HSUL *Skewed 45° Hangers for I-Joist and SCL*

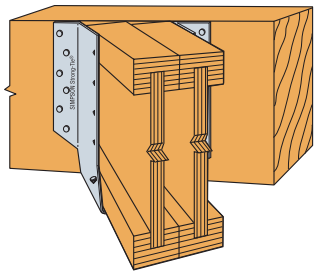
SIMPSON Strong-Tie®

HSULC
Available for 3" and 3½" wide joists only



HSUR4.12/9





Typical HSUR4.12/9 Installation

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

Actual Joist Size	Model No.	Web Stiff Reqd	Ga	Dimensions					Fasteners		Allowable Loads								Code Ref.
											DF/SP Species Header				SPF/HF Species Header				
													Roof				Roof		
				W	H	B	A_1	A_2	Face	Joist	Uplift (160)	Floor (100)	Snow (115)	Const (125)	Uplift (160)	Floor (100)	Snow (115)	Const (125)	
1½x9¼-12	SUR/L210	✓	16	1⁹⁄₁₆	8	2	1⅛	1⁵⁄₁₆	10-16d	10-10dx1½	1250	1330	1530	1660	1040	1150	1320	1440	I7, F6
1½x10-16	SUR/L214	✓	16	1⁹⁄₁₆	10	2	1⅛	1⁵⁄₁₆	12-16d	12-10dx1½	1730	1595	1835	1995	1250	1380	1585	1725	
1¾x9¼-9½	SUR/L1.81/9	—	16	1¹³⁄₁₆	9	3	1⅝	2⁵⁄₁₆	12-16d	2-10dx1½	145	1595	1835	1995	120	1380	1585	1690	170
1¾x11¼-11⅞	SUR/L1.81/11	—	16	1¹³⁄₁₆	11	3	1⅝	2⁵⁄₁₆	16-16d	2-10dx1½	145	2130	2350	2350	120	1690	1690	1690	
1¾x14	SUR/L1.81/14	—	16	1¹³⁄₁₆	13¾	3	1⅝	2⁵⁄₁₆	20-16d	2-10dx1½	145	2500	2500	2500	120	1795	1795	1795	
2x9½	SUR/L2.06/9	—	16	2¹⁄₁₆	9¼₁₆	3³⁄₁₆	1⅝	2⅛	14-16d	2-10dx1½	225[3]	2015	2280	2465	180	1735	1960	2120	I9, F8
2x11⅞	SUR/L2.06/11	—	16	2¹⁄₁₆	11¼	3³⁄₁₆	1⅝	2⅛	16-16d	2-10dx1½	225[3]	2305	2610	2665	180	1980	2245	2290	170
2x14-16	SUR/L2.06/11	✓	16	2¹⁄₁₆	11¼	3³⁄₁₆	1⅝	2⅛	16-16d	2-10dx1½	225[3]	2305	2610	2665	180	1980	2245	2290	
2¹⁄₁₆x9½	SUR/L2.1/9	—	16	2⅛	9¼₁₆	3³⁄₁₆	1¹⁄₁₆	2⅛	14-16d	2-10dx1½	225[3]	2015	2280	2465	180	1735	1960	2120	
2¹⁄₁₆x11⅞	SUR/L2.1/11	—	16	2⅛	11³⁄₁₆	3³⁄₁₆	1¹⁄₁₆	2⅛	16-16d	2-10dx1½	225[3]	2305	2610	2665	180	1980	2245	2290	
2¹⁄₁₆x14-16	SUR/L2.1/11	✓	16	2⅛	11³⁄₁₆	3³⁄₁₆	1¹⁄₁₆	2⅛	16-16d	2-10dx1½	225[3]	2305	2610	2665	180	1980	2245	2290	
2¼-2⁵⁄₁₆x9½	SUR/L2.37/9	—	16	2⅜	8¹⁵⁄₁₆	3³⁄₁₆	1⁵⁄₁₆	2⅛	14-16d	2-10dx1½	225[3]	2015	2280	2465	180	1735	1960	2120	
2¼-2⁵⁄₁₆x11⅞	SUR/L2.37/11	—	16	2⅜	11³⁄₁₆	3³⁄₁₆	1⁵⁄₁₆	2⅛	16-16d	2-10dx1½	225[3]	2305	2610	2665	180	1980	2245	2290	
2¼-2⁵⁄₁₆x14	SUR/L2.37/14	—	16	2⅜	13⁷⁄₁₆	3³⁄₁₆	1⁵⁄₁₆	2⅛	18-16d	2-10dx1½	225[3]	2590	2665	2665	180	2225	2290	2290	
2¼-2⁵⁄₁₆x16	SUR/L2.37/14	✓	16	2⅜	13⁷⁄₁₆	3³⁄₁₆	1⁵⁄₁₆	2⅛	18-16d	2-10dx1½	225[3]	2590	2665	2665	180	2225	2290	2290	
2½x9½ (3x10,12)	SUR/L2.56/9	—	16	2⁹⁄₁₆	8¹³⁄₁₆	3³⁄₁₆	1⅛	2⅛	14-16d	2-10dx1½	225[3]	2015	2280	2465	180	1735	1960	2120	
2½-2⁹⁄₁₆x11¼-11⅞	SUR/L2.56/11	—	16	2⁹⁄₁₆	11³⁄₁₆	3³⁄₁₆	1⅛	2⅛	16-16d	2-10dx1½	225[3]	2305	2610	2665	180	1980	2245	2290	
2½x14 (3x14)	SUR/L2.56/14	—	16	2⁹⁄₁₆	13⁵⁄₁₆	3³⁄₁₆	1⅛	2⅛	18-16d	2-10dx1½	225[3]	2590	2665	2665	180	2225	2290	2290	
2½x16	SUR/L2.56/14	✓	16	2⁹⁄₁₆	13⁵⁄₁₆	3³⁄₁₆	1⅛	2⅛	18-16d	2-10dx1½	225[3]	2590	2665	2665	180	2225	2290	2290	
3x9¼-14	SUR/L210-2	✓	16	3⅛	8¹¹⁄₁₆	2⅝	1⁷⁄₁₆	2⅜	14-16d	6-10dx1½	765	1860	2140	2330	625	1610	1785	1785	I7, F6
	HSUR/L210-2	✓	14	3⅛	8¹¹⁄₁₆	2⁷⁄₁₆	1¼	2⅜	20-16d	6-10dx1½	920	2680	3080	3350	930	2320	2670	2900	
3x14-20	SUR/L214-2	✓	16	3⅛	12¹¹⁄₁₆	2⁷⁄₁₆	1⁷⁄₁₆	2⅜	18-16d	8-10dx1½	1150	2395	2500	2500	830	1795	1795	1795	170
	HSUR/L214-2	✓	14	3⅛	12¹¹⁄₁₆	2⁷⁄₁₆	1¼	2³⁄₁₆	26-16d	8-10dx1½	1230	3485	4005	4355	1235	3015	3470	3770	I7, F6
3½x9¼-14	SUR/L410	✓	16	3⁹⁄₁₆	8½	2⅝	1	2⅜	14-16d	6-16d	1275	1860	2140	2330	920	1610	1785	1785	I9, F8
	HSUR/L410	✓	14	3⁹⁄₁₆	8½	2⁷⁄₁₆	1	2³⁄₁₆	20-16d	6-16d	1285	2680	3080	3350	930	2320	2670	2900	
3½x14-20	SUR/L414	✓	16	3⁹⁄₁₆	12½	2½	1	2⅜	18-16d	8-16d	1700	2395	2500	2500	1225	1795	1795	1795	I7, I9, F8
	HSUR/L414	✓	14	3⁹⁄₁₆	12½	2⁷⁄₁₆	1	2³⁄₁₆	26-16d	8-16d	1715	3485	4005	4355	1235	3015	3470	3770	
4x9½	HSUR/L4.12/9	—	14	4⅛	9	3	1⁷⁄₁₆	2⅜	12-16d	2-10dx1½	145[3]	1655	1905	2020	120	1440	1655	1700	170
4x11⅞	HSUR/L4.12/11	—	14	4⅛	11⅞	3	1⁷⁄₁₆	2⅜	16-16d	2-10dx1½	145[3]	2210	2540	2760	120	1920	2210	2400	
4x14	HSUR/L4.12/14	—	14	4⅛	13¾	3	1⁷⁄₁₆	2⅜	20-16d	2-10dx1½	145[3]	2760	3050	3050	120	2400	2410	2410	
4x16	HSUR/L4.12/16	—	14	4⅛	15¾	3	1⁷⁄₁₆	2⅜	24-16d	2-10dx1½	145[3]	3050	3050	3050	120	2410	2410	2410	
4⅛x9½	HSUR/L4.28/9	—	14	4⁵⁄₁₆	9	3	1⁷⁄₁₆	2⅜	12-16d	2-10dx1½	145[3]	1655	1905	2020	120	1440	1655	1700	
4⅛x11⅞	HSUR/L4.28/11	—	14	4⁵⁄₁₆	11⅞	3	1⁷⁄₁₆	2⅜	16-16d	2-10dx1½	145[3]	2210	2540	2760	120	1920	2210	2400	
4⅛x14-16	HSUR/L4.28/11	✓	14	4⁵⁄₁₆	11⅞	3	1⁷⁄₁₆	2⅜	16-16d	2-10dx1½	145[3]	2210	2540	2760	120	1920	2210	2400	
4⅝x9½	HSUR/L4.75/9	—	14	4¾	8¹⁵⁄₁₆	2¾	1⁷⁄₁₆	2⅜	12-16d	2-10dx1½	145[3]	1655	1905	2020	120	1440	1655	1700	
4⅝x11⅞	HSUR/L4.75/11	—	14	4¾	10¹⁵⁄₁₆	2¾	1⁷⁄₁₆	2⅜	16-16d	2-10dx1½	145[3]	2210	2540	2760	120	1920	2210	2400	
4⅝x14	HSUR/L4.75/14	—	14	4¾	13¾	2¾	1⁷⁄₁₆	2⅜	20-16d	2-10dx1½	145[3]	2760	3050	3050	120	2400	2410	2410	
4⅝x16	HSUR/L4.75/16	—	14	4¾	15¾	2¾	1⁷⁄₁₆	2⅜	24-16d	2-10dx1½	145[3]	3050	3050	3050	120	2410	2410	2410	
5x9½	HSUR/L5.12/9	—	14	5⅛	9	2¹³⁄₁₆	1⁷⁄₁₆	2⅜	12-16d	2-10dx1½	145[3]	1655	1905	2020	120	1440	1655	1700	
5x11⅞	HSUR/L5.12/11	—	14	5⅛	11	2¹³⁄₁₆	1⁷⁄₁₆	2⅜	16-16d	2-10dx1½	145[3]	2210	2540	2760	120	1920	2210	2400	
5x14	HSUR/L5.12/14	—	14	5⅛	13¾	2¹³⁄₁₆	1⁷⁄₁₆	2⅜	20-16d	2-10dx1½	145[3]	2760	3050	3050	120	2400	2410	2410	
5x16	HSUR/L5.12/16	—	14	5⅛	15¾	2¹³⁄₁₆	1⁷⁄₁₆	2⅜	24-16d	2-10dx1½	145[3]	3050	3050	3050	120	2410	2410	2410	

1. Uplift loads have been increased by 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Roof construction loads are 125% of floor loads unless limited by other criteria.
3. **Triangle nail holes may be filled *(requires web stiffeners)* with 10dx1½" nails for additional uplift.**
   - **9- and 11-inch models have (4) additional holes, that when filled can resist 795 lbs. for Douglas Fir or Southern Pine or 685 lbs. for SPF/HF.**
   - **14-inch models have (6) additional holes, that when filled can resists 1190 lbs. for Douglas Fir and 1025 lbs. for SPF/HF.**
4. **When the supported member is an I-joist with flanges less than 1⁵⁄₁₆ inches thick, the allowable uplift shall not exceed 190 lbs. without web stiffeners.**
5. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

PAI/MPAI *Purlin Anchors*

Wood-to-concrete and wood-to-CMU connectors that satisfy code requirements. 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 2000 psi.

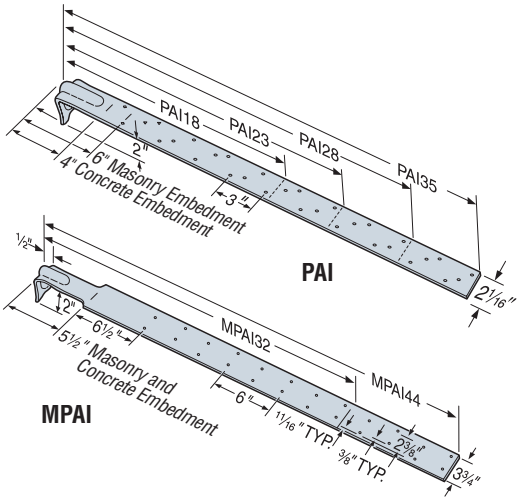
- Use all specified fasteners; some models have extra fastener holes. See General Notes.
- Wood splitting may occur when anchor is nailed to wood less than 3½" wide. To reduce splitting for widths less than 3½", fill every other nail hole with 10dx1½" nails. Reduce the allowable load based on the size and quantity of fasteners used. *(See nail table on page 16-17.)*
- PAI is designed for wood I-joists. Nail spacing is for 10dx1½" nails 3" on center, to minimize the chance of wood splitting. Maximum ledger width for full loads is 1½".

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: one #4 vertical rebar, 32" long, at 32" o.c.; two courses of block above and below the anchor; a horizontal bond beam with two #4 rebars, 40" long, a maximum of two courses above or below the anchor; all cells grouted with 2000 psi ⅜" aggregate grout. Grout shall be vibrated per the 1997 UBC section 2104.6.2.

OPTIONS: See LTT and HTT Tension Ties.

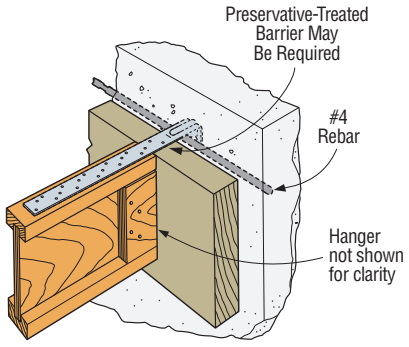
CODES: See page 12 for Code Reference Key Chart.



Note: IBC 1613.1 refers to ASCE7 for seismic design procedures which states in Section 12.11.2.2.5:

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

Model No.	L	Fasteners		Allowable Loads		Code Ref.
		Masonry	Concrete	Masonry (160)	Concrete (160)	
Maximum Capacity						
PAI18	18	10-10dx1½	12-10dx1½	1505	1805	IL8
PAI23	23	15-10dx1½	17-10dx1½	2255	2560	
PAI28	29	21-10dx1½	23-10dx1½	2815	3460	
PAI35	35	26-10dx1½	29-10dx1½	2815	3685	
MPAI32	32	16-10dx1½	16-10dx1½	2355	2355	
MPAI44	44	24-10dx1½	24-10dx1½	2865	2865	
1¾ LVL and 3x Ledger						
PAI18	18	8-10dx1½	10-10dx1½	1205	1505	IL8
PAI23	23	13-10dx1½	15-10dx1½	1955	2255	
PAI28	29	19-10dx1½	21-10dx1½	2815	3160	
PAI35	35	24-10dx1½	27-10dx1½	2815	3685	
MPAI32	32	16-10dx1½	16-10dx1½	2355	2355	
MPAI44	44	24-10dx1½	24-10dx1½	2865	2865	
4x Ledger						
PAI18	18	7-10dx1½	9-10dx1½	1055	1355	IL8
PAI23	23	12-10dx1½	14-10dx1½	1805	2105	
PAI28	29	18-10dx1½	20-10dx1½	2705	3010	
PAI35	35	23-10dx1½	26-10dx1½	2815	3685	
MPAI32	32	16-10dx1½	16-10dx1½	2355	2355	
MPAI44	44	24-10dx1½	24-10dx1½	2865	2865	



PAI Purlin to Concrete Wall
(MPAI similar)

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Allowable loads are for a horizontal installation into the side of a concrete or masonry wall.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

RC *Ripper Clip*

The Ripper Clip is designed to connect ripped 2x framing to the top of another wood joist.

MATERIAL: 20 gauge **FINISH:** Galvanized

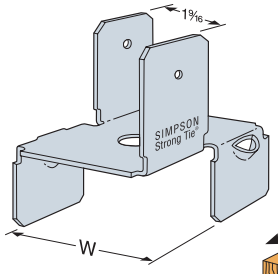
INSTALLATION: • Use all specified fasteners. Refer to General Notes.

- Attach RC to ripper, then attach ripper/RC assembly to roof joist.

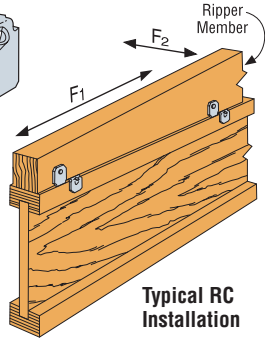
CODES: See page 12 for Code Reference Key Chart.

Model No.	W	Fasteners		Allowable Uplift Load	F_1	F_2	Code Ref.
		Ripper	Joist	(160)			
RC1.56	1 9/16	2-10dx1½	2-10dx1½	205	240	205	170
RC1.81	1 13/16						
RC2.1	2⅛						

1. Allowable loads are for DFL ripper members.
2. Uplift loads have been increased 60% for wind or earthquake loading with no other increase allowed. Reduce by 60% for normal loading.
3. Designer to consider stability/blocking requirements for system, if necessary.
4. Spacing of RC per Designer.
5. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



RC
U.S. Patent 5,603,580



Typical RC Installation

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

SIMPSON Strong-Tie®

See Hanger Options on pages 181-183 for hanger modifications, which may result in reduced loads.

HU/HUC—Most models have triangle and round holes. To achieve maximum loads, fill both round and triangle holes with common nails.

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

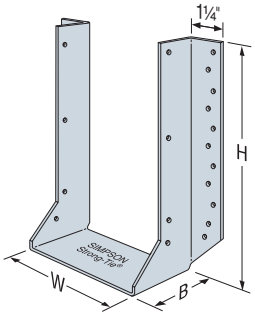
MATERIAL: See tables

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 10-11.

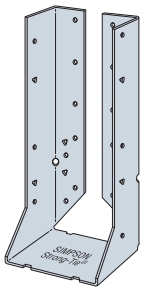
INSTALLATION: • Use all specified fasteners. See General Notes.
- HU/HUC—can be installed filling round holes only, or filling round and triangle holes for maximum values.
- HGUS—Nails must be driven at an angle through the joist or truss into the header to achieve the table loads.
- With 3x carrying members, use 16dx2½" (0.162" dia. x 2½" long) nails into the header and 16d commons into the joist with no load reduction. With 2x carrying members, use 10dx1½" (0.148" dia. x 1½" long) nails into the header and 10d commons into the joist, and reduce the load to 0.64 of the table value.
- For installations to masonry or concrete, see page 140.

OPTIONS: • HU hangers available with the header flanges turned in for 2⁵⁄₁₆" and larger widths, with no load reduction—order HUC hanger.
- See Hanger Options on pages 181-183, for sloped and/or skewed HU models, and HUC *(concealed flange)* models.
- Concealed flanges are not available for HGUS.
- Other sizes available; contact Simpson Strong-Tie.
- See also HUS series.

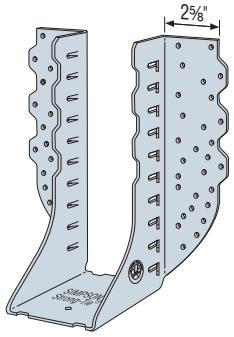
CODES: See page 12 for Code Reference Key Chart.



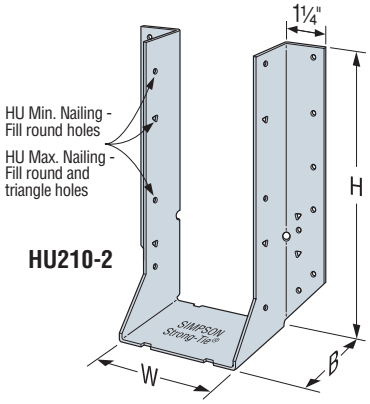
HU5.125/12



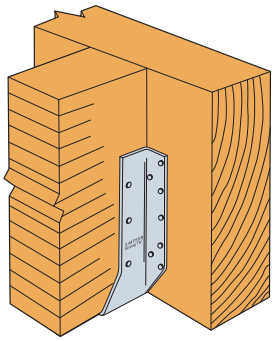
HUC210-2
Concealed Flanges



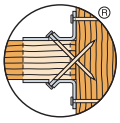
HGUS3.25/12



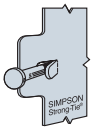
HU210-2



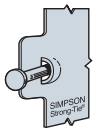
Typical HU Installation



Double Shear Nailing Top View



Double Shear Nailing Side View Do not bend tab



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

U.S. Patent 5,603,580

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

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

Carried Member Width	Model No.	Ga	Dimensions W	H	B	Min/ Max	Fasteners Face	Joist	Allowable Loads DF/SP Species Header Uplift (160)	Floor (100)	Snow (115)	Roof (125)	SPF/HF Species Header Floor (100)	Snow (115)	Roof (125)	Code Ref.
3⅛ GLULAM	HU210-2/HUC210-2	14	3⅛	8¹³⁄₁₆	2½	Min	14-16d	6-10d	1085	1875	2155	2345	1625	1870	2030	I7, F6
			3⅛	8¹³⁄₁₆	2½	Max	18-16d	10-10d	1810	2410	2775	3015	2090	2400	2610	
	HU212-2/HUC212-2		3⅛	10⁹⁄₁₆	2½	Min	16-16d	6-10d	1085	2145	2465	2680	1855	2135	2320	
			3⅛	10⁹⁄₁₆	2½	Max	22-16d	10-10d	1810	2950	3390	3685	2550	2935	3190	
	HU3.25/10.5 / HUC3.25/10.5		3¼	10¼	2½	—	22-16d	10-10d	1810	2950	3390	3685	2550	2935	3190	170
	HU3.25/12 / HUC3.25/12		3¼	11¾	2½	—	24-16d	12-10d	2015	3215	3700	4020	2785	3200	3480	
	HU216-2 / HUC216-2		3⅛	13⅞	2½	Min	20-16d	8-10d	1445	2680	3080	3350	2320	2670	2900	I7, F6
			3⅛	13⅞	2½	Max	26-16d	12-10d	2015	3485	4005	4355	3015	3470	3770	
	HGUS3.25/10	12	3¼	8⅝	4	—	46-16d	16-16d	3630	8780	8940	8940	6725	6935	7080	F23
	HGUS3.25/12		3¼	10⅝	4	—	56-16d	20-16d	4055	9155	9155	9155	7080	7345	7520	
3½ GLULAM	**See HHUS, HGUS and HUCQ in 3½" Structural Composite Lumber section, page 87-88 or GU series on page 89.**															
5⅛ GLULAM	HU310-2 / HUC310-2	14	5⅛	8⅞	2½	—	14-16d	6-10d	1085	1875	2155	2345	1625	1870	2030	I7, F6
	HU5.125/12 / HUC5.125/12		5¼	10¼	2½	—	22-16d	8-16d	1715	2950	3390	3685	2550	2935	3190	170
	HU5.125/13.5 / HUC5.125/13.5		5¼	13¼	2½	—	26-16d	12-16d	2575	3485	4005	4355	3015	3470	3770	
	HU5.125/16 / HUC5.125/16		5¼	13⅞	2½	—	26-16d	12-16d	2575	3485	4005	4355	3015	3470	3770	
	HUCQ5.25/9-SDS		5¼	9	3	—	12-SDS¼x2½	6-SDS¼x2½	3025	4955	4955	4955	3570	3570	3570	F23
	HUCQ5.25/11-SDS		5¼	11	3	—	14-SDS¼x2½	6-SDS¼x2½	3025	5560	5560	5560	4005	4005	4005	
	HGUS5.25/10	12	5¼	9¹⁄₁₆	4	—	46-16d	16-16d	3630	8780	8940	8940	7510	7510	7510	
	HGUS5.25/12		5¼	10⁹⁄₁₆	4	—	56-16d	20-16d	4055	9155	9155	9155	7690	7690	7690	
5½ GLULAM	**See HHUS, HGUS and HUCQ in 5¼" Structural Composite Lumber section, page 88 or GU series on page 89.**															
6¾ GLULAM	HGUS6.88/10	12	6⅞	8¹³⁄₁₆	4	—	46-16d	16-16d	3630	8780	9625	9625	7595	8085	8085	F23
	HGUS6.88/12		6⅞	10¹³⁄₁₆	4	—	54-16d	20-16d	4055	9835	9835	9835	8260	8260	8260	
	HGUS6.88/14		6⅞	12¹³⁄₁₆	4	—	66-16d	22-16d	5380	11110	11110	11110	9330	9330	9330	
7 GLULAM	**See HHUS and HGUS in 7" Structural Composite Lumber section, page 88 or GU series on page 89.**															
8¾ GLULAM	**See HGU and HHGU on page 112.**															

1. 10d commons or 16d sinkers may be used instead of the specified 16d at 0.84 of the table load value.
2. 16d sinkers may be used instead of the specified 10d commons with no load reduction.
3. Uplift loads based on Douglas Fir and have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6.
4. MIN nailing quantity and load values—fill all round holes; MAX nailing quantity and load values—fill all round and triangle holes.
5. For SPF/HF uplift, use 0.86 x DF/SP uplift load for products requiring nails and 0.72 for products requiring screws.
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.

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

The GU hangers are high-capacity girder hangers designed for situations where the header and joist are flush at the top. These products can be used for retrofit on the framing members after they are temporarily placed in position. Simpson Strong-Tie® Strong-Drive® screws (SDS) make installation fast and easy, with no pre-drilling required.

MATERIAL: See table

FINISH: Galvanized, HHGU—Simpson Strong-Tie® gray paint

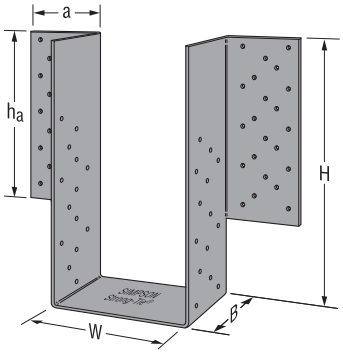
INSTALLATION: • Use all specified fasteners. See General Notes.

- Install with Simpson Strong-Tie SDS ¼"x2½" screws, which are provided with the GU's. *(Note: lag screws will not achieve the same loads.)*
- All multiple members must be fastened together to act as a single unit.
- Multiple member headers may require additional fasteners at the hanger locations. The quantity and location of the additional fasteners must be determined by the Designer.
- For installation to concrete or masonry walls see LGUM and HGUM hangers page 141.

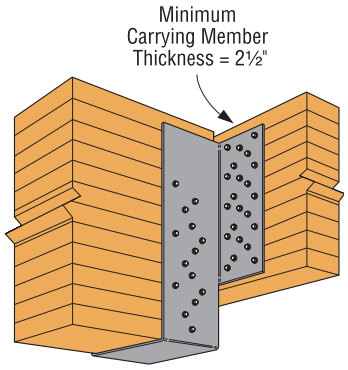
OPTIONS: • Hot-dip galvanized available. Order as "X" version, specify HDG.

- Other seat widths available. Order as "X" version, specify width.
- See Hanger Options, pages 181-183, for one flange concealed option *(except MGU3.63, MGU5.25 and HGU5.25).*

CODES: See page 12 for Code Reference Key Chart.



HHGU
(LGU, MGU, HGU similar)



Typical HHGU Installation

Actual Carried Beam Width	Model No.	Ga	Dimensions					Fasteners		Allowable Loads				Code Ref.
			W	H[2] (min)	B	h_a[3]	a	Face	Joist	DF/SP		SPF/HF		
										Uplift[1] (160)	Download[3] (100/115/125)	Uplift[1] (160)	Download[3] (100/115/125)	
3⅛	LGU3.25-SDS	10	3¼	8	4½	7⅜	3¼	16-SDS ¼"x2½"	12-SDS ¼"x2½"	5555	6720	4000	4840	F23
3½	LGU3.63-SDS	10	3⅝	8	4½	7⅜	3¼	16-SDS ¼"x2½"	12-SDS ¼"x2½"	5555	6720	4000	4840	
	MGU3.63-SDS	10	3⅝	9¼	4½	8⅝	4	24-SDS ¼"x2½"	16-SDS ¼"x2½"	7260	9450	5225	6805	
5⅛	LGU5.25-SDS	10	5¼	8	4½	7⅜	3¼	16-SDS ¼"x2½"	12-SDS ¼"x2½"	5555	6720	4000	4840	
	MGU5.25-SDS	10	5¼	9¼	4½	8⅝	4	24-SDS ¼"x2½"	16-SDS ¼"x2½"	7260	9450	5225	6805	
	HGU5.25-SDS	7	5¼	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	
5¼	MGU5.50-SDS	10	5½	9¼	4½	8⅝	4	24-SDS ¼"x2½"	16-SDS ¼"x2½"	7260	9450	5225	6805	
	HGU5.50-SDS	7	5½	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	
	HHGU5.50-SDS	3	5½	13	5¼	12⅜	4¾	44-SDS ¼"x2½"	28-SDS ¼"x2½"	14550	17845	10475	12850	
6¾	MGU7.00-SDS	10	7	9¼	4½	8⅝	4	24-SDS ¼"x2½"	16-SDS ¼"x2½"	7260	9450	5225	6805	
	HGU7.00-SDS	7	7	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	
	HHGU7.00-SDS	3	7	13	5¼	12⅜	4¾	44-SDS ¼"x2½"	28-SDS ¼"x2½"	14550	17845	10475	12850	
8¾	HGU9.00-SDS	7	9	11	5¼	10⅜	4¾	36-SDS ¼"x2½"	24-SDS ¼"x2½"	9895	14145	7125	10185	
	HHGU9.00-SDS	3	9	13	5¼	12⅜	4¾	44-SDS ¼"x2½"	28-SDS ¼"x2½"	14550	17845	10475	12850	

1. Uplift loads have been increased for wind or earthquake loading with no further increase allowed.
2. Specify H dimension. Maximum H = 30".
3. Header height must be at least as tall as the flange height (h_a).

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

See table on page 115. See Hanger Options on pages 181-183 for hanger modifications, which may result in reduced loads.

This series of beam and purlin hangers may be used for wood to wood or wood to steel applications. Precision forming provides dimensional accuracy and helps ensure proper bearing area and connection.

MATERIAL: See table on page 115

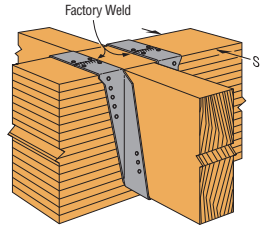
FINISH: HHB, GB, HGB, all saddle hangers and all welded sloped and special hangers—Simpson Strong-Tie® gray paint. HHB may be ordered hot-dip galvanized; specify HDG.

INSTALLATION: • Use specified fasteners. See General Notes.

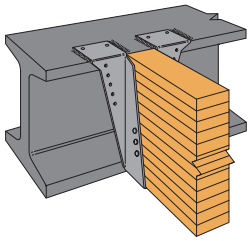
- HHB, GB and HGB may be used for weld-on applications. The minimum required weld to the top flanges is 3⁄16" x 2" fillet weld to each side of each top flange tab. Distribute the weld equally on both top flanges. Welding cancels the top and face nailing requirements. Consult the code for special considerations when welding galvanized steel. The area should be well-ventilated. See page 14 for weld information. Weld on applications produce the maximum allowable load listed. Uplift loads do not apply to welded applications.
- Ledgers must be evaluated for each application separately. Check TF dimension, nail length and nail location on ledger.

OPTIONS: • HHB–other widths are available; specify W dimension *(the minimum W dimension is 2½")*.

- Saddle hangers are made to order; add "D" to model *(e.g. HHBD3)*; specify S *(for saddle)* dimension. They may be used for most conditions except at end wall locations, and are preferred for nailer applications.
- The coating on special B hangers will depend on the manufacturing process used. Check with your Simpson Strong-Tie representative for details. Hot-dip galvanized available: specify HDG.
- B dimensions may be increased on some models.
- See Hanger Options, pages 181-183.



Typical HHB, GB and HGB Saddle Installation



HHB, GB and HGB are acceptable for weld-on applications. See Installation Information.

TOP FLANGE HANGERS WM/WMU/WP/WPU/HW/HWU

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

MATERIAL: WP/WPU—7 ga. top flange, 12 ga. stirrup; HW—3 ga. top flange, 11 ga. stirrup; HWU—3 ga. top flange, 10 ga. stirrup

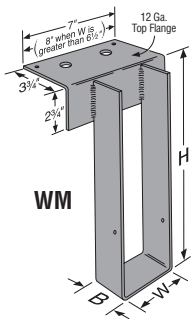
FINISH: Simpson Strong-Tie gray paint; hot-dip galvanized available: specify HDG.

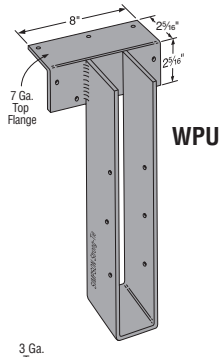
INSTALLATION: • Hangers may be welded to steel headers with 3⁄16" for WPU/WP, and ¼" for HW/HWU, by 1½" fillet welds located at each end of the top flange. Weld-on applications produce maximum allowable load listed. See page 14 for weld information. For uplift loads refer to technical bulletin T-WELDUPLFT *(see page 191 for details)*.

- Hangers can support multi-ply carried members; the individual members must be secured together to work as a single unit before installation into the hanger.
- **MID-WALL INSTALLATION:** Installed between blocks with duplex nails cast into grout with a minimum of one grouted course above and below the top flange and one #5 vertical rebar minimum 24" long in each adjacent cell.
- **TOP OF WALL INSTALLATION:** Install on top of wall to a grouted beam with masonry screws.

OPTIONS: See Hanger Options, pages 181-183, for hanger modifications and associated load reductions.

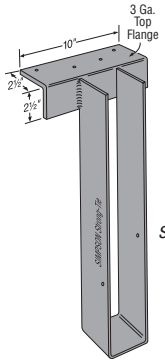
CODES: See page 12 for Code Reference Key Chart.

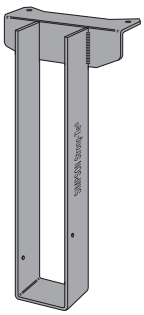




Model	Nailer	Top Flange Nailing	Allowable Loads			
			Uplift (160)	DF/SP	SPF/HF	LSL
WP	2x	2-10dx1½	—	2525	2500	3375
	2-2x	2-10d	—	3255	3255	—
	3x	2-16dx2½	—	3000	2510	3375
	4x	2-10d	—	3255	3255	—
WPU	2-2x	7-10d	700	3255	—	—
	3x	7-16dx2½	775	3000	—	—
	4x	4-16d	775	3255	—	—
HW	2-2x	4-10d	—	4845	—	—
	3x	4-16dx2½	—	4860	—	—
	4x	4-16d	—	5285	—	—
HWU	2-2x	8-16dx2½	710	5430	—	—
	3x	8-16dx2½	810	5430	—	—
	4x	8-16d	810	5430	—	—

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





NAILER TABLE

The table indicates the maximum allowable loads for WP, WPU, HW or HWU hanger used on wood nailers. Nailers are wood members attached to the top of a steel I-beam, concrete or masonry wall.

1. Uplift value for the HWU hanger is for depth ≤ 18". Refer to uplift values in table below for taller depths.
2. Attachment of nailer to supporting member is the responsibility of the Designer. See page 19 for TB screws attachment option.

Model	Joist		Fasteners			Allowable Loads Header Type								Code Ref.
	Width	Depth	Top	Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	I-Joist	Masonry	
WM	1½ to 7½	3½ to 30	2-16d DPLX	—	2-10dx1½	—	MID-WALL INSTALLATIONS						4175	IL12
	1½ to 7½	3½ to 30	2-¼x1¾ Titens	—	2-10dx1½	—	TOP OF WALL INSTALLATIONS						3380	
WMU	1½ to 7½	9 to 28	2-16d DPLX	4-¼x1¾ Titens	6-10dx1½	625	MID-WALL INSTALLATIONS						4175	170
	1½ to 7½	9 to 28	2-¼x1¾ Titens	4-¼x1¾ Titens	6-10dx1½	545	TOP OF WALL INSTALLATIONS						3380	
WP	1½ to 7½	3½ to 30	3-10dx1½	—	2-10dx1½	—	2865	3250	—	2500	2000	2030	—	
	1½ to 7½	3½ to 30	3-10d	—	2-10dx1½	—	2525	3250	3650	3255	2525	—	—	
	1½ to 7½	3½ to 30	3-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	—	—	
WPU	1¾ to 5½	7¼ to 18	3-16d	4-16d	6-10dx1½	775	4700	4880	3650	4165	4165	—	—	I19, F18
	1¾ to 5½	18½ to 22½	3-16d	4-16d	6-10dx1½	485	4700	4880	3650	4165	4165	—	—	
	1¾ to 5½	23 to 28	3-16d	4-16d	6-10dx1½	315	4700	4880	3650	4165	4165	—	—	
HW	1½ to 7½	3½ to 32	4-10d	—	2-10dx1½	—	3100	4000	—	5285	3100	—	—	I10, I19, F9, F18
	1½ to 7½	3½ to 32	4-16d	—	2-10dx1½	—	5100	4000	4500	5285	3665	—	—	
HWU	1¾ to 3½	9 to 18	4-16d	4-16d	6-10dx1½	810	6335	5500	5535	6335	5415	—	—	I19, F18
	1¾ to 3½	18½ to 22½	4-16d	4-16d	6-10dx1½	765	6335	5500	5535	6335	5415	—	—	
	1¾ to 3½	23 to 28	4-16d	4-16d	6-10dx1½	635	6335	5500	5535	6335	5415	—	—	
	1¾ to 3½	28½ to 32	4-16d	4-16d	8-10dx1½	1005	6335	5500	5535	6335	5415	—	—	
	4½ to 7	9 to 18	4-16d	4-16d	6-10dx1½	810	6000	5500	5535	6000	5415	—	—	
	4½ to 7	18½ to 22½	4-16d	4-16d	6-10dx1½	765	6000	5500	5535	6000	5415	—	—	
	4½ to 7	23 to 28	4-16d	4-16d	6-10dx1½	635	6000	5500	5535	6000	5415	—	—	
	4½ to 7	28½ to 32	4-16d	4-16d	8-10dx1½	1005	6000	5500	5535	6000	5415	—	—	

1. 16d sinkers (0.148" dia.x 3¼" long) may be used where 10d commons are called out with no load reduction.
2. Uplift loads are based on DF/SP lumber and have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector™ software or conservatively divide the uplift load by 1.6.
3. Minimum f'_m = 1500 psi. See Installation Notes on page 93.
4. For hanger heights exceeding the joist height, the allowable load is 0.50 of the table load.
5. **NAILS:** 16d = 0.162" dia.x 3½" long, 10d = 0.148" dia.x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

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

See table on page 115. See Hanger Options on pages 181-183 for hanger modifications, which may result in reduced loads.

GLT and HGLT accommodate typical structural requirements for timber and glulam beams. GLT top flange depth allows installation on minimum 4x ledger *(3½" net)*. Not acceptable for nailer applications. Funnel Flanges® allow easy installation of beams.

GLS and HGLS are heavy glulam saddle hangers. Tested and code-listed seismic tie provisions are added to the GLS or HGLS—order GLST or HGLST. The seismic tie models use three extra ¾" bolts through each carried member and two ¾" bolts through the supporting member. Bolt holes shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt diameter *(2005 NDS 11.1.2.2)*.

MATERIAL: All welded GL series glulam hangers have a 3 gauge top flange. See page 115 for stirrup gauge.

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

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

GLT/HGLT • All GLTs used with sawn timbers have a 12" L dimension.

- Fasteners are included.
- GLT may be attached to steel headers by 3/16" x 2½" fillet welds at each end of the header angle to obtain the tabulated loads. HGLT may be attached to steel headers by ¼" x 2½" fillet welds at each end of the header angle to obtain the lesser of the tabulated loads or 12,000 lbs. For uplift loads refer to technical bulletin T-WELDUPLFT *(see page 191 for details)*. See page 14 for weld information.
- Not for use with SCL or LVL headers. See GLTV, HGLTV.

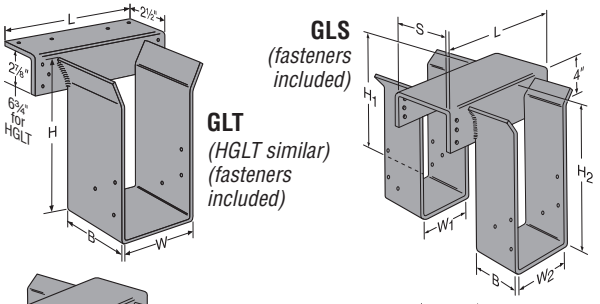
GLS/HGLS • N54A nails are included with the hangers.

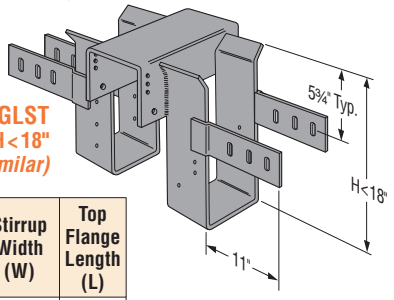
- Seismic Ties: the carried member bolts should be located in the upper half of the 13/16" x 1½" slotted holes. Standard washers must be used with all bolts.
- Loads listed are per stirrup.

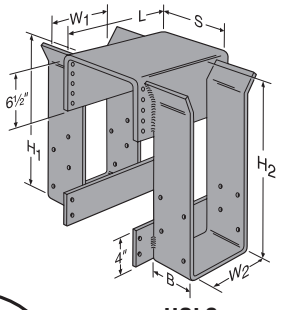
TO ORDER: • GLS/HGLS—Specify H_1, H_2, and S dimensions *(see illustration)*.

- Some engineered wood sizes are also available.

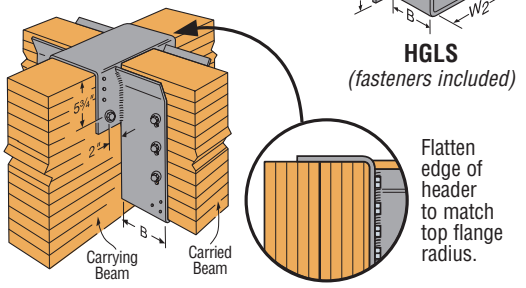
OPTIONS: See Hanger Options pages 181-183. No options on GLST and HGLST.







Model	Top Flange Ga	Stirrup Width (W)	Top Flange Length (L)
GLT	3	2⅝ - 5½	10
		5⅞6 - 6⅞	12
HGLT	3	2⅝ - 8¼	12
		8⅞	14
GLS	3	3¼	6
		5¼	9
		6⅞	12
HGLS	3	5¼ - 8⅞	12
GLST	3	3¼	10⅛
		5¼	12⅛
		6⅞	13¾
HGLST	3	5¼	12⅛
		6⅞	13¾
		8⅞	15¾



GLST Installed with Glulam Beams *(HGLST similar)*
When H dimension is ≤ 18", product is supplied with seismic straps.

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

See Hanger Options on page 182-183 for hanger modifications, which may result in reduced loads.

Designed to support large members typically found in glulam beam construction.

MATERIAL: See table

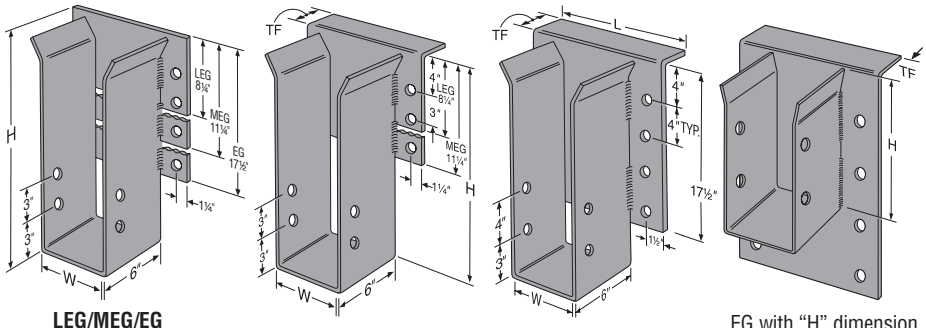
FINISH: Simpson Strong-Tie gray paint. Hot-dip galvanized available; specify HDG.

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

OPTIONS: • See Hanger Options, pages 181-183.

- Models available without top flanges; see table loads.

CODES: See page 12 for Code Reference Key Chart.



Joist or Purlin Size	Model No.	Stirrup Ga	Dimensions W	Dimensions Min[3] H	Dimensions TF	Min. Header Depth	Bolts Header Qty	Bolts Header Dia	Bolts Joist Qty	Bolts Joist Dia	Allowable Loads Without Top Flange Floor (100)	Without Top Flange Roof (125)	Top Flange No Triangle Theory Floor (100)	Top Flange No Triangle Theory Roof (125)	Top Flange Triangle Theory Floor (100)	Top Flange Triangle Theory Roof (125)	Code Ref.
3⅛ LAM	LEG3	7	3¼	9	2½	10	4	¾	2	¾	3465	4330	12675	13215	11865	12730	I19, F18
5⅛ LAM	LEG5	7	5¼	9	2½	10	4	¾	2	¾	3465	4330	16290	16290	11865	12730	
	MEG5	7	5¼	9	2½	13	6	¾	2	¾	5170	6460	19710	19710	13570	14865	
	EG5	7	5¼	11	2½	20	8	1	2	1	8870	11085	20895	21815	17095	19310	
6¾ LAM	LEG7	7	6⅞	9	2½	10	4	¾	2	¾	3465	4330	16290	16290	11865	12730	
	MEG7	7	6⅞	9	2½	13	6	¾	2	¾	5170	6460	19710	19710	13570	14865	
	EG7	7	6⅞	11	2½	20	8	1	2	1	8870	11085	25320	25835	17095	19310	
8¾ LAM	EG9	7	8⅞	11	2½	20	8	1	2	1	8870	11085	25320	25835	17095	19310	

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

1. Roof loads are 125% of floor loads unless limited by other criteria.
2. Allowable loads assume a carrying member width of 5½".
3. Specify H dimension.
4. Triangle Theory: Some code jurisdictions allow only half of the top flange bearing area to be considered when performing a top flange hanger calculation as there is non-uniform stress under the top flange *(presumed to be a triangular shaped distribution)*. Therefore, loads are published above using the calculated "Triangle Theory". Loads are also published in the "No Triangle Theory" columns which are based on calculations assuming full bearing on the top flange which do not exceed the tested value with a reduction factor of 3.

TOP FLANGE HANGERS – GLULAM BEAM

SIMPSON Strong-Tie®

Joist or Purlin Size	Model No.	Ga	Dimensions				Fasteners		Allowable Loads				Code Ref.
			W	H	B	TF	Header	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	
3⅛ LAM	GLT3	7	3¼	7½ MIN	5	2½	10-N54A	6-N54A	1745	8165	8165	8165	I19, F18
	HGLT3	7	3¼	7½ MIN	6	2½	18-N54A	6-N54A	1745	11590	11755	11865	
	GLS3-5[8]	7	3¼	8½ MIN	5	5¼	6-N54A	6-N54A	1745	9790	9965	10080	
	GLST3-5[8]	7	3¼	9 MIN	6½	5¼	6-N54A	6-N54A	1745	12465	12630	12740	170
	GLS3-7[8]	7	3¼	8½ MIN	5	6⅞	6-N54A	6-N54A	1745	9840	10005	10115	I19, F18
	GLST3-7[8]	7	3¼	9 MIN	6½	6⅞	6-N54A	6-N54A	1745	12465	12630	12740	170
	GLS3-9[8]	7	3¼	8½ MIN	5	8⅞	6-N54A	6-N54A	1745	9840	10005	10115	I19, F18
	GLST3-9[8]	7	3¼	9 MIN	6½	8⅞	6-N54A	6-N54A	1745	12465	12630	12740	170
	HW3.25	11	3¼	5 MIN	4	2½	4-10d	2-10d	—	5285	5285	5285	I10, F9
	HHB3	7	3¼	7½ MIN	3	2½	10-N54A	6-N54A	1745	6105	6235	6235	I19, F18
	GB3	7	3¼	7½ MIN	3½	2½	14-N54A	6-N54A	1745	7215	7380	7490	
	HU3.25/12TF	12	3¼	12	2½	2½	16-16d	6-10d	1125	4310	4335	4335	170
	HU3.25/16.5TF	12	3¼	16½	2½	2½	20-16d	8-10d	1500	4860	5275	5545	
3½ LAM	GLTV4	7	3⁹⁄₁₆	7½ MIN	5	2⅞	10-16d	6-16d	1640	7000	7000	7000	I19, F18
	HGLTV4	7	3⁹⁄₁₆	7½ MIN	6	2⅞	18-16d	6-16d	1640	8665	8665	8665	
5⅛ LAM	GLT5	7	5¼	7½ MIN	5	2½	10-N54A	6-N54A	1745	8165	8165	8165	
	HGLT5	7	5¼	7½ MIN	6	2½	18-N54A	6-N54A	1745	11930	12455	12750	
	GLS5-5[8]	7	5¼	8½ MIN	5	5¼	6-N54A	6-N54A	1745	13080	13080	13080	
	GLST5-5[8]	7	5¼	9 MIN	6½	5¼	6-N54A	6-N54A	1745	14685	14685	14685	170
	GLS5-7[8]	7	5¼	8½ MIN	5	6⅞	6-N54A	6-N54A	1745	13080	13080	13080	I19, F18
	GLST5-7[8]	7	5¼	9 MIN	6½	6⅞	6-N54A	6-N54A	1745	14685	14685	14685	170
	HGLS5[8]	7	5¼	10½ MIN	6	SPEC	14-N54A	8-N54A	2330	16835	16835	16835	I19, F18
	HGLST5[8]	7	5¼	10½ MIN	6½	SPEC	14-N54A	8-N54A	2330	16835	16835	16835	
	HW5.25	11	5¼	5 MIN	2½	2½	4-10d	2-10d	—	5285	5285	5285	I10, F9
	HHB5	7	5¼	7½ MIN	3	2½	10-N54A	6-N54A	1745	6105	6235	6235	I19, F18
	GB5	7	5¼	7½ MIN	3½	2½	14-N54A	6-N54A	1745	7370	7640	8005	
	HGB5	7	5¼	7½ MIN	4	2½	14-N54A	6-N54A	1745	7885	8265	8520	
	HU5.25/12TF	12	5¼	12	2½	2½	16-16d	6-16d	1325	4310	4335	4335	170
	HU5.25/16.5TF	12	5¼	16½	2½	2½	20-16d	8-16d	1765	4860	5275	5550	
5½ LAM	GLTV6	7	5⁹⁄₁₆	7½ MIN	5	2⅞	10-16d	6-16d	1640	7000	7000	7000	I19, F18
	HGLTV6	7	5⁹⁄₁₆	7½ MIN	6	2⅞	18-16d	6-16d	1640	8665	8665	8665	
6¾ LAM	HHB7	7	6⅞	7½ MIN	3	2½	10-N54A	6-N54A	1745	6105	6235	6235	
	GB7	7	6⅞	7½ MIN	3½	2½	14-N54A	6-N54A	1745	7370	7750	8005	
	HGB7	7	6⅞	7½ MIN	4	2½	14-N54A	6-N54A	1745	7885	8265	8520	
	GLT7	7	6⅞	7½ MIN	5	2½	10-N54A	6-N54A	1745	8165	8165	8165	
	HGLT7	7	6⅞	7½ MIN	6	2½	18-N54A	6-N54A	1745	11930	12455	12750	
	GLS7-7[8]	7	6⅞	8½ MIN	5	6⅞	6-N54A	6-N54A	1745	14040	14040	14040	
	GLST7-7[8]	7	6⅞	9 MIN	6½	6⅞	6-N54A	6-N54A	1745	14685	14685	14685	170
	GLS7-9[8]	7	6⅞	8½ MIN	5	8⅞	6-N54A	6-N54A	1745	14040	14040	14040	I19, F18
	GLST7-9[8]	7	6⅞	9 MIN	6½	8⅞	6-N54A	6-N54A	1745	14685	14685	14685	170
	HGLS7[8]	7	6⅞	10½ MIN	6	SPEC	14-N54A	8-N54A	2330	16835	16835	16835	I19, F18
	HGLST7[8]	7	6⅞	10½ MIN	6½	SPEC	14-N54A	8-N54A	2330	16835	16835	16835	
7 LAM	GLTV7.12	7	7⅛	7½ MIN	5	2⅞	10-16d	6-16d	1640	7000	7000	7000	170
	HGLTV7.12	7	7⅛	7½ MIN	6	2⅞	18-16d	6-16d	1640	8665	8665	8665	
8¾ LAM	HGLT9	7	8⅞	7½ MIN	6	2½	18-N54A	6-N54A	1745	12750	12750	12750	I19, F18
	HGLS9[8]	7	8⅞	10½ MIN	6	SPEC	14-N54A	8-N54A	2330	16835	16835	16835	
	HGLST9[8]	7	8⅞	10½ MIN	6½	SPEC	14-N54A	8-N54A	2330	16835	16835	16835	

1. N54A fasteners are supplied with hangers.
2. Roof loads are 125% of floor loads unless limited by other criteria.
3. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6.
4. GLT, HGLT, GLS, HGLS uplift loads only apply when "H" is 28" or less.
5. Allowable loads for glulam sizes are based on 560 psi wood bearing.
6. Maximum allowable horizontal load for the GLST/HGLST is 14580 lbs. (160). Load is horizontal across the supporting member and independent of vertical loads and includes a 60% increase for wind or earthquake loading with no further increase allowed.
7. "Min H" is the minimum H dimension that may be specified. For GLT, HGLT, GLS, HGLS hanger heights that exceed the joist height, allowable load is 0.50 of the table load.
8. Allowable loads assume GLS, GLST, HGLS and HGLST loads are distributed evenly on each side of the header with loads shown for each stirrup. When the load is not evenly distributed, use the equivalent single-sided top flange hanger allowable load for each side. *(e.g., for uneven load distribution on a GLS3-5, use the GLT3 allowable loads for each side.)*
9. GLS, GLST, HGLS, HGLST fasteners listed are for one side only. Fasteners supplied are for both sides of the saddle.
10. SPEC: Specify the header dimensions for the saddle hangers. *("S" dimension is illustrated on pages 113-114.)*
11. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, N54A = 0.250" dia. x 2½" long - annular ring. See page 16-17 for other nail sizes and information.

CODES: See page 12 for Code Reference Key Chart.

HCA Hinge Connectors

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

MATERIAL: Side plates—7 gauge; Top and bottom plates—see PT dimensions in table.

FINISH: Simpson Strong-Tie® gray paint

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

- Bolt holes shall be a minimum of 1/32" and a maximum of 1/16" larger than the bolt diameter *(per 2005 NDS 11.1.2.2)*.
- The model number column in the Allowable Download Table gives the basic HCA model with two rotation bolts.
- Contact Simpson Strong-Tie for heights greater than 60".
- Position ¾" dia. machine bolts in slots away from bearing seat to allow for wood shrinkage.

OPTIONS: The Horizontal Load Table gives other bolt options.

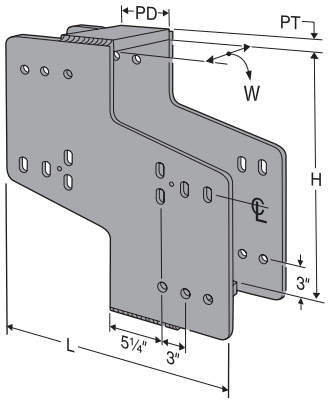
ORDERING: • To order, add the width and bearing plate size designation after the model name. Specify the H dimension. For dapped beams, reduce the H dimension by the PT dimension for each dap.

- Specify Model No., Model Size, and height H.

Ordering Example: HC4C3TA5-6 H = 18".

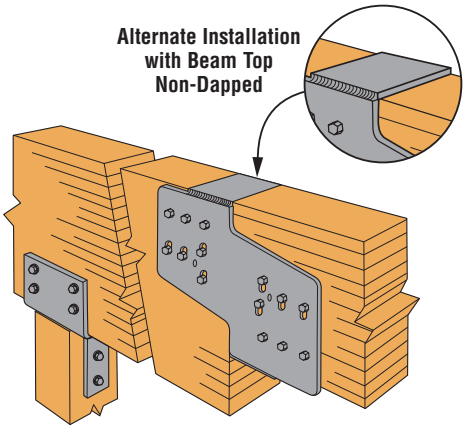
CODES: See page 12 for Code Reference Key Chart.

Refer to technical bulletin T-HCAGUIDE for specification examples and additional information *(see page 191 for details)*.



HC4C3TA

U.S. Patent 5,324,132



Alternate Installation with Beam Top Non-Dapped

Typical HC4C3TA Installation with Beam Top Dapped

HORIZONTAL LOAD TABLE

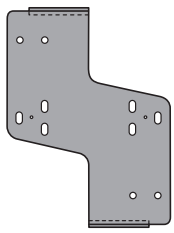
Model No. (Prefix)	L	H[3] Min	H Max	Rotation Bolts Per Beam	Slotted Tension Bolts	Allowable Horizontal Loads[2,3] (160)
HCA	19½	8	60	2	—	—
HC2CTA	19½	14	60	2	2	9920
HCCTA	19½	14	60	2	3	14850
HC4CTA	25½	14	60	2	4	19720
HC3A	25½	8	60	3	—	—
HCC3TA	25½	14	60	3	3	14850
HC4C3TA	25½	14	60	3	4	19720

1. Loads include a 60% increase for wind or earthquake loading with no further increase allowed.
2. Horizontal loads are for Doug Fir-larch glulams minimum W = 3⅛". For other wood types, adjust the load according to the code.
3. H MIN is the absolute minimum height. Reduce downloads according to footnote 1 in the Allowable Download Table.

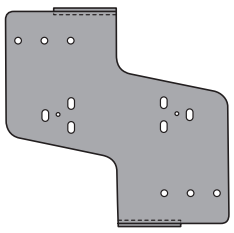
ALLOWABLE DOWNLOAD TABLE

Model Size (Suffix)	Dimensions: Beam Width	W	PT	PD	Bolt Dia.	Two Rotation Bolts Per Beam: H_1	H_1 Allowable Roof Loads (125)[2,3]	Min H	Min H Allowable Roof Loads (125)	Three Rotation Bolts Per Beam[4]: H_1	H_1 Allowable Roof Loads (125)[2,3]	Min H	Min H Allowable Roof Loads (125)	Code Ref.
3-5	3⅛	3¼	¾	5	¾	12	8750	8	3070	10	8750	8	4465	170
3-6	3⅛	3¼	¾	6	¾	15	10500	8	2570	12	10500	8	3735	
3-7	3⅛	3¼	¾	7	¾	18	12250	8	2210	14	12250	8	3210	
5-5	5⅛	5¼	¾	5	¾	16	14350	8	3100	13	14350	8	4560	I15, L23, F14
5-6	5⅛	5¼	¾	6	¾	20	17220	8	2595	16	17220	8	3815	
5-7	5⅛	5¼	¾	7	¾	25	20090	8	2230	19	20090	8	3280	
5-9	5⅛	5¼	¾	9	¾	36	25830	8	1740	27	25830	8	2560	
7-5	6¾	6⅞	1	5	¾	19	18900	8	3100	15	18900	8	4605	
7-6	6¾	6⅞	1	6	¾	24	22680	8	2595	18	22680	8	3855	
7-7	6¾	6⅞	1	7	¾	30	26460	8	2230	22	26460	8	3315	
7-9	6¾	6⅞	1	9	¾	40	29615	8	1740	33	34020	8	2585	
9-5	8¾	8⅞	1¼	5	¾	22	24500	8	3100	17	24500	8	4605	
9-6	8¾	8⅞	1¼	6	¾	29	29400	8	2595	22	29400	8	3855	
9-7	8¾	8⅞	1¼	7	¾	37	34300	8	2230	27	34300	8	3315	
9-9	8¾	8⅞	1¼	9	¾	40	29615	8	1740	40	43975	8	2585	
11-5	10¾	10⅞	1½	5	¾	26	30100	8	3100	20	30100	8	4605	
11-6	10¾	10⅞	1½	6	¾	34	36120	8	2595	25	36120	8	3855	
11-7	10¾	10⅞	1½	7	¾	40	37925	8	2230	32	42140	8	3315	
11-9	10¾	10⅞	1½	9	¾	40	29615	8	1740	40	43975	8	2585	
3.62	3½	3⅝	¾	Refer to technical bulletin T-HCAGUIDE for more information on these sizes *(see page 191 for details)*										170
4.50	4⅜	4½	1											
5.37	5¼	5⅜	1¼											
7.12	7	7⅛	1½											

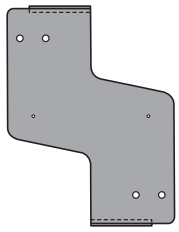
1. For H dimension between H_1 and Minimum H, decrease allowable loads in direct proportion to depth.
2. Loads include a 25% increase for roof live loads; reduce for other load durations according to the code.
3. Loads are for 560 psi wood bearing.
4. See Horizontal Load Table for models with three rotation bolts.
5. Other widths are available for structural composite lumber. Contact Simpson Strong-Tie.
6. **Beams must be the same width for both members in the connection. For alternate applications, contact Simpson Strong-Tie.**



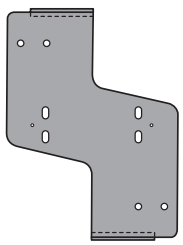
HCCTA



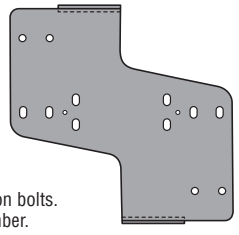
HCC3TA



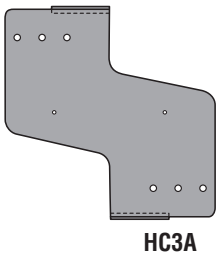
HCA



HC2CTA



HC4CTA



HC3A

THA/THAC *Adjustable Truss Hangers*

SIMPSON Strong-Tie®

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

The THA series have extra long straps that can be field-formed to give height adjustability and top flange hanger convenience. THA hangers can be installed as top flange or face mount hangers.

THA4x and THA2x-2 models feature a dense nail pattern in the straps, which provides more installation options and allows for easy top flange installation.

MATERIAL: See table

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 10-11.

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

The following installation methods may be used:

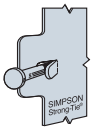
- **Top Flange Installation**—The straps must be field formed over the header – see table for minimum top flange requirements. Install top and face nails according to the table. Top nails shall not be within ¼" from the edge of the top flange members.

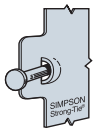
  For the THA29, nails used for joist attachment must be driven at an angle so that they penetrate through the corner of the joist and into the header. For all other top flange installations, straighten the double shear nailing tabs and install the nails straight into the joist.
- **Face Mount Installation**—Install all face nails according to the table. Not all nail holes will be filled on all models. On models where there are more nail holes than required, the lowest 4 face holes must be filled. Nails used for the joist attachment must be driven at an angle so that they penetrate through the corner of the joist into the header.
- **Alternate Installation— The THA 4x hangers may be installed in a top flange configuration using the tabulated fasteners for face mount installation and achieve the face mount installation loads. Install the tabulated face nails into the face and top of the carrying member. Nails used for the joist attachment must be driven at an angle so that they penetrate through the corner of the joist into the header.**

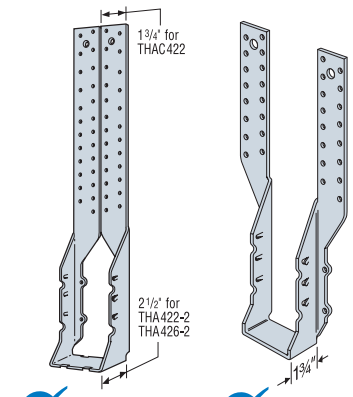
OPTIONS: • THA hangers available with the header flanges turned in for 3⅝" *(except THA413)* and larger, with no load reduction – order THAC hanger.

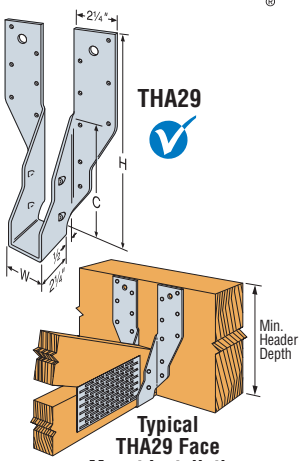
CODES: See page 12 for Code Reference Key Chart.

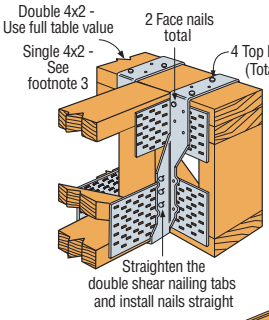

Double Shear Nailing Top View

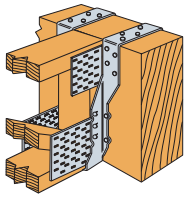

Double Shear Nailing Side View
Do not bend tab unless otherwise noted

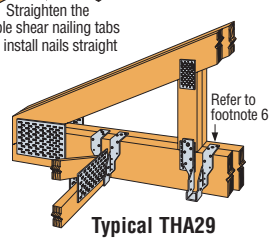

Dome Double Shear Nailing Side View *(available on some models)*
U.S. Patent 5,603,580

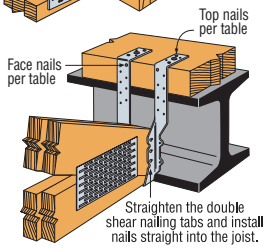







Alternate Installation of THA422





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

Model No.	Ga	Dimensions W	H	C	Min.[5] Top Flange	Min. Header Depth	Fasteners: Carrying Member Top	Carrying Member Face	Carried Member Straight	Carried Member Slant	DF/SP Allowable Loads: Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	SPF/HF Allowable Loads: Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Code Ref.
TOP FLANGE INSTALLATION[3]																					
THA29	18	1⅝	9 11/16	5⅛	2 7/16	—	4-10d	4-10d	—	4-10d	750	2260	2310	2350	2350	645	1740	1785	1815	1815	
THA213	18	1⅝	13 5/16	5½	1½	—	4-10d	2-10d	4-10dx1½	—	—	1615	1615	1615	1615	—	1280	1280	1280	1280	
THA218	18	1⅝	17 3/16	5½	2	—	4-10d	2-10d	4-10dx1½	—	—	1615	1615	1615	1615	—	1280	1280	1280	1280	
THA218-2	16	3⅛	17 11/16	8	2	—	4-16d	2-16d	6-10d	—	—	2250	2250	2250	2250	—	1935	1935	1935	1935	I8, L1, F7
THA222-2	16	3⅛	22 3/16	8	2	—	4-16d	2-16d	6-10d	—	—	2250	2250	2250	2250	—	1935	1935	1935	1935	
THA413	18	3⅝	13 5/16	4½	1½	—	4-10d	2-10d	4-10d	—	—	1615	1615	1615	1615	—	1280	1280	1280	1280	
THA418	16	3⅝	17½	7⅛	2	—	4-16d	2-16d	6-10d	—	—	2250	2250	2250	2250	—	1935	1935	1935	1935	
THA422	16	3⅝	22	7⅛	2	—	4-16d	2-16d	6-10d	—	—	2250	2250	2250	2250	—	1935	1935	1935	1935	I8, F7
THA426	14	3⅝	26	7⅛	2	—	4-16d	4-16d	6-16d	—	—	2435	2435	2435	2435	—	2095	2095	2095	2095	F23
THA422-2	14	7¼	22 11/16	9¾	2	—	4-16d	4-16d	6-16d	—	—	3330	3330	3330	3330	—	2865	2865	2865	2865	L1
THA426-2	14	7¼	26 1/16	9¾	2	—	4-16d	4-16d	6-16d	—	—	3330	3330	3330	3330	—	2865	2865	2865	2865	170
FACE MOUNT INSTALLATION[4]																					
THA29	18	1⅝	9 11/16	5⅛	—	9 11/16	—	16-10d	—	4-10d	750	2125	2310	2350	2350	645	1740	1785	1815	1815	
THA213	18	1⅝	13 5/16	5½	—	13 5/16	—	14-10d	—	4-10d	930	1795	1840	1870	1870	780	1385	1425	1450	1450	
THA218	18	1⅝	17 3/16	5½	—	17 3/16	—	18-10d	—	4-10d	930	1795	1840	1870	1870	780	1385	1425	1450	1450	
THA218-2	16	3⅛	17 11/16	8	—	14 1/16	—	22-16d	—	6-16d	1855	3705	3705	3705	3705	1595	3185	3185	3185	3185	I8, L1, F7
THA222-2	16	3⅛	22 3/16	8	—	14 1/16	—	22-16d	—	6-16d	1855	3705	3705	3705	3705	1595	3185	3185	3185	3185	
THA413	18	3⅝	13 5/16	4½	—	13⅜	—	14-10d	—	4-10d	930	1940	2235	2400	2400	780	1660	1910	2075	2210	
THA418	16	3⅝	17½	7⅛	—	14 1/16	—	22-16d	—	6-16d	1855	3705	3705	3705	3705	1595	3185	3185	3185	3185	
THA422	16	3⅝	22	7⅛	—	14 1/16	—	22-16d	—	6-16d	1855	3705	3705	3705	3705	1595	3185	3185	3185	3185	I8, F7
THA426	14	3⅝	26	7⅛	—	16 1/16	—	30-16d	—	6-16d	1855	4550	4550	4550	4550	1595	3915	3915	3915	3915	F23
THA422-2	14	7¼	22 11/16	9¾	—	16 3/16	—	30-16d	—	6-16d	1855	5160	5520	5520	5520	1595	4435	4745	4745	4745	L1
THA426-2	14	7¼	26 1/16	9¾	—	18	—	38-16d	—	6-16d	1855	5520	5520	5520	5520	1595	4745	4745	4745	4745	170

1. Uplift has been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Wind (160) is a download rating.
3. **For single 4x2 top chord carrying members or single 2x nailers, the following THA hangers can be installed using 10dx1½" top nails and 2-16d face nails with reduced allowable loads as noted: 1415 lbs. for THA418 and THA422, 2255 lbs. for THA426, and 2345 lbs. for THA422-2 and THA426-2. Loads are based on hanger installations at panel points.**
4. Face mount installation loads are based on minimum of 2-ply 2x carrying member. For single 2x carrying members, use 10dx1½" nails into the carrying member and tabulated fasteners into the carried member, and use 0.80 of the table value for 18 gauge, and 0.68 of the table value for 16 gauge and 14 gauge.
5. Min. Top Flange refers to the minimum length of strap that must be field formed over the header.
6. For the 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. The THA29 allowable uplift for this application is **575 lbs.**
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

LUS/MUS/HUS/HHUS/HGUS/HUSC *Double Shear Joist Hangers*

SIMPSON Strong-Tie®

VALUE ENGINEERED

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

All hangers in this series have double shear nailing – an innovation that distributes the load through two points on each joist nail for greater strength. This allows for fewer nails, faster installation, and the use of all common nails for the same connection.

Double shear hangers range from the light capacity LUS hangers to the highest capacity HGUS hangers. For medium load truss applications, the MUS offers a lower cost alternative and easier installation than the HUS or THA hangers, while providing greater load capacity and bearing than the LUS.

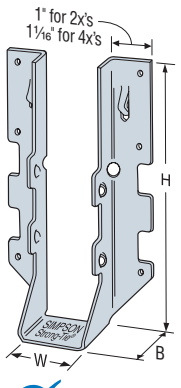
MATERIAL: See tables below and on page 119

FINISH: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, page 10-11.

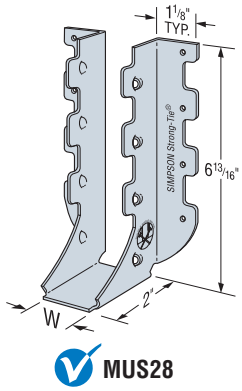
INSTALLATION • Use all specified fasteners. See General Notes.
- Nails must be driven at an angle through the joist or truss into the header to achieve the table loads.
- Not designed for welded or nailer applications.

OPTIONS: • LUS and MUS hangers cannot be modified.
- HUS hangers available with the header flanges turned in for 2-2x (3⅛") and 4x only, with no load reduction. See HUSC Concealed Flange illustration.
- Concealed flanges are not available for HGUS and HHUS.
- See Hanger Options, pages 181-183, for sloped and/or skewed HHUS models.
- Other sizes available; consult your Simpson Strong-Tie representative.

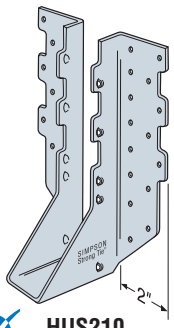
CODES: See page 12 for Code Reference Key Chart.



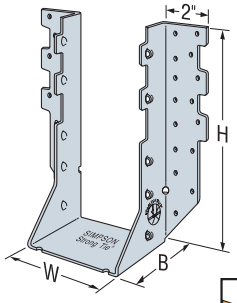
LUS28



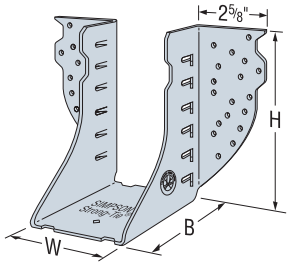
MUS28



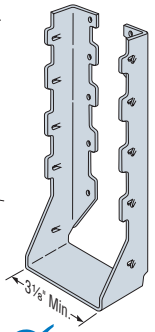
HUS210
(HUS26, HUS28, and HHUS similar)



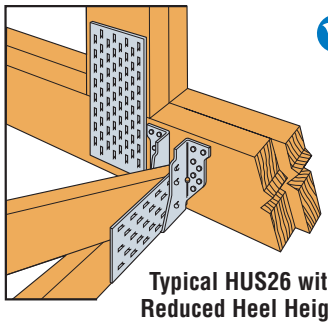
HHUS210-2



HGUS28-2



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



(Truss Designer to provide fastener quantity for connecting multiple members together)

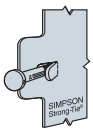
Typical HUS26 with Reduced Heel Height

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.

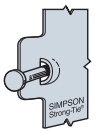
	Model No.	Min. Heel Height	Ga	Dimensions W	H	B	Fasteners Carrying Member	Carried Member
	SINGLE 2x SIZES							
■	LUS24	2⅝	18	1⁹⁄₁₆	3⅛	1¾	4-10d	2-10d
■	LUS26	4¼		1⁹⁄₁₆	4¾	1¾	4-10d	4-10d
	MUS26	4¹¹⁄₁₆	18	1⁹⁄₁₆	5³⁄₁₆	2	6-10d	6-10d
■	HUS26	4⅝	16	1⅝	5⅜	3	14-16d	6-16d
	HGUS26	4⅝	12	1⅝	5⅜	5	20-16d	8-16d
■	LUS28	4³⁄₁₆	18	1⁹⁄₁₆	6⅝	1¾	6-10d	4-10d
	MUS28	6⅝	18	1⁹⁄₁₆	6¹³⁄₁₆	2	8-10d	8-10d
■	HUS28	6½	16	1⅝	7	3	22-16d	8-16d
	HGUS28	6⅝	12	1⅝	7⅛	5	36-16d	12-16d
■	LUS210	4¼	18	1⁹⁄₁₆	7¹³⁄₁₆	1¾	8-10d	4-10d
■	HUS210	8⅜	16	1⅝	9	3	30-16d	10-16d

1. See table on page 119 for allowable loads.

Double Shear Nailing Top View



Double Shear Nailing Side View Do not bend tab



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

U.S. Patent 5,603,580

REDUCED HEEL HEIGHT ALLOWABLE LOADS - DF/SP *(See illustration above)*

	Model No.	Reduced Heel Height	No. of Carrying Member Plys	Joist Nails	Face Nails	Uplift	2x6 Carrying Member Floor	Snow	Roof	Wind	2x8 Carrying Member Floor	Snow	Roof	Wind
						(160)	(100)	(115)	(125)	(160)	(100)	(115)	(125)	(160)
■	LUS26	3⅞	1	3-10d	4-10d	875	700	805	875	1000	700	805	875	1000
			2	3-10d	4-10d	875	775	890	970	1235	775	890	970	1235
	MUS26	3½	1	4-10d	6-10d	725	1000	1150	1250	1390	1000	1150	1250	1390
			2	4-10d	6-10d	725	1110	1280	1390	1420	1110	1280	1390	1420
	HUS26	3½	1	4-10d	14-10d	865	1760	1950	1950	1950	1500	1725	1880	1950
■				4-16d	14-16d	1035	1980	2155	2155	2155	1500	1725	1880	2155
			2	4-10d	14-10d	865	1950	1950	1950	1950	1950	1950	1950	1950
				4-16d	14-16d	1035	2425	2695	2695	2695	2425	2695	2695	2695
	HGUS26	3⁹⁄₁₆	2	6-10d	20-10d	1510	2350	2350	2350	2350	2350	2350	2350	2350
				6-16d	20-16d	1745	2830	2830	2830	2830	2830	2830	2830	2830
■	LUS28	4	1	3-10d	6-10d	875	700	805	875	1000	900	1035	1125	1245
			2	3-10d	6-10d	875	775	890	970	1235	1010	1160	1260	1480
	MUS28	3½	1	4-10d	8-10d	775	1000	1150	1250	1390	1200	1300	1300	1300
			2	4-10d	8-10d	775	1110	1280	1390	1420	1345	1550	1685	1690
	HUS28	3½	1	4-10d	22-10d	835	1760	1950	1950	1950	1980	1980	1980	1980
■				4-16d	22-16d	1000	1980	2155	2155	2155	2810	2980	2980	2980
			2	4-10d	22-10d	835	1950	1950	1950	1950	2475	2475	2475	2475
				4-16d	22-16d	1000	2425	2695	2695	2695	3210	3270	3310	3450
	HGUS28	3⁹⁄₁₆	2	6-10d	36-10d	1395	2350	2350	2350	2350	3105	3105	3105	3105
				6-16d	36-16d	1510	2830	2830	2830	2830	3740	3740	3740	3740

1. Allowable loads shown consider ANSI/TPI 1-2007 member design criteria.
2. For allowable loads on 2x10 girder bottom chords, multiple ply hangers and on SPF/HF header wood species, refer to technical bulletin T-REDHEEL *(see page 191 for details)*.
3. HGUS, HHUS and HGUQ hangers installed with the joist fastener quantities shown above are recommended for installation on minimum 2-ply 2x girder bottom chords. See technical bulletin T-REDHEEL for HHUS and HGUQ allowable loads *(see page 191 for details)*.
4. Allowable loads are based on the lowest joist fastener holes filled. For the LUS, fill the two lowest joist fasteners holes on the right side of the hanger and the single lowest joist fastener hole on the left side of the hanger.
5. Wind (160) is a download rating.
6. **NAILS:** 16d = 0.162" dia.x 3½" long, 16dx2½ = 0.162" dia.x 2½" long, 10d = 0.148" dia.x 3" long, 10dx1½ = 0.148" dia.x 1½" long, See page 16-17 for other nail sizes and information.

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.

Model No.	DF Allowable Loads					SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind[2] (160)	
SINGLE 2x SIZES																
LUS24	490	640	735	800	850	490	690	795	865	920	465	540	625	675	730	I7, L3, F6
LUS26	1115	830	955	1040	1110	1165	900	1035	1115	1200	935	700	805	875	950	
MUS26	1090	1310	1505	1640	1740	1090	1425	1640	1780	1740	915	1100	1265	1380	1465	I7, F6
HUS26	1550	2565	2950	3205	3335	1550	2785	3200	3325	3335	1335	2210	2490	2540	2580	
HGUS26	1765	3750	3750	3750	3750	1765	3750	3750	3750	3750	1520	3480	3480	3480	3480	F23
LUS28	1115	1055	1210	1320	1405	1165	1140	1310	1425	1520	935	890	1025	1115	1185	I7, L3, F6
MUS28	1555	1750	2010	2185	2325	1555	1900	2185	2375	2325	1305	1470	1690	1835	1955	
HUS28	2000	3585	3700	3775	3840	2000	3380	3505	3585	3655	1720	2580	2680	2745	2800	I7, F6
HGUS28	3015	5720	5720	5720	5720	3015	5720	5720	5720	5720	2595	4345	4520	4635	4730	F23
LUS210	1115	1275	1470	1595	1700	1165	1380	1590	1725	1840	935	1085	1245	1355	1445	I7, L3, F6
HUS210	3000	3775	3920	4020	4100	3000	3585	3745	3850	3935	2780	2745	2870	2955	3025	

Note: For dimensions and fastener information, see table on page 118.

Model No.	Min. Heel Height	Ga	Dimensions			Fasteners		DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
			W	H	B	Carrying Member	Carried Member	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind[2] (160)	
DOUBLE 2x SIZES																		
LUS24-2	2¼	18	3⅛	3⅛	2	4-16d	2-16d	565	765	880	960	1020	555	640	735	800	880	I7, IL12, L1, F6
LUS26-2	4⁹⁄₁₆	18	3⅛	4⅞	2	4-16d	4-16d	1165	1000	1150	1250	1335	1115	820	945	1025	1145	
HHUS26-2	4⁹⁄₁₆	14	3⁵⁄₁₆	5⅜	3	14-16d	6-16d	1550	2580	2965	3225	3440	1550	2165	2490	2710	2960	I7, F6
HGUS26-2	4⁹⁄₁₆	12	3⅞	5⅜	4	20-16d	8-16d	2325	3940	4535	4930	5240	1995	3410	3920	4260	4535	IL14, F23
LUS28-2	4⁹⁄₁₆	18	3⅛	7	2	6-16d	4-16d	1165	1265	1455	1585	1690	1115	1050	1210	1315	1450	I7, L1, F6
HHUS28-2	6⁹⁄₁₆	14	3⁵⁄₁₆	7¼	3	22-16d	8-16d	2000	3885	4465	4855	5180	2000	3275	3765	4095	4355	I7, F6
HGUS28-2	6⁹⁄₁₆	12	3⅞	7⅛	4	36-16d	12-16d	3220	6805	7830	7925	7925	2705	5890	6320	6425	6575	IL14, F23
LUS210-2	6⅞	18	3⅛	9	2	8-16d	6-16d	1550	1765	2030	2210	2355	1550	1465	1680	1830	1950	I7, L1, F6
HHUS210-2	8⅜	14	3⁵⁄₁₆	8⅞	3	30-16d	10-16d	3430	5190	5900	5900	5900	2795	4385	4795	4875	4945	I7, F6
HGUS210-2	8⁹⁄₁₆	12	3⅞	9⅛	4	46-16d	16-16d	3630	8650	8940	8940	8940	3050	6515	6775	6865	7065	IL14, F23
TRIPLE 2x SIZES																		
HGUS26-3	4¹³⁄₁₆	12	4¹⁵⁄₁₆	4½	4	20-16d	8-16d	2325	3940	4535	4930	5240	1995	3410	3920	4260	4535	F23
HGUS28-3	6¹³⁄₁₆	12	4¹⁵⁄₁₆	7⅛	4	36-16d	12-16d	3220	6805	7830	7925	7925	2705	5890	6655	6655	6655	
HGUS210-3	8¹³⁄₁₆	12	4¹⁵⁄₁₆	9³⁄₁₆	4	46-16d	16-16d	3630	8780	8940	8940	8940	3050	7510	7510	7510	7510	
HGUS212-3	10⅝	12	4¹⁵⁄₁₆	10½	4	56-16d	20-16d	4055	9155	9155	9155	9155	3405	7690	7690	7690	7690	
HGUS214-3	12⅝	12	4¹⁵⁄₁₆	12½	4	66-16d	22-16d	5380	10015	10015	10015	10015	4520	8415	8415	8415	8415	
QUADRUPLE 2x SIZES																		
HGUS26-4	5½	12	6¹⁄₁₆	5⅜	4	20-16d	8-16d	2325	3940	4535	4930	5240	1955	3410	3920	4260	4535	F23
HGUS28-4	7¼	12	6¹⁄₁₆	7⅛	4	36-16d	12-16d	3220	6805	7830	7925	7925	2705	5890	6655	6655	6655	
HGUS210-4	9¼	12	6¹⁄₁₆	9⅛	4	46-16d	16-16d	3630	8780	8940	8940	8940	3050	7510	7510	7510	7510	
HGUS212-4	10⅝	12	6¹⁄₁₆	10½	4	56-16d	20-16d	4055	9155	9155	9155	9155	3405	7690	7690	7690	7690	
HGUS214-4	12⅝	12	6¹⁄₁₆	12½	4	66-16d	22-16d	5380	10015	10015	10015	10015	4520	8415	8415	8415	8415	
4x SIZES																		
LUS46	4⅜	18	3⁹⁄₁₆	4¾	2	4-16d	4-16d	1165	1000	1150	1250	1335	1115	820	945	1025	1145	I7, L1, F6
HGUS46	4⅞	12	3⅝	4⅞	4	20-16d	8-16d	2325	3940	4535	4930	5240	1995	3410	3920	4260	4535	IL14, F23
HHUS46	4⅝	14	3⅝	5³⁄₁₆	3	14-16d	6-16d	1550	2580	2965	3225	3440	1550	2165	2490	2710	2960	I7, F6
LUS48	4⅜	18	3⁹⁄₁₆	6¾	2	6-16d	4-16d	1165	1265	1455	1585	1690	1115	1050	1210	1315	1450	I7, L1, F6
HUS48	6⅛	14	3⁹⁄₁₆	7	2	6-16d	6-16d	1550	1505	1730	1885	2010	1550	1240	1425	1550	1650	
HHUS48	6½	14	3⅝	7⅛	3	22-16d	8-16d	2000	3885	4465	4855	5180	2000	3275	3765	4095	4355	I7, F6
HGUS48	6⁷⁄₁₆	12	3⅝	7⅛	4	36-16d	12-16d	3220	6805	7830	7925	7925	2705	5890	6655	6655	6655	IL14, F23
LUS410	6¼	18	3⁹⁄₁₆	8¾	2	8-16d	6-16d	1550	1765	2030	2210	2265	1550	1465	1680	1830	2025	I7, L1, F6
HHUS410	8⅜	14	3⅝	9	3	30-16d	10-16d	3430	5190	5900	5900	5900	2795	4385	5040	5075	5075	I7, F6
HGUS410	8⁷⁄₁₆	12	3⅝	9	4	46-16d	16-16d	3630	8780	8940	8940	8940	3050	7365	7510	7510	7510	IL14, F23
HGUS412	10⁷⁄₁₆	12	3⅝	10⁷⁄₁₆	4	56-16d	20-16d	4055	9155	9155	9155	9155	3405	7690	7690	7690	7690	F23
HGUS414	11⁷⁄₁₆	12	3⅝	12⁷⁄₁₆	4	66-16d	22-16d	5380	10015	10015	10015	10015	4520	7890	8185	8380	8380	

1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6.
2. Wind (160) is a download rating.
3. Minimum heel height shown is required to achieve full table loads. For less than minimum heel height, see Allowable Loads with Reduced Heel Height on page 118.
4. Truss chord cross-grain tension may limit allowable loads. Refer to technical bulletins T-ANSITPISPF, T-ANSITPISP and T-ANSITPIDF for allowable loads that consider ANSI/TPI 1-2007 wood member design criteria *(see page 191 for details)*.
5. Loads shown are based on minimum of 2-ply 2x carrying member. With 3x carrying members, use 16dx2½" nails into the header and 16d commons into the joist with no load reduction. With single 2x carrying members, use 10dx1½" nails into the header and 10d commons into the joist, and reduce the load to 0.64 of the table value.
6. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.

HTU *Face Mount Truss Hangers*

The HTU face mount truss hangers have nail patterns designed specifically for shallow heel heights, so that full allowable loads *(with minimum nailing)* apply to heel heights as low as 3⅞". Minimum and maximum nailing options provide solutions for varying heel heights and end conditions.

Alternate allowable loads are provided for gaps between the end of the truss and the carrying member up to ½" max. to allow for greater construction tolerances *(maximum gap for standard allowable loads is ⅛" per ASTM D-1761 and D-7147).*

MATERIAL: 16 gauge

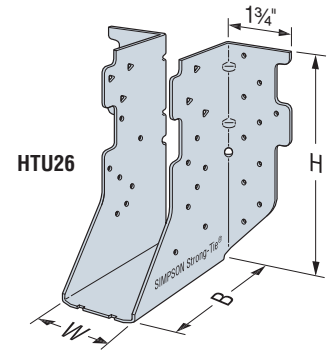
FINISH: Galvanized

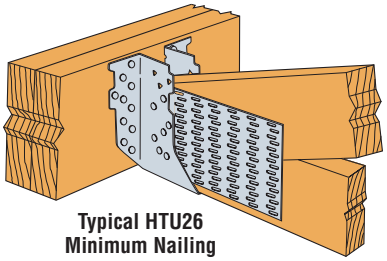
INSTALLATION:

- Use all specified fasteners. See General Notes.
- Can be installed filling round holes only, or filling round and triangle holes for maximum values.
- See alternate installation for applications using the HTU26 on a 2x4 carrying member or HTU28 or HTU210 on a 2x6 carrying member for additional uplift capacity.

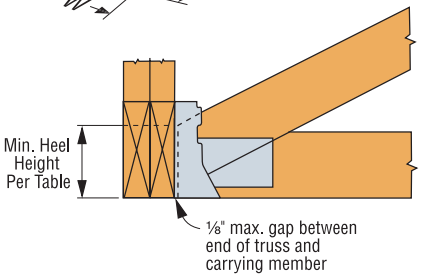
OPTIONS: • See Hanger Options on pages 181-183 for skew options.

CODES: See page 12 for Code Reference Key Chart.

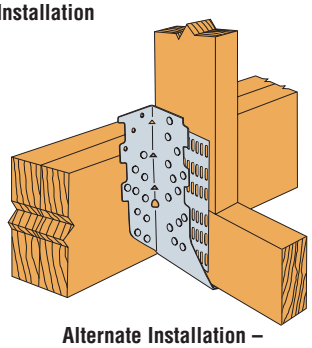




Typical HTU26 Minimum Nailing Installation



HTU Installation for Standard Allowable Loads
(For ½" maximum gap, use Alternate Allowable Loads.)



Alternate Installation – HTU28 installed on 2x6 carrying member
(HTU210 similar)

Standard Allowable Loads (⅛" Maximum Hanger Gap)

Model No.	Min. Heel Height	Dimensions			Fasteners		DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
		W	H	B	Carrying Member	Carried Member	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind[4] (160)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind[4] (160)	
SINGLE 2x SIZES																	
HTU26	3½	1⅝	5⅞	3½	20-16d	11-10dx1½	730	2940	3045	3045	3045	630	1920	1920	1920	1920	I2, F22
HTU26 (Min)	3⅞	1⅝	5⅞	3½	20-16d	14-10dx1½	1250	2940	3200	3200	3200	1075	2015	2015	2015	2015	
HTU26 (Max)	5½	1⅝	5⅞	3½	20-16d	20-10dx1½	1555	2940	3340	3600	4010	1335	2530	2870	3095	3450	
HTU28 (Min)	3⅞	1⅝	7⅛	3½	26-16d	14-10dx1½	1235	3820	3895	3895	3895	1060	2920	2920	2920	2920	
HTU28 (Max)	7¼	1⅝	7⅛	3½	26-16d	26-10dx1½	2140	3820	4340	4680	5435	1840	3285	3730	4025	4675	
HTU210 (Min)	3⅞	1⅝	9⅛	3½	32-16d	14-10dx1½	1330	4355	4355	4355	4355	1145	3265	3265	3265	3265	
HTU210 (Max)	9¼	1⅝	9⅛	3½	32-16d	32-10dx1½	3315	4705	5345	5760	5995	2850	4045	4595	4955	5155	
DOUBLE 2x SIZES																	
HTU26-2 (Min)	3⅞	3⅝	5⅞	3½	20-16d	14-10d	1515	2940	3340	3600	3910	1305	2465	2465	2465	2465	I2, F22
HTU26-2 (Max)	5½	3⅝	5⅞	3½	20-16d	20-10d	2175	2940	3340	3600	4485	1870	2530	2870	3095	3855	
HTU28-2 (Min)	3⅞	3⅝	7⅛	3½	26-16d	14-10d	1530	3820	4310	4310	4310	1315	3235	3235	3235	3235	
HTU28-2 (Max)	7¼	3⅝	7⅛	3½	26-16d	26-10d	3485	3820	4340	4680	5850	2995	3285	3730	4025	5030	
HTU210-2 (Min)	3⅞	3⅝	9⅛	3½	32-16d	14-10d	1755	4705	4815	4815	4815	1510	3610	3610	3610	3610	
HTU210-2 (Max)	9¼	3⅝	9⅛	3½	32-16d	32-10d	4110	4705	5345	5760	7200	3535	4045	4595	4955	6190	

1. The maximum hanger gap is measured between the joist *(or truss)* end and the carrying member.
2. Minimum heel heights required for full table loads are based on a minimum 2:12 pitch.
3. Uplift has been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
4. Wind (160) is a download rating.
5. For hanger gaps between ⅛" and ½" use the Alternate Allowable Loads.
6. Truss chord cross-grain tension may limit allowable loads. Refer to technical bulletins T-ANSITPISPF, T-ANSITPISP and T-ANSITPIDF for allowable loads that consider ANSI/TPI 1-2007 wood member design criteria *(see page 191 for details)*.
7. Loads shown are based on a minimum 2-ply 2x carrying member. For single 2x carrying members, use N10 (10dx1½") nails into the header and reduce the allowable download to 0.70 of the table value. The allowable uplift is 100% of the table load.
8. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

Alternate Installation Table for 2x4 and 2x6 Carrying Member

Model No.	Min. Heel Height (in.)	Minimum Carrying Member	Fasteners		DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
			Carrying Member	Carried Member	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind[3] (160)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind[3] (160)	
HTU26 (Min)	3⅞	2-2x4	10-16d	14-10dx1½	925	1470	1670	1800	2040	795	1265	1435	1550	1755	I2, F22
HTU26 (Max)	5½	2-2x4	10-16d	20-10dx1½	1310	1470	1670	1800	2250	1125	1265	1435	1550	1935	
HTU28 (Max)	7¼	2-2x6	20-16d	26-10dx1½	1970	2940	3340	3600	3905	1695	2530	2870	3095	3360	
HTU210 (Max)	9¼	2-2x6	20-16d	32-10dx1½	2760	2940	3340	3600	3905	2375	2530	2870	3095	3360	

1. See table above for dimensions and additional footnotes.
2. Maximum hanger gap for the alternate installation is ½".
3. Wind (160) is a download rating.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

HTU *Face Mount Truss Hangers*

SIMPSON Strong-Tie®

Alternate Allowable Loads (½" Maximum Hanger Gap)

Model No.	Min. Heel Height	Dimensions			Fasteners		DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
		W	H	B	Carrying Member	Carried Member	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	
SINGLE 2x SIZES																	
HTU26[8]	3½	1⅝	5⅞6	3½	20-16d	11-10dx1½	670	2735	2735	2735	2735	575	1725	1725	1725	1725	I2, F22
HTU26 (Min)	3⅞	1⅝	5⅞6	3½	20-16d	14-10dx1½	1175	2940	3100	3100	3100	1010	1955	1955	1955	1955	
HTU26 (Max)	5½	1⅝	5⅞6	3½	20-16d	20-10dx1½	1215	2940	3340	3600	3760	1045	2370	2370	2370	2370	
HTU28 (Min)	3⅞	1⅝	7⅛6	3½	26-16d	14-10dx1½	1125	3770	3770	3770	3770	970	2825	2825	2825	2825	
HTU28 (Max)	7¼	1⅝	7⅛6	3½	26-16d	26-10dx1½	1920	3820	4340	4680	5015	1695	3285	3730	3765	3765	
HTU210 (Min)	3⅞	1⅝	9⅛6	3½	32-16d	14-10dx1½	1250	3600	3600	3600	3600	1075	2700	2700	2700	2700	
HTU210 (Max)	9¼	1⅝	9⅛6	3½	32-16d	32-10dx1½	3255	4705	5020	5020	5020	2800	3765	3765	3765	3765	
DOUBLE 2x SIZES																	
HTU26-2 (Min)	3⅞	3⅝6	5⅞6	3½	20-16d	14-10d	1515	2940	3340	3500	3500	1305	2205	2205	2205	2205	I2, F22
HTU26-2 (Max)	5½	3⅝6	5⅞6	3½	20-16d	20-10d	1910	2940	3340	3500	3500	1645	2205	2205	2205	2205	
HTU28-2 (Min)	3⅞	3⅝6	7⅛6	3½	26-16d	14-10d	1490	3820	3980	3980	3980	1280	2985	2985	2985	2985	
HTU28-2 (Max)	7¼	3⅝6	7⅛6	3½	26-16d	26-10d	3035	3820	4340	4680	5555	2610	3285	3730	4025	4165	
HTU210-2 (Min)	3⅞	3⅝6	9⅛6	3½	32-16d	14-10d	1755	4255	4255	4255	4255	1510	3190	3190	3190	3190	
HTU210-2 (Max)	9¼	3⅝6	9⅛6	3½	32-16d	32-10d	3855	4705	5345	5760	6470	3315	4045	4595	4855	4855	

See table footnotes on page 120.

HGUQ *Multi-Ply Girder Truss Hangers*

HGUQ hangers provide similar capacities as HGUS double shear hangers, but they use Simpson Strong-Tie® Strong-Drive® screws (SDS) instead of nails for faster and easier installation. In addition, the SDS screws help transfer the load between the plies of the supporting girder when they penetrate all plies.

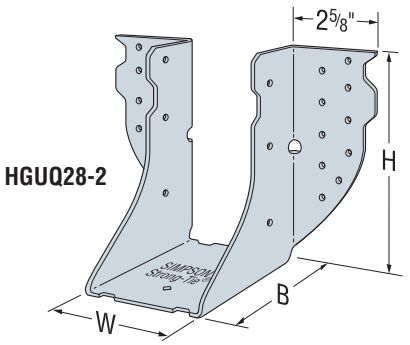
MATERIAL: 12 gauge **FINISH**: Galvanized

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

- Simpson Strong-Tie SDS screws supplied.
- Not designed for welded or nailer applications.
- The thickness of the supporting girder must be equal to or greater than the screw length. For applications where the length of the supplied screws exceeds the thickness of the supporting girder, 3" or 4½" screws may be substituted for the longer length screws with no load reduction, or a shim block may used as approved by the Designer.

OPTIONS: These hangers cannot be modified.

CODES: See page 12 for Code Reference Key Chart.



Model No.	Ga	Dimensions			SDS Fasteners		DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
		W	H	B	Carrying Member	Carried Member	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	
DOUBLE 2x SIZES																	
HGUQ26-2-SDS3	12	3⅞6	5	4	(12) ¼"x3"	(4) ¼"x3"	1635	5040	5565	5565	5565	1175	2660	3060	3325	3550	F23
HGUQ28-2-SDS3	12	3⅞6	7	4	(20) ¼"x3"	(6) ¼"x3"	2565	7330	7330	7330	7330	1845	4435	5100	5280	5280	
HGUQ210-2-SDS3	12	3⅞6	9	4	(28) ¼"x3"	(8) ¼"x3"	3440	7415	7415	7415	7415	2475	5340	5340	5340	5340	
TRIPLE 2x SIZES																	
HGUQ26-3-SDS4.5	12	5⅛	5⅛	4	(12) ¼"x4½"	(4) ¼"x4½"	1635	5040	5165	5165	5165	1175	2660	3060	3325	3550	F23
HGUQ28-3-SDS4.5	12	5⅛	7⅛	4	(20) ¼"x4½"	(6) ¼"x4½"	2565	8400	9175	9175	9175	1845	4435	5100	5545	5915	
HGUQ210-3-SDS4.5	12	5⅛	9⅛	4	(28) ¼"x4½"	(8) ¼"x4½"	3440	9745	9745	9745	9745	2475	6210	7015	7015	7015	
QUADRUPLE 2x SIZES																	
HGUQ26-4-SDS6	12	6⅛6	5⅝6	4	(12) ¼"x6"	(4) ¼"x6"	2375	5040	5165	5165	5165	1420	2660	3060	3325	3550	F23
HGUQ28-4-SDS6	12	6⅛6	7⅝6	4	(20) ¼"x6"	(6) ¼"x6"	4020	8400	8860	8860	8860	2130	4435	5100	5545	5915	
HGUQ210-4-SDS6	12	6⅛6	9⅝6	4	(28) ¼"x6"	(8) ¼"x6"	4170	10260	10260	10260	10260	2835	6210	7140	7385	7385	
4x SIZES																	
HGUQ46-SDS3	12	3⅝	4⅞	4	(12) ¼"x3"	(4) ¼"x3"	1635	5040	5165	5165	5165	1175	2660	3060	3325	3550	F23
HGUQ48-SDS3	12	3⅝	6⅞	4	(20) ¼"x3"	(6) ¼"x3"	2565	7330	7330	7330	7330	1845	4435	5100	5280	5280	
HGUQ410-SDS3	12	3⅝	8⅞	4	(28) ¼"x3"	(8) ¼"x3"	3440	7415	7415	7415	7415	2475	5340	5340	5340	5340	

1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6.
2. Wind (160) is a download rating.
3. Truss chord cross-grain tension may limit allowable loads. Refer to technical bulletins T-ANSITPISPF, T-ANSITPISP and T-ANSITPIDF for allowable loads that consider ANSI/TPI 1-2007 wood member design criteria *(see page 191 for details)*.
4. Simpson Strong-Tie Strong-Drive screws are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2002 Section 8.10 are met *(pre-drilling required through the plate using a maximum of 5⁄32" bit)*.
5. SDS screws that penetrate all plies of the supporting girder *(screws must penetrate a minimum of 1" into the last truss ply)* may also be used to transfer the load through all the plies of the supporting girder. When SDS screws do not penetrate all plies of the supporting girder truss, supplemental SDS screws at the hanger locations may be required to transfer the load to the truss plies not penetrated by the face fasteners, as determined by the Designer.
6. The supporting girder truss must have adequate thickness to accommodate the screw length, so that the screw does not protrude out the back of the girder. 3" or 4½" long SDS screws may be substituted for the longer SDS screws with no load reduction.
7. For installations to LSL, use SDS ¼"x3" and use the DF/SP table loads.

W/WP/WM *Plated Truss Top Flange Hangers*

The W and WP hangers offer design flexibility and versatility supporting trusses off of wood or steel. WM hangers are designed for use on standard 8" grouted masonry block wall construction.

MATERIAL: W, WM—12 gauge top flange and stirrup, WP—7 gauge top flange and 12 gauge stirrup

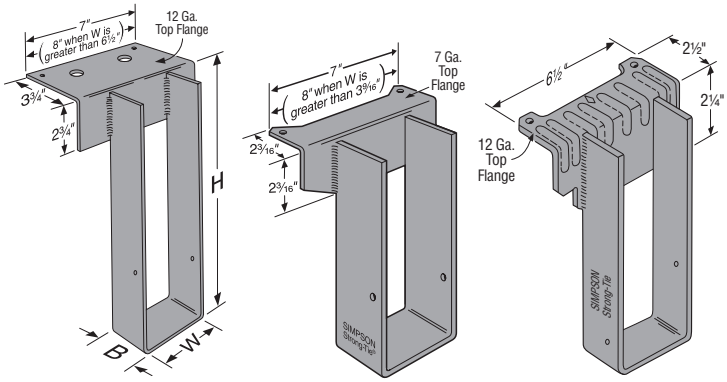
FINISH: Simpson Strong-Tie® gray paint; hot-dip galvanized available: specify HDG.

INSTALLATION: • Use all specified fasteners.

- Hangers may be welded to steel headers with ⅛" for W, and 3⁄16" for WP, by 1½" fillet welds located at each end of the top flange. Weld-on applications produce maximum allowable load listed. Uplift loads do not apply to this application.
- Hangers can support multi-ply carried members; the individual members must be secured together to work as a single unit before installation into the hanger.
- **MID-WALL INSTALLATION:** Installed between blocks with duplex nails cast into grout with a minimum of one grouted course above and below the top flange and one #5 vertical rebar minimum 24" long in each adjacent cell.
- **TOP OF WALL INSTALLATION:** Install on top of wall to a grouted beam with masonry screws.

OPTIONS: For 4x2 trusses, specify "alternate nail pattern" (ANP) which relocates the nails to the bottom of the joist. See Hanger Options, pages 181-183 for hanger modifications.

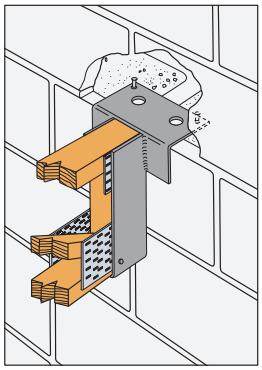
CODES: See page 12 for Code Reference Key Chart.



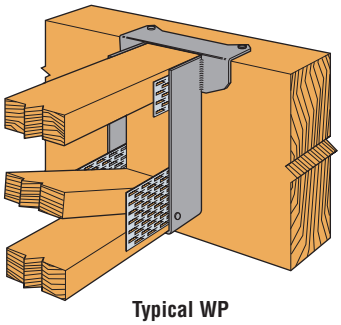
WM **WP** **W**

Model	Nailer	Top Flange Nailing	Allowable Loads		
			DF/SP	SPF/HF	LSL
W	2x	2-10dx1½	1600	1600	—
	2-2x	2-10d	1665	1665	—
	3x	2-16dx2½	1765	1740	—
	4x	2-10d	2200	2200	—
WP	2x	2-10dx1½	2525	2500	3375
	2-2x	2-10d	3255	3255	—
	3x	2-16dx2½	3000	2510	3375
	4x	2-10d	3255	3255	—

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



Typical WM Installation with Alternate Nail Pattern (ANP) for 4x2 Truss



Typical WP Installation with Alternate Nailing Pattern (ANP) for 4x2 Truss

W SERIES WITH VARIOUS HEADERS

Model	Joist		Fasteners			Allowable Loads Header Type								Code Ref.
	Width[4]	Depth	Top	Face	Joist	Uplift (160)	LVL	PSL	LSL	DF/SP	SPF/HF	I-Joist	Masonry	
W	1½ to 3½	3½ to 30	2-10dx1½	—	2-10dx1½	—	1635	1740	—	1600	1415	—	—	170
	1½ to 3½	3½ to 30	2-10d	—	2-10dx1½	—	2150	2020	—	2200	1435	—	—	I10, F9
	1½ to 3½	3½ to 30	2-16d	—	2-10dx1½	—	2335	1950	2335	1765	1435	—	—	
WM	1½ to 7	3½ to 30	2-16d DPLX	—	2-10dx1½	—	—	—	—	—	—	—	4175	IL12, L1
WP	1½ to 7	3½ to 30	2-10dx1½	—	2-10dx1½	—	2865	3250	—	2500	2000	2030	—	170
	1½ to 7	3½ to 30	2-10d	—	2-10dx1½	—	2525	3250	3650	3255	2600	—	—	I19, F18
	1½ to 7	3½ to 30	2-16d	—	2-10dx1½	—	3635	3320	3650	3255	2600	—	—	

1. 16d sinkers (9 ga x 3") may be used where 10d commons are called out with no load reduction.
2. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6.
3. WM hangers are limited based on joist bearing capacity for the specific wood species, up to the maximum test value of 4175 lbs. All headers are grouted masonry block.
4. Joist dimensions do not include truss plate thickness.
5. **NAILS:** 16d and 16d DPLX = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

Model No.	Ga	Dimensions				Fasteners		DF/SP Allowable Loads				SPF/HF Allowable Loads			
		W	Min.[3] H	B	TF	Carrying Member	Carried Member	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)
W1.62x	12	1⅝	4	2½	2½	2-10d	2-10dx1½	2200	2200	2200	2200	1435	1435	1435	1435
WM1.62x	12	1⅝	4	2	3¾	2-16d DPLX	2-10dx1½	1890	1920	1940	1955	1445	1470	1485	1500
WP3.31x	12	3⁵⁄₁₆	4	2½	2³⁄₁₆	2-10d	2-10d	3255	3255	3255	3255	2600	2600	2600	2600
WM3.31x	12	3⁵⁄₁₆	4	2	3¾	2-16d DPLX	2-10d	3635	3675	3700	3720	2765	2795	2820	2835
W3.62x	12	3⅝	4	2½	2½	2-10d	2-10d	2200	2200	2200	2200	1435	1435	1435	1435
WP3.62x	12	3⅝	4	2½	2³⁄₁₆	2-10d	2-10d	3255	3255	3255	3255	2600	2600	2600	2600
WM3.62x	12	3⅝	4	2	3¾	2-16d DPLX	2-10d	4175	4175	4175	4175	3190	3220	3240	3260
WP7.25x	12	7¼	4	2½	2³⁄₁₆	2-10d	2-10d	3255	3255	3255	3255	2600	2600	2600	2600
WM7.25x	12	7¼	4	2	3¾	2-16d DPLX	2-10d	4175	4175	4175	4175	4175	4175	4175	4175

1. WM hangers are limited based on joist bearing capacity for the specific wood species, up to the maximum test value of 4175 lbs. All headers are grouted masonry block.
2. Wind (160) is a download rating.
3. "Min. H" is the minimum H dimension that may be ordered and desired H dimension should be specified. For hanger heights exceeding the joist height, the allowable load is 0.50 of the table load.
4. **NAILS:** 16d DPLX = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

THAR/L422 *Skewed Truss Hangers*

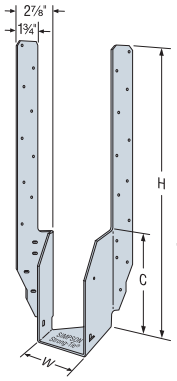
Designed for 4x2 floor trusses and 4x beams, the THAR/L422 has a standard skew of 45°. Straps must be bent for top flange installation. PAN nailing helps eliminate splitting of 4x2 truss bottom chords.

MATERIAL: 16 gauge

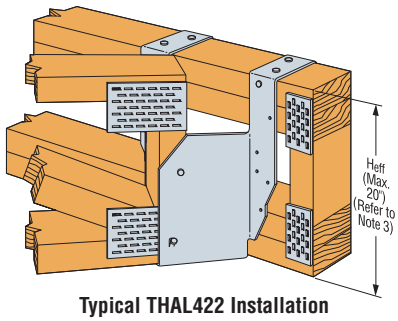
FINISH: Galvanized

INSTALLATION: • Use all specified fasteners. See General Notes.
- Straps must be field-formed over the header a minimum of 2½".
- Minimum and maximum nailing configurations available – see table for nailing requirements.

CODES: See page 12 for Code Reference Key Chart.



THAL422



Typical THAL422 Installation with Minimum Nailing on a Floor Truss with Double 4x2 Top Chord

Model No.	Ga	Dimensions (in.) W	H	C	Minimum Top Chord on Carrying Member	Effective Height H_{eff}[3]	Fasteners: Carrying Member Top	Carrying Member Face	Carried Member Straight	Carried Member Slant	DF/SP Allowable Loads: Uplift (160)	Floor (100)	Snow (115)	Roof (125)	SPF/HF Allowable Loads: Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Code Ref.
THAR/L422 (Min)	16	3⅝	22⅝	8	Single 4x2	9 min.	4-10dx1½	2-10dx1½	1-10dx1½	2-10dx1½	—	880	880	880	—	755	755	755	I8, F7
					Double 4x2	9 to 12	4-10d	2-10d	1-10d	2-10dx1½	—	1440	1440	1440	—	1240	1240	1240	
						> 12					—	1090	1090	1090	—	935	935	935	
THAR/L422 (Max)	16	3⅝	22⅝	8	Double 4x2	9 min.	4-10d	8-10d	1-10d	2-10dx1½	310	1675	1675	1675	265	1440	1440	1440	

1. Uplift has been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Roof loads are 125% of floor loads unless limited by other criteria. Floor loads may be adjusted for load durations according to the code provided they do not exceed those in the roof column.
3. Where the top of the carried member is flush with the top of the carrying member, H_{eff} is equal to the depth of the carried member. Otherwise, H_{eff} shall be measured from the top of the bearing seat to the top of the carrying member.
4. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

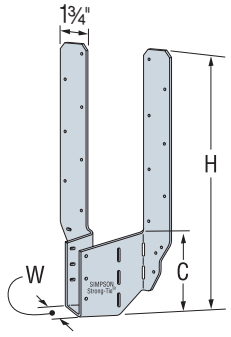
THASR/L *Adjustable/Skewable Truss Hangers*

The THASR/L hangers combine the height adjustability of THA hangers with field skewability, offering maximum flexibility for the installer, and eliminating the need for special orders. Shipped at 45-degrees right or left, the THASR/L hangers can be field skewed down to 22½ degrees or up to 84 degrees.

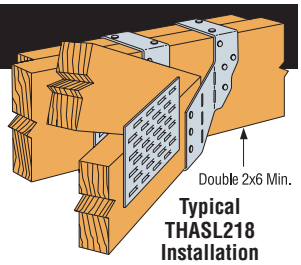
MATERIAL: 16 gauge **FINISH**: Galvanized

INSTALLATION: • Use all specified fasteners. See General Notes.
- Product is factory skewed to 45 degrees and may be field skewed from 22½ degrees to 84 degrees.
- For full download, both straps must be field formed over the header.
- For installations where either strap cannot be field-formed over the header, install the strap(s) vertical and install, at a minimum, the required top and face nails into the lowest face nail holes in the strap(s). Loads must be reduced as noted in the table footnotes.

CODES: See page 12 for Code Reference Key Chart.

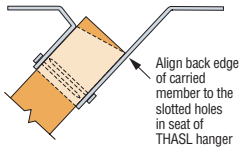


THASL218

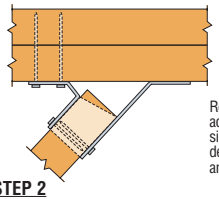


Typical THASL218 Installation
(L in model name = Left, R in model name = Right)

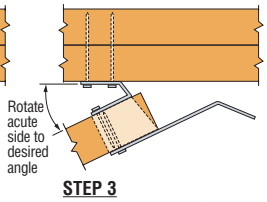
INSTALLATION SEQUENCE:



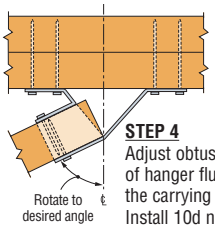
STEP 1
Install carried member into the seat of the hanger. Secure with 6-10dx1½" nails.



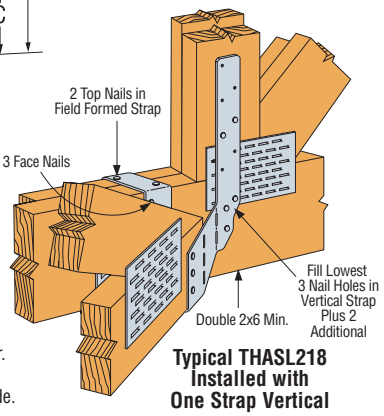
STEP 2
Install 10d nails into header on the acute angle side first.



STEP 3
Adjust acute side of hanger to the desired angle.



STEP 4
Adjust obtuse side of hanger flush with the carrying member. Install 10d nails into header on obtuse side.



Typical THASL218 Installed with One Strap Vertical

Minimum Carried Member	Model No.	Dimensions W	H	C	Min. Header	Skew (Degree)	Fasteners: Carrying Member Top	Carrying Member Face	Carried Member Straight	DF/SP Allowable Loads: Uplift (160)	Floor/Snow/Roof/Wind (100/115/125/160)	SPF/HF Allowable Loads: Uplift (160)	Floor/Snow/Roof/Wind (100/115/125/160)	Code Ref.
2x Truss	THASR/L218	1⅜	18	5½	(2) 2x6	22½	4-10d	6-10d	6-10dx1½	795	1915	680	1645	F23
						23 to 45				440	1635	375	1405	
						46 to 84				490	1515	420	1300	
2-2x Truss	THASR/L218-2	3⅛	18	5½	(2) 2x6	22½ to 84	4-10d	6-10d	6-10dx1½	425	1460	365	1255	170
					(2) 2x8		4-10d	8-10d		425	1665	365	1430	
4x Truss	THASR/L418	3⅝	18	5½	(2) 2x6	22½ to 84	4-10d	6-10d	6-10dx1½	425	1460	365	1255	
					(2) 2x8		4-10d	8-10d		425	1665	365	1430	

1. Wind (160) is a download rating.
2. Minimum heel height shall be 4½".
3. Allowable download for installations with one or both straps installed vertically is 90% of the tabulated download capacities. Allowable uplift capacities are 100% of the tabulated uplift load capacities. The lowest 3 nail holes must be filled in each vertical strap of the THASR/L218, and lowest 4 nail holes in each vertical strap of the THASR/L218-2 and THASR/L418.
4. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

TJC37 *Jack Truss Connector*

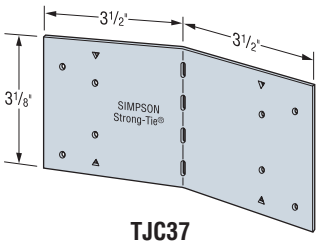
TJC37 is a versatile connector for jack trusses. Adjustable from 0 to 67.5 degree *(shipped with 67.5 degree bend)*. Nail hole locations allow for easy installation. Minimum nailing option provides faster installation and lower installed cost.

MATERIAL: 16 gauge **FINISH**: Galvanized

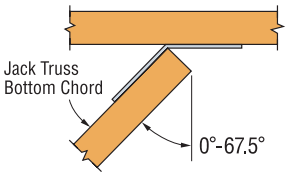
INSTALLATION: • Use all specified fasteners; see General Notes.

- Can be installed filling round holes only, or filling round and triangle holes for maximum values.
- To reduce the potential for splitting, install the TJC37 with a minimum 3⁄16" edge distance on the chord members *(must be centered on 2x4 chords)*.
- Position the jack truss on the inside of the bend line with the end of the jack truss flush with the bend line.
- Bend the TJC37 to the desired position *(one bend cycle only)*.
- No bevel cut required.
- Applications involving attachment of TJC37 to the carried truss top chord requires minimum 2x6 carrying member for jack truss pitches up to 7:12, and 2x8 or larger for pitches greater than 7:12. 2x4 carried truss top chord allows for pitches from 0:12 to 3:12.

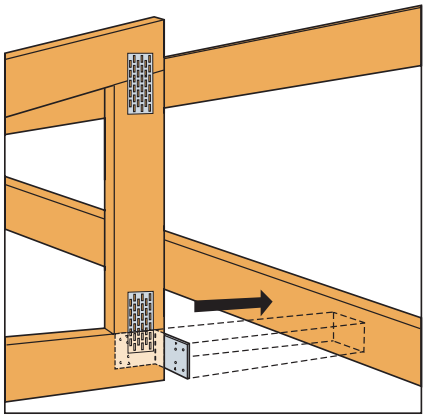
CODES: See page 12 for Code Reference Key Chart.



TJC37



Top View Installation



Typical TJC37 Installation

Model No.	Fasteners		Allowable Loads						Code Ref.
	Carrying Member	Carried Member	DF/SP			SPF/HF			
			0°	1°-60°	61°-67.5°	0°	1°-60°	61°-67.5°	
TJC37 (Min)	4-8dx1½	4-8dx1½	340	300	320	290	260	275	IP1, F25
TJC37 **(Max)**	6-8dx1½	6-8dx1½	580	485	425	500	415	365	

1. No load duration increase allowed.
2. Allowable loads are for upward or downward direction.
3. **NAILS:** 8dx1½ = 0.131" dia. x 1½" long.
   See page 16-17 for other nail sizes and information.

LTHMA *Multiple Truss Hangers*

Light capacity hanger designed to carry 2 or 3 trusses in a terminal hip installation. See also the MTHM/MTHM-2 hangers.

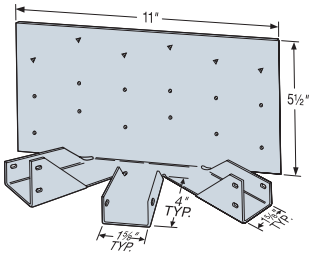
MATERIAL: 16 gauge

FINISH: Galvanized

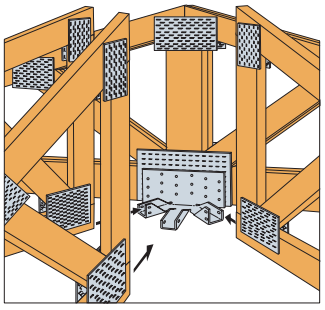
INSTALLATION: • Use all specified fasteners. See General Notes.

- The total load must be symmetrically distributed about the centerline to avoid eccentric loading of the connector.
- Fill round holes for girder trusses with 2x4 bottom chords.
- Fill round and triangle holes for girder trusses with 2x6 bottom chords.

CODES: See page 12 for Code Reference Key Chart.



LTHMA



Typical LTHMA Installation

Model No.	Header	Fasteners			DF/SP Allowable Loads												Code Ref.
		Header	Hips (Total)	Jack	Uplift (160)			Floor (100)			Snow (115)			Roof (125/160)			
					Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	
LTHMA	1 ply 2x4	12-10dx1½	6-10dx1½	2-10dx1½	55	20	130	485	110	1080	540	125	1205	540	125	1205	IL15
	2 ply 2x4	12-10d	6-10dx1½	2-10dx1½	55	20	130	600	130	1330	675	150	1500	675	150	1500	
	1 ply 2x6	18-10dx1½	6-10dx1½	2-10dx1½	55	20	130	635	140	1410	635	140	1410	635	140	1410	
	2 ply 2x6	18-10d	6-10dx1½	2-10dx1½	85	25	195	900	200	2000	1035	230	2300	1050	240	2340	

Model No.	Header	Fasteners			SPF/HF Allowable Loads												Code Ref.
		Header	Hips (Total)	Jack	Uplift (160)			Floor (100)			Snow (115)			Roof (125/160)			
					Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	
LTHMA	1 ply 2x4	12-10dx1½	6-10dx1½	2-10dx1½	50	10	110	440	55	935	485	65	1035	485	65	1035	IL15
	2 ply 2x4	12-10d	6-10dx1½	2-10dx1½	50	10	110	540	70	1150	570	75	1215	570	75	1215	
	1 ply 2x6	18-10dx1½	6-10dx1½	2-10dx1½	50	10	110	570	75	1215	570	75	1215	570	75	1215	
	2 ply 2x6	18-10d	6-10dx1½	2-10dx1½	85	15	185	815	100	1730	930	125	1985	940	120	2000	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Hip loads are for each hip.
3. Load distribution is 45% for each hip and 10% for jack. Other hip/jack load distributions are allowed if the sum of all three carried members does not exceed the total load and the hip members are equally loaded.
4. Truss chord cross-grain tension may limit allowable loads. Refer to technical bulletins T-ANSITPISPF, T-ANSITPISP and T-ANSITPIDF for allowable loads that consider ANSI/TPI 1-2007 wood member design criteria *(see page 191 for details)*.
5. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long.
   See page 16-17 for other nail sizes and information.

THJU *Truss Hip/Jack Hanger*

The THJU hip/jack hanger offers the most flexibility and ease of installation without sacrificing performance. The U-shaped hanger works for right and left hand hips and can be ordered to fit a range of hip skews *(up to 65 degrees)* as well as various single and 2-ply hip/jack combinations. Also can be installed before or after the hip and jack.

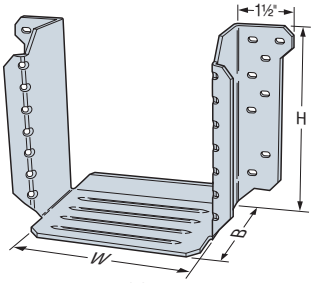
THJU26 is sized for the standard hip/jack combination with a 45-degree left or right-hand hip. The wide seat of THJU26-W accommodates a 2-ply hip and 2-ply jack combination with a 45 degree maximum hip skew, or a standard single-ply hip/jack configuration with a maximum 65-degree hip skew. Intermediate seat widths are available for other hip/jack or hip/hip combinations.

MATERIAL: 12 gauge **FINISH:** Galvanized

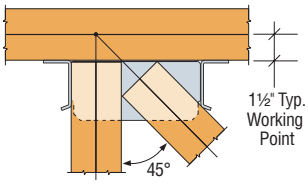
INSTALLATION: • Use all specified fasteners. See General Notes.

OPTIONS: Other seat widths available. See Hanger Options on pages 181-183 for more information.

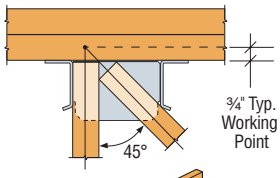
CODES: See page 12 for Code Reference Key Chart.



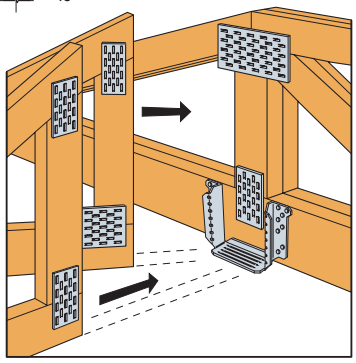
THJU26



THJU26-W Top View
2-Ply Hip/2-Ply Jack Installation



THJU26 Top View
Right Hand Hip
Installation



Typical THJU26 Installation

Model No.	Min. Heel Height	Dimensions (in.) W	H	B	Fasteners Carrying Member	Hip	Jack	DF/SP Allowable Loads Uplift (160)	Download Floor (100)	Snow (115)	Roof (125)	Wind (160)	SPF/HF Allowable Loads Uplift (160)	Download Floor (100)	Snow (115)	Roof (125)	Wind (160)	Code Ref.
THJU26	3½"	5⅛	5⅜	3½	16-10d	4-10d	4-10d	745	1915	1915	1915	1915	645	1645	1645	1645	1645	F23
	5½"				16-10d	7-10d	7-10d	1310	2350	2350	2350	2350	1125	2020	2020	2020	2020	
THJU26-W	3½"	7⅞	5⅜	3½	16-10d	4-10d	4-10d	710	1825	1825	1825	1825	610	1570	1570	1570	1570	
	5½"				16-10d	7-10d	7-10d	1240	1965	1965	1965	1965	1065	1690	1690	1690	1690	

1. Tabulated loads are the total allowable loads of the hip and jack members combined; 65%-85% of the total load shall be distributed to the hip member, and the remaining percentage of total load shall be distributed to the jack. The combined hip and jack load may not exceed the published total load.
2. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed.
3. With single 2x carrying members use 10dx1½" nails and use 100% of the table value.
4. For single 2x jacks, 10dx1½" nails may be substituted for the specified 10d commons with no reduction in load.
5. Truss chord cross-grain tension may limit allowable loads.
6. **NAILS:** 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.

LTHJ *Truss Hip/Jack Hanger*

Single piece, non-welded truss hip/jack connector with a standard hip skew of 45-degrees left or right. See also THJA26, LTHJA26, and THJU26 for hip/jack hangers that accommodate both right and left hand hips and can be installed after the hip and jack.

MATERIAL: 18 gauge **FINISH:** Galvanized; also available in ZMAX® coating.

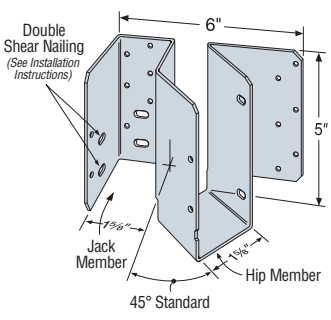
INSTALLATION: • Use all specified fasteners. See General Notes.

- The two 10d common nails into the jack must be driven at an angle through the side plate slot and jack, and into the carrying member; see HUS for double shear nailing details. The end of the jack cannot be more than ⅛" from the back plate to meet required nail penetration.
- Shall be attached to a minimum 2-ply girder truss to allow for required minimum nail penetration. See footnote 5.

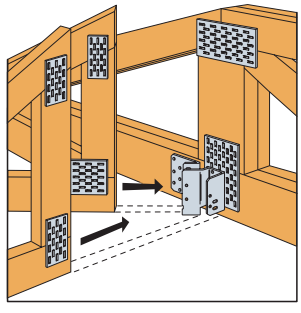
TO ORDER: Specify LTHJL for left 45° skewed hip truss and LTHJR for right 45° skewed hip truss.

OPTIONS: Available in hip slopes up to 45° and/or skews left or right from 46° to 67°. See Hanger Options, pages 181-183.

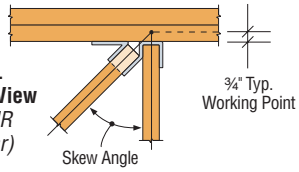
CODES: See page 12 for Code Reference Key Chart.



LTHJR
Hip Skewed 45° Right
(LTHJL similar)
U.S. Patent 5,042,217



Typical LTHJL Installation



LTHJL
Plan View
(LTHJR 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.	Fasteners Carrying Member	Hip	Jack	Carried Member	DF/SP Allowable Loads Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	SPF/HF Allowable Loads Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Code Ref.
LTHJR/L	12-10d	4-10dx1½	2-10dx1½ and 2-10d	Hip	580	1135	1310	1420	1425	500	980	1130	1225	1225	I11, F10
				Jack	250	380	435	475	475	215	330	380	410	410	
				Total	830	1515	1745	1895	1900	715	1310	1510	1635	1635	

1. 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.
2. Uplift loads include a 60% increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. Wind (160) is a download rating.
4. Truss chord cross-grain tension may limit allowable loads. Refer to technical bulletins T-ANSITPISPF, T-ANSITPISP and T-ANSITPIDF for allowable loads that consider ANSI/TPI 1-2007 wood member design criteria *(see page 191 for details)*.
5. Loads are based on a minimum 2-ply 2x carrying member. For single 2x carrying members, use 10dx1½" nails and use 0.82 of the table value.
6. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

LTHJA26 *Truss Hip/Jack Hangers*

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

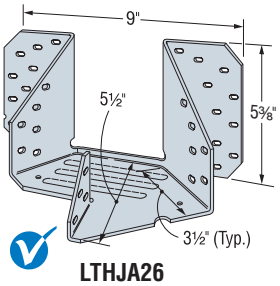
The LTHJA26 is a lighter capacity version of the THJA26 and offers the lowest cost alternative for light hip/jack load applications.

MATERIAL: 18 gauge **FINISH**: Galvanized

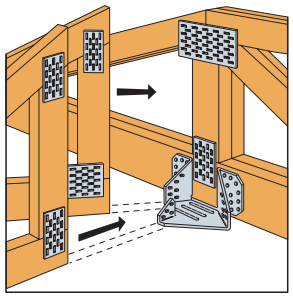
INSTALLATION: • Use all specified fasteners. See General Notes.
- Shall be attached to a double girder truss to allow for required minimum nail penetration. See footnote 3.
- 10dx1½" nails must be installed into bottom of hip members through bottom of hanger seat for table loads.

OPTIONS: These hangers can not be modified.

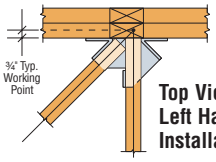
CODES: See page 12 for Code Reference Key Chart.



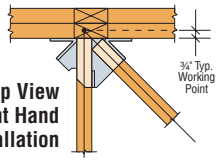
LTHJA26
U.S. Patent 5,253,465
and other Patent Pending



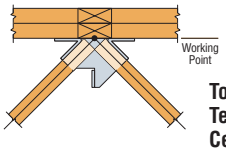
Typical LTHJA26 Installation



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			Carried Member	DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
		Carrying Member	Hip (each)	Jack		Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	
LTHJA26	Side Hip & Center Jack	20-10d	7-10dx1½	4-10dx1½	Jack	75	290	290	290	290	65	245	245	245	245	I11, F10
					Hip	220	875	875	875	875	185	735	735	735	735	
					Hip & Jack	295	1165	1165	1165	1165	250	980	980	980	980	
	Double (Terminal) Hip	20-10d	7-10dx1½	—	Hip (each)	290	635	635	635	635	245	535	535	535	535	
					Two Hips	580	1270	1270	1270	1270	490	1070	1065	1065	1065	

1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Wind (160) is a download rating.
3. Loads shown are based on a minimum 2-2x6 carrying member. For single 2x carrying members (min. 2x6), use 10dx1½" nails and use 0.67 of the table value. For 2-2x4 carrying members, multiply the download by 0.50.
4. Tabulated hip and jack allowable loads assume that 75% of the total load is distributed to the hip and 25% to the jack. It is permitted to distribute 65% to 85% of the tabulated total load to the hip, and the remaining percentage of total load to the jack. The combined hip and jack load may not exceed the published Total Load.
5. Truss chord cross-grain tension may limit allowable loads. Refer to technical bulletins T-ANSITPISPF, T-ANSITPISP and T-ANSITPIDF for allowable loads that consider ANSI/TPI 1-2007 wood member design criteria *(see page 191 for details)*.
6. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

THJA26 *Truss Hip/Jack Hangers*

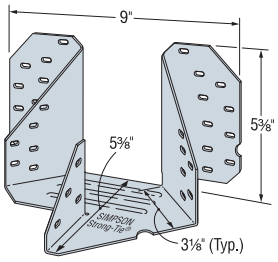
The versatile THJA26 can accommodate right or left hand hips *(at 45-degree skews)*, and can be installed before or after the hip and jack. Can also be used for double *(terminal)* hips.

MATERIAL: 14 gauge **FINISH:** Galvanized

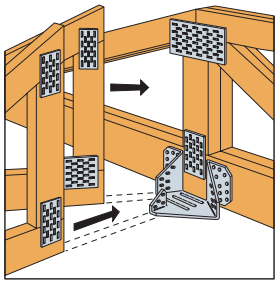
INSTALLATION: • Use all specified fasteners. See General Notes.
- All multiple members must be fastened together to act as a single unit.
- Shall be attached to a double girder truss to allow for required minimum nail penetration. See footnote 3.

OPTIONS: These hangers cannot be modified.

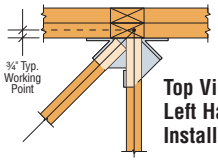
CODES: See page 12 for Code Reference Key Chart.



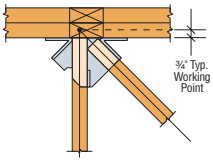
THJA26
U.S. Patent 5,253,465



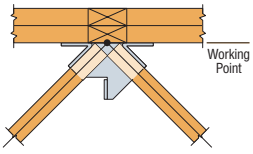
Typical THJA26 Installation



Top View Left Hand Hip Installation



Top View Right Hand Hip Installation



Top View Terminal Hip without Center Common Jack

Model No.	Fasteners			Carried Member	DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
	Carrying Member	Hip	Jack		Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Wind (160)	
THJA26	20-16d	6-10dx1½	4-10dx1½	Hip	720	2010	2310	2450	2450	590	1740	2000	2100	2100	I11, F10
				Jack	240	670	770	815	815	195	580	670	700	700	
				Total	960	2680	3080	3265	3265	785	2320	2670	2800	2800	

1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Wind (160) is a download rating.
3. Loads shown are based on a minimum 2-2x6 carrying member. For single 2x carrying members *(min. 2x6)*, use 10dx1½" nails and use 0.67 of the table value. For 2-2x4 carrying members, multiply the download by 0.50.
4. 16d sinkers (0.148" dia. x 3¼" long) may be substituted for the specified 16d commons at 0.85 of the table load.
5. Tabulated hip and jack allowable loads assume that 75% of the total load is distributed to the hip and 25% to the jack. It is permitted to distribute 65% to 85% of the tabulated total load to the hip, and the remaining percentage of total load to the jack. The combined hip and jack load may not exceed the published Total Load.
6. For terminal hips, divide the total allowable load by 2 to determine the allowable load for each hip.
7. Truss chord cross-grain tension may limit allowable loads. Refer to technical bulletins T-ANSITPISPF, T-ANSITPISP and T-ANSITPIDF for allowable loads that consider ANSI/TPI 1-2007 wood member design criteria *(see page 191 for details)*.
8. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

MTHM/MTHM-2 *Multiple Truss Hangers*

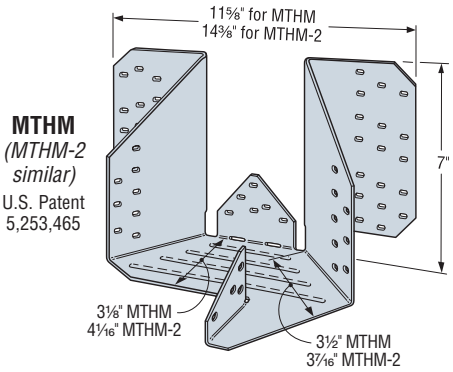
SIMPSON Strong-Tie®

Medium to high load capacity hangers designed to carry 2 or 3 trusses. Accommodates right or left hand hips *(at 45-degree skews)* and can be used for terminal hips with or without the center common jack. The MTHM-2 accommodates 2-ply hips or jacks.

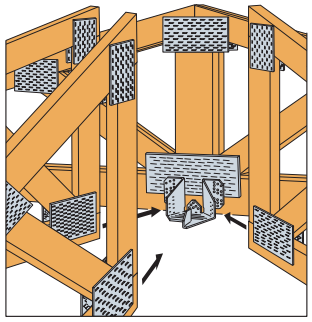
MATERIAL: 12 gauge **FINISH:** Galvanized

INSTALLATION:
- Use all specified fasteners. See General Notes.
- All multiple members must be fastened together to act as a single unit.
- Shall be attached to a double girder truss to allow for required minimum nail penetration. See footnote 8.

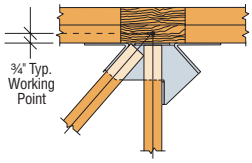
CODES: See page 12 for Code Reference Key Chart.



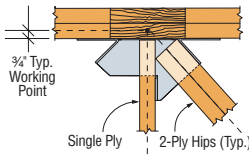
MTHM
(MTHM-2 similar)
U.S. Patent 5,253,465



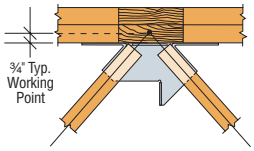
Typical MTHM Installation
(2 Hips and a Jack to Girder Truss)



MTHM Top View Left Hand Hip Installation



MTHM-2 Top View Right Hand Hip Installation

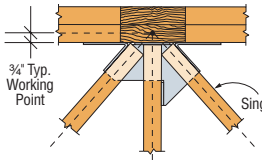


MTHM Top View Terminal Installation Without Center Common Jack

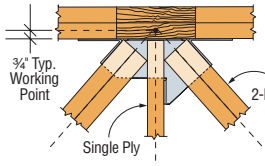
Right or Left Hand Hip Installation *(Two Member Connection)*

Model No.	Header	Fasteners			DF/SP Allowable Loads[3,4]												Code Ref.
		Carrying Member	Hip	Jack	Uplift (160)			Floor (100)			Snow (115)			Roof/Wind (125/160)			
					Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	
MTHM	2 ply 2x4	22-16d	8-10dx1½	4-10dx1½	805	270	1075	2185	730	2915	2185	730	2915	2185	730	2915	170
	2 ply 2x6	34-16d	8-10dx1½	4-10dx1½	805	270	1075	2630	875	3505	2630	875	3505	2630	875	3505	
	2 ply 2x8	42-16d	8-10dx1½	4-10dx1½	805	270	1075	3250	1085	4335	3250	1085	4335	3250	1085	4335	
MTHM-2	2 ply 2x6	39-16d	8-10dx1½	4-10dx1½	835	280	1115	2800	935	3735	2800	935	3735	2800	935	3735	
	2 ply 2x8	47-16d	8-10dx1½	4-10dx1½	835	280	1115	3375	1125	4500	3375	1125	4500	3375	1125	4500	

Model No.	Header	Fasteners			SPF/HF Allowable Loads[3,4]												Code Ref.
		Carrying Member	Hip	Jack	Uplift (160)			Floor (100)			Snow (115)			Roof/Wind (125/160)			
					Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	
MTHM	2 ply 2x4	22-16d	8-10dx1½	4-10dx1½	655	220	875	1880	625	2505	1880	625	2505	1880	625	2505	170
	2 ply 2x6	34-16d	8-10dx1½	4-10dx1½	655	220	875	2260	755	3015	2260	755	3015	2260	755	3015	
	2 ply 2x8	42-16d	8-10dx1½	4-10dx1½	655	220	875	2795	930	3725	2795	930	3725	2795	930	3725	
MTHM-2	2 ply 2x6	39-16d	8-10dx1½	4-10dx1½	680	225	905	2510	835	3345	2510	835	3345	2510	835	3345	
	2 ply 2x8	47-16d	8-10dx1½	4-10dx1½	680	225	905	2905	970	3875	2905	970	3875	2905	970	3875	



MTHM Top View Installation



MTHM-2 Top View Installation

Terminal Type Installation *(Three Member Connection)*

Model No.	Header	Fasteners			DF/SP Allowable Loads[5,6]												Code Ref.
		Carrying Member	Hips (Total)	Jack	Uplift (160)			Floor (100)			Snow (115)			Roof/Wind (125/160)			
					Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	
MTHM	2 ply 2x4	22-16d	16-10dx1½	4-10dx1½	715	360	1790	1215	605	3035	1395	700	3490	1520	760	3800	170
	2 ply 2x6	34-16d	16-10dx1½	4-10dx1½	715	360	1790	1860	930	4650	1860	930	4650	1860	930	4650	
	2 ply 2x8	42-16d	16-10dx1½	4-10dx1½	715	360	1790	2010	1005	5025	2010	1005	5025	2010	1005	5025	
MTHM-2	2 ply 2x6	39-16d	16-10dx1½	4-10dx1½	745	370	1860	1955	980	4890	1955	980	4890	1955	980	4890	
	2 ply 2x8	47-16d	16-10dx1½	4-10dx1½	745	370	1860	2470	1235	6175	2470	1235	6175	2470	1235	6175	

Model No.	Header	Fasteners			SPF/HF Allowable Loads[5,6]												Code Ref.
		Carrying Member	Hips (Total)	Jack	Uplift (160)			Floor (100)			Snow (115)			Roof/Wind (125/160)			
					Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	
MTHM	2 ply 2x4	22-16d	16-10dx1½	4-10dx1½	580	290	1450	1055	530	2640	1215	605	3035	1320	660	3300	170
	2 ply 2x6	34-16d	16-10dx1½	4-10dx1½	580	290	1450	1600	800	4000	1600	800	4000	1600	800	4000	
	2 ply 2x8	42-16d	16-10dx1½	4-10dx1½	580	290	1450	1730	865	4325	1730	865	4325	1730	865	4325	
MTHM-2	2 ply 2x6	39-16d	16-10dx1½	4-10dx1½	600	300	1500	1680	840	4200	1680	840	4200	1680	840	4200	
	2 ply 2x8	47-16d	16-10dx1½	4-10dx1½	600	300	1500	2125	1060	5310	2125	1060	5310	2125	1060	5310	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Roof (125/160) is a download rating.
3. 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.
4. For terminal hips divide the total allowable load by 2 to determine the allowable load for each hip.
5. Hip loads are for each hip.
6. Load distribution is 40% of total load for each hip and 25% for the jack. Other hip/jack load distributions are allowed if the sum of all three carried members does not exceed the total load and the hip members are equally loaded.
7. Truss chord cross-grain tension may limit allowable loads. Refer to technical bulletins T-ANSITPISPF, T-ANSITPISP and T-ANSITPIDF for allowable loads that consider ANSI/TPI 1-2007 wood member design criteria *(see page 191 for details)*.
8. With single 2x carrying members, use 10dx1½" nails with 0.67 of the table values.
9. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

MSCPT *Multiple Truss Hangers*

The MSCPT is a high capacity, top flange welded hanger designed to carry 2 or 3 trusses in a terminal hip installation. The top flange is notched at the center to accommodate vertical and diagonal web members in the girder truss.

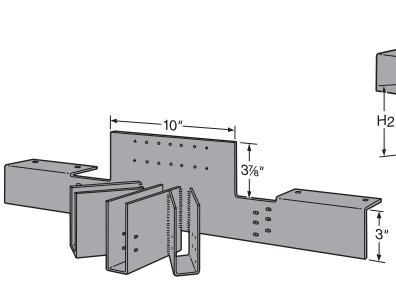
MATERIAL: Top flange–3 gauge; stirrup–11 gauge (MSCPT2, MSCPT2N), 7 gauge (MSCPT2-2, MSCPT2-2N)

FINISH: Simpson Strong-Tie® gray paint

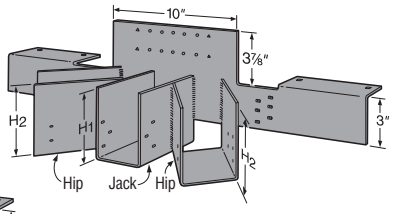
INSTALLATION:
- Use all specified fasteners. See General Notes.
- The total load must be evenly distributed about the centerline to avoid eccentric loading.
- All multiple members must be fastened together to act as a single unit.
- Minimum vertical carrying member sizes are 2x6 for MSCPT2 and MSCPT2N, and 2x8 for MSCPT2-2 and MSCPT2-2N.
- Minimum carrying member bottom chord is a 2-ply 2x6.

OPTIONS:
- H_1 and H_2 may be increased for alignment with larger bottom chords.
- Hip stirrups can be skewed from 25° to 45°.
- The W_1 and W_2 of the MSCPT2 may be increased up to 3⁷⁄₁₆", provided the stirrups' configuration remains symmetrical.

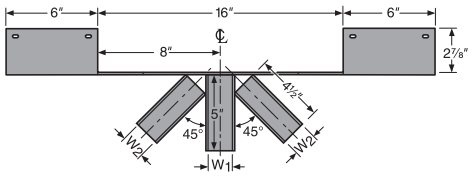
CODES: See page 12 for Code Reference Key Chart.



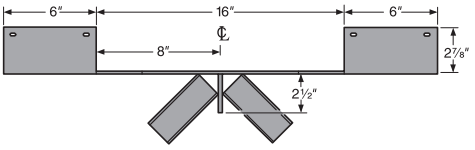
MSCPT2



MSCPT2-2



MSCPT2 Top View *(MSCPT2-2 similar)*

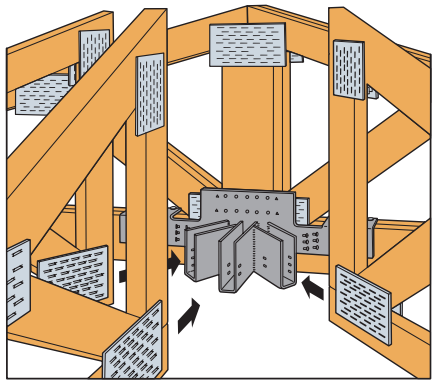


MSCPT2N Top View *(MSCPT2-2N similar)*

Model No.	Dimensions			Fasteners		DF/SP Allowable Loads[1,2]						Code Ref.
	W_1 & W_2	H_1 & H_2 (min.)	TF	Header	Joists	Uplift (160)			Floor/Snow/Roof/Wind (100/115/125/160)			
						Hip	Jack	Total	Hip	Jack	Total	
MSCPT2	1⅝	5¼	2⅞	26-16d	18-10dx1½	750	370	1870	3145	1570	7860	F23
MSCPT2N	1⅝	5¼	2⅞	26-16d	14-10dx1½	750	—	1500	3930	—	7860	
MSCPT2-2	3⁵⁄₁₆	5¼	2⅞	30-16d	20-10d	750	370	1870	3470	1735	8675	
MSCPT2-2N	3⁵⁄₁₆	5¼	2⅞	30-16d	14-10d	750	—	1500	4335	—	8675	

Model No.	Dimensions			Fasteners		SPF/HF Allowable Loads[1,2]						Code Ref.
	W_1 & W_2	H_1 & H_2 (min.)	TF	Header	Joists	Uplift (160)			Floor/Snow/Roof/Wind (100/115/125/160)			
						Hip	Jack	Total	Hip	Jack	Total	
MSCPT2	1⅝	5¼	2⅞	26-16d	18-10dx1½	645	320	1610	3000	1500	7500	F23
MSCPT2N	1⅝	5¼	2⅞	26-16d	14-10dx1½	645	—	1290	3470	—	6940	
MSCPT2-2	3⁵⁄₁₆	5¼	2⅞	30-16d	20-10d	645	320	1610	3000	1500	7500	
MSCPT2-2N	3⁵⁄₁₆	5¼	2⅞	30-16d	14-10d	645	—	1290	3750	—	7500	

1. For MSCPT2 and MSCPT2-2 models, allowable hip loads are 0.40 x Total Loads, and Jack Loads are 0.20 x Total Loads.
2. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. Wind (160) is a download rating.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



Typical MSCPT2 Installation

DSC *Drag Strut Connector*

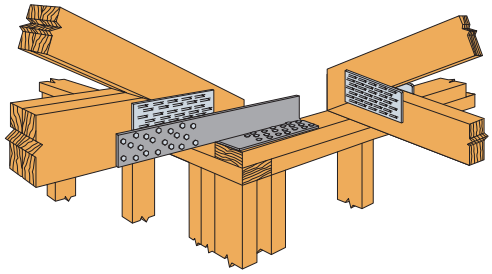
The DSC Drag Strut Connector transfers diaphragm shear forces to the shear walls. The DSC2 is a smaller, lighter version that installs with fewer screws.

MATERIAL: DSC2—7 gauge, DSC4—3 gauge

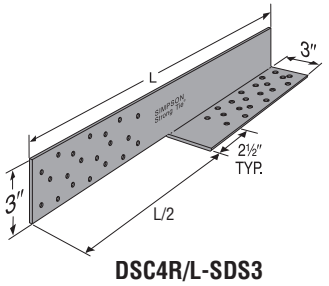
FINISH: DSC2—Galvanized
DSC4—Simpson Strong-Tie gray paint

INSTALLATION:
- Use all specified fasteners; see General Notes.
- Screws are provided.

CODES: See page 12 for Code Reference Key Chart.



Typical DSC4R-SDS3 Installation *(DSC2 similar)*



DSC4R/L-SDS3

(DSC2 similar)
(Right hand DSC shown; specify right or left hand when ordering)

U.S. Patent 6,655,096

Model No.	L (in.)	Fasteners	DF/SP Allowable Loads		SPF/HF Allowable Loads		Code Ref.
			Compression (160)	Tension (160)	Compression (160)	Tension (160)	
DSC2R/L-SDS3	16	20-SDS ¼"x3"	2590	3720	1865	2680	F26
DSC4R/L-SDS3	21	40-SDS ¼"x3"	4935	4235	3555	3050	160

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Simpson Strong-Tie SDS screws minimum penetration is 2¾", minimum end distance is 2½" and minimum edge distance is ⅝" for full load values.
3. Lag screws will not achieve table loads.
4. Simpson Strong-Tie® Strong-Drive® screws (SDS) are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Section 8.9.2 are met *(pre-drilling required through the plate using a maximum of 5⁄32" bit)*.

THGQ/THGQH *Truss Girder Hangers*

SIMPSON Strong-Tie®

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

A lower cost alternative to bolted hangers, the THGQ and THGQH hangers for multi-ply girder trusses use Simpson Strong-Tie® Strong-Drive® screws (SDS) 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.

MATERIAL: THGQ—7 gauge, THGQH—3 gauge

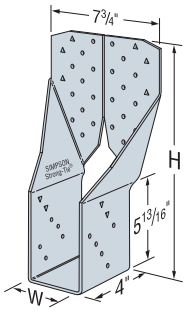
FINISH: THGQ—Galvanized, THGQH—Simpson Strong-Tie® gray paint

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

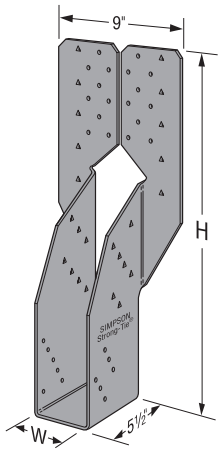
- Can be installed filling round holes only, or filling round and triangle holes for maximum values.
- SDS screws supplied for all round and triangle holes. Installation may not require use of all SDS screws.
- All multiple members must be fastened together to act as a single unit.
- The thickness of the supporting girder must be equal to or greater than the screw length. For applications where the length of the supplied screws exceeds the thickness of the supporting girder, 3" or 4½" screws may be substituted for the longer length screws with no load reduction, or a shim block may be used as approved by the Designer.
- Girders must be adequately laterally braced to prevent excessive displacement due to secondary torsional stresses *(Ref ANSI/TPI 1-2007 Section 7.5.3.5)*.

OPTIONS: THGQH hangers may be skewed 45 degrees, see Hanger Options on pages 181-183.

CODES: See page 12 for Code Reference Key Chart.

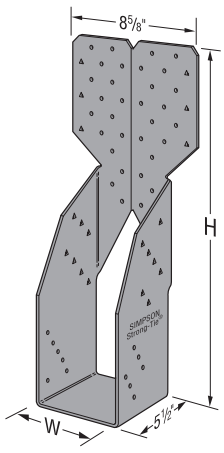


THGQ2-SDS3
(THGQ3-SDS4.5 Similar)



THGQH2-SDS3

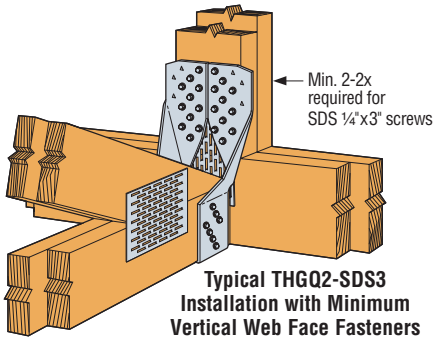
U.S. Patent Pending



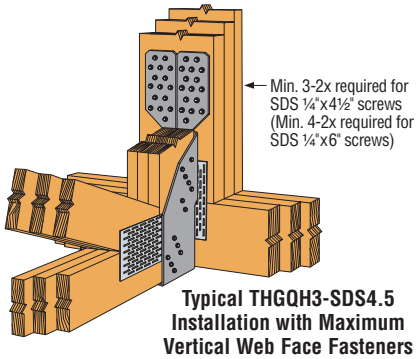
THGQH3-SDS4.5
(THGQH4-SDS6 Similar)

Model No.	Dim. (in.) W	Dim. (in.) H	Max. B.C. Depth	Min. Vert. Web Size	SDS Fasteners Face	SDS Fasteners Joist	DF/SP Allowable Loads Uplift (160)	DF/SP Floor (100)	DF/SP Snow (115)	DF/SP Roof (125)	DF/SP Wind Down (160)	SPF/HF Allowable Loads Uplift (160)	SPF/HF Floor (100)	SPF/HF Snow (115)	SPF/HF Roof (125)	SPF/HF Wind Down (160)	Code Ref.
THGQ2-SDS3 (Min)	3⅝	16	2x8	2x6	(22) ¼"x3"	(10) ¼"x3"	3600	7920	7920	7920	7920	2590	5700	5700	5700	5700	F23
				2x8	(28) ¼"x3"		3600	10080	10080	10080	10080	2590	7260	7260	7260	7260	
THGQ2-SDS3 (Max)	3⅝	16	2x8	2x6	(22) ¼"x3"	(14) ¼"x3"	4535	9240	9770	9770	9770	3265	6655	7035	7035	7035	
				2x8	(28) ¼"x3"		4535	11760	12435	12435	12435	3265	8465	8955	8955	8955	
THGQH2-SDS3 (Min)	3⅝	25	2x10	2x6	(18) ¼"x3"	(12) ¼"x3"	3875	7560	8275	8275	8275	2790	5445	5960	5960	5960	
				2x8	(28) ¼"x3"		3875	11760	11950	11950	11950	2790	8465	8605	8605	8605	
THGQH2-SDS3 (Max)	3⅝	25	2x10	2x6	(18) ¼"x3"	(26) ¼"x3"	7635	7560	7940	7940	7940	5495	5445	5715	5715	5715	
				2x8	(28) ¼"x3"		9900	11760	12350	12350	12350	7130	8465	8890	8890	8890	
THGQ3-SDS4.5 (Min)	4 15/16	16	2x8	2x6	(22) ¼"x4½"	(10) ¼"x4½"	3600	7920	7920	7920	7920	2590	5700	5700	5700	5700	
				2x8	(28) ¼"x4½"		3600	10080	10080	10080	10080	2590	7260	7260	7260	7260	
THGQ3-SDS4.5 (Max)	4 15/16	16	2x8	2x6	(22) ¼"x4½"	(14) ¼"x4½"	4535	9140	9140	9140	9140	3265	6580	6580	6580	6580	
				2x8	(28) ¼"x4½"		4535	11635	11635	11635	11635	3265	8375	8375	8375	8375	
THGQH3-SDS4.5 (Min)	4 15/16	25	2x10	2x8	(32) ¼"x4½"	(12) ¼"x4½"	3875	12565	12565	12565	12565	2790	9045	9045	9045	9045	
				2x10	(38) ¼"x4½"		3875	14920	14920	14920	14920	2790	10740	10740	10740	10740	
THGQH3-SDS4.5 (Max)	4 15/16	25	2x10	2x8	(32) ¼"x4½"	(26) ¼"x4½"	9900	12980	12980	12980	12980	7130	9345	9345	9345	9345	
				2x10	(38) ¼"x4½"		9900	15415	15415	15415	15415	7130	11100	11100	11100	11100	
THGQH4-SDS6 (Min)	6 9/16	25	2x12	2x8	(34) ¼"x6"	(12) ¼"x6"	3875	13875	13875	13875	13875	2790	9990	9990	9990	9990	
				2x10	(40) ¼"x6"		3875	16320	16320	16320	16320	2790	11750	11750	11750	11750	
THGQH4-SDS6 (Max)	6 9/16	25	2x12	2x8	(34) ¼"x6"	(26) ¼"x6"	9900	14280	14335	14335	14335	7130	10280	10320	10320	10320	
				2x10	(40) ¼"x6"		9900	16800	16865	16865	16865	7130	12095	12145	12145	12145	

1. Allowable uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Connector must be installed centered on girder vertical webs.
3. Simpson Strong-Tie Strong-Drive screws are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Section 8.9.2 are met *(pre-drilling required through the plate using a maximum of 5/32" bit)*.
4. **SDS screws that penetrate all plies of the supporting girder *(screws must penetrate a minimum of 1" into the last truss ply)* may also be used to transfer the load through all the plies of the supporting girder. When SDS screws do not penetrate all plies of the supporting girder truss, supplemental SDS screws at the hanger locations may be required to transfer the load to the truss plies not penetrated by the face fasteners, as determined by the Designer.**
5. **The supporting girder truss must have adequate thickness to accommodate the screw length, so that the screw does not protrude out the back of the girder. 3" or 4½" long SDS screws may be substituted for the longer SDS screws with no load reduction.**
6. **For installations to LSL, use SDS ¼"x3" and use the DF/SP table loads.**



Typical THGQ2-SDS3 Installation with Minimum Vertical Web Face Fasteners



Typical THGQH3-SDS4.5 Installation with Maximum Vertical Web Face Fasteners

THGB/THGBH/THGW *Truss Girder Hangers*

High capacity, welded hangers for multi-ply girder trusses. The THGB series offers optional installation with Simpson Strong-Tie® Strong-Drive® screws (SDS), and the bolted THGBH and THGW hangers offer higher design loads. For a lower cost alternative that uses SDS screws instead of bolts and offers high load capacities, see the THGQ/THGQH series.

MATERIAL: 3 gauge

FINISH: Simpson Strong-Tie® gray paint

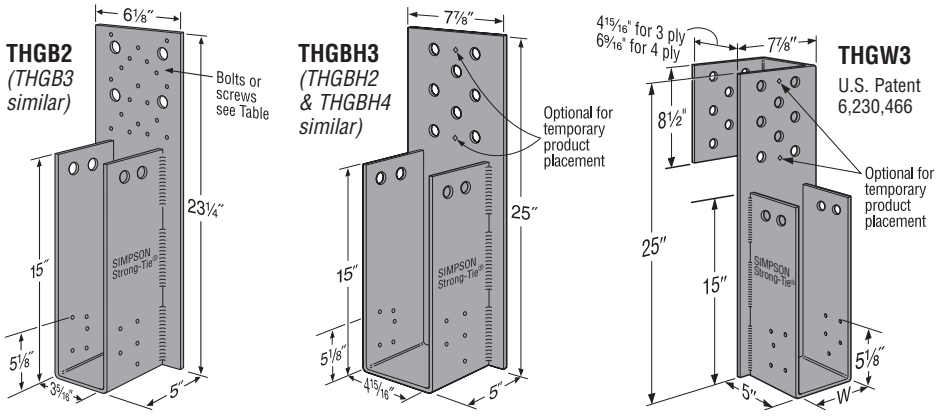
INSTALLATION:

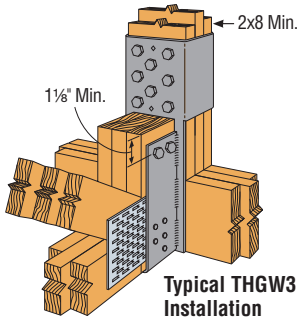
- Use all specified fasteners. See General Notes.
- All multiple members must be fastened together to act as a single unit.
- Maximum 11⅞" bottom chord in the carrying member to allow for the minimum bolt end distance.
- See page 20 for SDS screws.
- Bolts must be installed symmetrically when using less than 8 bolts on the 8-bolt backplate.
- Girders must be adequately laterally braced to prevent excessive displacement due to secondary torsional stresses *(Ref ANSI/TPI 1-2007 Section 7.5.3.5)*.

OPTIONS: • Available in widths for 2-ply, 3-ply, and 4-ply LVL members; refer to flier F-THGBV *(see page 191 for details)*.

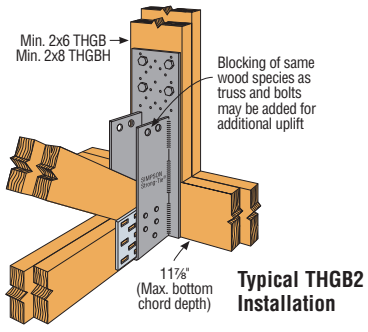
- See Hanger Options, pages 181-183 for THGB/THGBH skew options.

CODES: See page 12 for Code Reference Key Chart.





Typical THGW3 Installation



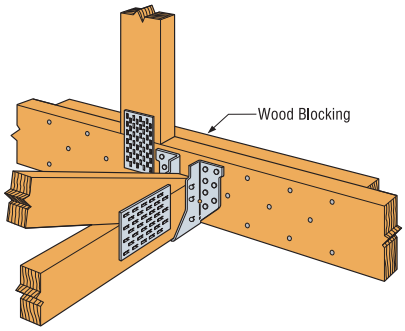
Typical THGB2 Installation

Model No.	Width (W)	Fasteners		Length of Bolt in Carrying Member	DF/SP Allowable Loads					SPF/HF Allowable Loads					Code Ref.
		Carried Member	Carrying Member		Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind Down (160)	Uplift[1] (160)	Floor (100)	Snow (115)	Roof (125)	Wind Down (160)	
THGB2	3⁵⁄₁₆	10-10d & 2-¾" MB	4-¾" MB	3	7540	5655	6505	7070	7540	6400	4800	5520	6000	6400	F23
				4½	8010	6235	7170	7795	8315	6650	5775	6640	7220	7235	
				6		6235	7170	7795	8315		5775	6640	7220	7235	
THGB2	3⁵⁄₁₆	10-10d & 2-¾" MB	19-SDS ¼"x3"[2]	3	8010	6385	7340	7980	8510	6650	4595	5285	5745	6125	
				4½		6385	7340	7980	8510		4595	5285	5745	6125	
				6		6385	7340	7980	8510		4595	5285	5745	6125	
THGBH2	3⁵⁄₁₆	10-10d & 2-¾" MB	8-¾" MB	3	8010	10010	10010	10010	10010	6650	7745	7950	8090	8200	
				4½		10010	10010	10010	10010		7745	7950	8090	8200	
				6		10010	10010	10010	10010		7745	7950	8090	8200	
THGB3	4¹⁵⁄₁₆	10-10d & 2-¾" MB	4-¾" MB	3	7540	5655	6505	7070	7540	6400	4800	5520	6000	6400	
				4½	8010	6235	7170	7795	8315	6650	5775	6640	7220	7235	
				6		6230	7165	7795	8315		5775	6640	7220	7235	
THGB3	4¹⁵⁄₁₆	10-10d & 2-¾" MB	19-SDS ¼"x3"[2]	3	8010	6385	7340	7980	8510	6650	4595	5285	5745	6125	
				4½		6385	7340	7980	8510		4595	5285	5745	6125	
				6		6385	7340	7980	8510		4595	5285	5745	6125	
THGBH3	4¹⁵⁄₁₆	10-10d & 2-¾" MB	8-¾" MB	3	8010	10010	10010	10010	10010	6650	8310	8310	8310	8310	
				4½		12000	12000	12000	12000		9960	9960	9960	9960	
				6		12335	12335	12335	12335		10240	10240	10240	10240	
THGBH4	6⁹⁄₁₆	10-10d & 2-¾" MB	4-¾" MB	3	7540	5655	6505	7070	7540	6400	4800	5520	6000	6400	
				4½	8010	6235	7170	7795	8315	6650	5775	6640	7220	7235	
				6		6235	7170	7795	8315		5775	6640	7220	7235	
THGBH4	6⁹⁄₁₆	10-10d & 2-¾" MB	6-¾" MB	3	8010	8410	9565	9565	9565	6650	7135	7940	7940	7940	
				4½		9310	9565	9565	9565		7940	7940	7940	7940	
				6		9280	9565	9565	9565		7940	7940	7940	7940	
THGBH4	6⁹⁄₁₆	10-10d & 2-¾" MB	8-¾" MB	3	8010	10010	10010	10010	10010	6650	8310	8310	8310	8310	
				4½		12425	14050	14050	14050		11510	11660	11660	11660	
				6		12425	14050	14050	14050		11510	11660	11660	11660	
THGW3-3[3]	4¹⁵⁄₁₆	10-10d & 2-¾" MB	8-¾" MB	4½	8010	21830	21830	21830	21830	6650	18120	18120	18120	18120	
THGW3-4[3]				6		21830	21830	21830	21830		18120	18120	18120	18120	
THGW4-3[3]	6⁹⁄₁₆	10-10d & 2-¾" MB	8-¾" MB	4½	8010	24165	24165	24165	24165	6650	20055	20055	20055	20055	
THGW4-4[3]				6		24165	24165	24165	24165		20055	20055	20055	20055	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern. A 2-ply minimum truss is required. When using 10-10d nails only for carried member, uplift is 1960 lbs. for Doug-Fir/So. Pine and 1625 lbs. for Spruce-Pine-Fir.
2. Simpson Strong-Tie SDS ¼"x3" screw must have a minimum 2-ply member.
3. Loads for THGW models are based on end grain bearing.
4. Minimum fasteners 10-10d will achieve the down loads and the corresponding uplift *(see footnote 1)*. To achieve maximum uplift, install nails and bolts listed in the table.
5. Wind (160) is a download rating.
6. To achieve published loads, machine bolts (MB) into the girder truss shall be installed with the nut on the opposite side of the hanger with a standard cut washer *(except THGW's)*.
7. **NAILS:** 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.

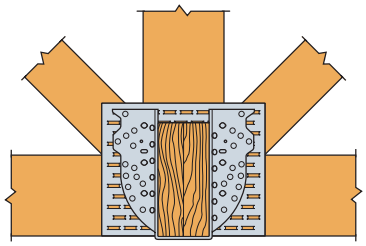
ALTERNATE INSTALLATIONS

- Block(s) should be of similar size/grade as the truss member to which it is attached. Blocking should be designed to act as one unit with the truss members.
- Block(s) should be of sufficient size to accept all carried/carrying member nails, and develop full seat bearing as specified in Simpson Strong-Tie publications.
- Truss Designer is to confirm blocking size/grade, fasteners required and application.
- Fasteners used to attach the additional blocking should be independent of the truss hanger fasteners.



1 Use of Wood Blocking to Achieve the Full Design Load Value of a Face Mount Hanger Attached to a Single Ply Carrying (Girder) Member. *(Block designed by Engineer of Record or Truss Designer)*

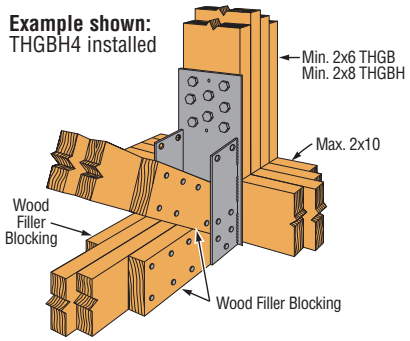
Example shown: HGUS210-2 installed on a 2x6 bottom chord *(other applications similar)*



2 Connection Design to Achieve Specified Nailing of a Face Mount Hanger at a Panel Point.

Nails located in joints formed by the intersection of wood members or with edge or end distances less than suggested by NDS have no load resistance. The hanger allowable load value shall be reduced by the nail shear value for each header nail less than the specified quantity. Connection shall be approved by the Truss Designer.

Example shown: THGBH4 installed



3 Use of Wood Filler Blocking for Carried Member Width Less than Hanger Width. *(Block designed by Designer or Truss Designer)*

MULTI-PLY WOOD TRUSS APPLICATIONS

TWO-PLY 4X2 FLOOR TRUSSES

The use of Simpson Strong-Tie® Strong-Drive® screws (SDS) insures that loads are adequately supported by both trusses. *(Testing has shown that most currently available light gauge steel connectors do not uniformly distribute applied loads to both trusses.)* In addition differential deflection between the two trusses is reduced.

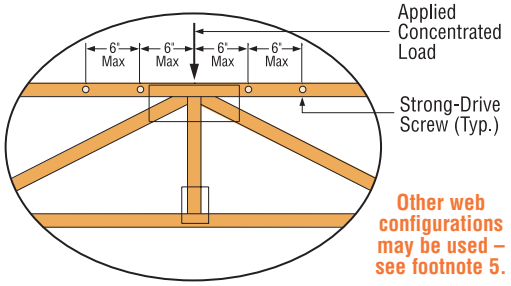
1. Screw spacing shall not exceed 24" o.c. and shall not be less than 4" o.c. A minimum end distance of 3" shall be provided at all truss members.
2. Gap between the trusses shall not exceed ⅛".
3. Floor sheathing shall be screwed (or nailed) to each truss top chord. *(Fastener spacing per the applicable Code requirements, or 12" o.c. max.)*
4. Strong-Drive screws are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Section 8.9.2 are met *(pre-drilling required through the plate using a maximum of 5⁄32" bit)*.
5. The Truss Designer shall ensure that each truss is designed for the appropriate load(s) considering the location of the applied load(s) and the location of the Strong-Drive screws.
6. The Truss Designer shall design all trusses and the truss system to meet all Code and ANSI-TPI requirements.
7. Individual screw locations may be adjusted up to 3" to avoid conflicts with other hardware or to avoid lumber defects.
8. Strong-Drive screws shall not be installed in areas where lumber wane exceeds ¼".
9. All concentrated loads were assumed to be applied at truss panel points.
10. **Installation in truss bottom chords is not recommended but is acceptable if approved by the Truss Designer.**

Model No.	Allowable Shear Loads	
	DF/SP (G = 0.50 min)	SPF (G = 0.42)
	Floor (100)	Floor (100)
SDS25600	280	200

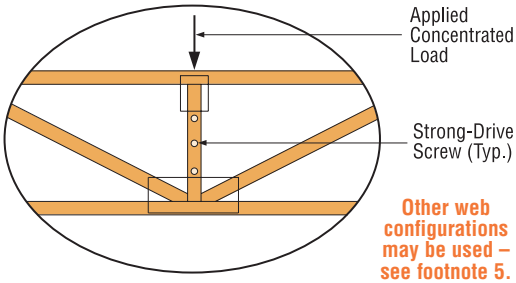
1. Allowable loads are based on a C_D = 1.00. Increases are allowed for other durations per code to a maximum C_D = 1.60. No further increase allowed.
2. Method 1—To be considered effective all Strong-Drive screws shall be installed within 12" of the applied concentrated load.
3. Method 1 and Method 2 screws can be combined as required to transfer half of the applied load to the supporting truss.
4. For uniform top chord loads, space Strong-Drive screws as required to transfer half of the applied load to the supporting truss.
5. Web configurations other than those shown above may be used as allowed by the Truss Designer.

For more information, refer to technical bulletin T-SDSCREWAPPS *(see page 191 for details)*.

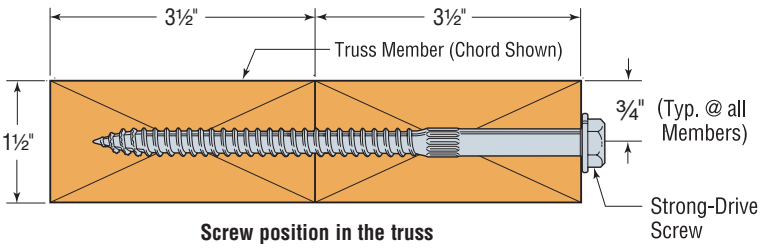
Also see Connector Selector Software page 194.



Installation Method 1 - Top Chord



Installation Method 2 - Vertical Web



Screw position in the truss

MULTI-PLY WOOD TRUSS APPLICATIONS

STRONG-DRIVE® SCREWS (SDS) FOR GIRDER TRUSSES

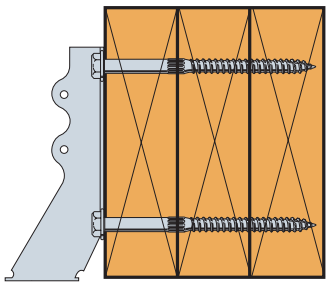
1. Install Simpson Strong-Tie® Strong-Drive screws (SDS) a minimum of 1 inch into the last truss ply, with a maximum gap of ⅛" allowed between each truss ply.
2. Screw spacing shall not exceed 24" o.c.
3. Hanger load spacing on the multi-ply truss shall not exceed 24" o.c.
4. The Truss Designer shall ensure that adequate lateral bracing is provided to prevent displacement of the truss and the truss bottom chord due to the torsion created by the structural members framing into the side of the multi-ply girder truss.
5. Strong-Drive Screws may be installed with the heads in either the loaded or unloaded ply *(see Allowable Shear Loads table)*. For unloaded ply applications, hanger face nails shall be a minimum of 3" long.
6. Strong-Drive screws are permitted to be installed through metal truss plates as approved by the Truss Designer, provided the requirements of ANSI/TPI 1-2007 Section 8.9.2 are met *(pre-drilling required through the plate using a maximum of 5⁄32" bit)*.
7. Use 1 row of SDS's in 2x4 members, 2 rows in 2x6 and 2x8 members, 3 rows in 2x10 members. Rows should be staggered.
8. Individual screw locations may be adjusted up to ½ of the required screw spacing to avoid conflicts with other hardware or to avoid lumber defects.

These products feature additional corrosion protection.

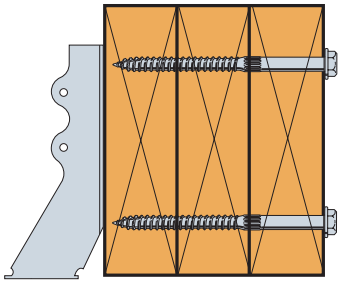
Model No.	Allowable Shear Loads					
	DF/SP			SPF/HF		
	Floor (100)	Snow (115)	Roof (125)	Floor (100)	Snow (115)	Roof (125)
INSTALLATION IN LOADED PLY[1]						
SDS25412	350	400	435	250	290	270
SDS25600	350	400	435	250	290	270
INSTALLATION IN UNLOADED PLY						
SDS25412	200	230	250	145	165	180
SDS25600	200	230	250	145	165	180

1. Where noted allowable loads are based on ESR-2236.
2. The Truss Designer shall apply all adjustment factors required per the NDS.
3. Loads are based on 1½" thick wood side members and apply to 3 and 4 ply 2x wood truss applications. *(Side and main members of same wood species.)* Contact Simpson Strong-Tie for other applications.
4. **LSL applications are limited to interior-dry use only.**

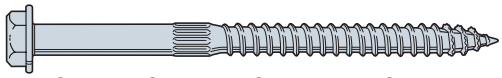
For more information, refer to technical bulletin T-SDSCREWAPPS *(see page 191 for details)*. Also see Connector Selector Software page 194.



SDS Installation in Loaded Ply



SDS Installation in Unloaded Ply

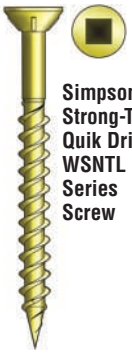


Simpson Strong-Tie Strong-Drive Screw

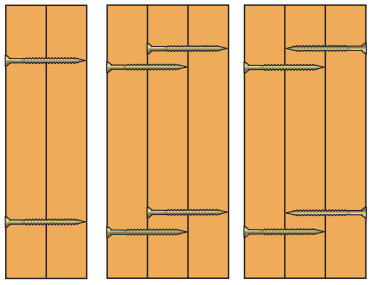
U.S. Patent 6,109,850 / 5,897,280 / 5,044,853

QUIK DRIVE® AUTO-FEED SYSTEM FOR 2-PLY AND 3-PLY GIRDERS

Simpson Strong-Tie Quik Drive WSNTL wood screws are a safe, fast and reliable method for attaching multi-ply trusses. The QD WSNTL screws,like their SDS counterparts, virtually eliminate ply separation during handling.



Simpson Strong-Tie Quik Drive WSNTL Series Screw



WSNTL Installation in 2-ply and 3-ply Assemblies

See the Quik Drive *Auto-Feed Screw Driving Systems* catalog *(form C-QD)* for more information. *(See page 191 for details)*

TSF *Truss Spacer*

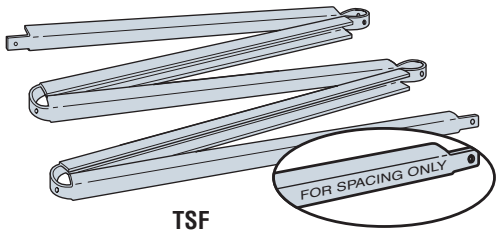
The TSF is a fast and accurate method for spacing trusses that eliminates layout marking of top plates and can be left in place under the sheathing. Accuracy is improved, spacing errors are minimized, and it is easy to use.

MATERIAL: 24 gauge **FINISH:** Galvanized

INSTALLATION: • See Installation Sequence below.

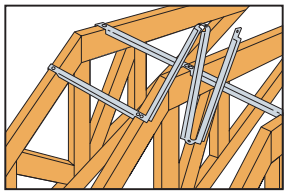
- TSF Truss Spacers do not provide bracing of any kind and are not structural members. The TSF is for spacing only. Refer to instructions from architect, engineer, truss manufacturer or other for bracing and installation information.

CODES: See page 12 for Code Reference Key Chart.

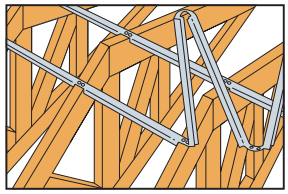


TSF

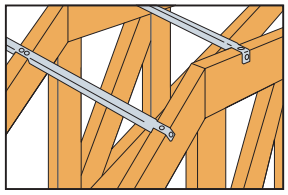
Model No.	Dimensions			Code Ref.
	W	O.C. Spacing	Total Length	
TSF2-16	1½	16	8'	180
TSF2-24	1½	24	10'	



STEP 1
Nail starting notch to first member.



STEP 2
As each successive member is positioned, unfold TSF to next notch. The notch teeth grip member and align it for nailing.



STEP 3
If spacer does not align with end truss, break spacer off at notch. Then, hammer spacer flat, fold it under and nail.

TSB *Truss Spacer Bracer*

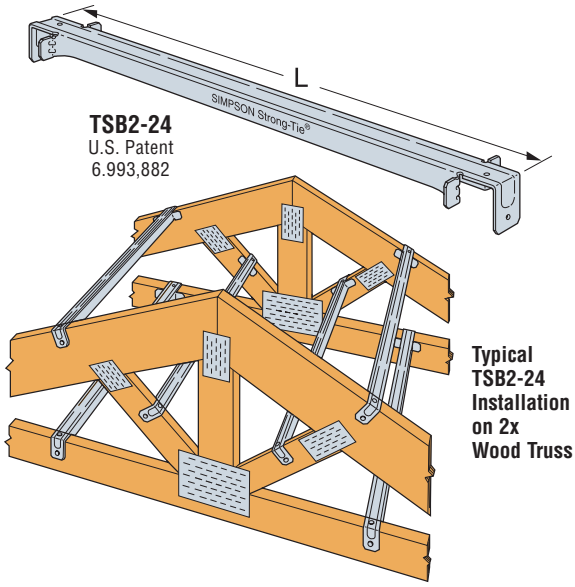
The Simpson Strong-Tie® Truss Spacer Bracer is an innovative lateral bracing product that meets or exceeds the prescriptive bracing recommendations of TPI/WTCA BCSI, with features not found elsewhere in the market.

FEATURES: • The TSB "captures" the on-center spacing of the trusses, allowing quicker and safer installations.
- Meets or exceeds the prescriptive tension and compression load recommendations of TPI/WTCA BCSI-06.
- Can be used as Permanent Lateral Restraint and as Temporary Erection Lateral Restraint.
- Has a low profile that can be sheathed over when used as erection restraint, eliminating the need to remove prior to sheathing.

MATERIAL: 22 gauge **FINISH**: Galvanized
INSTALLATION: • Use all specified fasteners; see General Notes.
CODES: See page 12 for Code Reference Key Chart.

Model No.	Fasteners (Total)	L	Allowable Loads[1]				Code Ref.
			DF/SP		SPF/HF		
			Compression	Tension	Compression	Tension	
TSB2-16	4-10dx1½	17½	540	425	465	365	160
TSB2-24	4-10dx1½	25½	540	425	465	365	

1. No load duration increase allowed.
2. **NAILS:** 10dx1½ = 0.148" dia.x1½" long. See page 16-17 for other nail sizes and information.



TSB2-24
U.S. Patent
6.993,882

Typical TSB2-24 Installation on 2x Wood Truss

TBD22 *Diagonal Brace*

NEW! The TBD22 diagonal truss brace offers a time-saving subsitute for 2x4 diagonal bracing that helps meet the recommendations of TPI/WTCA BCSI. The TBD travels in a box like a flat strap, and is formed into an A-shape as it is pulled from the carton to provide rigidity and prevent sagging between trusses during installation. As it is fastened to the trusses the brace flattens, allowing sheathing to be installed right over it and saving the time typically needed to remove 2x4 bracing.

When installed on the top and bottom chords as well as the web planes, the TBD captures the lateral construction and wind forces delivered by the TSB truss spacer/bracer and transfers it diagonally in tension to the edge of the braced-truss system. When used in conjunction with the TSB, the TBD22 meets or exceeds the the recommendations set forth by the TPI/WTCA BCSI.

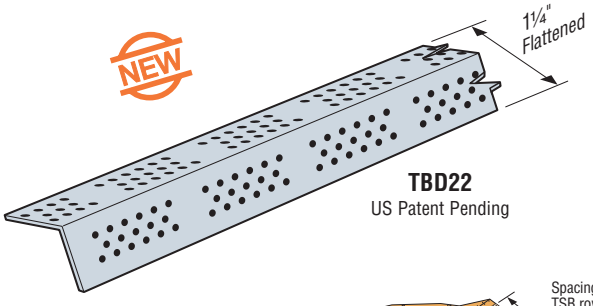
FEATURES: • Helps meet prescriptive temporary bracing recommendations of the TPI/WTCA BCSI.
- Rigid A-shape design virtually eliminates sagging between trusses spaced 16"-24" on center.
- Can be sheathed over after installation, no need to remove bracing.
- Dimpled nailing grid allows installation with standard pneumatic fasteners.
- 160' of bracing in an easy-to-handle carton.

MATERIAL: 22 gauge **FINISH**: Galvanized
INSTALLATION: • Use all specified fasteners; see General Notes.
- Strap does not have holes for fasteners. Nails shall be installed in the dimpled areas and placed to maintain a minimum of ¼" strap edge distance and a minimum of ½" center to center distance. Nails should be installed in the center of the lumber narrow face and with a minimum edge distance of 1" on the lumber wide face.
- TBD22 straps span diagonally at approximately 45°.
- Strap shall not be slack, but tight and ready to engage in tension.
- To resist construction forces, diagonal X-bracing is required at each end and every 10 truss spaces *(20' max)*. Refer to WTCA/TPI BCSI for additional information.
- At the end of the TBD braces trusses shall be laterally braced to resist out of plane forces.
- Bracing locations shown in the drawing are recommendations for temporary bracing only. Installation of TBD braces for permanent lateral bracing shall be per the Building Designer.

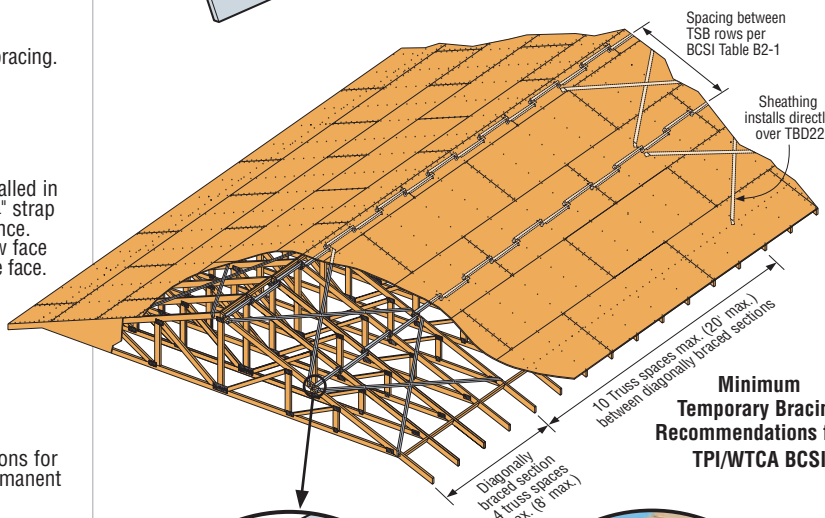
CODES: See page 12 for Code Reference Key Chart.

Model No.	Fasteners		Allowable Tension Loads		Code Ref.
	Strap Ends	Intermediate Trusses	DF/SP	SPF/HF	
TBD20	Deleted - See TBD22				
NEW TBD22[2] (Min)	1-10dx1½ in face and 1-10dx1½ in edge	1-10dx1½	430	390	170
NEW TBD22 (Max)	2-10dx1½ in face and 1-10dx1½ in edge	1-10dx1½	565	520	

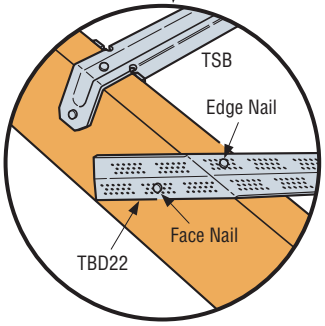
1. Allowable loads have been increased for construction and wind loading with no further increase allowed.
2. Minimum nailing meets or exceeds the temporary bracing recommendations of TPI/WTCA BCSI.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



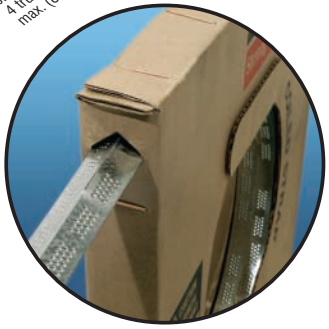
TBD22
US Patent Pending



Minimum Temporary Bracing Recommendations from TPI/WTCA BCSI



Typical TBD22 Top Chord Installation with Minimum Nailing



TBD22 Dispenser Detail

TBE *Truss Bearing Enhancers*

SIMPSON Strong-Tie®

The TBE transfers load from the truss or girder to plates for bearing-limited conditions, and provides exceptional uplift capacity. Replaces nail-on scabs that provide lower load transfer, or in some cases, an additional ply when needed for bearing. One size works with any number of girder plys.

The table lists allowable loads for TBE4 used on 2x4 and TBE6 used on 2x6 top plates. The table gives the different loads calculated for TBE with and without wood bearing. See Fastener Schedule below and page 135 for Alternate Installation.

MATERIAL: 18 gauge **FINISH:** Galvanized. See Corrosion Information, page 10-11.

INSTALLATION: • Use all specified fasteners. See General Notes.
- TBE must be installed in pairs.
- Top plate size is 2x4 for TBE4, 2x6 for TBE6. Use alternate installation for TBE4 and TBE6 on larger plates or pre-sheathed walls. See page 135.

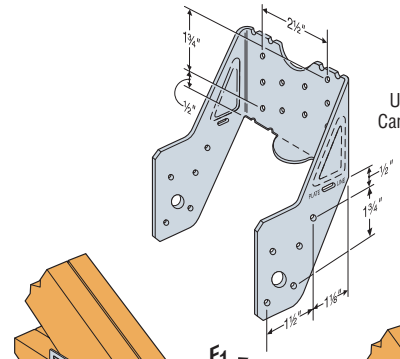
CODES: See page 12 for Code Reference Key Chart.

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

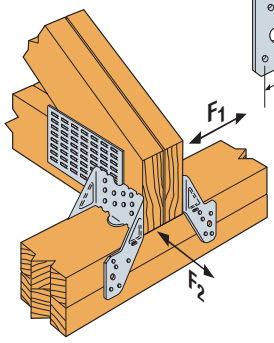
TBE FASTENER SCHEDULE

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

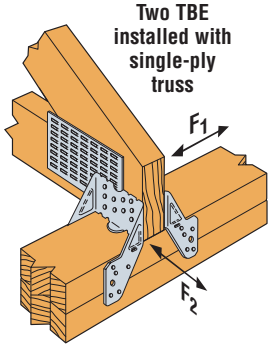
NAILS:
10d = 0.148" dia. x 3" long,
10dx1½ = 0.148" dia. x 1½" long.
See page 16-17 for other nail sizes and information.



TBE4
(TBE6 similar)
U.S. Patent 5,109,646
Canada Patent 2,044,440



Two TBE installed with two-ply girder truss



Two TBE installed with single-ply truss

Model No.	Wall Top Plate	Top Plate or Truss Wood Species[2]	No. of Truss Plies	Allowable Loads[1,2,3] (lbs.)											Equivalent Bearing Length[7] of TBE and Top Plate (in.)				Code Ref.
				Uplift	Download								Lateral (160)						
					TBE Only				TBE & Wood Top Plate										
				(160)	(100)	(115)	(125)	(160)	(100)	(115)	(125)	(160)	F_1	F_2	(100)	(115)	(125)	(160)	
TBE4	2x4	Douglas Fir Larch	1	850	1820	2095	2230	2230	5100	5375	5510	5510	400	1000	5.44	5.73	5.88	5.88	I13, F12
			2	850	2220	2230	2230	2230	8785	8795	8795	8795	400	1000	4.68	4.69	4.69	4.69	
			3	850	2220	2230	2230	2230	12065	12075	12075	12075	400	1000	4.29	4.29	4.29	4.29	
			4	850	2220	2230	2230	2230	15345	15355	15355	15355	400	1000	4.09	4.09	4.09	4.09	
		Southern Pine	1	850	1820	2095	2230	2230	4785	5060	5195	5195	400	1000	5.65	5.97	6.13	6.13	
			2	850	2220	2230	2230	2230	8155	8165	8165	8165	400	1000	4.81	4.82	4.82	4.82	
			3	850	2220	2230	2230	2230	11120	11130	11130	11130	400	1000	4.37	4.38	4.38	4.38	
			4	850	2220	2230	2230	2230	14085	14095	14095	14095	400	1000	4.15	4.16	4.16	4.16	
		Spruce-Pine-Fir	1	850	1560	1795	1950	2080	3790	4025	4180	4310	375	1000	5.95	6.32	6.56	6.76	
			2	850	1920	2100	2100	2100	6385	6565	6565	6565	375	1000	5.01	5.15	5.15	5.15	
			3	850	1920	2100	2100	2100	8615	8795	8795	8795	375	1000	4.50	4.60	4.60	4.60	
			4	850	1920	2100	2100	2100	10845	11025	11025	11025	375	1000	4.25	4.32	4.32	4.32	
		Hem Fir	1	850	1560	1795	1950	2080	3885	3920	4075	4205	375	1000	6.07	6.45	6.71	6.92	
			2	850	1920	2100	2100	2100	6175	6355	6355	6355	375	1000	5.08	5.23	5.23	5.23	
			3	850	1920	2100	2100	2100	8300	8480	8480	8480	375	1000	4.55	4.65	4.65	4.65	
			4	850	1920	2100	2100	2100	10425	10605	10605	10605	375	1000	4.29	4.36	4.36	4.36	
TBE6	2x6	Douglas Fir Larch	1	935	1820	2095	2275	2425	6975	7250	7430	7580	300	1000	7.44	7.73	7.93	8.09	
			2	935	2220	2555	2735	2735	12535	12870	13050	13050	300	1000	6.68	6.86	6.96	6.96	
			3	935	2220	2555	2735	2735	17690	18025	18205	18205	300	1000	6.29	6.41	6.47	6.47	
			4	935	2220	2555	2735	2735	22845	23180	23360	23360	300	1000	6.09	6.71	6.82	6.90	
		Southern Pine	1	935	1820	2095	2275	2425	6480	6755	6935	7085	300	1000	7.65	7.97	8.18	8.36	
			2	935	2220	2555	2735	2735	11545	11880	12060	12060	300	1000	6.81	7.01	7.11	7.11	
			3	935	2220	2555	2735	2735	16205	16540	16720	16720	300	1000	6.37	6.50	6.58	6.58	
			4	935	2220	2555	2735	2735	20865	21200	21380	21380	300	1000	6.15	6.25	6.31	6.31	
		Spruce-Pine-Fir	1	935	1560	1795	1950	2080	5065	5300	5455	5585	300	965	7.95	8.32	8.55	8.76	
			2	935	1920	2210	2400	2560	8935	9225	9415	9575	300	965	7.01	7.23	7.38	7.51	
			3	935	1920	2210	2400	2560	12440	12730	12920	13080	300	965	6.50	6.66	6.75	6.84	
			4	935	1920	2210	2400	2560	15945	16235	16425	16585	300	965	6.25	6.37	6.44	6.50	
		Hem Fir	1	935	1560	1795	1950	2080	4900	5135	5290	5420	300	965	8.07	8.45	8.70	8.92	
			2	935	1920	2210	2400	2560	8605	8895	9085	9245	300	965	7.08	7.32	7.48	7.61	
			3	935	1920	2210	2400	2560	11945	12235	12485	12645	300	965	6.55	7.32	7.48	7.61	
			4	935	1920	2210	2400	2560	15285	15575	15765	15925	300	965	6.29	6.41	6.49	6.55	

1. Loads are for a pair of TBEs.
2. When truss chord wood species is different than the wall top plate wood species, choose the tabulated allowable loads based on the species with the lower tabulated download capacity.
3. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
4. Allowable loads are determined only by nail shear calculations or tests of the metal connectors based on the lowest of 0.125" of deflection or the ultimate load with a 3 times factor of safety. The attached wood members must be designed to withstand the loads imposed by the nails.
5. Perpendicular to Plate loads are reduced for Alternate Installation.
6. Parallel to Plate loads are not reduced for Alternate Installation.
7. Equivalent Top Plate Bearing Width is the actual top plate width (TBE4 = 3½", TBE6 = 5½") plus the enhanced bearing width provided by the TBE.

TBE *Truss Bearing Enhancers*

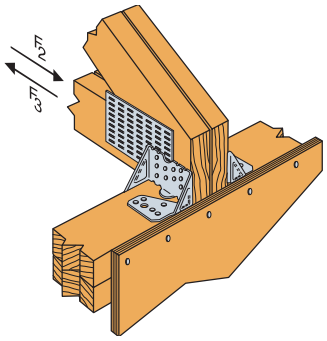
ALTERNATE INSTALLATION

(See illustrations at right)

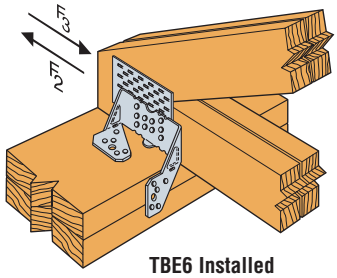
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Alternate Installation Allowable Loads[5,6] Perpendicular to Plate			
	DF/SP (160)		SPF/HF (160)	
	F_2	F_3	F_2	F_3
TBE4	1000	300	860	260
TBE6				

1. Use full table loads for uplift and parallel-to-plate allowable loads.
2. Download capacities are 0.80 of table loads.
3. See additional footnotes on opposite page.



Pre-sheathed shearwall. Bend tab along slot and nail one leg to top of the plate.



TBE6 Installed on Double 2x8 Top Plate

Alternate Installation Allowable Down Loads are 0.80 and Allowable Uplift Loads are 1.0 of the TBE only table loads on page 134.

TC *Truss Connectors*

The TC truss connector is an ideal connector for scissor trusses and can allow horizontal movement up to 1¼". The TC also attaches plated trusses to top plates or sill plates to resist uplift forces. Typically used on one or both ends of truss as determined by the Designer.

MATERIAL: 16 gauge **FINISH:** Galvanized

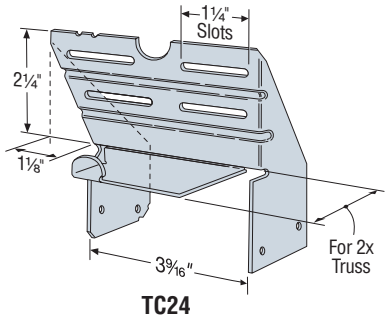
INSTALLATION:

- Use all specified fasteners. See General Notes.
- Drive 10d nails into the truss at the inside end of the slotted holes *(inside end is towards the center of the truss)*. Do not seat these nails into the truss–allow room under the nail head for movement of the truss with respect to the wall.
- After installation of roofing materials nails may be required to be fully seated into the truss. *(As required by the Designer or Truss Designer.)*

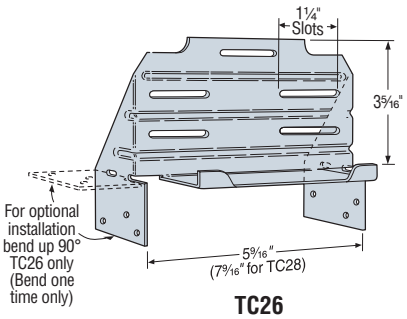
Optional TC Installation

- Bend one flange up 90°. Drive specified nails into the top and face of the top plates or install Titen® screws into the top and face of masonry wall. See optional load tables and installation details.

CODES: See page 12 for Code Reference Key Chart.



TC24
U.S. Patent 4,932,173



TC26
(TC28 similar)

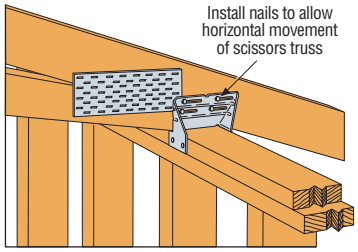
Model No.	Fasteners		DF/SP Allowable Loads	SPF/HF Allowable Loads	Code Ref.
	Truss	Plate	Uplift (160)	Uplift (160)	
TC24	4-10d	4-10d	600	410	IL14
TC26	5-10d	6-10d	750	550	I13, F12
TC28	5-10d	6-10d	750	550	

See footnotes below.

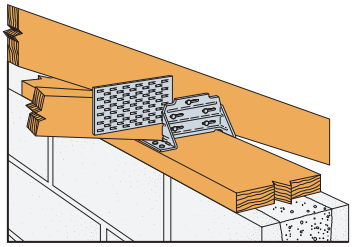
OPTIONAL TC INSTALLATION TABLE

Model No.	Fasteners		DF/SP Allowable Loads	SPF/HF Allowable Loads	Masonry Allowable Loads	Code Ref.
	Truss	Plate	Uplift (160)	Uplift (160)	Uplift (160)	
TC26	5-10dx1½	6-10dx1½	430	350	—	I13, F12
	5-10d	6-10d	450	390	—	
	5-10d	6-⅜x2¼ Titen	—	—	195	

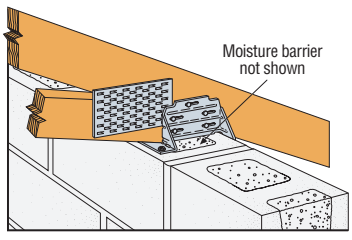
1. Loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Grout strength is 2000 psi minimum.
3. Nail values based on single 2x truss.
4. Optional TC26 installation with 10d nails requires minimum 3″ top plate thickness.
5. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



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

HTC *Heavy Truss Clips*

For alignment control between a roof truss and nonbearing walls; the 2½" slot permits vertical truss chord movement when loads are applied.

MATERIAL: 18 gauge

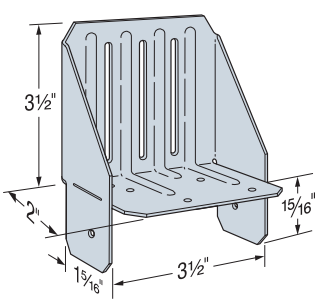
FINISH: Galvanized

INSTALLATION: • Use all specified fasteners; see General Notes.
- The HTC has a 2½" slot to accommodate truss movement
- This connector has high lateral capacity.
- The S/HTC is available for steel truss applications.

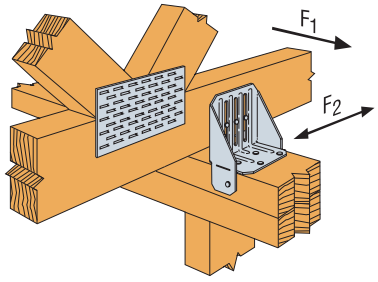
CODES: See page 12 for Code Reference Key Chart.

Model No.	Dimensions	Fasteners		Allowable Loads[1] (160)				Code Ref.
	Top Plate	Base	Slot	Without Gap[2]		With 1¼" Gap[3]		
				F_1	F_2	F_1	F_2	
HTC4	2x4 Plate	6-10d	3-10d	390	305	85	280	170
	2x6 Plate	6-10d	3-10d	485	280	155	280	

1. Loads may not be increased for short-term loading.
2. Truss or rafter must be bearing on top plate to achieve the allowable loads under "WITHOUT GAP."
3. When installed with maximum 1¼" space between rafter or truss and top plate use loads under "WITH 1¼" GAP." Where loads are not required, space is not limited to 1¼".
4. **NAILS:** 10d = 0.148" dia. x 3" long.
See page 16-17 for other nail sizes and information.

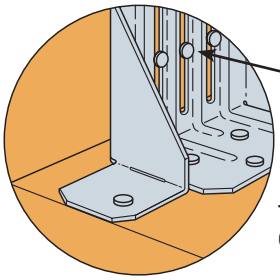


HTC4



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 Plate

STC/STCT/DTC *Roof Truss Clips*

For alignment control between a roof truss and nonbearing walls; the 1½" slot permits vertical truss chord movement when loads are applied.

MATERIAL: 18 gauge

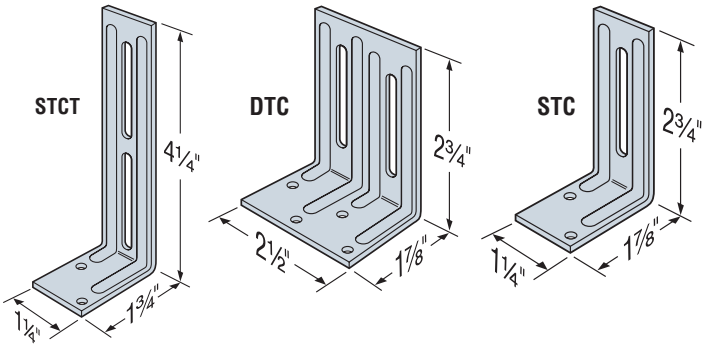
FINISH: Galvanized

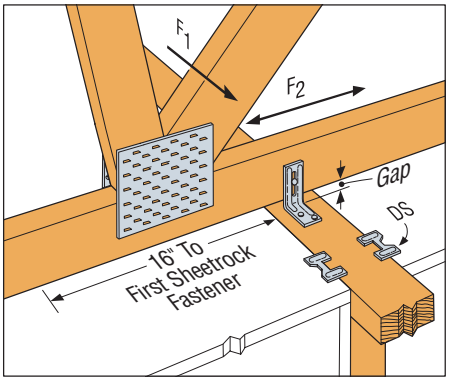
INSTALLATION: • Use all specified fasteners; see General Notes.
- Use STC or DTC depending on required loads. STC, installed with Drywall Stop (DS), helps prevent fasteners tearing through the ceiling sheetrock *(see illustration)*.
- Use STCT where truss or rafter is separated from the top plate of the nonbearing wall.
- Install slot nails in the middle of the slot.

CODES: See page 12 for Code Reference Key Chart.

Model No.	Fasteners		Allowable Loads[1] (160)						Code Ref.
	Base	Slot	Without Gap[2]		¼" Max Gap		¼" < Gap ≤ ½"		
			F_1	F_2	F_1	F_2	F_1	F_2	
STC	2-8d	1-8d	85	55	35	35	30	40	170
STCT	2-8d	1-8d	—	—	—	—	—	—	
DTC	4-8d	2-8d	125	210	85	135	55	70	

1. Loads may not be increased for short-term loading.
2. Truss or rafter must be bearing on top plate to achieve the allowable loads under "WITHOUT GAP."
3. Clips are required on both sides of the truss to achieve F_1 loads in both directions *(stagger parts to avoid nail interferences)*.
4. **NAILS:** 8d = 0.131" dia. x 2½" long.
See page 16-17 for other nail sizes and information.





Typical STC Installation with DS

Nails should not be driven completely flush against the connector, to allow vertical truss movement.

VTC2 *Valley Truss Clip*

SIMPSON Strong-Tie®

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

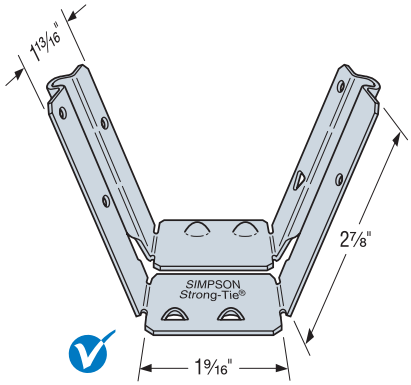
The VTC2 is a valley truss to common truss connector. VTC2 is installed on top of the roof sheathing. It provides a positive connection and eliminates the costly support wedge underneath the valley truss or valley truss bottom chord bevel cutting. VTC2 is adjustable to slopes between 2:12 to 8:12.

MATERIAL: 18 gauge **FINISH:** Galvanized

INSTALLATION: • See installation sequence below.

- Use all specified fasteners. See General Notes.
- The dome nail holes assist in installing the common truss fasteners slanted at an angle approximately 55° from the horizontal level line.
- Install two 10dx1½" nails in one vertical stirrup and three 10dx1½" nails in the other vertical stirrup to the valley truss bottom chord.
- For use with 7⁄16" or ½" thick sheathing. Contact Simpson Strong-Tie for loads for different sheathing thicknesses or when attached directly to framing.

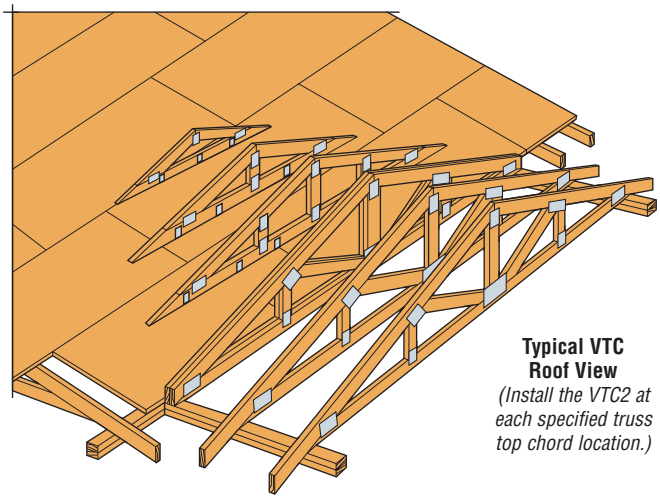
CODES: See page 12 for Code Reference Key Chart.



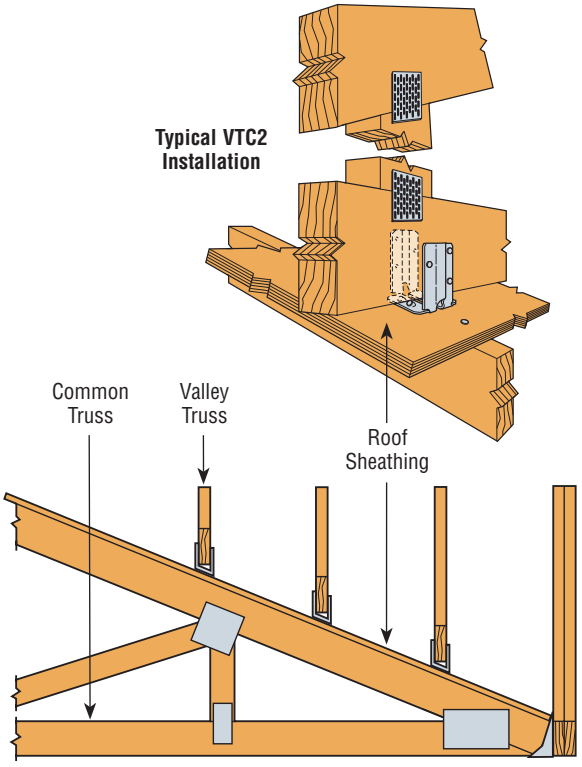
VTC2
U.S. Patent 6,840,020

Model No.	Fasteners		2x Truss Chord Material	Allowable Loads[1,2]					Code Ref.
	Common Truss	Valley Truss		Uplift	Download			Wind	
				(160)	(100)	(115)	(125)	(160)	
VTC2	4-10d	5-10dx1½	Doug Fir Larch	330	480	550	600	640	I13, F12
			Southern Pine	405	520	600	650	690	
			Spruce-Pine-Fir	310	415	475	520	550	

1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Wind (160) is a download rating.
3. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

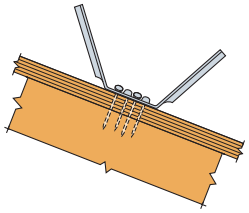


Typical VTC Roof View
(Install the VTC2 at each specified truss top chord location.)

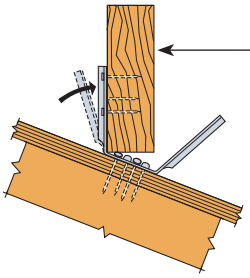


Typical VTC2 Side View

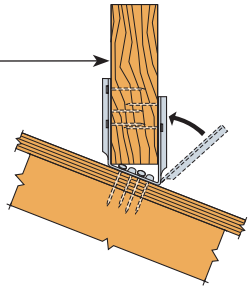
VTC2 INSTALLATION SEQUENCE



STEP 1:
Align the centerline of VTC2 with the common truss top chord centerline. Attach through the roof sheathing to the common truss top chord.



STEP 2:
Adjust the upslope stirrup vertically and attach to valley truss bottom chord.



STEP 3:
Adjust the downslope stirrup vertically and attach to bottom chord.

Bend stirrups one time only.

GBC *Gable Brace Connector*

SIMPSON Strong-Tie®

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

The GBC provides improved anchorage of gable bracing to the exterior wall. Installation flexibility for brace angle. GBC has tension and compression capacities.

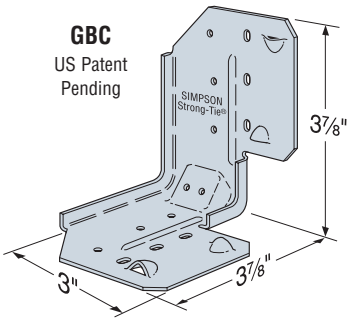
MATERIAL: 16 gauge

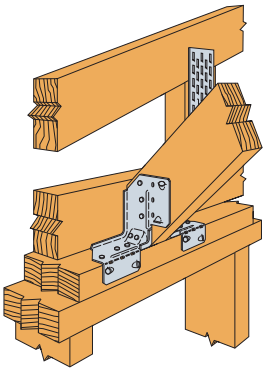
FINISH: Galvanized

INSTALLATION:

- Use all specified fasteners. See General Notes.
- The GBC must be installed in pairs to achieve full load capacity.

CODES: See page 12 for Code Reference Key Chart.

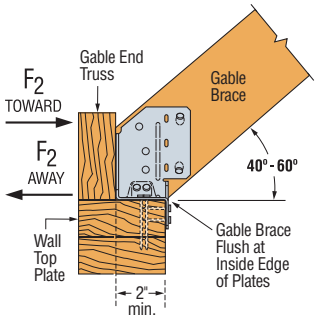




Typical GBC Installation

Model No.	Qty Req'd	Fasteners per Connector		DF/SP Allowable Loads (160) Perpendicular to Endwall (F_2)				SPF/HF Allowable Loads (160) Perpendicular to Endwall (F_2)				Code Ref.
				Toward GBC		Away from GBC		Toward Anchors		Away from Anchors		
		Gable Brace	Top Plates	Gable Brace Angle		Gable Brace Angle		Gable Brace Angle		Gable Brace Angle		
				40°-45°	46°-60°	40°-45°	46°-60°	40°-45°	46°-60°	40°-45°	46°-60°	
GBC	2	5-8dx1½	7-8d	635	570	425	325	535	480	355	275	I13, F12

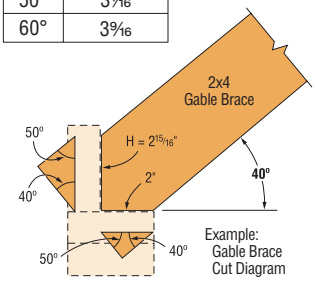
1. For 1¾ x 3½ (or larger) LVL gable brace, the allowable load at 40° to 45° is 635 lbs. towards anchors, 515 lbs. away from anchors.
2. Loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. Use a minimum 2x4 gable brace. Larger members may be used.
4. **NAILS:** 8d = 0.131" dia. x 2½" long, 8dx1½ = 0.131" dia. x 1½" long. See page 16-17 for other nail sizes and information.



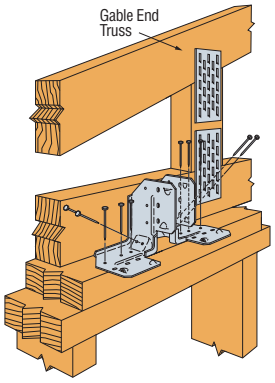
Typical Sloped Installation

GBC INSTALLATION SEQUENCE

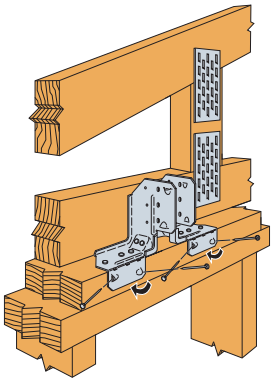
Slope	H Dimension
40°	2 15/16
50°	3 1/16
60°	3 9/16



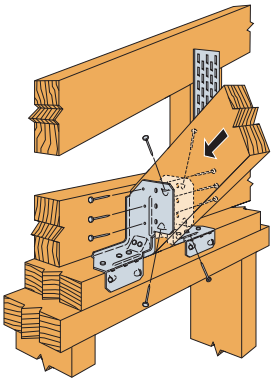
STEP 1
Double angle cut the gable brace to sit flat on the wall double top plate and flush against the gable end truss for 2x4 top plate. The double angle cuts should form a 90° angle on the end of the gable brace.



STEP 2
Set each GBC on top of the double top plate so that the bend line slots are flush with the inside edge of the double top plate. Install fasteners into the top of the double top plate.



STEP 3
Bend GBC legs *(one time only)* over the inside of the double top plate and install fasteners.



STEP 4
Install fasteners into the gable brace.

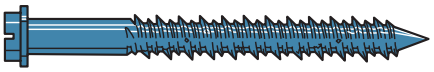
NOTE: Attach the other end of the gable brace to blocking at the roof diaphragm as directed by the Designer.

TITEN® *Screws*

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

CODES: See page 12 for Code Reference Key Chart.

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



Titen Hex Head

Titen Screw Anchors for Concrete

Titen Dia. (in)	Drill Bit Dia. (in)	Embed. Depth (in)	Critical Spacing (in)	Critical Edge Dist. (in)	Allowable Loads				Code Ref.
					Concrete		CMU		
					Tension	Shear	Tension	Shear	
3⁄16	5⁄32	1	2¼	1⅛	125	255	110	205	170
3⁄16	5⁄32	1½	2¼	1⅛	305	415	—	—	
¼	3⁄16	1	3	1½	145	225	150	250	
¼	3⁄16	1½	3	1½	365	400	—	—	

1. Allowable loads may not be increased for short term loading due to wind or seismic forces.
2. Concrete shall have a minimum f'_c = 2000 psi. CMU is based on installation into face shell of hollow and grout-filled CMU.
3. The attached member or element may govern the allowable load. The designer shall verify allowable load.
4. Refer to the Simpson Strong-Tie® *Anchoring and Fastening Systems for Concrete and Masonry* catalog *(form C-SAS)* for complete information on the Titen screws *(see page 191 for details)*.

WM/WMI/WMU *Hangers*

See pages 96-105 for sizes, fasteners and load information.

WMs are designed for use on standard 8" grouted masonry block wall construction.

MATERIAL: See tables on pages 70-73, 96-105, 122; WM, WMI, WMU—12 ga. top flange and stirrup

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

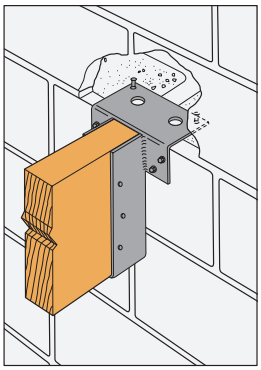
INSTALLATION: • Use all specified fasteners.

- WM—two 16d duplex nails must be installed into the top flange and embedded into the grouted wall. Verify that the grouted wall can take the required fasteners specified in the table.
- **MID-WALL INSTALLATION:** Installed between blocks with duplex nails cast into grout with a minimum of one grouted course above and below the top flange and one #5 vertical rebar minimum 24" long in each adjacent cell.
- **TOP OF WALL INSTALLATION:** Install on top of wall to a grouted beam with masonry screws.
- Refer to technical bulletin T-SLOPEJST for information regarding load reductions on selected hangers which can be used without modification to support joists which have shallow slopes (≤¾:12) *(see page 191 for details)*.

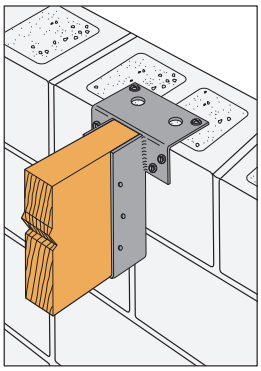
OPTIONS: • See Hanger Options, pages 181-183 for hanger modifications and associated load reductions.

- WMU may not be modified.

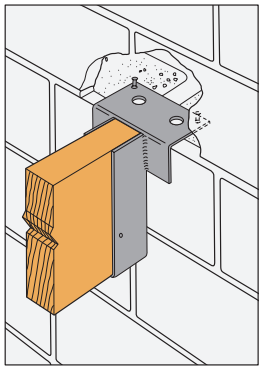
CODES: See page 12 for Code Reference Key Chart.



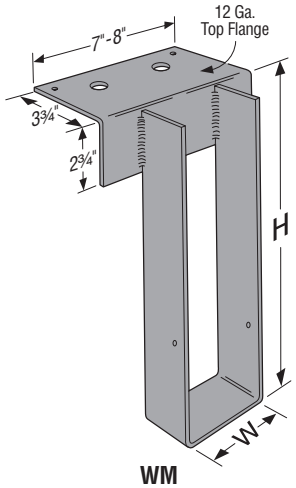
WMU Mid-Wall Installation



WMU Top of Wall Installation



WM Mid-Wall Installation



WM

Model	Joist		Fasteners			Masonry Allowable Loads		Code Ref.
	W	H	Top	Face	Joist	Uplift (160)	Download (100/115/125)	
WM/WMI	1½ to 7½	3½ to 30	2-16d DPLX	—	2-10dx1½	—	4175[2]	WM = IL12, L12 WMI = 170
			2-¼x1¾ Titen	—	2-10dx1½	—	3380[2]	
WMU	1½ to 7½	9 to 28	2-16d DPLX	4-¼x1¼ Titen	6-10dx1½	625	4175[3]	170
			2-¼x1¾ Titen	4-¼x1¾ Titen	6-10dx1½	545	3380[3]	

1. Uplift loads have been increased 60% for wind or earthquake loading; no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6.
2. Mid-Wall Installation *(see installation notes and figures)* – minimum f'_m = 1500 psi.
3. Top of Wall Installation *(see installation notes and figures)* – minimum f'_m = 1500 psi.
4. Products shall be installed such that the Titen screws are not exposed to the weather.
5. For hanger heights exceeding the joist height, the allowable load is 0.50 of the table load.
6. **NAILS:** 16d DPLX = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

HU/HUC/HSUR/L *Hangers*

HU and HUC products are heavy duty face mount joist hangers made from 14 gauge galvanized steel.

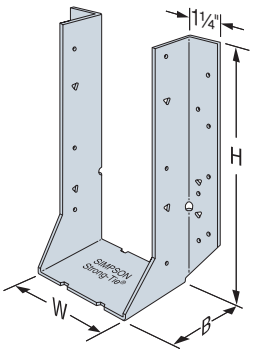
- The HUC is a concealed flange version of the HU. Concealed flange hangers have the header flanges turned in.
- HU is available with header flanges concealed, provided the W dimension is 2⁵⁄₁₆" or greater, at 100% of the table load. Specify HUC.
- HU is available with one header flange concealed when the W dimension is less than 2⁵⁄₁₆" at 100% of the table load.
- For allowable loads on HU products not listed in the table request technical bulletin T-HUHUCTTN *(see page 191 for details)*.

MATERIAL: 14 gauge **FINISH**: Galvanized

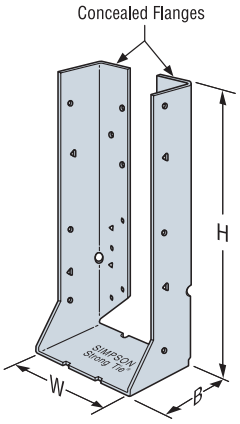
INSTALLATION:

- These hangers are attached to grouted CMU walls using ¼"x2¾" hex head Titen® screws or for concrete walls using ¼"x1¾" hex head Titen screws. Titen screws are not provided.
- Drill the ³⁄₁₆" diameter hole to the specified embedment depth plus ½".
- Alternatively, drill the ³⁄₁₆" diameter hole to the specified embedment depth and blow it clean using compressed air.
- **Caution:** Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with the base material and will reduce the anchor's load capacity.
- The hangers should be installed such that a minimum end and edge distance of 1½" is maintained.
- Not recommended for exposed exterior applications.
- Provide moisture barrier between beam and wall per jurisdictional requirements.

CODES: See page 12 for Code Reference Key Chart.



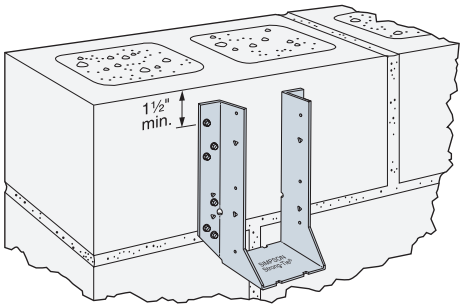
HU410



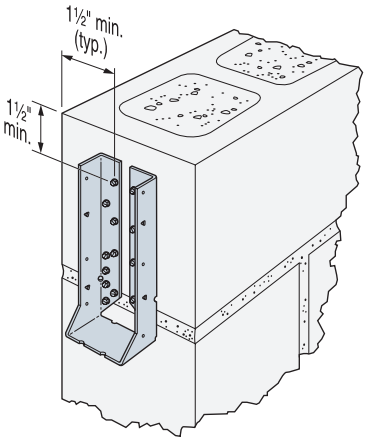
HUC410

Model No.	Dimensions			Fasteners			Allowable Loads (DF/SP)		Code Ref.
	W	H	B	CMU	Concrete	Joist	Uplift (160)	Down (100/115/125)	
HU26	1⁹⁄₁₆	3¹⁄₁₆	2¼	4-¼x2¾ Titen	4-¼x1¾ Titen	2-10dx1½	290	1545	170
HU28[3]	1⁹⁄₁₆	5¼	2¼	6-¼x2¾ Titen	6-¼x1¾ Titen	4-10dx1½	575	2400	
HU210	1⁹⁄₁₆	7⅛	2¼	8-¼x2¾ Titen	8-¼x1¾ Titen	4-10dx1½	575	2400	
HU46	3⁹⁄₁₆	5³⁄₁₆	2½	12-¼x2¾ Titen	12-¼x1¾ Titen	6-10d	1085	3950	
HU26-2	3⅛	5⅜	2½	12-¼x2¾ Titen	12-¼x1¾ Titen	6-10d	1085	3950	
HU48	3⁹⁄₁₆	6¹³⁄₁₆	2½	14-¼x2¾ Titen	14-¼x1¾ Titen	6-10d	1085	4350	
HU28-2	3⅛	7	2½	14-¼x2¾ Titen	14-¼x1¾ Titen	6-10d	1085	4350	
HU410	3⁹⁄₁₆	8⅝	2½	18-¼x2¾ Titen	18-¼x1¾ Titen	10-10d	1810	5085	
HU210-2	3⅛	8¹³⁄₁₆	2½	18-¼x2¾ Titen	18-¼x1¾ Titen	10-10d	1810	5085	
HSUR/L26-2	3⅛	4¹⁵⁄₁₆	2⁷⁄₁₆	12-¼x2¾ Titen	12-¼x1¾ Titen	4-16dx2½	815	2625[5]	

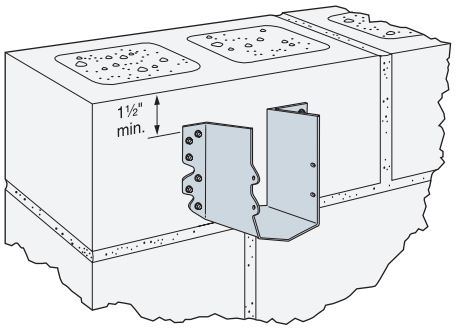
1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase is allowed.
2. Minimum concrete strength f'_c shall be 2500 psi. CMU shall have a minimum grout strength of 2500 psi with standard ASTM C90 units and type N or S mortar.
3. The HU28 can be ordered skewed 45° and achieve the same loads.
4. See page 139 for Titen screw information.
5. Noted loads for the HSUR/L shall be 0.8 the table loads for concrete applications.
6. Table allowable loads were determined using tested lowest ultimate/3 or fastener calculation values.
7. Products shall be installed such that the Titen screws are not exposed to the weather.
8. **NAILS:** 16dx2½ = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



HU410 Installed on Masonry Block Sidewall



HUC410 Installed on Masonry Block End Wall



HSUR/L26-2 Installed on Masonry Block Sidewall

LGUM/HGUM *High Capacity Beam/Girder Hangers for Concrete/Masonry*

SIMPSON Strong-Tie®

High-capacity beam or girder hangers for concrete or masonry applications. Installation is made easier using Simpson Strong-Tie® Strong-Drive® screws (SDS) *(provided)* into the wood member and Titen HD® anchors *(provided)* into the masonry.

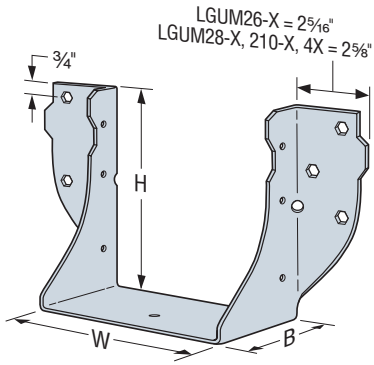
MATERIAL: See table **FINISH**: Galvanized

INSTALLATION: • Use all specified fasteners *(included)*.

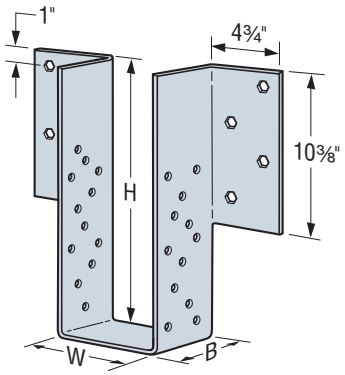
- Attach hanger to a concrete or grouted CMU wall using Titen HD anchors. Note the following:
  - Drill holes using drill bits equal in diameter to the specified Titen HD anchor.
  - Holes shall be drilled ½" deeper than the specified Titen HD length *(i.e. 4½" for a 4" long Titen HD anchor)*
  - Caution: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with the base material and will reduce the anchor's load capacity.
- Titen HD is not recommended for exposed exterior applications.
- Provide moisture barrier between beam and wall per jurisdictional requirements.

OPTIONS: For HGUM only—Other seat widths available. Order as "X" version.

CODES: See page 12 for Code Reference Key Chart.



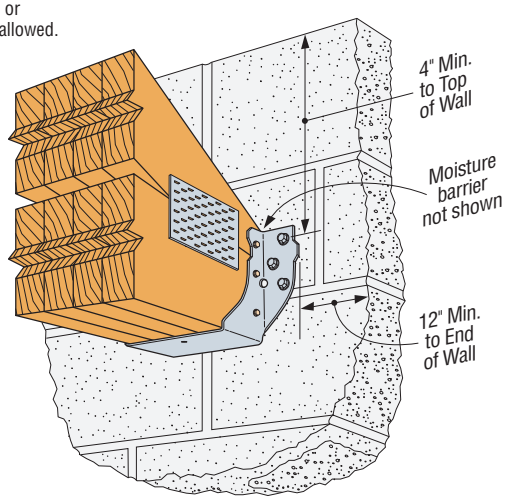
LGUM



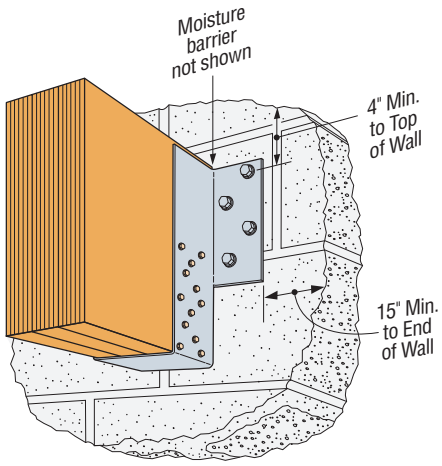
HGUM

Model No.	Ga	Dimensions W	H	B	Fasteners CMU/Concrete Titen HD Anchors	Fasteners Joist SDS Screws	Allowable Loads Uplift (160)	Allowable Loads Download (DF, SP, LVL, PSL, LSL) CMU (100/115/125)	Allowable Loads Download (DF, SP, LVL, PSL, LSL) Concrete (100/115/125)	Code Ref.
DOUBLE 2x SIZES										F27
LGUM26-2	12	3⁷⁄₁₆	5	4	4 - ⅜"x4"	4 - ¼"x2½"	1430	5595		
LGUM28-2	12	3⁷⁄₁₆	7	4	6 - ⅜"x4"	6 - ¼"x2½"	2435	8250		
LGUM210-2	12	3⁷⁄₁₆	9	4	8 - ⅜"x4"	8 - ¼"x2½"	3575	9575		
TRIPLE 2x SIZES										
LGUM26-3	12	5⅛	5⅛	4	4 - ⅜"x4"	4 - ¼"x2½"	1430	5610		
LGUM28-3	12	5⅛	7⅛	4	6 - ⅜"x4"	6 - ¼"x2½"	2435	8290		
LGUM210-3	12	5⅛	9⅛	4	8 - ⅜"x4"	8 - ¼"x2½"	3575	9715		
QUADRUPLE 2x SIZES										
LGUM26-4	12	6¹¹⁄₁₆	5⁵⁄₁₆	4	4 - ⅜"x4"	4 - ¼"x2½"	1430	5625		
LGUM28-4	12	6¹¹⁄₁₆	7⁵⁄₁₆	4	6 - ⅜"x4"	6 - ¼"x2½"	2435	8335		
LGUM210-4	12	6¹¹⁄₁₆	9⁵⁄₁₆	4	8 - ⅜"x4"	8 - ¼"x2½"	3575	9860		
4x SIZES										
LGUM46	12	3⅝	4⅞	4	4 - ⅜"x4"	4 - ¼"x2½"	1430	5600		
LGUM48	12	3⅝	6⅞	4	6 - ⅜"x4"	6 - ¼"x2½"	2435	8260		
LGUM410	12	3⅝	8⅞	4	8 - ⅜"x4"	8 - ¼"x2½"	3575	9620		
ENGINEERED WOOD & STRUCTURAL COMPOSITE LUMBER SIZES (Heavy Duty)										
HGUM5.25	7	5¼	11 to 30	5¼	8 - ⅝"x5"	24 - ¼"x2½"	10085	14965	16015	
HGUM5.50	7	5½		5¼	8 - ⅝"x5"	24 - ¼"x2½"	10125	14940	16015	
HGUM7.00	7	7		5¼	8 - ⅝"x5"	24 - ¼"x2½"	10375	14770	16015	
HGUM7.25	7	7¼		5¼	8 - ⅝"x5"	24 - ¼"x2½"	10415	14740	16015	
HGUM9.00	7	9		5¼	8 - ⅝"x5"	24 - ¼"x2½"	10705	14545	16015	

1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase is allowed.
2. Minimum f'_m = 1500 psi and f'_c = 2500 psi.
3. LGUM must be installed on minimum 6" thick wall and HGUM on minimum 8" thick wall. *(Nominal values for CMU)*
4. Titen HD anchors may be installed into the head or bed joints.
5. Products shall be installed such that the Titen HD anchors are not exposed to the weather.



Typical LGUM Installation

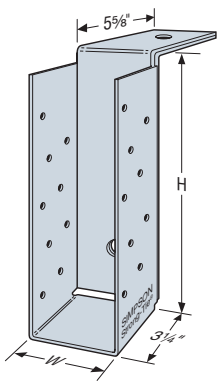


Typical HGUM Installation

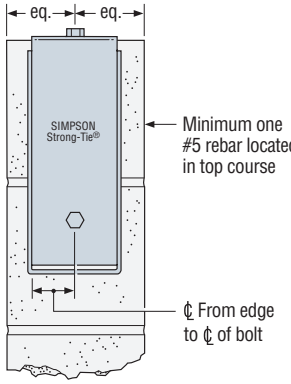
MBHA *Masonry Hangers*

The MBHA is a single piece, non-welded connector available for solid sawn, truss and engineered wood products.
MATERIAL: 10 gauge
FINISH: Galvanized
INSTALLATION: • Use all specified fasteners. See General Notes.
OPTIONS: See Hanger Options, pages 181-183.
CODES: See page 12 for Code Reference Key Chart.

Model No.	℄	Dimensions	
		W	H
MBHA3.12/9.25	1 9/16	3⅛	9¼
MBHA3.12/11.25	1 9/16	3⅛	11¼
MBHA3.56/7.25	1¾	3 9/16	7¼
MBHA3.56/9.25	1¾	3 9/16	9¼
MBHA3.56/11.25	1¾	3 9/16	11¼
MBHA3.56/11.88	1¾	3 9/16	11⅞
MBHA3.56/14	1¾	3 9/16	14
MBHA3.56/16	1¾	3 9/16	16
MBHA3.56/18	1¾	3 9/16	18
MBHA5.50/7.25	2¾	5½	7¼
MBHA5.50/9.25	2¾	5½	9¼
MBHA5.50/11.25	2¾	5½	11¼
MBHA5.50/11.88	2¾	5½	11⅞
MBHA5.50/14	2¾	5½	14
MBHA5.50/16	2¾	5½	16
MBHA5.50/18	2¾	5½	18



MBHA



Typical MBHA Installation

Model No.	Fasteners[1]			Solid Concrete Allowable Loads DF/SP		Grouted CMU Allowable Loads DF/SP		Code Ref.
	Header		Joist	Uplift[7] (160)	Maximum Down Load	Uplift[7] (160)	Maximum Down Load	
	Top	Face						
MBHA	1-ATR¾[4]	1-ATR¾[4]	18-10d	3775	6050	3475	5330	I20, F19
MBHA models with H = 7¼	1-ATR¾[4]	1-ATR¾[5]	18-10d	1885	4380	1885	4380	

1. ATR is all threaded rod.
2. Minimum concrete strength f'c shall be 2500 psi. CMU shall have a minimum grout strength of 2500 psi with standard ASTM C90 units and type N or S mortar.
3. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
4. Loads are based on installation using Simpson Strong-Tie® ET Epoxy-Tie® adhesive 6¾" minimum embedment required. All thread rods to be ¾" diameter, grade A307 or better. Refer to the Simpson Strong-Tie® *Anchoring and Fastening Systems for Concrete and Masonry* catalog *(form C-SAS – see page 191 for details).*
5. MBHA hangers with height of 7¼" require a 3½" minimum embedment of the face bolt using ET Epoxy-Tie adhesive. All thread rods to be ¾" diameter, grade A307 or better.
6. Additional anchorage products to be designed by others.
7. Uplift loads are for Southern Pine. For Doug Fir use 3515 lbs.
8. Table allowable loads were determined using test ultimate/3 or fastener calculation values.
9. **NAILS:** 10d = 0.148" dia. x 3" long.
See page 16-17 for other nail sizes and information.

ITTM *Engineered Wood Products Hangers*

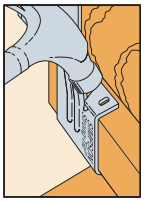
This product is preferable to similar connectors because of a) easier installation, b) higher loads, c) lower installed cost, or a combination of these features.

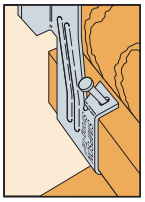
ITTM masonry-to-wood connectors can be directly embedded into a grouted block wall. It can also be installed on top of a masonry or concrete wall using Titen® screws.

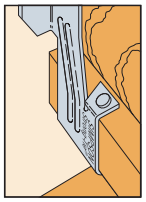
MATERIAL: 12 gauge top flange and 18 gauge stirrup
FINISH: Galvanized
INSTALLATION: • Use all specified fasteners.
- ITTM installed into grouted block wall: embed into block with a minimum of one course of grouted block above and one course below the top flange. No Titen screws required.
- ITTM installed on concrete masonry wall: install ¼"x1¾" hex head Titen screws through preformed holes on the hanger.

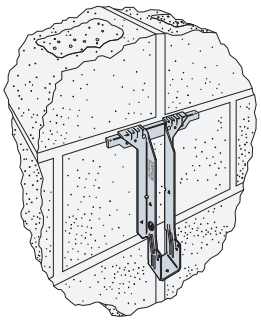
OPTIONS: • Options not available.
CODES: See page 12 for Code Reference Key Chart.

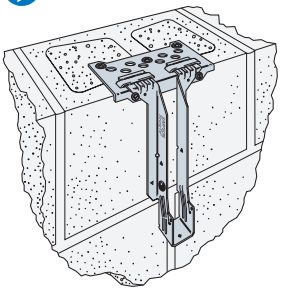
ITTM INSTALLATION


Bend the tab with a hammer.


Hammer 10dx1½ nail in at approximately 45°.


The tab is now correctly installed.


Typical Mid-Wall ITTM Installed into Concrete Block
(No Titens required)
U.S. Patent 5,555,694


Typical Top-of-Wall ITTM Installed on a Grouted Block with Titens

Model	Fasteners			Allowable Loads Header Type			Code Ref.
	Top	Face	Joist	Uplift[1] (160)	Applications	Masonry	
ITTM411.88	—	—	2-10dx1½	—	**MID-WALL INSTALLATION**[4]	1665	170
ITTM414	—	2-Titens[2]	2-10dx1½	225	**MID-WALL INSTALLATION**[4]	1665	
ITTM416	3-Titens[2]	2-Titens[2]	2-10dx1½	225	**TOP OF WALL INSTALLATION**	1545	

1. Uplift loads are based on DF/SP lumber and have been increased 60% for wind or earthquake loading with no further increase allowed. For normal loading applications such as cantilever construction refer to Simpson Strong-Tie® Connector Selector™ software or conservatively divide the uplift load by 1.6. For SPF use 0.86 x DF/SP uplift load.
2. Titen masonry screws are ¼" x1¾".
3. Minimum f'm = 1500 psi and f'c = 2500 psi.
4. Mid-wall installation requires minimum of one grouted course above and below the hanger.
5. Products shall be installed such that the Titen screws are not exposed to the weather.
6. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

H *Seismic & Hurricane Ties* / LTA1 *Lateral Truss Anchor*

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

The H10S provides a high capacity connection from truss/rafter to wall. Also suitable for wood-to-wood applications *(see page 156)*.

The HM9 is designed to retrofit roof truss/rafters for block construction. The HM9 hurricane tie provides high uplift and lateral capacity using Simpson Strong-Tie® concrete fasteners.

The presloped 5:12 seat of the H16 provides for a tight fit and reduced deflection. The strap length provides for various truss heights up to a maximum of 13½". Minimum heel height for H16 series is 4".

The LTA1 develops high uplift and lateral loads at a minimum heel height. The side tabs act as a locator in the block and the four embedded hooks allow for higher loads with a relatively shallow embedment.

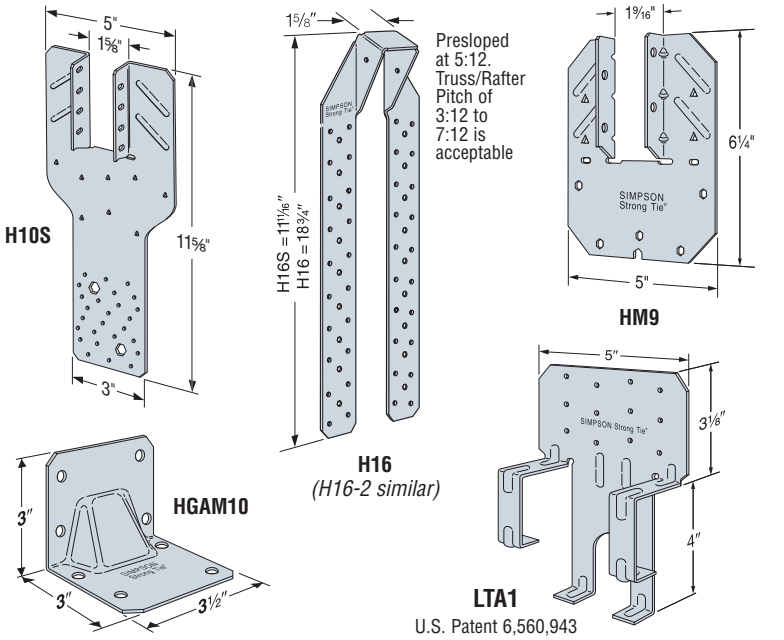
MATERIAL: See table.

FINISH: Galvanized; see Corrosion Information, page 10-11.

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

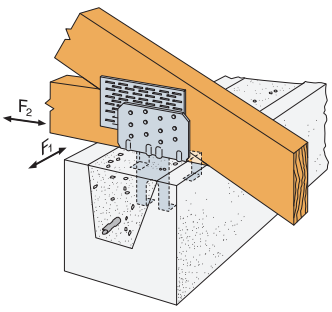
- Connectors attached using hex head Titen® screws.
- Attach to grouted concrete block with a minimum one #5 rebar horizontal in the course.
- Hurricane Ties do not replace solid blocking.

CODES: See page 12 for Code Reference Key Chart.

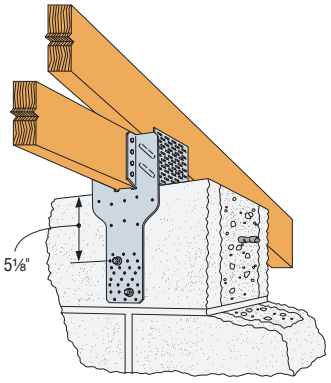


Model No.	Ga	W	L	Fasteners			DF/SP Allowable Loads[1,2]			SPF/HF Allowable Loads[1,2]			Code Ref.
				To Rafters/ Truss	To CMU	To Concrete	Uplift[4]	Lateral (160)		Uplift[4]	Lateral (160)		
							(160)	F_1	F_2	(160)	F_1	F_2	
HM9KT[3]	18	1⁹⁄₁₆	6¼	4-SDS¼x1½	5-¼x2¼ Titen	5-¼x1¾ Titen	595	425	200	595	425	200	F27
HGAM10KTA[3,4]	14	—	—	4-SDS¼x1½	4-¼x2¾ Titen	4-¼x1¾ Titen	850	1005	1105[8]	610	725	795[8]	
H10S	18	1⅝	11⅝	8-8dx1½	2-⅜x4 Titen HD	2-⅜x4 Titen HD	1065	—	—	915	—	—	IP1, F25
LTA1	18	—	—	12-10dx1½	Embed	Embed	1420	485	1425	1220	415	1225	
H16	18	1⅝	18¾	2-10dx1½	6-¼x2¼ Titen	6-¼x1¾ Titen	1470	—	—	1265	—	—	F26
H16S	18	1⅝	11¹¹⁄₁₆	2-10dx1½	6-¼x2¼ Titen	6-¼x1¾ Titen	1470	—	—	1265	—	—	
H16-2	18	3¼	18¾	2-10dx1½	6-¼x2¼ Titen	6-¼x1¾ Titen	1470	—	—	1265	—	—	
H16-2S	18	3¼	11¹¹⁄₁₆	2-10dx1½	6-¼x2¼ Titen	6-¼x1¾ Titen	1470	—	—	1265	—	—	

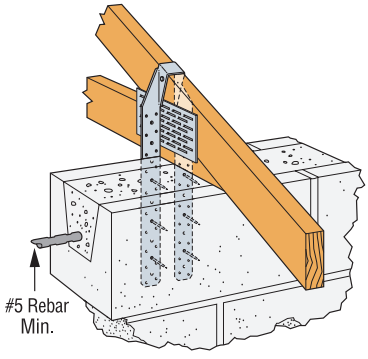
1. Loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Allowable loads are for one anchor. A minimum rafter thickness of 2½" must be used when framing anchors are installed on each side of the joist and on the same side of the plate.
3. The HM9KT and HGAM10KTA are kits packaged with Simpson Strong-Tie® Strong-Drive® screws (SDS) and 2¼" and 2¾" Titen® screws respectively. *(1¾" Titen screws for concrete installations sold separately.)*
4. Minimum edge distance 1½" using Titen screws.
5. See page 139 for Titen screw information.
6. Table allowable loads were determined using test ultimate/3 or fastener calculation values.
7. Products shall be installed such that the Titen screws and Titen HD® anchors are not exposed to the weather.
8. HGAM10 F_2 loads are for forces into the connector. See illustration 2 for loads away from the connector.
9. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long, 8dx1½ = 0.131" dia.x1½" long. See page 16-17 for other nail sizes and information.



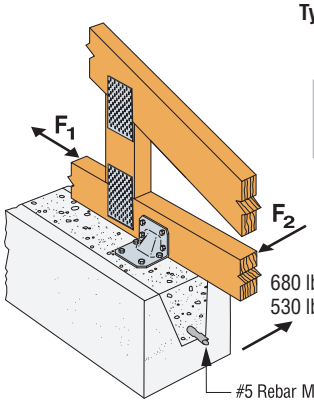
Typical LTA1 Installation



Typical H10S Installation

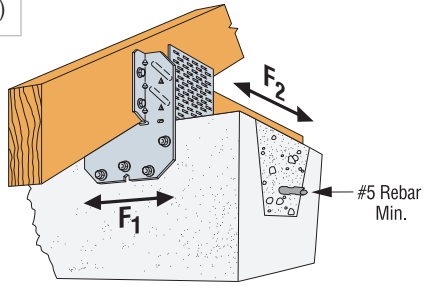


1 H16S Installed into Masonry



2 HGAM10 Installed into Masonry

Moisture barrier not shown (Typ.)



3 HM9 Attaching Truss to Masonry

META/HETA/HHETA/HETAL/DETAL/TSS *Embedded Truss Anchors and Truss Seat Snap-In*

The embedded truss anchor series provides an engineered method to properly attach roof trusses to concrete and masonry walls. The products are designed with staggered nail patterns for greater uplift resistance. Information regarding the use of two anchors on single- and multi-ply trusses is included.

The TSS, a companion product of the META, provides a moisture barrier between the concrete and truss. The preassembled unit is riveted with no height adjustment.

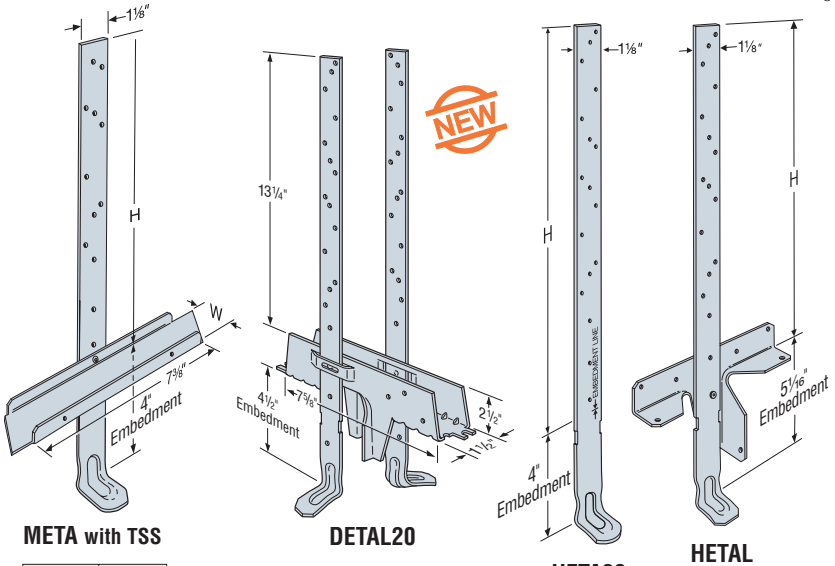
NEW! The DETAL20 is a high capacity embedded truss anchor for attachment of single-ply trusses to concrete and masonry walls. It combines dual embedded anchors with a structural moisture-barrier seat that is partially embedded in the concrete or grout. This seat serves to protect the truss and also provides additional lateral and uplift capacity. The embedded anchors are pre-attached to the moisture barrier through slots that allow for a slight amount of adjustability, providing flexibility during installation to avoid rebar. The moisture-barrier seat includes tabs at each end for optional attachment to the form board in concrete tie-beam applications.

MATERIAL: HHETA–14 gauge; HETA–16 gauge; HETAL–strap 16 gauge, truss seat 18 gauge; META–18 gauge; TSS–22 gauge; DETAL–16 gauge *(Barrier–18 gauge)*

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 10-11.

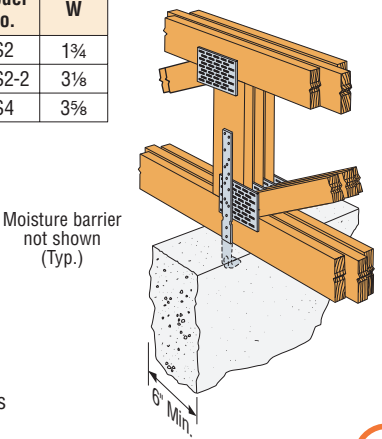
INSTALLATION:
- Use all specified fasteners. See General Notes.
- The META, HETA and HHETA are embedded 4" into a concrete beam or grouted block wall; HETAL is embedded 5¹⁄₁₆"; **DETAL is embedded 4½".**
- **The DETAL20 is installed centered and flush on top of an 8" masonry bond beam or concrete tie beam. The moisture barrier seat bears on masonry face shell or concrete tie beam form boards; the two flanges embed into grout or concrete. The two embedded anchors shall be installed vertically into grout or concrete.**
- The TSS moisture barrier may be preattached to the truss using 6d commons.
- A shim is required between the truss and the embedded truss anchor when there is a space of ⅛" to 1½".
- In double embedded anchor installations, do not install fasteners where the straps overlap when wrapped over the truss heel.

CODES: See page 12 for Code Reference Key Chart.

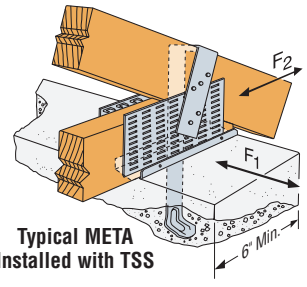


META with TSS | **DETAL20** | **HETAL** | **HETA20** *(HHETA similar)*

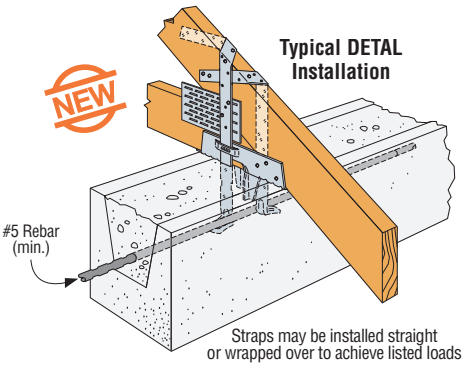
Model No.	W
TSS2	1¾
TSS2-2	3⅛
TSS4	3⅝



Typical HETA20 Installation



Typical META Installed with TSS



Typical DETAL Installation

Straps may be installed straight or wrapped over to achieve listed loads

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

Single Embedded Anchor Installation

Model No.	H	SP Uplift Load 160 Load Duration Increase				Lateral Loads (160)		Code Ref.
		10dx1½		16d				
		Quantity	Load	Quantity	Load	F_1	F_2	
META12	8	7	1450	6	1450	340	725	
META14	10	7	1450	6	1450	340	725	
META16	12	7	1450	6	1450	340	725	
META18	14	7	1450	6	1450	340	725	
META20[6]	16	7	1450	6	1450	340	725	
META22	18	7	1450	6	1450	340	725	
META24	20	7	1450	6	1450	340	725	
META40	36	7	1450	6	1450	340	725	
HETA12	8	7	1520	7	1780	340	725	
HETA16	12	9	1810	8	1810	340	725	
HETA20[6]	16	9	1810	8	1810	340	725	F27
HETA24	20	9	1810	8	1810	340	725	
HETA40	36	9	1810	8	1810	340	725	
HHETA12	8	7	1565	7	1820	340	815	
HHETA16	12	10	2235	9	2235	340[7]	815	
HHETA20[6]	16	10	2235	9	2235	340[7]	815	
HHETA24	20	10	2235	9	2235	340[7]	815	
HHETA40	36	10	2235	9	2235	340[7]	815	
HETAL12	7	10[4]	1085	10[4]	1270	415[5]	1100	
HETAL16	11	14[4]	1810	13[4]	1810	415[5]	1100	
HETAL20	15	14[4]	1810	13[4]	1810	415[5]	1100	

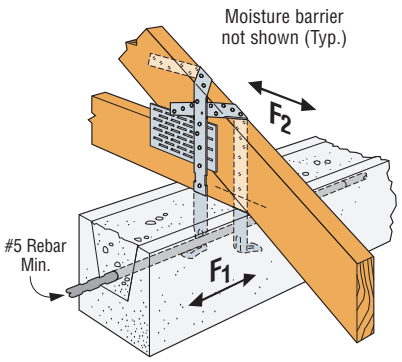
1. Loads include a 60% load duration increase on the fasteners for wind or seismic loading.
2. Minimum f'_c = 2500 psi. Minimum f'_m = 1500 psi.
3. For simultaneous loads in more than one direction, the connector must be evaluated as described in Note e, page 14 under Instructions to the Designer.
4. Five nails must be installed into the truss seat of the HETAL.
5. Parallel-to-wall load towards face of HETAL is 1975 lbs.
6. It is acceptable to use a reduced number of fasteners provided that there is a reduction in uplift load capacity. See example on page 151. Lateral loads do not apply when fewer than 7 fasteners are used with the HETA and HHETA anchors or less than 6-16d or 7-10dx1½ fasteners are used with the META anchor.
7. The HHETA allowable F1 load can be increased to 435 lbs. if the strap is wrapped over the truss and a minimum of 12 nails are installed.
8. Minimum spacing for multiple anchor installation is 2 times the embedment depth for full load. See Double Embedded Anchor Installation table on page 144 for loads on closer spaced anchors.
9. Single ply trusses may use either 10dx1½ or 16d nails. 2 or 3 ply trusses shall use 16d nails.
10. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

META/HETA/HHETA/HETAL/DETAL/TSS *Embedded Truss Anchors and Truss Seat Snap-In*

SIMPSON Strong-Tie®

Double Embedded Anchor Installation

Model No.	Qty.	Application	SP Uplift Load Capacity (160) 1 Ply Fasteners[5]	1 Ply Load	2 or 3 Ply Fasteners[5]	2 or 3 Ply Load	Lateral Loads (160)[6] F_1	Lateral Loads (160)[6] F_2	Code Ref.
NEW DETAL20	1	CMU	18-10dx1½	2480	—	—	2000[10]	1370	F27
		Concrete	18-10dx1½	2480	—	—	2000	1505	
META	2	CMU	10-10dx1½	1985	14-16d	1900	1210[7]	1160	
		Concrete	10-10dx1½	1985	14-16d	2565	1210[7]	1160	
HETA	2	CMU	10-10dx1½	2035	12-16d	2500	1225[7]	1520	
		Concrete	10-10dx1½	2035	12-16d	2700	1225[7]	1520	
HHETA	2	CMU	10-10dx1½	2035	12-16d	2500	1225[7]	1520	
		Concrete	10-10dx1½	2035	14-16d[8]	3350	1225[7]	1520	



Typical Installation with two METAs

1. Loads include a 60% load duration increase on the fasteners for wind or seismic loading.
2. Minimum f'_c = 2500 psi. Minimum f'_m = 1500 psi.
3. For simultaneous loads in more than one direction, the connector must be evaluated as described in Note e, page 14 under General Instructions for the Designer.
4. Install with spoons facing outward and straps spaced no more than ⅛" wider than the truss width.
5. **The DETAL20 requires 6-10dx1½" nails in the truss seat and 6-10dx1½" nails into each strap. For all other models, install half of the required fasteners in each strap.**
6. Lateral loads for META, HETA and HHETA anchors apply only to 2- or 3-ply applications with anchors spaced a minimum of 3" apart. For single-ply applications use lateral loads from the Single Embedded Anchor Installation table on page 144. **DETAL lateral loads apply for single-ply application.**
7. F_1 lateral loads listed may cause an additional 1/16" deflection beyond the standard ⅛" limit where the straps are installed not wrapped over the heel as shown.
8. Two HHETA anchors may be installed in a concrete tie beam on a 2- or 3-ply truss with 2 fewer nails for an allowable uplift load of 3050 lbs.
9. **Noted F_1 lateral loads for the DETAL20 may cause an additional 1/32" deflection beyond the standard ⅛" limit.**
10. Single-ply trusses may use either 10dx1½ or 16d nails with allowable loads limited to the single-ply column. 2- or 3-ply trusses shall use 16d nails.
11. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

MSTAM/MSTCM *Straps Ties*

MSTAM and MSTCM models are designed for wood to masonry applications.

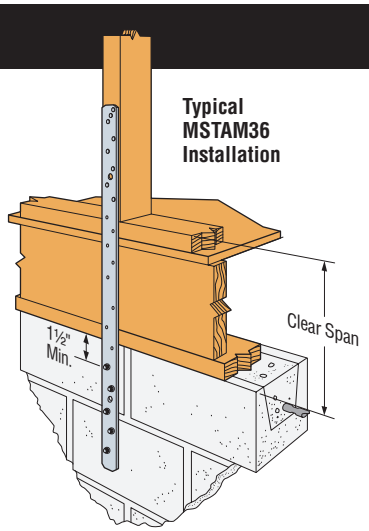
The MSTC series has countersunk nail slots for a lower nailing profile.

FINISH: Galvanized. Some products are available in stainless steel or ZMAX® coating; see Corrosion Information, page 10-11.

INSTALLATION:

- Use all specified fasteners. See General Notes.
- Attaches to grouted concrete block and wood framing.

CODES: See page 12 for Code Reference Key Chart.



Typical MSTAM36 Installation

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

Masonry Application

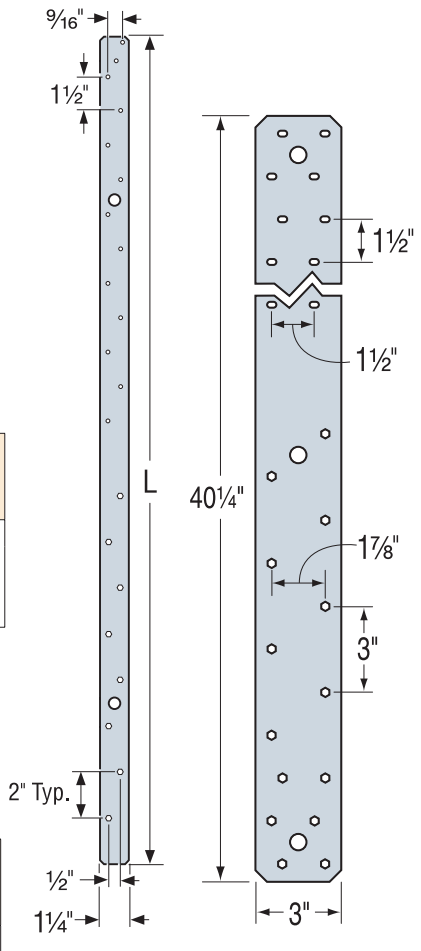
Model No.	Ga	Dimensions W	Dimensions L	Fasteners (Total) Nails	Fasteners (Total) CMU	Fasteners (Total) Concrete	Allowable Tension/Uplift Loads DF/SP (160)	Allowable Tension/Uplift Loads SPF/HF (160)	Code Ref.
MSTAM24	18	1¼	24	9-10d	5-¼x2¼ Titen	5-¼x1¾ Titen	1500	1500	F27
MSTAM36	16	1¼	36	13-10d	8-¼x2¼ Titen	8-¼x1¾ Titen	1870	1870	
MSTCM40	16	3	40¼	26-16d sinkers	14-¼x2¼ Titen	14-¼x1¾ Titen	4220	4220	
MSTCM60	16	3	59½	26-16d sinkers	14-¼x2¼ Titen	14-¼x1¾ Titen	4220	4220	

1. Loads include a 60% load duration increase on the fasteners for wind or earthquake loading.
2. Minimum edge distance 1½" using Titen® screws.
3. Minimum f'_m = 1500 psi and f'_c = 2500 psi.
4. Products shall be installed such that the Titen screws are not exposed to the weather.
5. See page 139 for Titen screw information.
6. **NAILS:** 16d Sinker = 0.148" dia. x 3¼" long, 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.

Floor-to-Floor Clear Span Table

Model No.	Clear Span	Fasteners (Total) Nails	Fasteners (Total) CMU	Fasteners (Total) Concrete	Allowable Tension/Uplift Loads DF/SP (160)	Allowable Tension/Uplift Loads SPF/HF (160)	Code Ref.
MSTAM36	16 or 18	7-10d	4-¼x2¼ Titen	4-¼x1¾ Titen	1400	1380	F27
MSTCM40	16 or 18	14-16d sinkers	10-¼x2¼ Titen	10-¼x1¾ Titen	2800	2420	
MSTCM60	22¼	26-16d sinkers	14-¼x2¼ Titen	14-¼x1¾ Titen	4220	4220	

See notes above.



MTSM/HTSM *Twist Straps*

The MTSM and HTSM offer high strength truss to masonry connections.

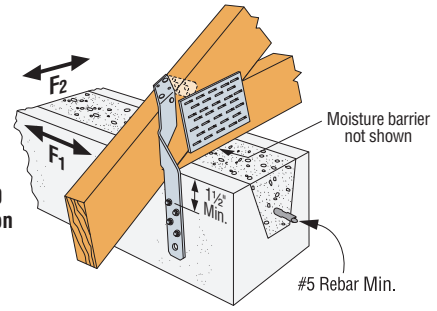
MATERIAL: MTSM–16 gauge; HTSM–14 gauge

FINISH: Galvanized. See Corrosion Information, page 10-11.

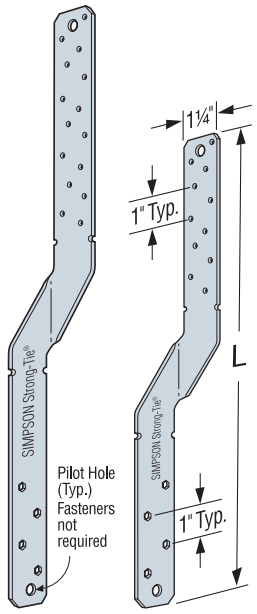
INSTALLATION:

- Use all specified fasteners. See General Notes.
- Installs with hex head Titen® screws.
- Attach to either side of grouted concrete block with a minimum one #5 rebar horizontal.

CODES: See page 12 for Code Reference Key Chart.



Typical MTSM20 Installation



MTSM20 MTSM16

Model No.	L	Fasteners[2]			DF/SP Allowable Uplift Loads[1]		SPF/HF Allowable Uplift Loads[1]		Allowable Lateral Loads (DF/SP/SPF/HF)		Code Ref.
		Truss	CMU	Concrete	10d (160)	10dx1½ (160)	10d (160)	10dx1½ (160)	F_1 (160)	F_2 (160)	
MTSM16	16	7-10d	4-¼x2¼ Titen	4-¼x1¾ Titen	860	860	750	750	285[8]	385[8]	F27
MTSM20	20	7-10d	4-¼x2¼ Titen	4-¼x1¾ Titen	860	860	750	750			
HTSM16	16	8-10d	4-¼x2¼ Titen	4-¼x1¾ Titen	1175	1175	1020	1020			
HTSM20	20	10-10d	4-¼x2¼ Titen	4-¼x1¾ Titen	1175	1175	1020	1020			

1. Loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Twist straps do not have to be wrapped over the truss to achieve the allowable load.
3. Minimum edge distance for Titen screw is 1½".
4. See page 139 for Titen screw information.
5. Table allowable loads were determined using test ultimate/3 or fastener calculation values.
6. Products shall be installed such that the Titen screws are not exposed to the weather.
7. Minimum f'_m = 1500 psi and f'_c = 2500 psi.
8. Lateral loads apply when on the wall side Titen screws are installed into the first four hexagonal holes from the bend line and on the truss/rafter the first seven nail holes near the bend line are filled. Any other fasteners required can be installed in any open hole.
9. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

MGT/HGT *Girder Tiedowns*

The MGT and HGT series are girder tie downs for moderate to high load applications that are typically installed prior to roof sheathing. The MGT wraps over the heel and is anchored on one side of the truss. The HGT straddles the heel and anchors on both sides of the truss. The HGT is field adjustable, making it suitable for trusses with top chord slopes up to 8:12. The HGT is available in sizes for 2-, 3- and 4-ply widths.

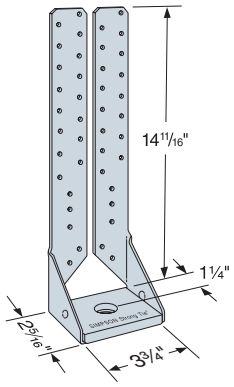
MATERIAL: MGT—12 gauge; HGT—7 gauge

FINISH: MGT— Galvanized; HGT—Simpson Strong-Tie® gray paint

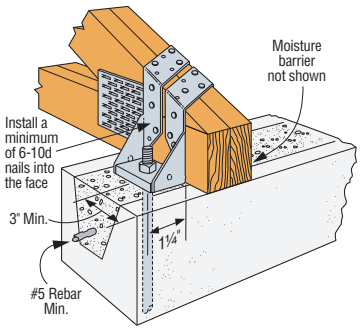
INSTALLATION: • Use all specified fasteners. See General Notes.

- When the HGT-3 is used with a 2-ply girder or beam, shimming is required and must be fastened to act as one unit.
- Attach to grouted concrete block with a minimum one #5 rebar horizontal in the top lintel block.
- See page 160 for wood applications.

CODES: See page 12 for Code Reference Key Chart.



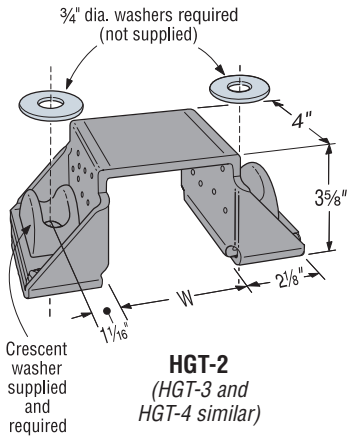
MGT



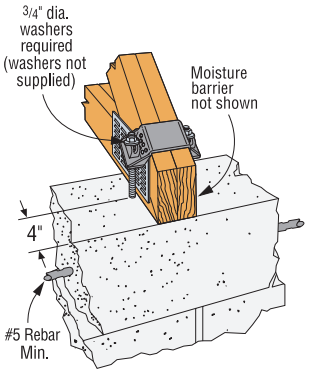
Typical MGT Installation

Model No.	W	O.C. Dim Between Anchors	Fasteners		DF/SP Allowable Uplift Loads (160)	SPF/HF Allowable Uplift Loads (160)	Code Ref.
			Concrete/ CMU	Girder			
MGT	3¾	—	1-⅝	22-10d	3965	3330	F26
HGT-2	3 5/16	5¾	2-¾	16-10d	10980	6485	I20, F19
HGT-3	4 15/16	7⅜	2-¾	16-10d	10530	9035	
HGT-4	6 9/16	9	2-¾	16-10d	9250	9250	

1. Attached members must be designed to resist applied loads.
2. Minimum f'_m = 1500 psi and f'_c = 2500 psi.
3. To achieve the loads listed for the MGT and HGT, anchorage into a 8" wide concrete tie-beam or grouted and reinforced CMU tie-beam can be made using Simpson Strong-Tie® SET Epoxy-Tie® adhesive with a minimum embedment depth of 12". Vertical reinforcement may be required to transfer the loads per Designer.
4. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
5. The MGT can be installed with straps vertical for full table load provided all specified nails are installed to either a solid header or minimum double 2x6 web.
6. Table allowable loads were determined using tested lowest ultimate/3 or fastener calculation values.
7. **NAILS:** 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.



HGT-2 *(HGT-3 and HGT-4 similar)*



Typical HGT-2 Installation into Concrete

FGTR/LGT/VGT *Retrofit Girder Tiedowns*

The LGT, VGT and FGTR products are moderate to high load capacity girder tie-downs for new or retrofit applications.

LGT connectors provide a low profile connection to the wall for easy installation of drywall. Simple to install and can be installed on the inside or outside of the wall.

The Variable Girder Tiedown (VGT) is a higher capacity alternative to the LGT and MGT for girder trusses. It attaches with Simpson Strong-Tie® Strong-Drive® screws (SDS) to the side of truss and features a predeflected crescent washer that allows it to accommodate top chord pitches up to 8:12. The VGT is also available with one flange concealed for attachment to trusses with no tail.

The Face Mount Girder Tie-Down (FGTR) is a non-pitch specific girder tiedown that offers the highest uplift capacity for retrofit applications. The FGTRHL/R is designed for corner hip applications.

MATERIAL: VGT—7 gauge; LGT2—14 gauge; LGT3/LGT4—12 gauge; FGTR—Straps: 7 gauge, Plate: 3 gauge

FINISH: VGT, LGT—Galvanized; FGTR—Powder Coated

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

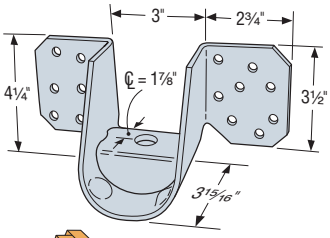
- Connectors attached using Titen® screws shall have hex heads.
- To achieve the loads listed in the table below, the product shall be attached to a grouted and reinforced block wall or a reinforced concrete wall designed by others to transfer the high concentrated uplift loads to the foundation.
- SDS screws included with LGT3, VGT Series and FGTR Series.

VGT/FGTR:

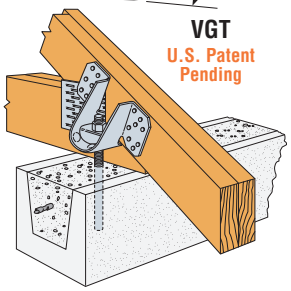
- Screw holes are configured to allow for double installation on a two-ply *(minimum)* truss.
- The product can be installed in a single application or in pairs to achieve a higher uplift capacity.
- Can be installed on roof pitches up to 8:12 or on a bottom chord designed to transfer the loads.
- FGTR —Only 2 of the 4 holes provided on each strap are required to be filled to achieve the catalog loads. The first Titen HD® anchor ½"x5" (THD) shall be installed a minimum of 4" from the top of the wall. Fasteners shall not be installed in adjacent holes.
- VGT—When installed on trusses with no overhangs, specify VGTR/L.
- VGT—Install washer component *(provided)* so that top of washer is horizontal as well as parallel with top of wall.

OPTIONS: LGT3 is available with reduced widths of W = 4 13/16" – order as LGT3N-SDS2.5.

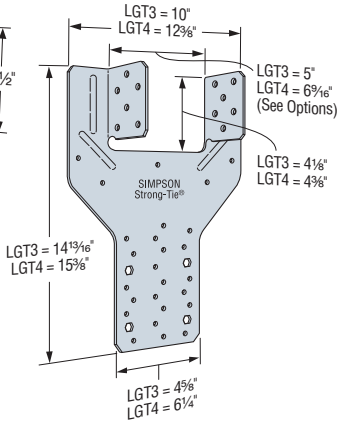
CODES: See page 12 for Code Reference Key Chart.



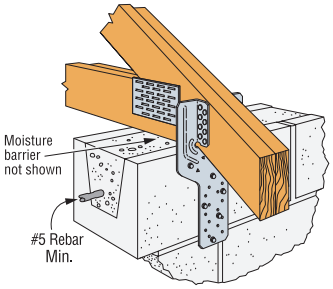
VGT
U.S. Patent Pending



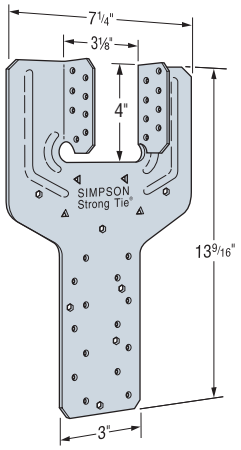
Typical VGT Installation



LGT3-SDS2.5
(LGT4-SDS3 similar)



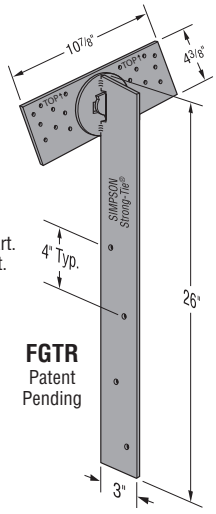
Typical LGT2 Installation into Masonry *(LGT3 similar)*



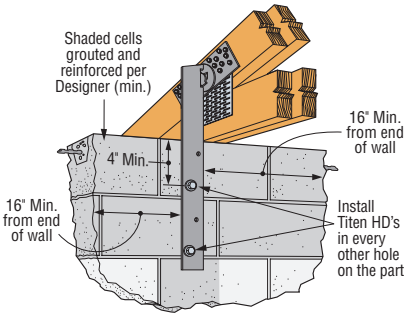
LGT2

Model No.	Qty.	No. of Plies	Fasteners		Allowable Uplift Load (160)		Code Ref.
			To Girder	To Wall	DF/SP	SPF/HF	
LGT2	1	2 ply	16-16d Sinker	7-¼x2¼ Titen[11]	2150	1850	F26
LGT3-SDS2.5	1	3 ply	12-SDS ¼"x2½"	4-⅜x5 Titen HD	3285	2365	
LGT4-SDS2.5	1	4 ply	16-SDS ¼"x2½"	4-⅜x5 Titen HD	3285	2365	
VGT	1	2 ply min.	16-SDS ¼"x3"	1-⅝[2]	4940	3555	
	2	2 ply min.	32-SDS ¼"x3"	2-⅝[2]	7185	5175	
		3 ply min.	32-SDS ¼"x3"	2-⅝[2]	8890	6400	
VGTL/R	1	2 ply min.	16-SDS ¼"x3"	1-⅝[2]	2230	1605	
	2		32-SDS ¼"x3"	2-⅝[2]	5545	3990	
FGTR	1	2 ply min.	18-SDS ¼"x3"	2-½x5 Titen HD	5000	3600	F27
	2		36-SDS ¼"x3"	4-½x5 Titen HD	9400	6770	
FGTRHL/R	1	2 ply min.	18-SDS ¼"x3"	2-½x5 Titen HD	3850	2770	

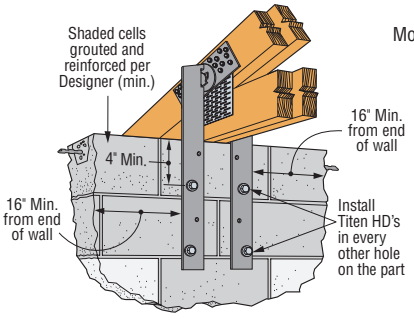
1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. To achieve the loads listed for the VGT single and double connector options, anchorage into a 8" wide concrete tie-beam or grouted and reinforced CMU tie-beam can be made using Simpson Strong-Tie® SET Epoxy-Tie® adhesive with a minimum embedment depth of 12", a minimum end distance of 12" and centered in the 8" member. Vertical reinforcement may be required to transfer the loads per Designer.
3. Minimum concrete strength f'_c shall be 2500 psi. CMU shall have a minimum grout strength of 2500 psi with standard ASTM C90 units and type N or S mortar.
4. FGTR—Minimum edge distance for Titen HD anchor is 4".
5. FGTR—Titen HD anchors should be spaced in every other hole on the part.
6. FGTR—The Titen HD anchors and SDS screws are provided with the part.
7. LGT2—F_1 load = 700, F_2 load = 170.
8. See page 139 for Titen screw information.
9. Table allowable loads were determined using tested lowest ultimate/3 or fastener calculation values.
10. Products shall be installed such that the Titen screws and Titen HD anchors are not exposed to the weather.
11. For concrete wall applications use ¼x1¾ Titen screws.
12. **NAILS:** 16d Sinker = 0.148" dia. x 3¼" long. See page 16-17 for other nail sizes and information.



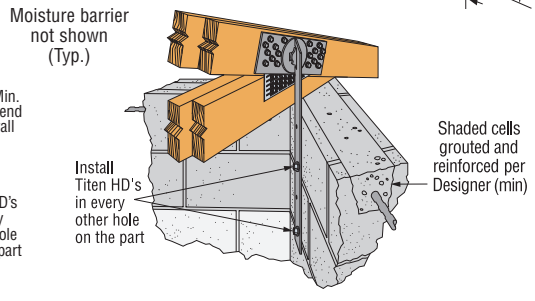
FGTR
Patent Pending



Typical FGTR Single Installation



Typical FGTR Double Installation



FGTRHL Installation
(FGTRHR similar)

HRS/ST/PS/HST/HTP/LSTA/LSTI/MST/MSTA/MSTC/MSTI *Strap Ties*

Straps are designed to transfer tension loads in a wide variety of applications.

HRS—A 12 gauge strap with a nailing pattern designed for installation on the edge of 2x members. **NEW! The HRS416Z installs with Simpson Strong-Tie® Strong Drive® screws (SDS).**

LSTA and MSTA—Designed for use on the edge of 2x members, with a nailing pattern that reduces the potential for splitting.

LSTI—Light straps that are suitable where pneumatic-nailing is necessary through diaphragm decking and wood chord open web trusses.

MST—Splitting may be a problem with installations on lumber smaller than 3½"; either fill every nail hole with 10dx1½" nails or fill every-other hole with 16d common nails. Reduce the allowable load based upon the size and quantity of fasteners used.

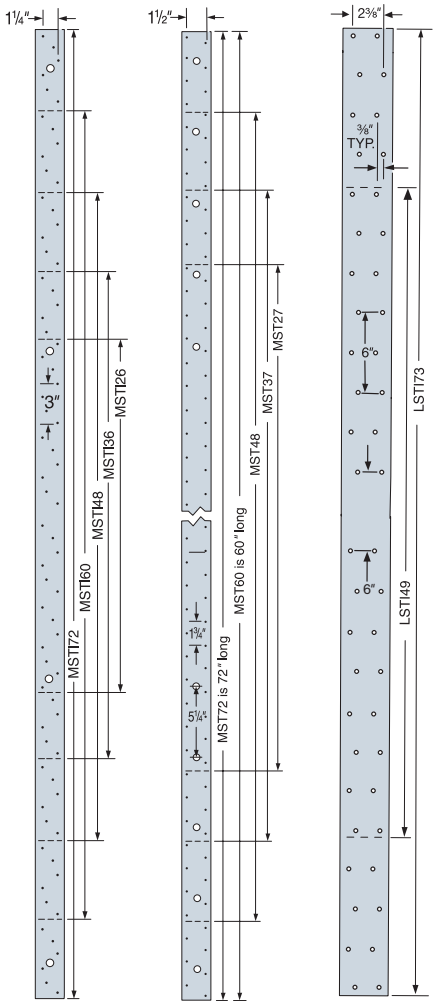
MSTC—High Capacity strap which utilizes a staggered nail pattern to help minimize wood splitting. Nail slots have been countersunk to provide a lower nail head profile.

FINISH: PS–HDG; HST3 and HST6–Simpson Strong-Tie® gray paint; all others–galvanized. Some products are available in stainless steel or ZMAX® coating; see Corrosion Information, page 10-11.

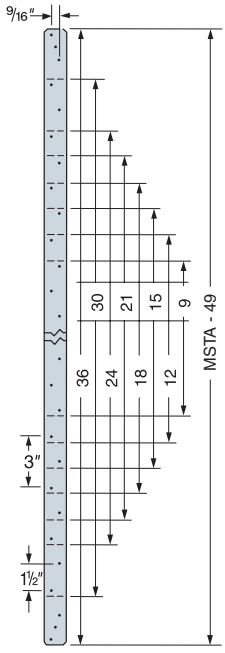
INSTALLATION: Use all specified fasteners. See General Notes.

OPTIONS: Special sizes can be made to order. Contact Simpson Strong-Tie.

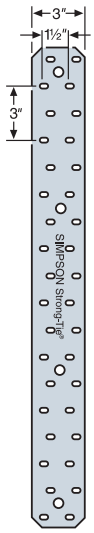
CODES: See page 12 for Code Reference Key Chart.
MSTC and RPS meet code requirements for reinforcing cut members (16 gauge) at top plate and RPS at sill plate.
International Residential Code®– 2000/2006 R602.6.1
International Building Code®– 2000/2006 2308.9.8
(For RPS, refer to page 172.)



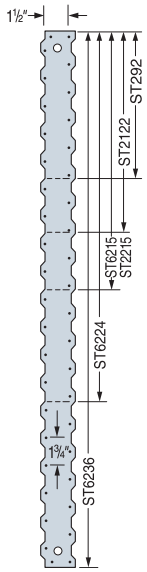
MSTI **MST** **LSTI**



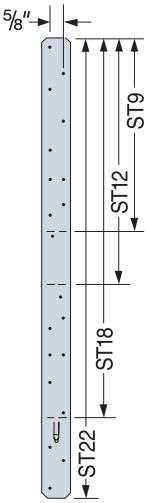
LSTA and MSTA
(Pilot holes not shown)



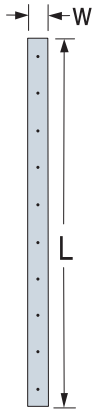
MSTC28



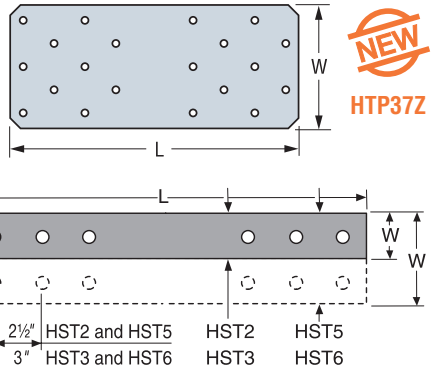
ST



ST9, ST12, ST18, ST22

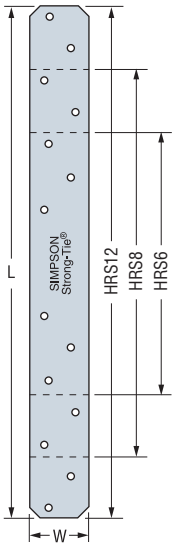


ST2115

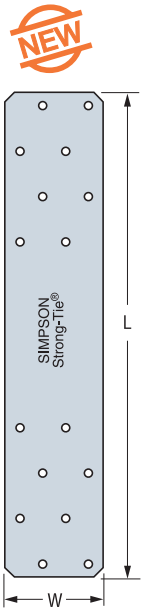


HST

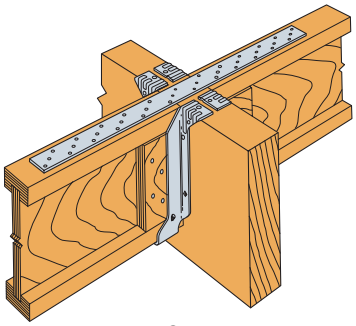
HTP37Z



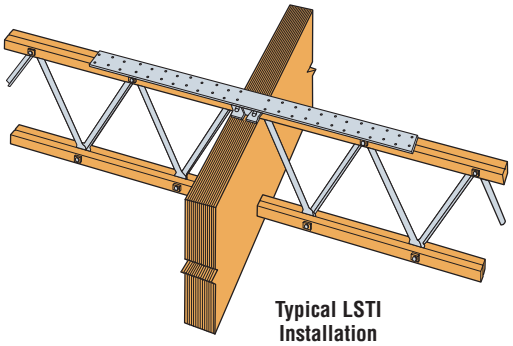
HRS



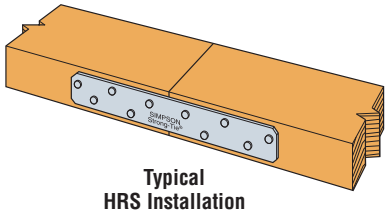
HRS416Z



Typical MSTI Installation
(MIT hanger shown)
LSTI similar



Typical LSTI Installation



Typical HRS Installation

HRS/ST/PS/HST/HTP/LSTA/LSTI/MST/MSTA/MSTC/MSTI *Strap Ties*

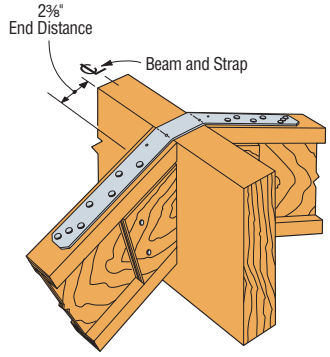
SIMPSON Strong-Tie®

CODES: See page 12 for Code Reference Key Chart.

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

Model No.	Ga	Dimensions W	Dimensions L	Fasteners (Total)	Allowable Tension Loads (DF/SP) (160)	Allowable Tension Loads (SPF/HF) (160)	Code Ref.
LSTA9	20	1¼	9	8-10d	740	635	I4, L19, F2
LSTA12		1¼	12	10-10d	925	795	
LSTA15		1¼	15	12-10d	1110	950	
LSTA18		1¼	18	14-10d	1235	1110	
LSTA21		1¼	21	16-10d	1235	1235	
LSTA24		1¼	24	18-10d	1235	1235	
ST292		2⁵⁄₁₆	9⁵⁄₁₆	12-16d	1265	1120	I4, IL14, L19, F2
ST2122		2⁵⁄₁₆	12¹³⁄₁₆	16-16d	1530	1505	
ST2115		¾	16⁵⁄₁₆	10-16d	660	660	
ST2215		2⁵⁄₁₆	16⁵⁄₁₆	20-16d	1875	1880	
LSTA30	18	1¼	30	22-10d	1640	1640	I4, L19, F2
LSTA36		1¼	36	24-10d	1640	1640	
LSTI49		3¾	49	32-10dx1½	2975	2555	
LSTI73		3¾	73	48-10dx1½	4205	3830	
MSTA9		1¼	9	8-10d	750	645	
MSTA12		1¼	12	10-10d	940	810	
MSTA15		1¼	15	12-10d	1130	970	
MSTA18		1¼	18	14-10d	1315	1130	
MSTA21		1¼	21	16-10d	1505	1290	
MSTA24		1¼	24	18-10d	1640	1455	
MSTA30	16	1¼	30	22-10d	2050	1820	
MSTA36		1¼	36	26-10d	2050	2050	
MSTA49		1¼	49	26-10d	2020	2020	F26
ST6215		2⁵⁄₁₆	16⁵⁄₁₆	20-16d	2095	1900	I4, IL14, L19, F2
ST6224		2⁵⁄₁₆	23⁵⁄₁₆	28-16d	2540	2540	I4, L4, F2
ST9		1¼	9	8-16d	885	760	I4, IL14, L19, F2
ST12		1¼	11⅝	10-16d	1105	950	
ST18		1¼	17¾	14-16d	1420	1330	
ST22		1¼	21⅝	18-16d	1420	1420	
MSTC28		3	28¼	36-16d sinkers	3455	2980	I4, L19, F2
MSTC40		3	40¼	52-16d sinkers	4745	4305	
MSTC52		3	52¼	62-16d sinkers	4745	4745	
NEW HTP37Z		3	7	20-10dx1½	1850	1600	170
MSTC66	14	3	65¾	76-16d sinkers	5860	5860	I4, L19, F2
MSTC78		3	77¾	76-16d sinkers	5860	5860	
ST6236		2⁵⁄₁₆	33¹³⁄₁₆	40-16d	3845	3845	
HRS6	12	1⅜	6	6-10d	605	525	F26
HRS8		1⅜	8	10-10d	1010	880	
HRS12		1⅜	12	14-10d	1415	1230	
MSTI26		2⁵⁄₁₆	26	26-10dx1½	2745	2325	I4, L19, F2
MSTI36		2⁵⁄₁₆	36	36-10dx1½	3800	3220	
MSTI48		2⁵⁄₁₆	48	48-10dx1½	5065	4290	
MSTI60		2⁵⁄₁₆	60	60-10dx1½	5080	5080	
MSTI72		2⁵⁄₁₆	72	64-10dx1½	5080	5080	
NEW HRS416Z		3¼	16	16-SDS ¼"x1½"	2835	2305	170

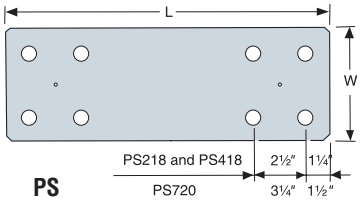
1. Loads include a 60% load duration increase on the fasteners for wind or earthquake loading.
2. 10dx1½" nails may be substituted where 16d sinkers or 10d are specified at 100% of the table loads except where straps are installed over sheathing.
3. 10d commons may be substituted where 16d sinkers are specified at 100% of table loads.
4. 16d sinkers (0.148" dia. x 3¼" long) or 10d commons may be substituted where 16d commons are specified at 0.84 of the table loads.
5. Use half of the nails in each member being connected to achieve the listed loads.
6. Tension loads apply for uplift when installed vertically.
7. **NAILS:** 16d = 0.162" dia. x 3½" long, 16d Sinker = 0.148" dia. x 3¼" long, 10d = 0.148" dia. x 3" long. 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



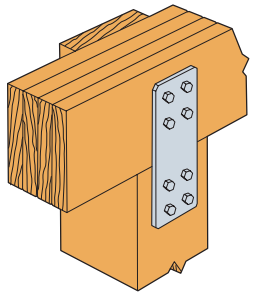
Typical LSTA Installation
(Hanger not shown)
Bend strap one time only

Model No.	Material Thickness Gauge	Dim. W	Dim. L	Bolts Qty	Bolts Dia	Code Ref.
PS218	7 ga	2	18	4	¾	180
PS418		4	18	4	¾	
PS720		6¾	20	8	½	

1. PS strap design loads must be determined by the Designer for each installation. Bolts are installed both perpendicular and parallel-to-grain. Hole diameter in the part may be oversized to accommodate the HDG. Designer must determine if the oversize creates an unacceptable installation.



PS



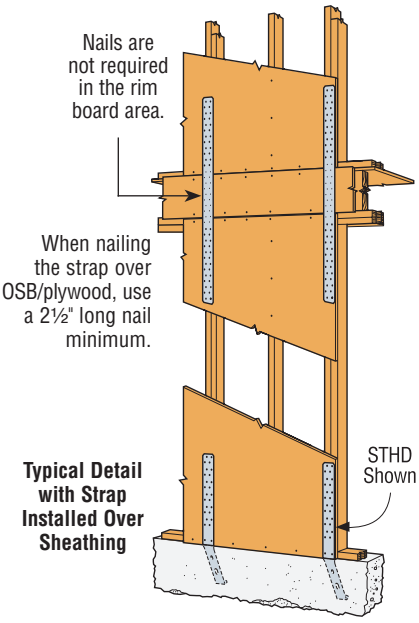
Typical PS720 Installation

HST/MST/MSTC/MSTA *Strap Ties*

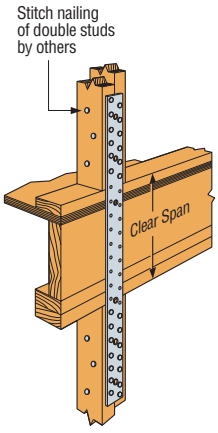
SIMPSON Strong-Tie®

Floor-to-Floor Clear Span Table

Model No.	Clear Span	Fasteners (Total)	Allowable Tension Loads (DF/SP)	Allowable Tension Loads (SPF/HF)
			(160)	(160)
MSTA49	18	26-10d	2020	2020
	16	26-10d	2020	2020
MSTC28	18	12-16d sinkers	1155	995
	16	16-16d sinkers	1540	1325
MSTC40	18	28-16d sinkers	2695	2320
	16	36-16d sinkers	3465	2980
MSTC52	18	44-16d sinkers	4235	3645
	16	48-16d sinkers	4620	3975
MSTC66	18	64-16d sinkers	5860	5495
	16	68-16d sinkers	5860	5840
MSTC78	18	76-16d sinkers	5860	5860
	16	76-16d sinkers	5860	5860
MST37	18	20-16d	2465	2135
	16	22-16d	2710	2345
MST48	18	32-16d	3695	3425
	16	34-16d	3695	3640
MST60	18	46-16d	4830	4830
	16	48-16d	4830	4830
MST72	18	46-16d	4830	4830
	16	48-16d	4830	4830



Typical Detail with Strap Installed Over Sheathing



Floor-to-Floor Tie Installation showing a Clear Span

CODES: See page 12 for Code Reference Key Chart.

1. Loads include a 60% load duration increase on the fasteners for wind or earthquake loading.
2. 10d commons may be substituted where 16d sinkers are specified at 100% of the table loads.
3. 16d sinkers (0.148" dia. x 3¼" long) or 10d commons may be substituted where 16d commons are specified at 0.84 of the table loads.
4. Allowable bolt loads are based on parallel-to-grain loading and these minimum member thicknesses: MST–2½"; HST2 and HST5–4"; HST3 and HST6–4½".
5. Use half of the required nails in each member being connected to achieve the listed loads.
6. Straps not installed over sheathing with 10d (0.148 dia. x 3) nails specified may be substituted with 10dx1½ (0.148 dia. x 1½) with no reduction in load.
7. Tension loads apply for uplift as well when installed vertically.
8. **NAILS:** 16d = 0.162" dia. x 3½" long, 16d Sinker = 0.148" dia. x 3¼" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

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

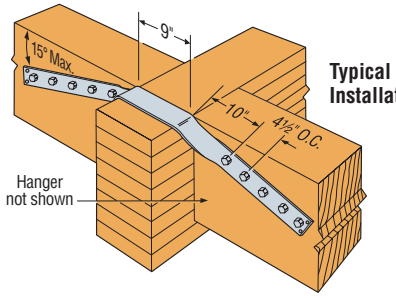
Model No.	Ga	Dimensions W	Dimensions L	Fasteners (Total) Nails	Fasteners (Total) Bolts Qty	Fasteners (Total) Bolts Dia	Allowable Tension Loads (DF/SP) Nails (160)	Allowable Tension Loads (DF/SP) Bolts (160)	Allowable Tension Loads (SPF/HF) Nails (160)	Allowable Tension Loads (SPF/HF) Bolts (160)	Code Ref.
MST27	12	2⅛	27	30-16d	4	½	3700	2165	3200	2000	I4, L19, F2
MST37	12	2⅛	37½	42-16d	6	½	5080	3025	4480	2805	I4, L19, F2
MST48	12	2⅛	48	50-16d	8	½	5310	3675	5190	3410	I4, L19, F2
MST60	10	2⅛	60	68-16d	10	½	6730	4485	6475	4175	I4, L19, F2
MST72	10	2⅛	72	68-16d	10	½	6730	4485	6475	4175	I4, L19, F2
HST2	7	2½	21¼	—	6	⅝	—	5220	—	4835	I4, L19, F2
HST5	7	5	21¼	—	12	⅝	—	10650	—	9870	I4, L19, F2
HST3	3	3	25½	—	6	¾	—	7680	—	6660	I4, L19, F2
HST6	3	6	25½	—	12	¾	—	15470	—	13320	I4, L19, F2

SA/HSA *Strap Connectors*

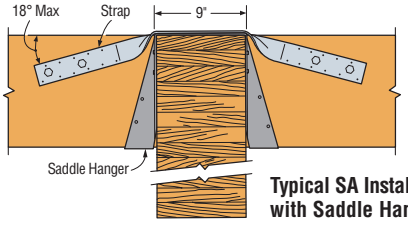
A high value seismic tie for horizontal ties across intervening members.
FINISH: SA36—Galvanized; HSA—Simpson Strong-Tie® gray paint
INSTALLATION: • Use all specified fasteners. See General Notes.
• May not be suitable for floor diaphragms which protrude above beams.
CODES: See page 12 for Code Reference Key Chart.

Model No.	Strap Section	L	Fasteners (Total) Nails	Fasteners (Total) Bolts Qty	Fasteners (Total) Bolts Dia	Allowable Horizontal Loads Nails (160)	Allowable Horizontal Loads Bolts (160)	Code Ref.
SA36	12 ga x 2⅛	36	22-16d	4	½	1900	1900	I15, F14
HSA32	3 ga x 3	32	—	2	¾	—	2290	I15, F14
HSA41	3 ga x 3	41	—	4	¾	—	4520	I15, F14
HSA50	3 ga x 3	50	—	6	¾	—	6400	I15, F14
HSA59	3 ga x 3	59	—	8	¾	—	8330	I15, F14
HSA68	3 ga x 3½	68	—	10	¾	—	10020	I15, F14

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Allowable loads assume a restrained member of 3½" min. thickness with bolts in single shear.
3. Bolt and nail values may not be combined.
4. Only SA36 can be field-bent for other intermediate beam widths.
5. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.



Typical HSA Installation



Typical SA Installation with Saddle Hanger

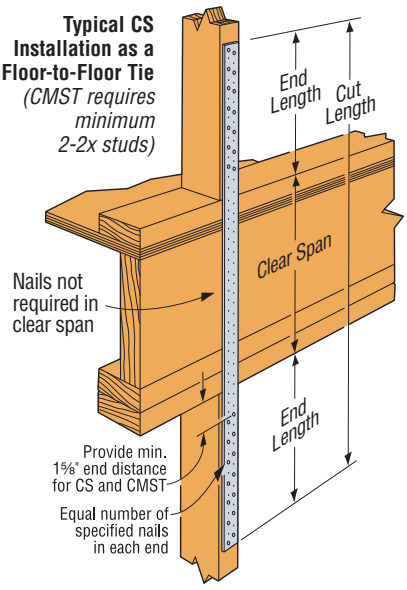
CS/CMST *Coiled Straps*

CMSTC provides nail slots for easy installation and coined edges; it can be cut to length.
CS are continuous utility straps which can be cut to length on the job site. Packaged in lightweight *(about 40 pounds)* cartons.
FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 10-11.
INSTALLATION: • Use all specified fasteners. See General Notes.

- Wood shrinkage after strap installation across horizontal wood members may cause strap to buckle outward.
- Refer to the applicable code for minimum nail penetration and minimum wood edge and end distances.
- The table shows the maximum allowable loads and the nails required to obtain them. Fewer nails may be used; reduce the allowable load as shown in footnote #3.
- The cut length of the strap shall be equal to twice the "End Length" noted in the table plus the clear span dimension.
- CMST only–Use every other round hole if the wood tends to split. Use round and triangle holes for comparable MST loads, providing wood does not tend to split.
- For lap slice and alternate nailing information, refer to technical bulletin T-CMST *(see page 191 for details)*.
- CS straps are available in 25' lengths, order CS14-R, CS16-R, CS18-R, CS20-R or CS22-R.

CODES: See page 12 for Code Reference Key Chart.

Typical CS Installation as a Floor-to-Floor Tie *(CMST requires minimum 2-2x studs)*

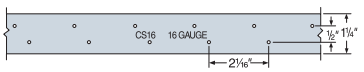


These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

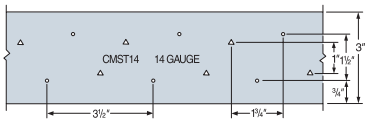
Model No.	Total L	Ga	DF/SP		SPF/HF		Allowable Tension Loads (160)	Code Ref.
			Fasteners	End Length	Fasteners	End Length		
			160	160	160	160		
CMST12	40'	12	74 - 16d	33"	84 - 16d	38"	9215	I4, L19, F2
			86 - 10d	39"	98 - 10d	44"	9215	
CMST14	52½'	14	56 - 16d	26"	66 - 16d	30"	6490	
			66 - 10d	30"	76 - 10d	34"	6490	
CMSTC16	54'	16	50 - 16d sinker	20"	58 - 16d sinker	25"	4585	I4, L19, F2
CS14	100'	14	26 - 10d	15"	30 - 10d	16"	2490	
			30 - 8d	16"	36 - 8d	19"	2490	
CS16	150'	16	20-10d	11"	22 - 10d	12"	1705	I4, L19, F2
			22 - 8d	13"	26 - 8d	14"	1705	
CS18	200'	18	16 - 10d	9"	18 - 10d	10"	1370	
			18 - 8d	11"	22 - 8d	12"	1370	
CS20	250'	20	12 - 10d	6"	14 - 10d	8"	1030	
			14 - 8d	9"	16 - 8d	9"	1030	
CS22	300'	22	10 - 10d	7"	12 - 10d	7"	845	
			12 - 8d	6"	14 - 8d	8"	845	

1. Loads include a 60% load duration increase on the fasteners for wind or seismic loading.
2. Use half of the required nails in each member being connected to achieve the listed loads.
3. Calculate the connector value for a reduced number of nails as follows: Allowable Load = $\frac{\text{No. of Nails Used}}{\text{No. of Nails in Table}}$ x Table Load

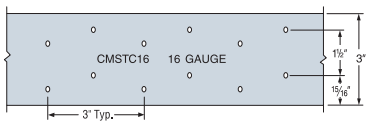
   Example: CMSTC16 in DF/SP with 48 nails total.
   (Half of the nails in each member being connected) Allowable Load = $\frac{\text{48 Nails (Used)}}{\text{56 Nails (Table)}}$ x 4585 lbs = 3930 lbs
4. Tension loads apply for uplift when installed vertically.
5. **NAILS:** 16d = 0.162" dia. x 3½" long, 16d Sinker = 0.148" dia. x 3¼" long, 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.



CS16 Hole Pattern
(all other CS straps similar)



CMST14 Hole Pattern
(CMST12 similar)



CMSTC16 Hole Pattern

Gauge stamped on part for easy identification

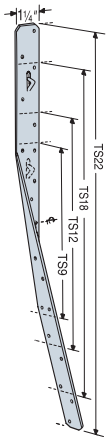
TS *Twist Straps*

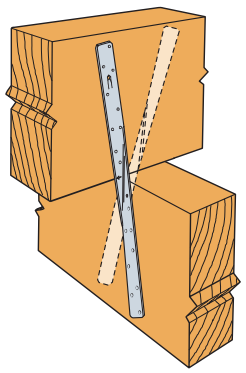
Twist straps provide a tension connection between two wood members.
An equal number of right and left hand units are supplied in each carton.
MATERIAL: 16 gauge. **FINISH**: Galvanized. See Corrosion Information, page 10-11.
INSTALLATION: • Use all specified fasteners. See General Notes.

- TS should be installed in pairs to reduce eccentricity.

CODES: See page 12 for Code Reference Key Chart.

TS





Typical TS Installation

Model No.	L	Fasteners (Total)	Allowable Loads (160)	Code Ref.
TS9	9	8-16d	530	170
TS12	11⅞	10-16d	665	
TS18	17¾	14-16d	930	
TS22	21⅝	18-16d	1215	

1. Install half of the fasteners on each end of the strap to achieve full loads.
2. Loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. 16d sinkers (0.148" dia. x 3¼") may be substituted for the specified 16d commons at 0.84 of the table loads.
4. Loads are for a single TS.
5. **NAILS:** 16d = 0.162" dia. x 3½" long, See page 16-17 for other nail sizes and information.

FSC *Floor Span Connector*

As an alternative to coil strap, our new FSC-Floor Span Connector connects upper floors to lower floors from the inside of the wall. The convenient obround holes make installation in narrow wall cavities easy. Installs with a ⅜" all thread rod, nut and washer *(not included)*.

MATERIAL: See table

FINISH: Galvanized

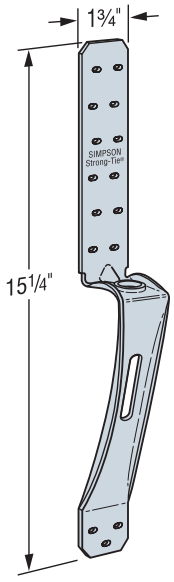
INSTALLATION:

- Can be used on a single 2x stud.
- Threaded rod, washers and nuts are not supplied with the FSC.
- Use ⅜" threaded rod grade A307 or better, with matching nuts and cut washers.
- FSC may be installed a maximum of 18" from the sill or top plates.
- Drill ½" to ¾" diameter hole through the plates for threaded rod access, hole should be located approximately 1½" away from the face of stud used for FSC attachment.
- Nails can be installed up to 30 degree angle with no reduction in load capacity.

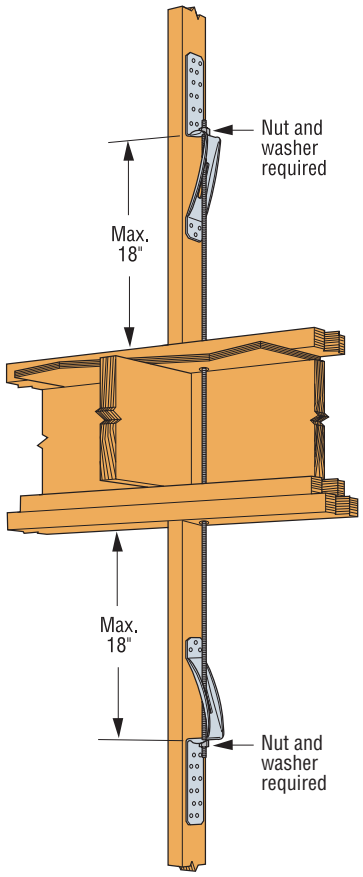
CODES: See page 12 for Code Reference Key Chart.

Model No.	Ga	Fasteners		Allowable Tension Load		Code Ref.
		Stud	Anchor	DF/SP (160)	SPF/HF (160)	
FSC	12	15-10dx1½	⅜" ATR	1830	1570	IP1, F25

1. The allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Load values are based on a minimum lumber thickness of 1½".
3. Standard cut washer is required with the ⅜" all thread rod.
4. The FSC can be used on offset studs provided the horizontal offset is no greater than 3". Refer to flier F-FSC for more information *(see page 191 for details)*.
5. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



FSC
Patent Pending



Typical FSC Installation

MSTC48B3/MSTC66B3 *Pre-Bent Straps*

The MSTC48B3 and MSTC66B3 are pre-bent straps designed to transfer tension load from an upper story shearwall to a beam on the story below.

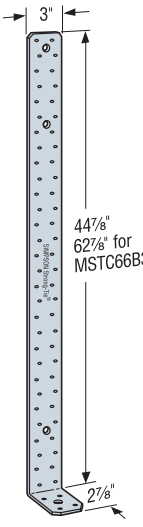
MATERIAL: 14 gauge

FINISH: Galvanized

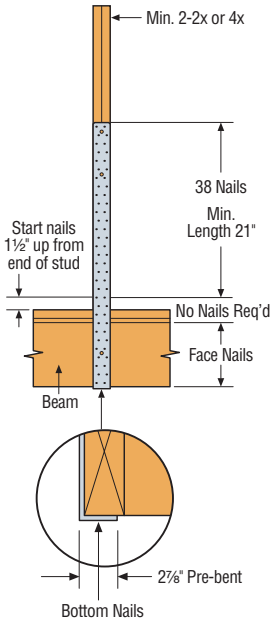
CODES: See page 12 for Code Reference Key Chart.

Model No.	Dimensions		Fasteners			Allowable Tension Loads		Code Ref.
	Beam		Beam		Studs/ Post	DF/SP (160)	SPF/HF (160)	
	Width (min)	Depth (min)	Face	Bottom				
MSTC48B3	3	9¼	12-10d	4-10d	38-10d	3930	3380	F26
MSTC66B3	3½	11¼	14-10d			4440	3820	

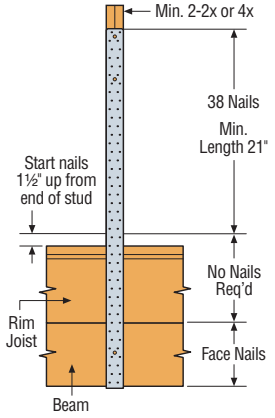
1. Using fewer than 38 nails in the studs/post will reduce the capacity of the connection. To calculate a reduced capacity use 129 lbs. per nail for DFL/SYP or 112 lbs. per nail for HF/SPF.
2. Nails in studs/post shall be installed symmetrically. Nails may be installed over the entire length of the strap over the studs/post.
3. The 3" wide beam may be double 2x members.
4. MSTC48B3 and MSTC66B3 installed over wood structural panel sheathing up to ½" thick achieve 0.85 of table loads.
5. Loads govern by the lower of .125" deflection from static tests on wood members, steel ultimate divided by 2, or the calculated nail values.
6. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.



MSTC48B3



MSTC48B3 Installation with no Rim Joist



MSTC66B3 Installation with Rim Joist

FTA/LFTA *Floor Tie Anchors*

Designed for use as a floor-to-floor tension tie, one FTA replaces two comparably sized holdowns and the threaded rod.

The LFTA Light Floor Tie Anchor is for nailed installations.

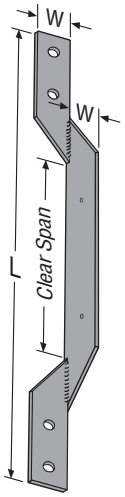
MATERIAL: See table

FINISH: LFTA–galvanized;
FTA–Simpson Strong-Tie® gray paint

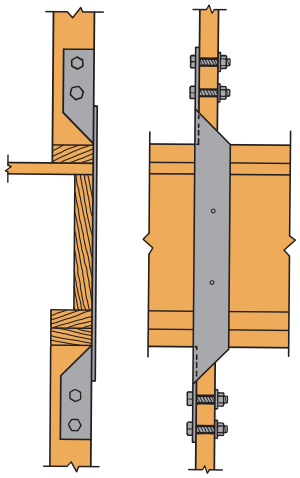
INSTALLATION: • Use all specified fasteners. See General Notes.
• Washers required on side opposite FTA for full loads.
• Nail holes between floors allow preattachment to the joist during installation; these nails are not required.

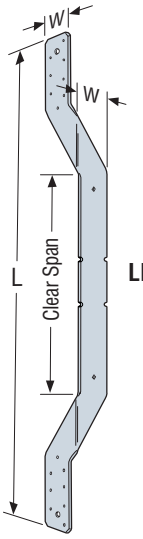
OPTIONS:
• The standard model's clear span of 17" will accommodate up to a 12" joist. The clear span of the FTA may be increased with a corresponding increase in overall length.

CODES: See page 12 for Code Reference Key Chart.



FTA


Typical FTA Installation



LFTA

Model No.	Ga	Dimensions			Fasteners (Total)		Allowable Uplift Loads[1] (160)						Code Ref.
		W	Clear Span	L	Qty	Dia	Vertical Member Thickness					LFTA[2]	
							1½	2	2½	3	3½		
LFTA	16	2¼	17	38⅜	16-10d	—	—	—	—	—	—	1205	I17, L22, F16
FTA2	10	3	17	37½	4	⅝	1890	2515	3120	3385	3385	—	
FTA5	10	3½	17	45½	4	¾	2240	3000	3750	4400	4400	—	
FTA7	3	3½	17	56	6	⅞	3715	5020	6210	7600	7600	—	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Reduce the allowable load for the LFTA according to the code when nails penetrate wood less than 1¾".
3. **NAILS:** 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.

T and L *Strap Ties*

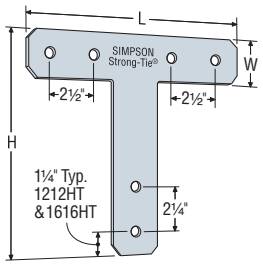
T and L Strap Ties are versatile utility straps. See Architectural Products Group for aesthetically pleasing options with black powder-coated paint.

FINISH: Galvanized. See Corrosion Information, page 10-11.

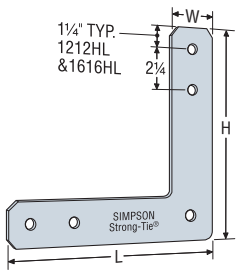
CODES: See page 12 for Code Listing Key Chart.

Model No.	Ga	Dimensions			Fasteners			Code Ref.
		L	H	W	Nails	Bolts		
						Qty	Dia	
55L	16	4¾	4¾	1¼	5-10d	—	—	180
66L	14	6	6	1½	10-16d	3	⅜	
88L	14	8	8	2	12-16d	3	½	
1212L	14	12	12	2	14-16d	3	½	
66T	14	6	5	1½	8-16d	3	⅜	
128T	14	12	8	2	12-16d	3	½	
1212T	14	12	12	2	12-16d	3	½	

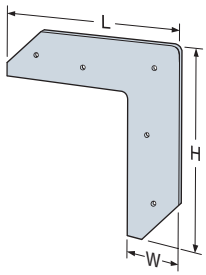
1. These connectors are not load-rated.
2. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.



1212HT



1212HL

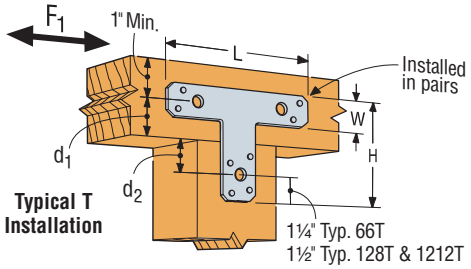


55L

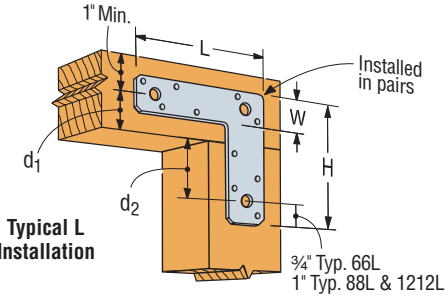
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Ga	Dimensions			Minimum Bolt End & Edge Distances		Bolts		Allowable Loads[1,2]		Code Ref.
		W	H	L	d_1	d_2	Qty	Dia	Tension/Uplift (100/160)	F_1 (100/160)	
1212HL	7	2½	12	12	2½	4⅜	5	⅝	1535	565	170
1616HL	7	2½	16	16	2½	4⅜	5	⅝	1535	565	
1212HT	7	2½	12	12	2½	4⅜	6	⅝	2585	815	
1616HT	7	2½	16	16	2½	4⅜	6	⅝	2585	815	

1. 1212HL, 1616HL, 1212HT and 1616HT are to be installed in pairs with machine bolts in double shear. A single part with machine bolts in single shear is not load-rated.
2. Allowable loads are based on a minimum member thickness of 3½".
3. 1212HT, 1616HT loads assume a continuous beam.



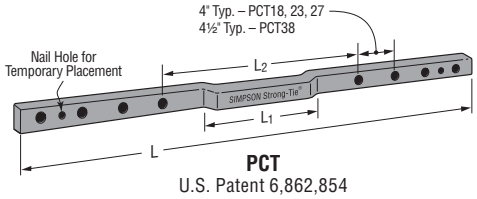
Typical T Installation



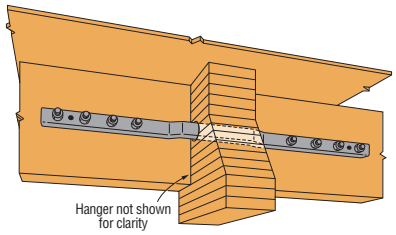
Typical L Installation

PCT *Purlin Cross Ties*

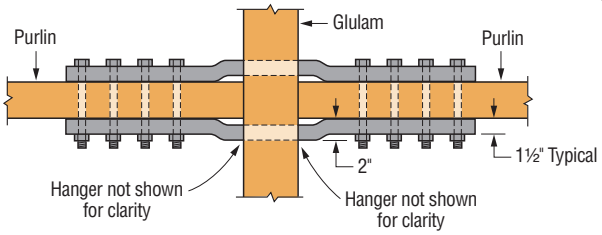
Designed using a section that works in both tension and compression.
MATERIAL: 1½" square tube steel
ASTM A500 Grade B
FINISH: Simpson Strong-Tie® gray paint
INSTALLATION: • Use all specified fasteners. See General Notes.
• PCT18 and 23 are sized to span a maximum hanger seat depth *("B" dimension)* of 4".
PCT27 and 38 are sized to span a maximum hanger seat depth *("B" dimension)* of 6".
• Tube section helps with drilling alignment, through the purlin.
• Offset angle to allow drilling access through glulam.
• 2½" or 2⁹⁄₁₆" diameter hole required.
• Install in pairs.
OPTIONS: Contact Simpson Strong-Tie for other lengths.
CODES: See page 12 for Code Reference Key Chart.



PCT
U.S. Patent 6,862,854



Typical PCT Installation



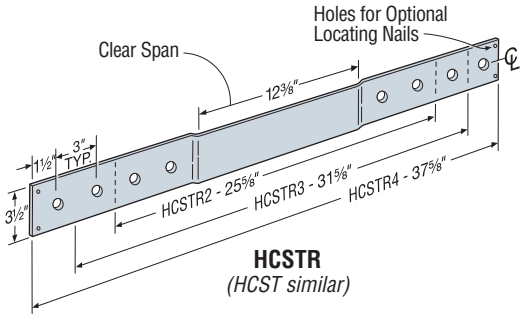
PCT Installed in Pairs
(Top View)

Model No.	Tube Thickness	Total Length L	L_1	L_2	No. and Size of Fasteners	Allowable Loads per Pair of PCTs						Code Ref.
						Steel Tension	Steel Compression	Capacity Based on Double Shear Application and Length of Bolt in Purlin - DF/SP (160)				
								3⅛	3½	5⅛	5½	6¾	
PCT18	⅛	44¾	14	17¾	8-⅝ MB	24665	19165	17235	19110	19110	19090	19050	I15, L23, F14
PCT23	⅛	52¾	14	17¾	10-⅝ MB	24665	19165	21390	23645	23645	23620	23525	
PCT27	³⁄₁₆	66⅝	19½	23½	12-⅝ MB	39665	28665	24855	27705	28400	28430	28255	
PCT38	³⁄₁₆	71⅝	19½	23½	12-¾ MB	39665	26030	29105	33020	40485	40570	40190	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Install in pairs.
3. Minimum bolt length is (Purlin width + 3" (PCT) + 1" (nut)).
4. Bolt value assume minimum 10½" deep purlin.
5. Engineer of record is responsible for evaluating the glulam.

HCSTR *Hinge Connector Straps*

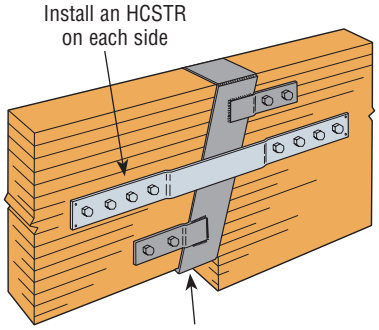
Use Hinge Connector Straps for retrofit applications to strap horizontal wood members together where a hinge connector interferes.
All bolt holes shall be ¹⁄₃₂" *(minimum)* and ¹⁄₁₆" *(maximum)* larger than the bolt diameter *(2005 NDS 11.1.2)*.
MATERIAL: HCSTR2, HCSTR3—7 gauge; HCSTR4—3 gauge
FINISH: HCSTR4—Simpson Strong-Tie gray paint.
All others—Galvanized
OPTIONS: • Where wood is subject to shrinkage, order an HCST2, HCST3 or HCST4 for straps with obround holes.
• Contact Simpson Strong-Tie for longer lengths. For use with Simpson Strong-Tie® hinge connectors.
CODES: See page 12 for Code Reference Key Chart.



HCSTR
(HCST similar)

Model No.	Fasteners (Total)		Allowable Loads	Code Ref.
	Qty	Dia	(160)	
HCSTR2	4	¾	9725	170
HCSTR3	6	¾	14170	
HCSTR4	8	¾	18770	

1. Allowable loads are for straps used in pairs and include a 60% increase for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Allowable loads assume a carrying member of 5⅛" minimum thickness with bolts in double shear.
3. Designed for HC style hinge connectors; contact Simpson Strong-Tie for lengths for HCA and HC3A (only) style hinge connectors.



Typical HCSTR4 Installation

H *Seismic & Hurricane Ties*

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

The H2A features an improved design and higher uplift loads to replace the H2. The H10A has a similar design as the H10 but offers higher uplift capacity.

The H10S provides a high capacity connection from truss/rafter to stud. 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 applications.

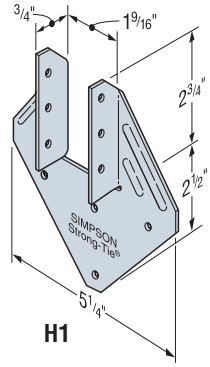
The H2.5T's truncated design was developed to accommodate trusses with 2x4 bottom chords. The easy to install, five nail pattern is stronger and gets better uplift loads than our popular H2.5 hurricane tie. H1, H10, H10S, H10-2, H11Z and H14 have also been rated for download to provide additional bearing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

MATERIAL: See table.

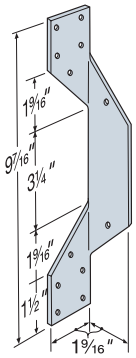
FINISH: Galvanized. H7Z and H11Z—ZMAX® coating. Some models available in stainless steel or ZMAX; see Corrosion Information, page 10-11.

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

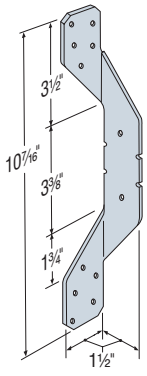
CODES: See page 12 for Code Reference Key Chart.



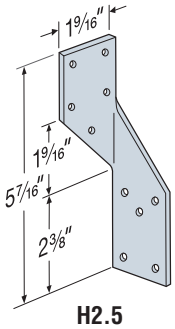
H1



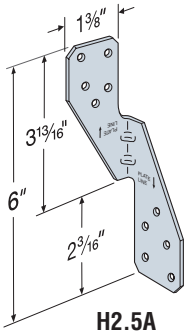
H2



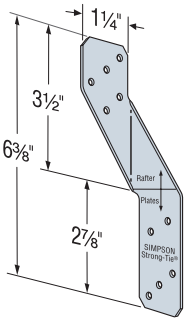
H2A



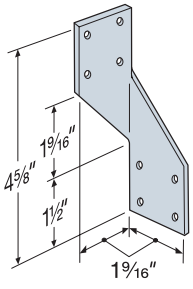
H2.5



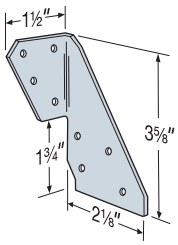
H2.5A



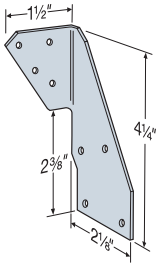
H2.5T



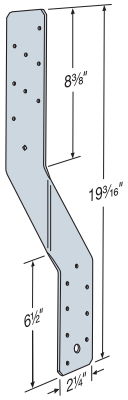
H3



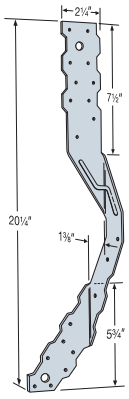
H4



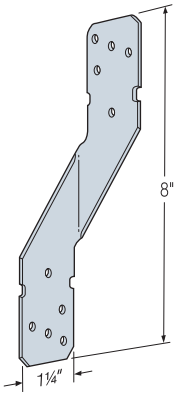
H5



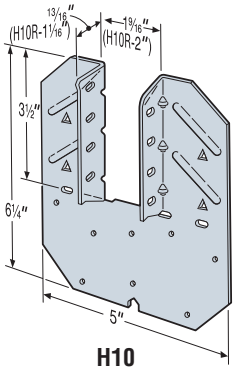
H6



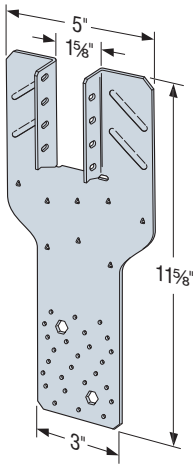
H7Z



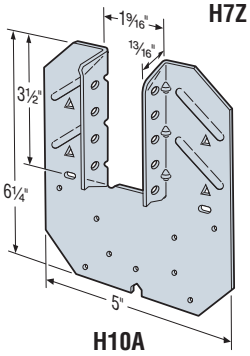
H8



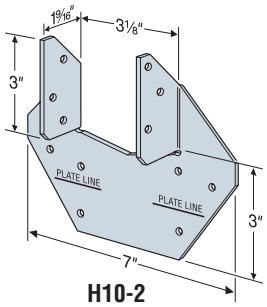
H10
(H10R similar)



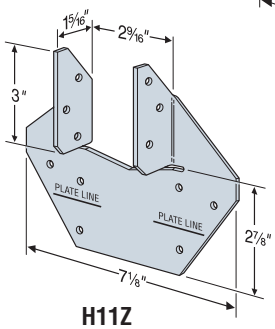
H10S



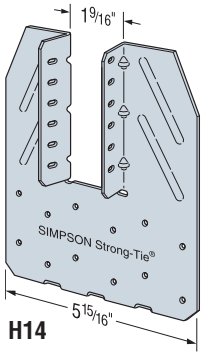
H10A



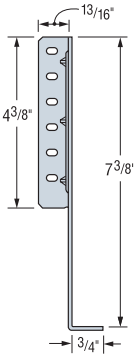
H10-2



H11Z



H14



H14 Profile

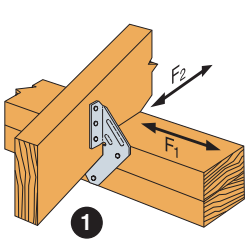
H Seismic & Hurricane Ties

SIMPSON Strong-Tie®

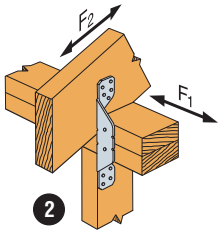
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Ga	Fasteners: To Rafters/ Truss	Fasteners: To Plates	Fasteners: To Studs	DF/SP Allowable Loads: Uplift (160)	DF/SP Allowable Loads: Lateral (160) F_1	DF/SP Allowable Loads: Lateral (160) F_2	Uplift Load with 8dx1½ Nails (160)	SPF/HF Allowable Loads: Uplift (160)	SPF/HF Allowable Loads: Lateral (160) F_1	SPF/HF Allowable Loads: Lateral (160) F_2	Uplift Load with 8dx1½ Nails (160)	Code Ref.
H1	18	6-8dx1½	4-8d	—	585	485	165	455	400	415	140	370	I17, L22, F16
H2	18	5-8d	—	5-8d	335	—	—	335	230	—	—	230	
H2A	18	5-8dx1½	2-8dx1½	5-8dx1½	575	130	55	—	495	130	55	—	IP1, F25
H2.5	18	5-8d	5-8d	—	415	150	150	415	365	130	130	365	I17, L22, F16
H2.5A	18	5-8d	5-8d	—	600	110	110	480	535	110	110	480	I17, F16
H2.5T	18	5-8d	5-8d	—	545	135	145	425	545	135	145	425	IP1, F25
H3	18	4-8d	4-8d	—	455	125	160	415	320	105	140	290	
H4	20	4-8d	4-8d	—	360	165	160	360	235	140	135	235	I17, L22, F16
H5	18	4-8d	4-8d	—	455	115	200	455	265	100	170	265	
H6	16	—	8-8d	8-8d	950	—	—	—	820	—	—	—	I17, F16
H7Z	16	4-8d	2-8d	8-8d	985	400	—	—	845	345	—	—	
H8	18	5-10dx1½	5-10dx1½	—	745	75	—	630	565	75	—	510	F26
H10	18	8-8dx1½	8-8dx1½	—	995	590	285	—	850	505	235	—	I17, F16
H10A	18	9-10dx1½	9-10dx1½	—	1140[7]	590	285	—	1015	505	285	—	I17, F25
H10S[9,10]	18	8-8dx1½	8-8dx1½[10]	8-8d	1010	660	215	550	870	570	185	475	IP1, F25
H10-2	18	6-10d	6-10d	—	760	455	395	—	655	390	340	—	I17, F16
H11Z	18	6-16dx2½	6-16dx2½	—	830	525	760	—	715	450	655	—	170
H14	18	[1] 12-8dx1½	13-8d	—	1350[7]	515	265	—	1050	480	245	—	IP1, F25
		[2] 12-8dx1½	15-8d	—	1350[7]	515	265	—	1050	480	245	—	

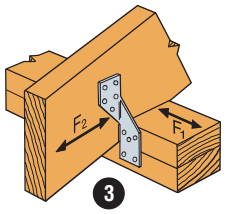
1. Loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Allowable loads are for one anchor. A minimum rafter thickness of 2½" must be used when framing anchors are installed on each side of the joist and on the same side of the plate *(exception: connectors installed such that nails on opposite sides don't interfere).*
3. Allowable DF/SP uplift load for stud to bottom plate installation *(see detail 15)* is 400 lbs. (H2.5); 390 lbs. (H2.5A); 360 lbs. (H4) and 310 lbs. (H8). For SPF/HF values multiply these values by 0.86.
4. Allowable loads in the F_1 direction are not intended to replace diaphragm boundary members or prevent cross grain bending of the truss or rafter members.
5. When cross-grain bending or cross-grain tension cannot be avoided in the members, mechanical reinforcement to resist such forces may be considered.
6. Hurricane Ties are shown installed on the outside of the wall for clarity and assume a minimum overhang of 3½" installation on the inside of the wall is acceptable *(see General Instructions for the Installer notes u on page 14).* For uplift Continuous Load Path, connections in the same area *(i.e. truss to plate connector and plate to stud connector)* must be on same side of the wall.
7. Southern Pine allowable uplift loads for H10A = 1340 lbs. and for H14 = 1465 lbs.
8. Refer to technical bulletin T-HTIEBEARING for H1, H10, H10S, H10-2, H11Z, H14 allowable bearing enhancement loads *(see page 191 for details).*
9. H10S can have the stud offset a maximum of 1" from rafter *(center to center)* for a reduced uplift of 890 lbs. (DF/SP), and 765 lbs. (SPF).
10. H10S nails to plates are optional for uplift but required for lateral loads.
11. **NAILS:** 16dx2½ = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long, 8d = 0.131" dia. x 2½" long, 8dx1½ = 0.131" dia. x 1½" long. See page 16-17 for other nail sizes and information.



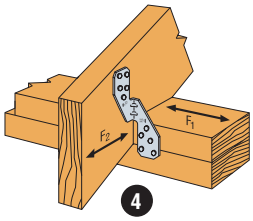
1 **H1 Installation**



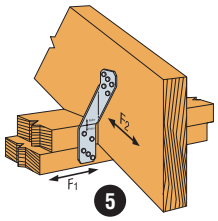
2 **H2A Installation**
(H2 similar)



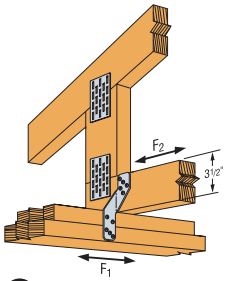
3 **H2.5 Installation**
(Nails into both top plates)



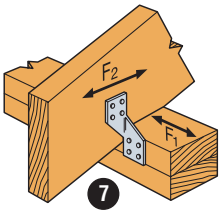
4 **H2.5A Installation**
(Nails into both top plates)



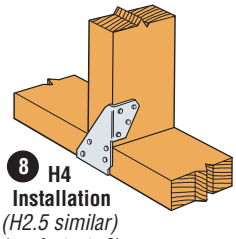
5 **H2.5T Installation**
(Nails into both top plates)



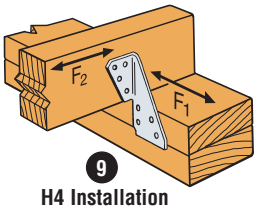
6 **H2.5T Installation**



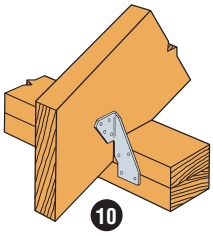
7 **H3 Installation**
(Nails into upper top plate)



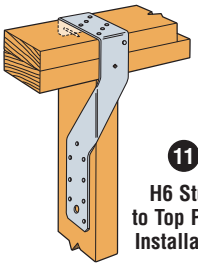
8 **H4 Installation**
(H2.5 similar)
(see footnote 3)



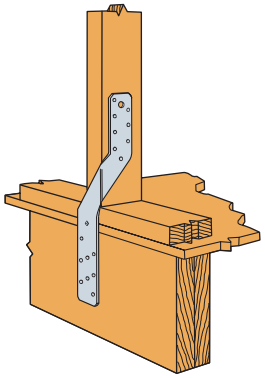
9 **H4 Installation**
(Nails into upper top plate)



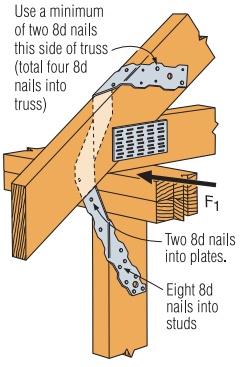
10 **H5 Installation**
(Nails into both top plates)



11 **H6 Stud to Top Plate Installation**

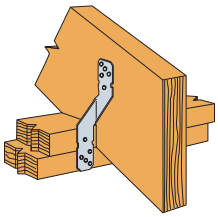


12 **H6 Stud to Band Joist Installation**

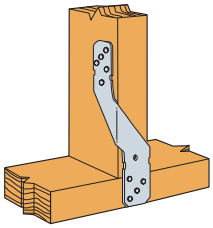


13 **H7Z Installation**

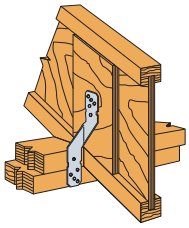
H Seismic & Hurricane Ties



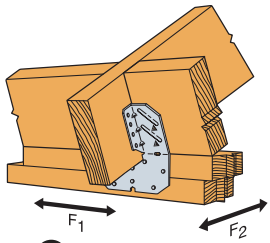
14 H8 attaching rafter to double top plates



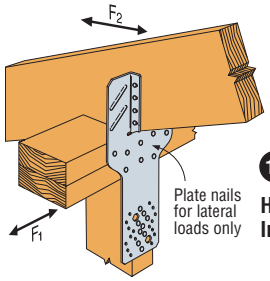
15 H8 attaching stud to sill *(4-8d into plate, 5-8d into stud, refer to footnote 3 for loads)*



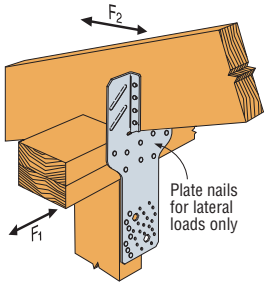
16 H8 attaching I-joist to double top plates



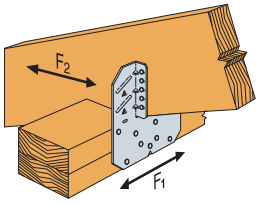
17 H10 Installation



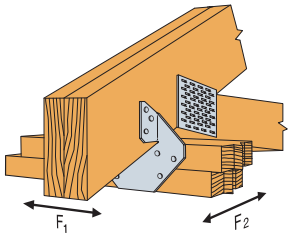
18 H10S Installation



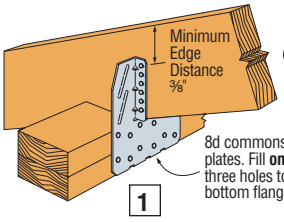
19 H10S Installation with stud offset



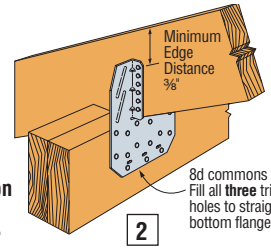
20 H10A Installation



21 H10-2 Installation *(H11Z similar)*

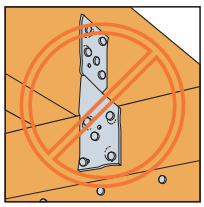


22 H14 Installation to double top plates



23 H14 Installation to double 2x header

AVOID A MISINSTALLATION



Do not make new holes or overdrive nails!

H10 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 load; bend one time only.

Considerations for Hurricane Tie Selection

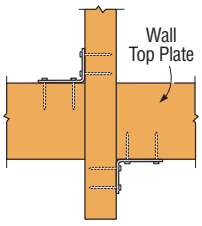
1. What is the uplift load?
2. What is the parallel-to-plate load?
3. What is the perpendicular-to-plate load?
4. What is the species of wood used for the rafter and the top plates? *(Select the load table based on the lowest performing species of wood.)*
5. Will the hurricane tie be nailed into both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

> Allowable simultaneous loads in more than one direction on a single connector must be evaluated as follows:
>
> Design Uplift/Allowable Uplift + Design Lateral Parallel to Plate / Allowable Lateral Parallel to Plate + Design Lateral Perpendicular to Plate / Allowable Lateral Perpendicular to Plate < 1.0.
>
> The three terms in the unity equation are due to 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.

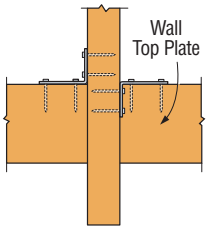
7. Select hurricane tie based on performance, application, installed cost and ease of installation.

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

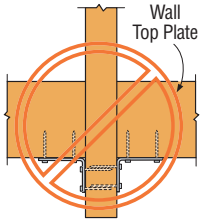
Both connectors shall be same model.



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



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



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

VB Knee Braces

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

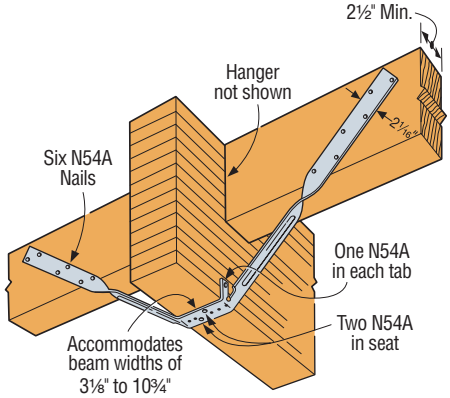
MATERIAL: 12 gauge **FINISH**: Galvanized

INSTALLATION: • Use specified fasteners. See General Notes.
• 16-N54A fasteners are included with the brace.

CODES: See page 12 for Code Reference Key Chart.

Model No.	H (Beam Depth)	L	Fasteners (Total)	Allowable Tension Loads[1]		Code Ref.
				Floor (100)	Roof (125)	
VB5	10" - 15"	5'	16-N54A	990	1240	I15, F14
VB7	15" - 22½"	7'	16-N54A	990	1240	
VB8	22½" - 28½"	8'	16-N54A	990	1240	
VB10	28½" - 36"	10'	16-N54A	990	1240	
VB12	36" - 42"	12'	16-N54A	990	1240	

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



Typical VB Installation

H *Seismic & Hurricane Ties*

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

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

The presloped 5/12 seat of the H16 provides for a tight fit and reduced deflection. The strap length provides for various truss height up to a maximum of 13½" (*H16 series).* Minimum heel height for H16 series is 4".

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

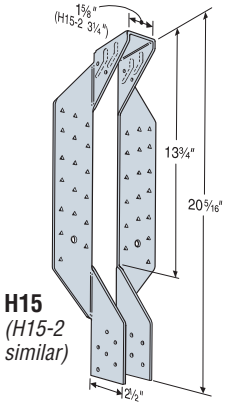
MATERIAL: See table

FINISH: Galvanized. See Corrosion Information, page 10-11.

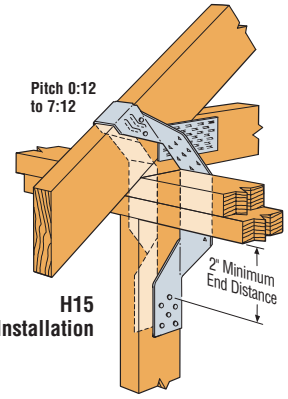
INSTALLATION: • Use all specified fasteners. See General Notes.

- The HGA10KT: screws are provided.
- HS24 requires slant nailing only when bottom chord of truss or rafter has no slope.

CODES: See page 12 for Code Reference Key Chart.



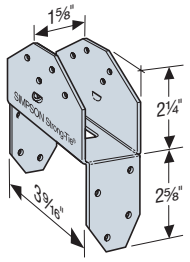
H15
(H15-2 similar)



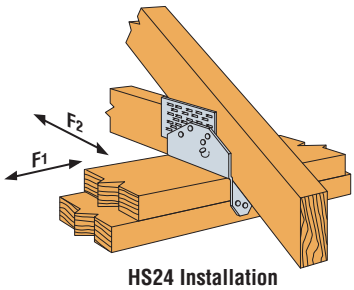
H15 Installation

Model No.	Ga	Fasteners			DF/SP Allowable Loads[1]			SPF/HF Allowable Loads[1]			Code Ref.
		To Rafters/ Truss	To Plates	To Studs	Uplift	Lateral (160)		Uplift	Lateral (160)		
					(160)	F_1	F_2	(160)	F_1	F_2	
HGA10KT	14	4-SDS ¼"x1½"	4-SDS ¼"x3"	—	695	1165	940	500	840	675	F26
HS24	18	8-8dx1½ & 2-8d slant	8-8d	—	605[3]	645[3]	1025[3]	520[3]	555[3]	880[3]	I17, F16
H15	16	4-10dx1½	4-10dx1½	12-10dx1½	1300	480	—	1120	410	—	
H15-2	16	4-10dx1½	4-10dx1½	12-10dx1½	1300	480	—	1120	410	—	
H16	18	2-10dx1½	10-10dx1½	—	1470	—	—	1265	—	—	F26
H16S	18	2-10dx1½	10-10dx1½	—	1470	—	—	1265	—	—	
H16-2	18	2-10dx1½	10-10dx1½	—	1470	—	—	1265	—	—	
H16-2S	18	2-10dx1½	10-10dx1½	—	1470	—	—	1265	—	—	

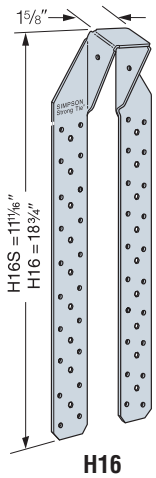
1. Loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. When cross-grain bending or cross-grain tension cannot be avoided, mechanical reinforcement to resist such forces should be considered.
3. HS24 DF/SP allowable loads without slant nailing are **605** lbs. (uplift), 590 lbs. (F_1), 640 lbs. (F_2). For SPF/HF loads multiply these values by 0.86.
4. For H16-2S, S = short.
5. Allowable loads in the F_1 direction are not intended to replace diaphragm boundary members or prevent cross grain bending of the truss or rafter members. Additional shear transfer elements shall be considered where there may be effects of cross grain bending or tension.
6. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long, 8d = 0.131" dia. x 2½" long, 8dx1½ = 0.131" dia. x 1½" long. See page 16-17 for other nail sizes and information.



HS24
U.S. Patents 5,603,580

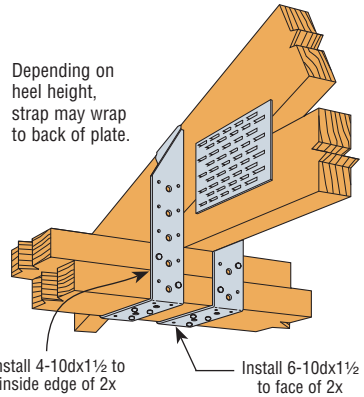


HS24 Installation

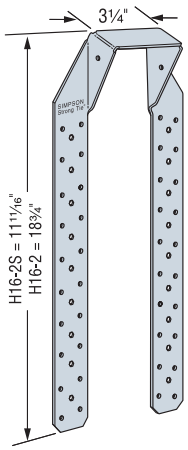


H16 and H16S

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

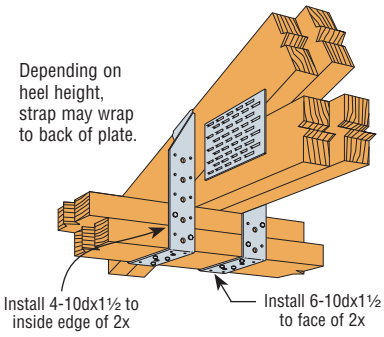


H16 Installation

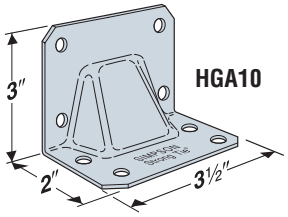


H16-2 and H16-2S

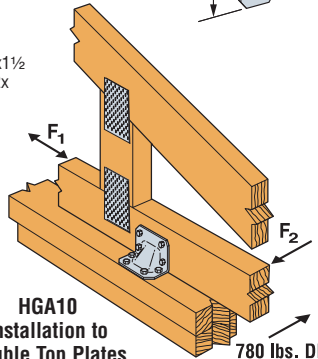
Presloped at 5:12. Pitch of 3:12 to 7:12 is acceptable



H16-2 Installation

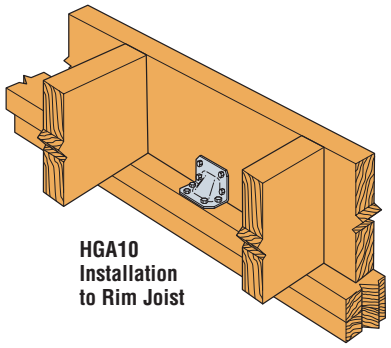


HGA10



HGA10 Installation to Double Top Plates

780 lbs. DF/SP
495 lbs. SPF/HF



HGA10 Installation to Rim Joist

LTS/MTS/HTS *Twist Straps*

Twist straps provide a tension connection between two wood members. They resist uplift at the heel of a truss economically. The 3" bend section eliminates interference at the transition points between wood members.

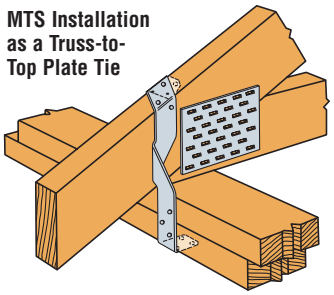
MATERIAL: LTS—18 gauge; MTS—16 gauge; HTS—14 gauge

FINISH: Galvanized. Some products available in stainless steel and ZMAX® coating; see Corrosion Information, page 10-11.

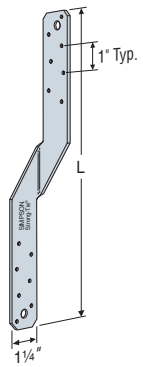
INSTALLATION:

- Use all specified fasteners. See General Notes.

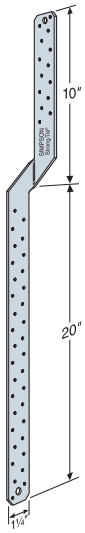
CODES: See page 12 for Code Reference Key Chart.



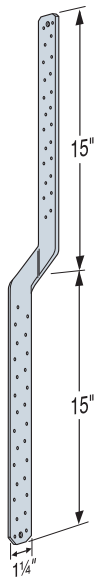
MTS Installation as a Truss-to-Top Plate Tie



LTS12 *(MTS and HTS similar)*



MTS30 *(HTS30 similar)*

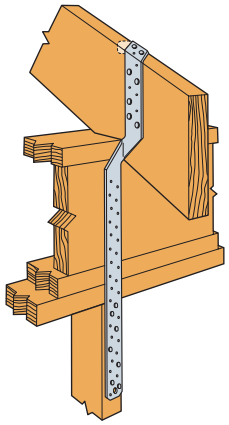


MTS30C *(HTS30C similar)*

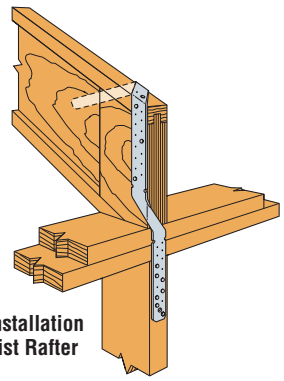
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	L	Fasteners[2]		DF/SP Allowable Uplift Loads[3]		SPF/HF Allowable Uplift Loads		Code Ref.
		10d	10dx1½	10d (160)	10dx1½ (160)	10d (160)	10dx1½ (160)	
LTS12	12	12-10d	12-10dx1½	775	720	665	620	I17, L22, F16
LTS16	16	12-10d	12-10dx1½	775	720	665	620	
LTS18	18	12-10d	12-10dx1½	775	720	665	620	
LTS20	20	12-10d	12-10dx1½	775	720	665	620	
MTS12	12	14-10d	14-10dx1Z½	1000	1000	860	860	
MTS16	16	14-10d	14-10dx1½	1000	1000	860	860	
MTS18	18	14-10d	14-10dx1½	1000	1000	860	860	
MTS20	20	14-10d	14-10dx1½	1000	1000	860	860	
MTS30	30	14-10d	14-10dx1½	1000	1000	860	860	
MTS24C	24	14-10d	14-10dx1½	1000	1000	860	860	F26
MTS30C	30	14-10d	14-10dx1½	1000	1000	860	860	
HTS16	16	16-10d	16-10dx1½	1260	1150	1085	990	I17, F16
HTS20	20	20-10d	24-10dx1½	1450	1450	1245	1245	
HTS24	24	20-10d	24-10dx1½	1450	1450	1245	1245	
HTS28	28	20-10d	24-10dx1½	1450	1450	1245	1245	
HTS30	30	20-10d	24-10dx1½	1450	1450	1245	1245	
HTS30C	30	20-10d	24-10dx1½	1450	1450	1245	1245	

1. 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 full loads.
3. Loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
4. All straps except the MTS30 and HTS30 have the twist in the center of the strap.
5. Twist straps do not have to be wrapped over the truss to achieve the load.
6. May be installed on the inside face of the stud.
7. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



Typical MTS30 Installation



MTS30 Installation with I-joist Rafter

HH *Header Hangers*

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

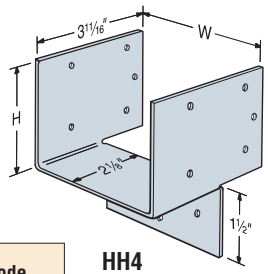
MATERIAL: 16 gauge

FINISH: Galvanized

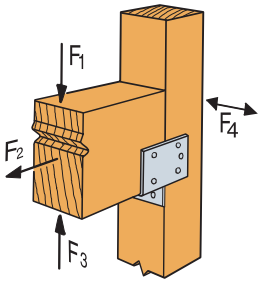
INSTALLATION: • Use all specified fasteners. See General Notes.

- **Attachment to 2x studs will result in two round holes not being filled in the studs and load reductions as noted in table.**

CODES: See page 12 for Code Reference Key Chart.



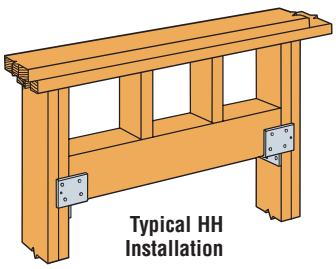
HH4



HH Load Directions

Model No.	W	H	Min. Post Size	Fasteners		DF/SP Allowable Loads						Code Ref.
				Stud	Header	F_1 (100)	F_1 (115)	F_1 (125)	F_2 (160)	F_3 (160)	F_4 (160)	
HH4	3½	2¹³⁄₁₆	2x	7-10dx1½	4-10dx1½	855	965	1035	—	575	725	170
			Dbl 2x	7-16dx2½	4-16dx2½	1010	1140	1195	—	710	750	
			3x	9-16d	4-16d	1195	1195	1195	710	710	1085	I14, L21, F13
HH6	5½	5⅛	2x	10-10dx1½	6-10dx1½	1220	1380	1480	—	1065	1025	170
			Dbl 2x	10-16dx2½	6-16dx2½	1440	1595	1595	—	1065	1085	
			3x	12-16d	6-16d	1595	1595	1595	1065	1065	1085	I14, L21, F13

1. Loads have been increased with no further increase allowed; reduce where other loads govern.
2. **For 3x posts, 16dx2½" nails may be substituted with no reduction in load.**
3. For SPF/HF lumber use 0.86 x DF/SP allowable loads.
4. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long, 16dx2½ = 0.162" dia. x 2½" long, 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.



Typical HH Installation

LGT/MGT/VGT/HGT *Girder Tiedowns*

The LGT, MGT, VGT and HGT are girder tiedowns for moderate to high load capacity applications. The LGT and VGT are also suitable for retrofit applications.

LGT connectors provide a low profile connection to the studs for easy installation of drywall. Simple to install and can be installed on the inside or outside of the wall. LGT connectors also provide exceptional bearing enhancement for heavy download applications. The LGT series has been extended to include the new LGT4-SDS3 for 4-ply girders.

The Variable Girder Tiedown (VGT) is a higher capacity alternative to the LGT and MGT for girder trusses. It attaches with Simpson Strong-Tie® Strong-Drive® screws (SDS) to the side of truss and features a predeflected crescent washer that allows it to accommodate top chord pitches up to 8:12. The VGT is also available with one flange concealed for attachment to trusses with no tail.

The HGT offers the highest uplift capacity for girders and can be installed on trusses and beams with top chord slopes up to 8:12.

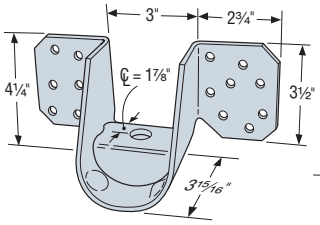
MATERIAL: HGT, VGT—7 gauge, LGT2—14 gauge, MGT, LGT3, LGT4—12 gauge.

FINISH: HGT—Simpson Strong-Tie gray paint; LGT, MGT, VGT—Galvanized

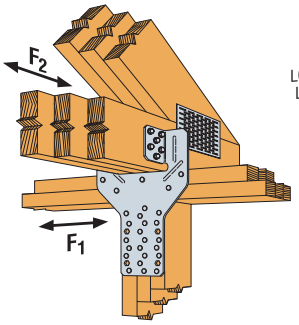
INSTALLATION:
- When the HGT-3 is used with a 2-ply girder or beam, shimming is required. Fasten to act as one unit.
- Before installing fasteners, ensure LGT3-SDS2.5 makes complete contact with bottom of truss.
- SDS screws included with LGT3, LGT4 and VGT Series.
- VGT—Screw holes are configured to allow for double installation on a two-ply *(minimum)* truss.
- VGT—The product can be installed in a single application or in pairs to achieve a higher uplift capacity.
- VGT—When installed on trusses with no overhangs, specify VGTR/L.
- VGT—Install washer component *(provided)* so that top of washer is horizontal as well as parallel with top of wall top plate.
- LGT3-SDS2.5—The four large hexagon holes are intended for CMU and concrete applications.
- See page 146-147 for masonry applications.

OPTIONS: LGT3 and LGT4 are available with reduced widths of W = 4¹³⁄₁₆" and W = 6⅜" — order as LGT3N-SDS2.5 and LGT4N-SDS3.

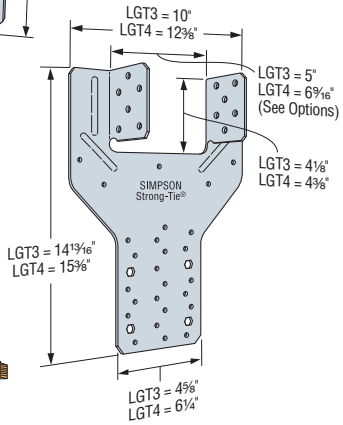
CODES: See page 12 for Code Reference Key Chart.



VGT
U.S. Patent Pending



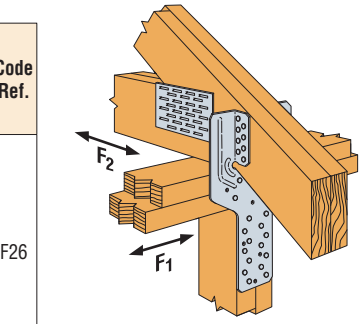
Typical LGT3-SDS2.5 Installation



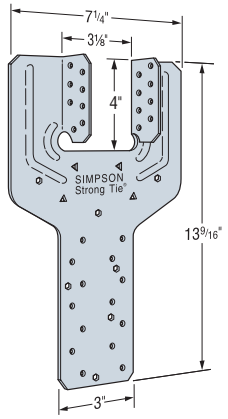
LGT3-SDS2.5
(LGT4-SDS3 similar)

Model No.	Qty.	No. of Plies	O.C. Dim. Between Anchors	Fasteners		DF/SP Allowable Uplift Loads (160)	SPF/HF Allowable Uplift Loads (160)	Code Ref.
				Nails or Anchor Diameter	Girder			
LGT2	1	2 ply	—	14-16d Sinkers	16-16d Sinkers	2050	1785	F26
LGT3-SDS2.5	1	3 ply	—	26-16d Sinkers	12-SDS ¼"x2½"	3685	2655	
LGT4-SDS3	1	4 ply	—	30-16d Sinkers	16-SDS ¼"x3"	4060	2925[6]	
MGT	1	2 ply	—	1-⅝	22-10d	3965	3300	
VGT	1	2 ply min.	—	1-⅝	16-SDS ¼"x3"	4940	3555	
	2	2 ply min.	—	2-⅝	32-SDS ¼"x3"	7185	5175	
		3 ply min.	—	2-⅝	32-SDS ¼"x3"	8890	6400	
VGTR/L	1	2 ply min.	—	1-⅝	16-SDS ¼"x3"	2230	1605	
	2	2 ply min.	—	2-⅝	32-SDS ¼"x3"	5545	3990	
HGT-2	1	2 ply	5¾	2-⅝	16-10d	10980	6485	I17, IL15, F16
HGT-3	1	3 ply	7⅜	2-⅝	16-10d	10530	9035	
HGT-4	1	4 ply	9	2-⅝	16-10d	9250	9250	

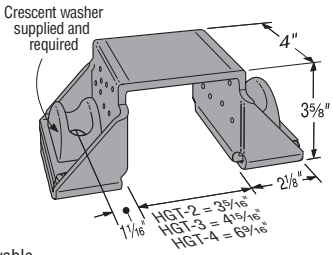
1. Attached members must be designed to resist applied loads.
2. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
3. LGT2—F_1 load = 700 lbs.; F_2 load = 170 lbs. with installation of 4-16d sinkers optional nail holes.
4. LGT3—F_1 load = 795 lbs.; F_2 load = 410 lbs.
5. LGT4—F_1 load = 2000 lbs.; F_2 load = 675 lbs. with installation of 7-16d sinkers in optional nail holes.
6. LGT4—Uplift for DF/SP girder and SPF studs is 3860 lbs.
7. MGT can be installed with straps vertical for full table load provided all specified nails are installed to either a solid header or minimum double 2x6 web.
8. LGT connectors can provide bearing enhancement loads for truss download reactions. The DF/SP allowable load shall be 2060 lbs. for LGT2 and 4100 lbs. for LGT3 and LGT4 *(for SPF/HF values use a 0.68 multiplier)*. For more information refer to technical bulletin T-HTIEBEARING *(see page 191 for details)*.
9. Girder tiedowns installed on the outside of the wall require a 3½" overhang to achieve table loads.
10. **NAILS:** 16d Sinker = 0.148" dia. x 3¼" long, 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.



Typical LGT2 Installation

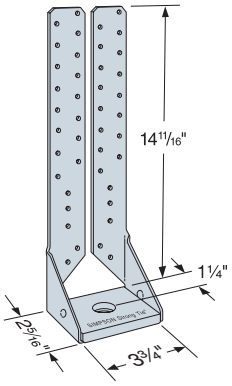


LGT2

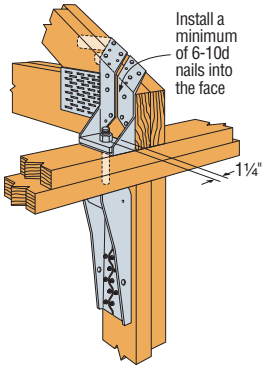


HGT-2
(HGT-3, HGT-4 similar)

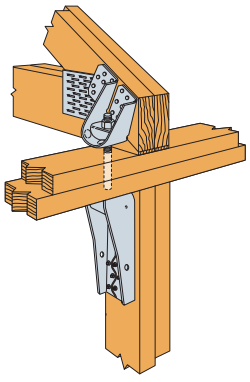
Install two LBP⅝" washers on top of each crescent washer *(total four ⅝" washers)* for wood installation. All washers and crescent washers are required. Crescent washers are supplied.



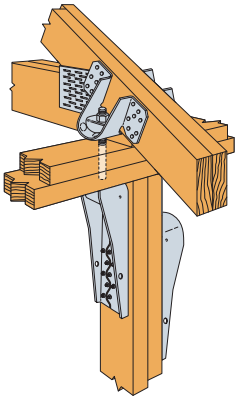
MGT



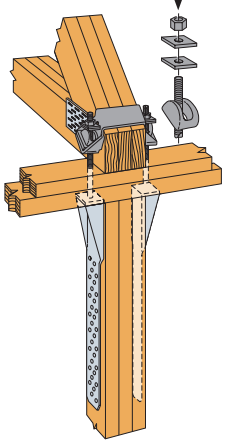
Typical MGT Installation with HDU4



Typical VGTR Single Installation with HDU2



Typical VGT Double Installation with HDU4's



Typical HGT-3 Installation with HTT22s

DSP/SSP/SP/SPH/RSP4/TSP *Stud Plate Ties*

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

The Stud Plate Tie series offers various solutions for connecting the stud to the top and bottom plates. All models can be used to make a connection to either the top or bottom plate, and several are suitable for double top plates and studs.

MATERIAL: DSP/SSP/SPH—18 gauge; TSP—16 gauge; all others—20 gauge
FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 10-11.
INSTALLATION: • Use all specified fasteners; see General Notes.
- TSP/DSP/SSP—sill plate installation-fill all round holes.
- TSP/DSP/SSP—top plate installation-fill all round and triangle holes
- SP1/SP2/SP3/SP5—one of the 10d common stud nails is driven at a 45° angle through the stud into the plate.

CODES: See page 12 for Code Reference Key Chart.

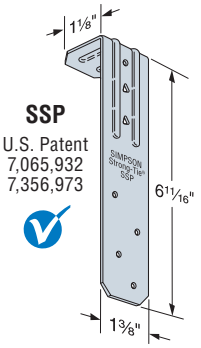
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Dim. W	Dim. L	Fasteners: Studs	Fasteners: Double Top Plate	Fasteners: Single Sill Plate	Allowable Uplift Loads (160): Double Top Plate DF/SP/SPF	Allowable Uplift Loads (160): Single Sill Plate DF/SP	Allowable Uplift Loads (160): Single Sill Plate SPF/HF	Code Ref.
SSP	1⅜	6¹¹⁄₁₆	4-10dx1½	3-10dx1½	—	350	—	—	I17, F16
				—	1-10dx1½	—	420	325	
			4-10d	3-10d	—	435	—	—	
				—	1-10d	—	455	420	
DSP	2¾	6¹¹⁄₁₆	8-10dx1½	6-10dx1½	—	775	—	—	
				—	2-10dx1½	—	660	545	
			8-10d	6-10d	—	825	—	—	
				—	2-10d	—	825	600	
TSP	1½	7⅞	6-10dx1½	—	3-10dx1½	—	395	345	F26
					3-10d		395	370	
			9-10dx1½	6-10dx1½	—	755[4]	—	—	
				6-10d		1015[4]			

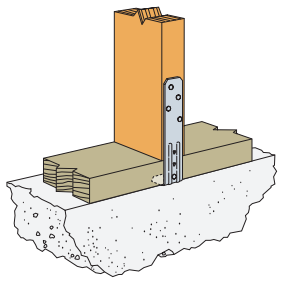
1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed.
2. When cross-grain bending or cross-grain tension cannot be avoided, mechanical reinforcement to resist such forces should be considered.
3. Allowable loads for DSP installed to a rim joist are 660 lbs. (DF/SP), 545 lbs. (SPF/HF).
4. Noted values only apply to DF/SP members. For SPF values, multiply by 0.86.
5. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.

Model No.	Dim. W	Dim. L	Stud	Plate Width	Fasteners: Stud[1]	Fasteners: Plate	Allowable Uplift Loads: DF/SP (160)[2]	Allowable Uplift Loads: SPF/HF (160)	Code Ref.
SP1	3½	5¹⁄₁₆	2x	—	6-10d	4-10d	585	535	I17, F16
SP2	3½	6⅝	2x	—	6-10d	6-10d	1065	605	
SP3	4½	6⅝	3x	—	6-10d	6-10d	1065	605	170
SP4	3⁹⁄₁₆	7¼	2x	4x	6-10dx1½	—	885	760	I17, F16
SP5	4½	5¹⁄₁₆	3x	—	6-10d	4-10d	585	535	170
SP6	5⁹⁄₁₆	7¾	2x	6x	6-10dx1½	—	885	760	I17, F16
SP8	7⁵⁄₁₆	8⅝	2x	8x	6-10dx1½	—	885	760	
SPH4 or	3⁹⁄₁₆	8¾	2x	4x	10-10dx1½	—	1240	1065	I17, F16
NEW SPH4R	4¹⁄₁₆	8¼			12-10dx1½	—	1360[5]	1170	170
SPH6 or	5⁹⁄₁₆	9¼	2x	6x	10-10dx1½	—	1240	1065	I17, F16
NEW SPH6R	6¹⁄₁₆	8¾			12-10dx1½	—	1360[5]	1170	170
SPH8	7⁵⁄₁₆	8⅜	2x	8x	10-10dx1½	—	1240	1065	I17, F16
					12-10dx1½	—	1360[5]	1170	
RSP4(1)	2⅛	4½	2x	—	4-8dx1½	4-8dx1½	315	285	I17, L22, F16
RSP4(2)	2⅛	4½	2x	—	4-8dx1½	4-8dx1½	450	370	

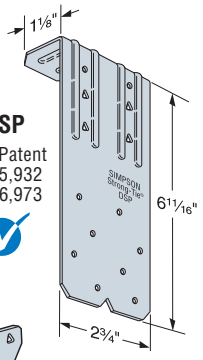
1. SP1, 2, 3 and SP5: drive one stud nail at an angle through the stud into the plate to achieve the table load *(see illustration)*.
2. Allowable loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
3. RSP4–see Installation details (1) and (2) for reference.
4. RSP4 F_2 is **250 lbs.** *(installation 1)* and **250 lbs.** *(installation 2)*. F_1 load is 210 lbs. for both installations.
5. Maximum load for SPH in Southern Yellow Pine is 1490 lbs.
6. When cross-grain bending or cross-grain tension cannot be avoided, mechanical reinforcement to resist such forces should be considered.
7. For retrofit application see technical bulletin T-STRAP *(see page 191 for details)*.
8. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long, 8dx1½ = 0.131" dia. x 1½" long. See page 16-17 for other nail sizes and information.



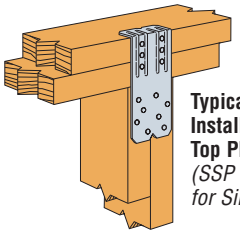
SSP
U.S. Patent 7,065,932 7,356,973



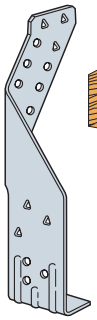
Typical SSP Installed to Sill Plate
(DSP similar for Double Stud)



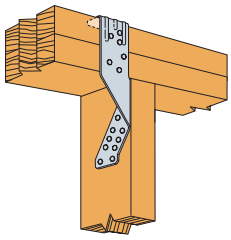
DSP
U.S. Patent 7,065,932 7,356,973



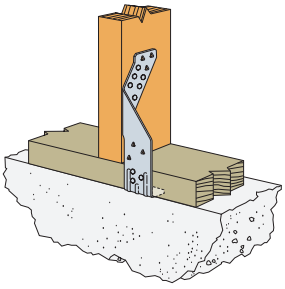
Typical DSP Installed to Top Plate
(SSP similar for Single Stud)



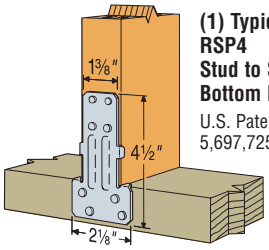
TSP



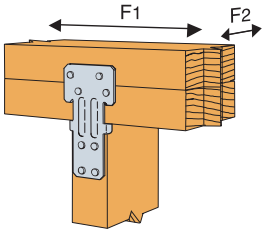
Typical TSP Installed to Top Plate



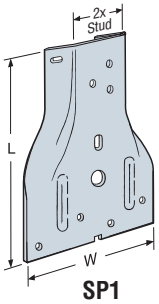
Typical TSP Installed to Sill Plate



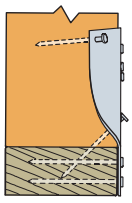
(1) Typical RSP4 Stud to Single Bottom Plate
U.S. Patent 5,697,725



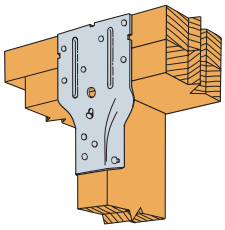
(2) Typical RSP4 Stud to Double Top Plate
(See footnote 4)



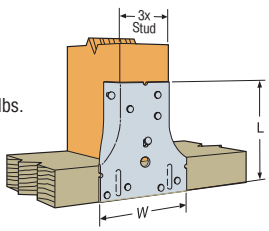
SP1



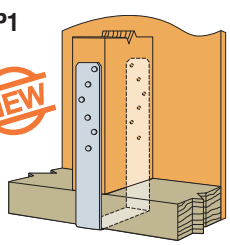
SP1 Nailing Profile



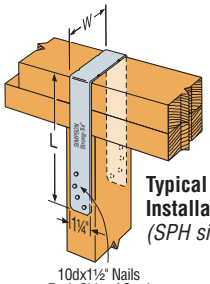
Typical SP2 Installation



Typical SP5 Installed
(SP3 similar installed at double top plate)



Typical SPH4R Stud to Single Bottom Plate



Typical SP4 Installation
(SPH similar)
10dx1½" Nails Each Side of Stud

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.

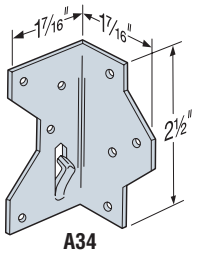
The A35 anchor's exclusive bending slot allows instant, accurate field bends for all two- and three-way ties. Balanced, completely reversible design permits the A35 to secure a great variety of connections.

MATERIAL: LTP4/LTP5–20 gauge; all others–18 gauge

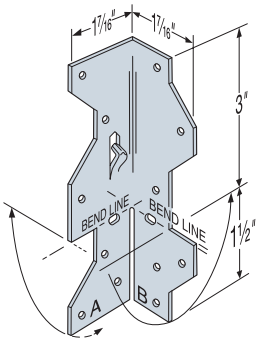
FINISH: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, page 10-11.

INSTALLATION: • Use all specified fasteners. See General Notes.
- A34–Use 8-8dx1½ nails.
- A35–Use 12-8dx1½ nails.
- A35–Use 9-8dx1½ nails for connection types A_1, E, C_1.
- A35–Bend one time only.
- LTP4–Use 12-8dx1½ nails.
- LTP5–Use 12-8dx1½ nails; G Max use 14-8dx1½ nails.

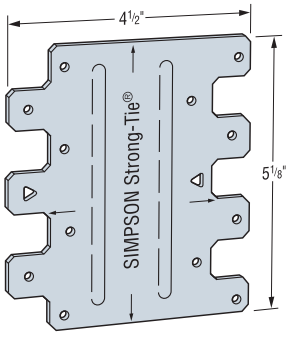
CODES: See page 12 for Code Reference Key Chart.



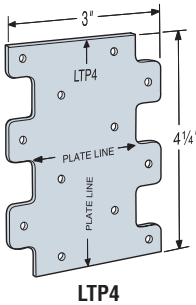
A34



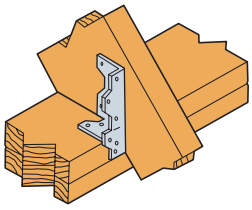
A35

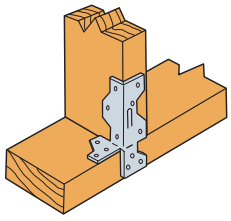


LTP5



LTP4

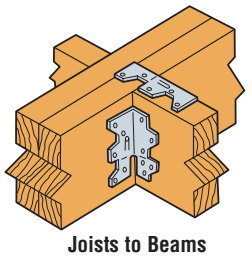

Joists to Plate with A Leg Inside

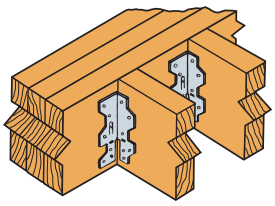

Studs to Plate with B Leg Outside

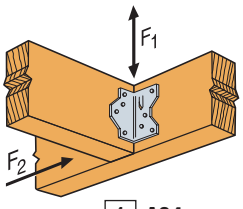
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Type of Connection	Direction of Load	DF/SP Allowable Loads Floor (100)	DF/SP Roof (125)	DF/SP (160)	SPF/HF Allowable Loads Floor (100)	SPF/HF Roof (125)	SPF/HF (160)	Code Ref.
A34	1	F_1	395	485	515	340	415	445	IP1, L21, F13
		F_2[6]	395	455	455	340	390	390	
A35	2	A_1, E	295	365	395	255	315	340	
		C_1	210	210	210	180	180	180	
	3	A_2	295	365	380	255	315	325	
		C_2	295	365	370	255	315	320	
		D	230	230	230	200	200	200	
	4	F_1	595	695	695	510	600	600	
		F_2[6]	595	670	670	510	575	575	
LTP4	5	G	515	645	670	445	555	575	I14, L21, F13
		H	515	645	670	445	555	575	
LTP5	6	G	585	620	620	505	535	535	IP1, F25
		H	545	545	545	470	470	470	

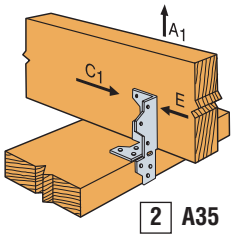
1. Allowable loads are for one anchor. When anchors are installed on each side of the joist, the minimum joist thickness is 3".
2. Roof loads are 125% of floor loads unless limited by other criteria.
3. Some illustrations show connections that could cause cross-grain tension or bending of the wood during loading if not reinforced sufficiently. In this case, mechanical reinforcement should be considered.
4. LTP4 can be installed over ⅜" structural sheathing with 8dx1½ nails and achieve 0.72 of the listed load, or over ½" and achieve 0.64 of the listed load. 8d commons will achieve 100% load.
5. The LTP5 may be installed over structural sheathing up to ½" thick using 8dx1½ nails with no reduction in load.
6. Connectors are required on both sides to achieve F_2 loads in both directions.
7. **NAILS:** 8dx1½ = 0.131" dia. x 1½" long. See page 16-17 for other nail sizes and information.


Joists to Beams

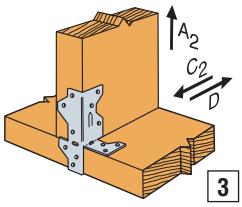

Ceiling Joists to Beam



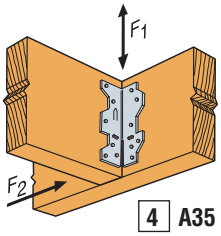
1 A34



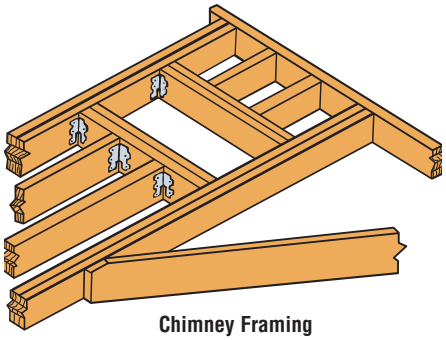
2 A35

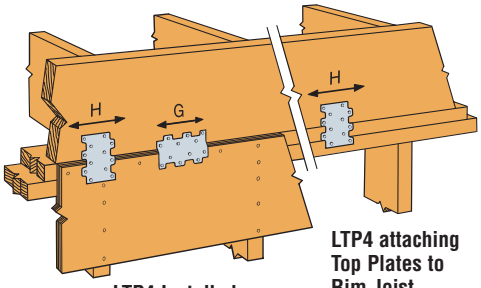


3 A35



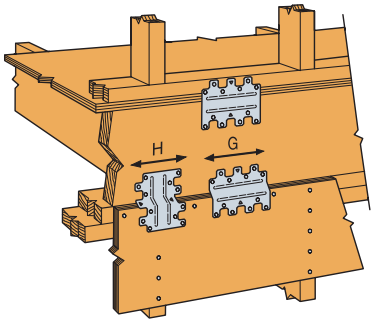
4 A35


Chimney Framing



5 LTP4 Installed over Plywood Sheathing

LTP4 attaching Top Plates to Rim Joist



6 LTP5 Installed over Plywood Sheathing

RBC *Roof Boundary Clip*

The RBC Roof Boundary Clip is designed to aid installation and transfer shear loads between the roof diaphragm and wall. The locator tabs make proper location of the clip easy. The RBC can be used on wood or masonry walls and will handle roof pitches from 0:12 to 12:12.

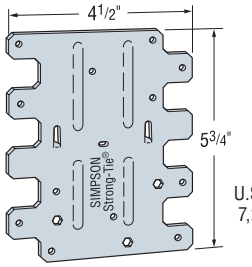
MATERIAL: 20 gauge **FINISH**: Galvanized

INSTALLATION:
- Use all specified fasteners. See General Notes.
- Field bend to desired angle – one time only.
- See flier F-RBC for more information on installation and code requirements *(see page 191 for details)*.

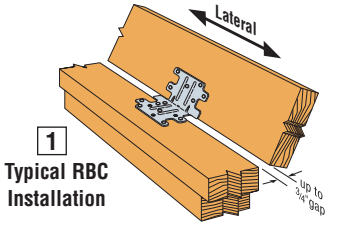
CODES: See page 12 for Code Reference Key Chart.

The RBC installed to blocking resists rotation and lateral displacement of rafter or truss.
Code references:
- IRC 2000/2003/2006, R802.8 Lateral Support
- IBC 2000/2003/2006, 2308.10.6 Blocking

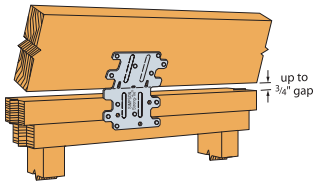
Blocking allows proper edge nailing of sheathing.
Code references:
- IRC 2000/2003/2006, Table R602.3(1), footnote i
- IBC 2000/2003/2006, 2305.1.4 Shear Panel Connections

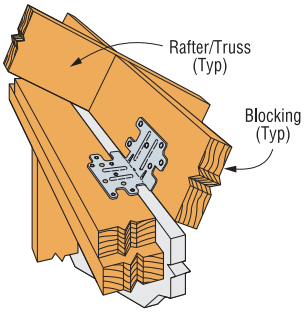


RBC
U.S. Patent 7,293,390



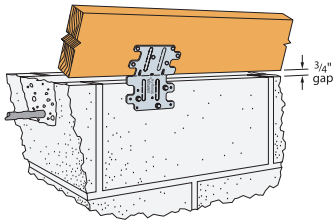
1 **Typical RBC Installation**





Typical RBC Installation Over 1" Foamboard[5]

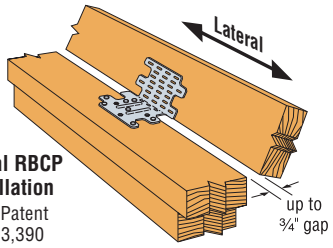
2 **Typical RBC Installation**



3 **Typical RBC Installation to CMU Block**

Model No.	Type of Connection	Bending Angle	Fasteners		DF/SP Allowable Loads	SPF/HF Allowable Loads	Code Ref.
			To Wall	To Blocking	Lateral (160)	Lateral (160)	
RBC	1	45° to 90°	6-10dx1½	6-10dx1½	445	380	IP1, F25
	2	< 30°	6-10dx1½	6-10dx1½	435	375	
		30° to 45°	6-10dx1½	6-10dx1½	480	415	
	3	0° to 45°	3-¼x2¼ Titen[4]	6-10dx1½	350	350	

1. Allowable loads are for one anchor attached to blocking minimum 1½" thick.
2. RBC can be installed with up to ¾" gap and achieve 100% of the listed load.
3. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
4. When attaching to concrete use 3-¼x1¾" Titen® screws.
5. RBC installed over 1" foamboard has a load of 395 lbs. (160) in a parallel to wall (F_1) load direction for Douglas Fir. For SPF, the load is 340 lbs.
6. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



Typical RBCP Installation
U.S. Patent 7,293,390

The RBC is available with prongs into one side (RBCP) for pre-attachment of the part to a block at the truss plant. Refer to technical bulletin T-RBCP for more information.

A *Angles*

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, page 10-11.

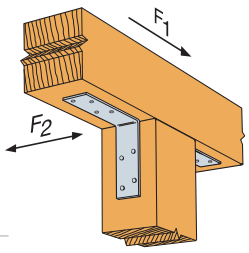
INSTALLATION:
- Use all specified fasteners. See General Notes.
- Z clips do not provide lateral stability. Do not walk on stiffeners or apply load until diaphragm is installed and nailed to stiffeners.

CODES: See page 12 for Code Reference Key Chart.

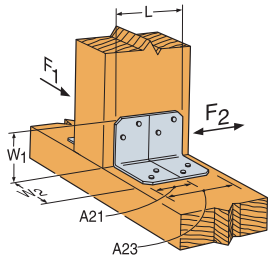
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Dimensions			Fasteners				Allowable Loads DF/SP (160)		Code Ref.
	W_1	W_2	L	Base		Post		F_1	F_2	
				Bolts	Nails	Bolts	Nails			
A21	2	1½	1⅜	—	2-10dx1½	—	2-10dx1½	245	175	I14, L21, F13
A23	2	1½	2¾	—	4-10dx1½	—	4-10dx1½	585	565	
A33	3	3	1½	—	4-10d	—	4-10d	750	330	170
A44	4⁹⁄₁₆	4⅜	1½	—	4-10d	—	4-10d	750	295	
A66	5⅞	5⅞	1½	2-⅜	—	2-⅜	—	—	—	
A88	8	8	2	3-⅜	—	3-⅜	—	—	—	
A24	3⅞	2	2½	1-½	—	1-½	2-10d	—	—	
A311	11	3⅝	2	1-½	—	1-½	4-10d	—	—	

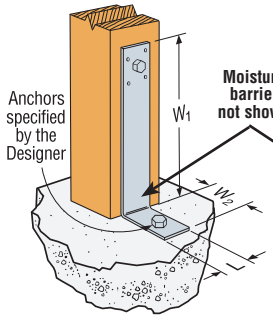
1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. For SPF/HF lumber use 0.86 of table loads.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long, 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.



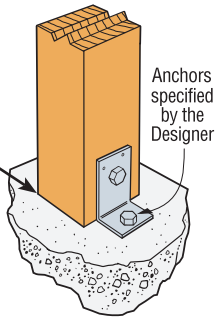
A44 Installation
(A33 similar)



A21/A23 Installation



A311 Installation



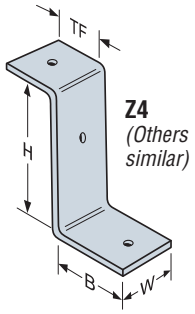
A24 Installation

SIMPSON Strong-Tie®

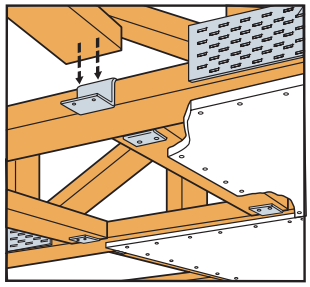
Z *Clips*

Model No.	Ga	Dimensions W	H	B	TF	Fasteners[1] (Total)	Allowable[2] Download (125)	Code Ref.
Z2	20	2 5/16	1½	1⅜	1⅜	4-10dx1½	465	170
Z4	12	1½	3½	2⅛	1¾	2-16d	465	I14, L21, F13
Z28	28	2 5/16	1½	1⅜	1⅜	10dx1½[1]	—	170
Z38	28	2 5/16	2½	1⅜	1⅜	10dx1½[1]	—	
Z44	12	2½	3½	2	1⅜	4-16d	865	I14, L21, F13

1. Z28 and Z38 do not have nail holes. Fastener quantity and type shall be per Designer.
2. Allowable loads have been increased 25% for roof loading (Z clips) with no further increase allowed; reduce where other loads govern.
3. Z4 loads apply with a nail into the top and a nail into the seat.
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



Z4 *(Others similar)*



Typical Z2 Installation

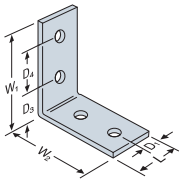
HL *Heavy Angles and Gussets*

Versatile angle gussets and heavy angles promote standardization and construction economy, and are compatible with Simpson Strong-Tie® structural hardware.

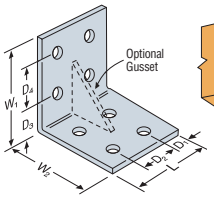
FINISH: 7 ga Models–Galvanized; 3 ga Models–Simpson Strong-Tie® gray paint.

OPTIONS: Gussets may be added to HL models when L ≥ 5" *(specify G after model number, as in HL46G)*.

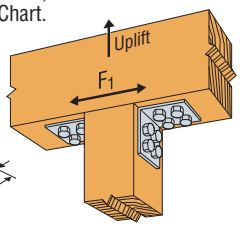
CODES: See page 12 for Code Reference Key Chart.



HL53



HL55



Typical HL55 Installation

Model No.	Ga	Dimensions W1 &W2	L	D1	D2	D3	D4	Bolts (Total) Qty	Dia	Allowable Loads Uplift	F1	Code Ref.
HL33	7	3¼	2½	1¼	—	2	—	2	½	910	1580	170
HL35	7	3¼	5	1¼	2½	2	—	4	½	910	1580	
HL37	7	3¼	7½	1¼	2½	2	—	6	½	910	1580	
HL53	7	5¾	2½	1¼	—	2	2½	4	½	910	1580	
HL55	7	5¾	5	1¼	2½	2	2½	8	½	910	1580	
HL57	7	5¾	7½	1¼	2½	2	2½	12	½	910	1580	
HL43	3	4¼	3	1½	—	2¾	—	2	¾	1555	1580	
HL46	3	4¼	6	1½	3	2¾	—	4	¾	1555	2025	
HL49	3	4¼	9	1½	3	2¾	—	6	¾	1555	2025	
HL73	3	7¼	3	1½	—	2¾	3	4	¾	1555	2025	
HL76	3	7¼	6	1½	3	2¾	3	8	¾	2115	3800	
HL79	3	7¼	9	1½	3	2¾	3	12	¾	2115	3800	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Use 0.85 times table load for Hem Fir.
3. Parts should be centered on the face of the member to which they are attached.
4. Wood members for the '3' and '5' series must have a minimum width and thickness of 3½" for table loads to apply.
5. Wood members for the '4' and '7' series must have a minimum width and thickness of 5⅛" for table loads to apply.
6. Parts must be used in pairs.
7. Lag bolts of equal diameter *(minimum 5" long)* may be substituted for machine bolts into beam with no reduction in load.

L/LS/GA *Reinforcing and Skewable Angles*

L–Staggered nail pattern reduces the possibility for splitting.
LS–Field-adjustable 0° to 135° angles.
The GA Gusset Angles' embossed bend section provides added strength.

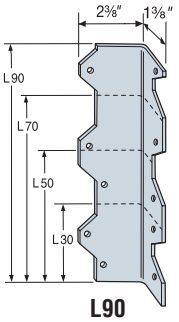
MATERIAL: L–16 gauge; GA and LS–18 gauge

FINISH: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, page 10-11.

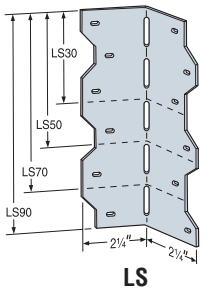
INSTALLATION:

- Use all specified fasteners; see General Notes.
- LS–field skewable; bend one time only.
- Joist must be constrained against rotation *(for example, with solid blocking)* when using a single LS per connection.
- Nail the L angle's wider leg into the joist to ensure table loads and allow correct nailing.

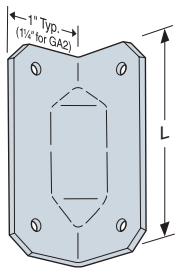
CODES: See page 12 for Code Reference Key Chart.



L90



LS

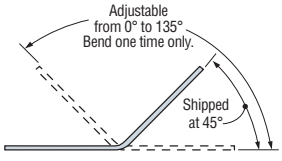


GA1

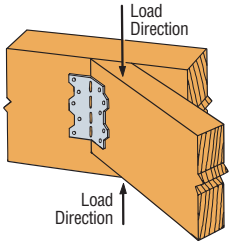
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	L	Fasteners	DF/SP Allowable Loads[1,2,3] Floor (100)	Snow (115)	Roof (125)	(160)	SPF/HF Allowable Loads Floor (100)	Snow (115)	Roof (125)	(160)	Code Ref.
GA1	2¾	4-10d	185	185	185	185	160	160	160	160	I14, L21, F13
GA2	3¼	6-10d	335	385	415	450	290	335	335	335	
L30	3	4-10d	220	240	240	240	190	205	205	205	I14, L4, F13
L50	5	6-10d	335	385	420	445	290	335	360	385	
L70	7	8-10d	445	510	555	565	380	435	475	485	
L90	9	10-10d	555	640	695	740	480	550	600	640	
LS30	3⅜	6-10d	355	395	395	395	305	335	335	335	IP1, F13
LS50	4⅞	8-10d	475	540	585	730	410	465	505	630	
LS70	6⅜	10-10d	595	675	730	915	510	580	630	785	
LS90	7⅞	12-10d	715	810	875	1040	615	695	755	895	

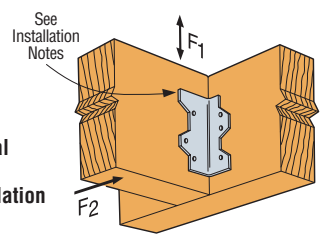
1. L angles–loads are for condition F_1 or F_2; LS angles–loads are for condition F_1 only.
2. GA1 and GA2 angles table loads are F_1 – loads for F_2 are 220 lbs. and 335 lbs. (100) and 280 lbs. and 415 lbs. (125), respectively.
3. Roof loads are 125% of floor loads unless limited by other criteria.
4. Connectors are required on both sides to achieve F_2 loads in both directions.
5. **NAILS:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



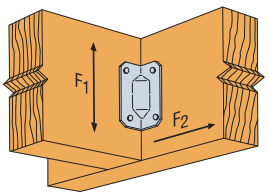
LS Top View



Typical LS70 Installation



Typical L50 Installation



Typical GA Installation

DTT2Z / HD2AHDG *Deck Post Connectors*

NEW! The DTT2Z is a safe, cost-effective way to attach deck-railing posts to the deck framing. Because the post is tied back into the deck joists, rather than to the rim joist alone, the connection is stronger than typical through-bolt installations and complies with IRC and IBC code requirements regarding hand-rail and guardrail post connections for decks. The DTT2Z also complies with the new IRC requirements for laterally tying the deck to the house. Additionally, the versatile DTT2Z is load rated as a holdown for light-duty shearwalls and braced wall panel applications. The DTT2Z fastens easily to a single 2x joist or stud using Simpson Strong-Tie® Strong-Drive® screws (SDS) *(included)* and accepts a ½" machine bolt or anchor bolt.

The HD2AHDG holdown has been tested as a lateral anchor for the guardrail post connection. See technical bulletin T-HDAGDRL06 for more information and installation details *(see page 191 for details)*. The HD2AHDG is also load rated as a holdown for light duty shearwalls and braced wall panels.

MATERIAL: DTT2Z—14 gauge; HD2AHDG Body—12 gauge, Base—7 gauge

FINISH: DTT2Z—ZMAX coating; HD2AHDG—HDG and may be ordered galvanized; see Corrosion Information, page 10-11.

INSTALLATION: Use all specified fasteners. See General Notes.

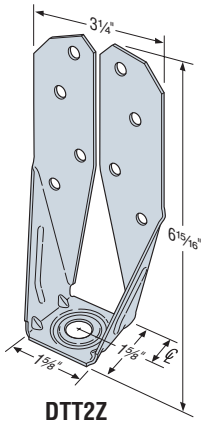
DTT2Z

- A standard cut washer *(refer to General Notes)* must be installed between the nut and the seat.
- Simpson Strong-Tie SDS screws install best with a low speed high torque drill with a ⅜" hex head driver.

HD2AHDG

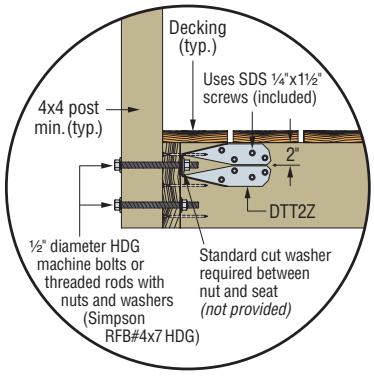
- Bolt holes shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt diameter *(per NDS, section 11.1.2)*.
- A washer is not required between the base plate of the holdown and the anchor nut.
- Locate on wood member to maintain a minimum distance of seven bolt diameters, distance is automatically maintained when end of wood member is flush with the bottom of the holdown.
- Bolts should be snugly tightened.

CODES: See page 12 for Code Reference Key Chart.

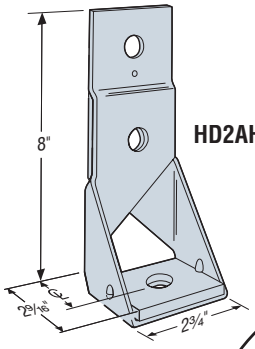


DTT2Z

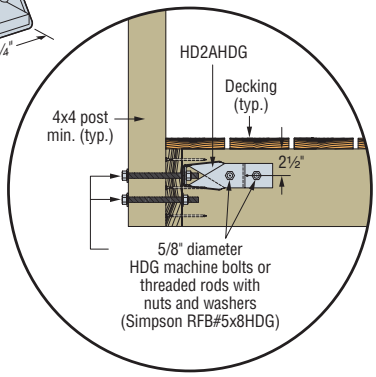
Available Early 2009



DTT2Z installed as a lateral connector for a deck guardrail post.



HD2AHDG



HD2AHDG installed as a lateral connector for a deck guardrail 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.

Model No.	℄	Anchor Diameter	Fasteners	Minimum Wood Member Thickness	Allowable Tension Load DF/SP (100)	Allowable Tension Load DF/SP (160)[1]	Allowable Tension Load SPF/HF (100)	Allowable Tension Load SPF/HF (160)[1]	Code Ref.
DTT2Z	13⁄16	½	8-SDS ¼"x1½"	1½	1825	1825	1440	1800	170
				3	2000	2145	1440	1835	
HD2AHDG	1⅞	⅝	2-⅝"	1½	1220	1900	1040	1610	IL8, L9
				3	2175	2455	1990	2245	

1. The allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed.
2. Installations shown are for post to joist connections, however these products can be used as a holdown or tension tie for other applications.
3. Load values are valid if the product is flush with the end of the framing member or installed away from the end.

DPTZ *Deck Post Tie*

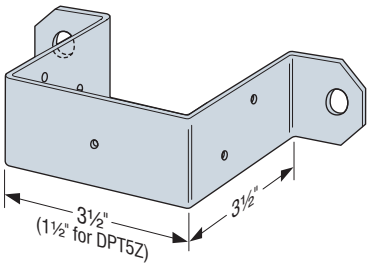
The DPTZ Deck Post Tie products are used to attach 2x4 (DPT5Z) or 4x4 (DPT7Z) vertical posts to the side of stringers, rims or other wood members.

MATERIAL: 14 gauge

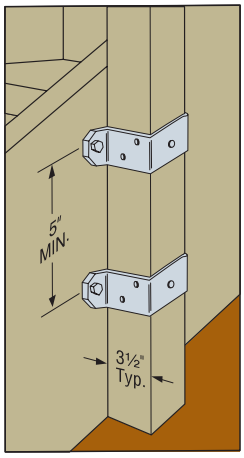
FINISH: ZMAX® coating; see Corrosion Information, page 10-11.

INSTALLATION:

- Use specified HDG fasteners. See General Notes.
- Install in pairs at a recommended minimum center to center spacing of 5".
- 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)

DJT14Z *Deck Joist Tie*

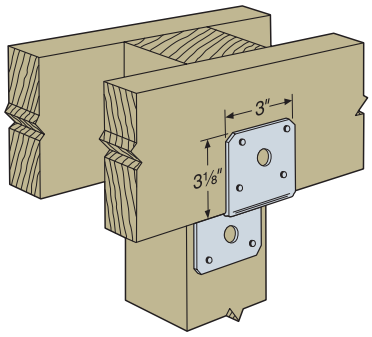
The DJT14Z Deck Joist Tie is designed to attach 2x deck joists to the side of 4x or lesser support posts. The DJT14Z can be installed with either nails or bolts.

MATERIAL: 14 gauge

FINISH: ZMAX® coating; see Corrosion Information, page 10-11.

INSTALLATION: • Use specified HDG fasteners. See General Notes.
- Recommended: install on post first.
- Minimum 2x4 joist and 4x4 post.

CODES: See page 12 for Code Reference Key Chart.



Typical DJT14Z Installation

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

Model No.	Fasteners			Allowable Loads				Code Ref.
	Nails	Bolts		Nails		Bolts		
		Qty	Dia	Floor (100)	Roof (125)	Floor (100)	Roof (125)	
DJT14Z	8-16d	2	⅝ MB	1100	1375	1400	1400	I18, F17

1. Loads are for one DJT14Z.
2. Roof loads are 125% of floor loads. Floor loads may be adjusted for other load durations according to the code, provided they do not exceed the roof loads.
3. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.

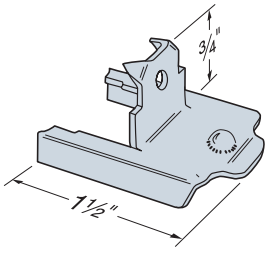
DBT1Z *Deck-Tie® Connectors*

The DBT1Z deck-board tie provides a nail-free surface fastening system for deck boards. Eliminates countersinking, hammer dents, nail popping, ugly nail heads and rust stains on surface. Leaves an unbroken deck surface that is easy to sand and refinish when it's time for maintenance.

MATERIAL: 18 gauge

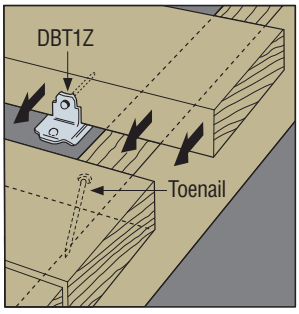
FINISH: ZMAX® coating; see Corrosion Information, page 10-11.

INSTALLATION: • Use specified HDG fasteners. See General Notes.
- **DBT1Z** Deck Board Tie: Position the DBT1Z with the locator prongs and install with a single 10dx1½" HDG nail. Other edge of deck board shall be toenailed *(see drawing)*. Using dry lumber will minimize deck board movement after installation. Works with 2x deck boards, 5/4 deck boards *(pre-drilling may be required)*, or composite deck boards a minimum 1" thick *(pre-drilling may be required)*. To check number of DBT1Z multiply number of joists by number of deck boards. The DBT1Z will not prevent cupping, bowing or warping of deck boards.
- 1 box of 50 covers approximately 25 sq.ft. based on 6" deck boards on joists spaced at 16" on center.



DBT1Z

U.S. Patent 5,027,573
Canada Patent 2,015,733



Typical DBT1Z Installation
Connectors slide under anchored deck board.

TAZ *Staircase Angles*

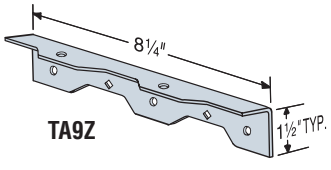
For use in structurally-sound staircase framing. The TA eliminates costly conventional notching.

MATERIAL: 12 gauge

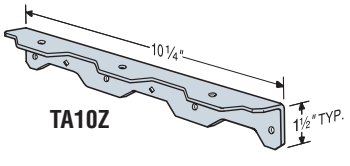
FINISH: ZMAX coating; see Corrosion Information, page 10-11.

ORDER: May be ordered as kits with model numbers TA9ZKT and TA10ZKT. Each kit includes two ZMAX TA's and either double barrier coated or HDG Simpson SDS ¼"x1½" screws.

CODES: See page 12 for Code Reference Key Chart.



TA9Z

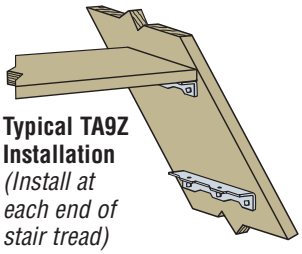


TA10Z

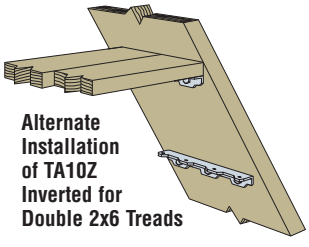
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	Fasteners		Allowable Downloads DF/SP (100)	Code Ref.
	Stringer	Tread		
TA9Z	3-SDS ¼"x1½"	2-SDS ¼"x1½"	885	170
TA10Z	3-SDS ¼"x1½"	4-SDS ¼"x1½"	885	
TA10Z	4-SDS ¼"x1½"	3-SDS ¼"x1½"	1180	

1. Loads may be adjusted for other load durations according to the code.
2. See page 20 for SDS screw information.



Typical TA9Z Installation *(Install at each end of stair tread)*



Alternate Installation of TA10Z Inverted for Double 2x6 Treads

ML24Z/ML26Z *Angles*

The ML angle combines strength and versatility through the use of Simpson Strong-Tie® Strong-Drive® screws (SDS). Fastener holes are staggered to minimize wood splitting and opposing hole patterns allows for back to back installation without fastener interference.

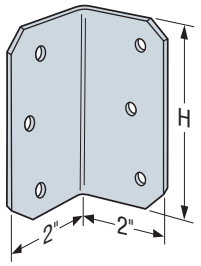
MATERIAL: 12 gauge

FINISH: ZMAX® coating, see Corrosion Information, page 10-11.

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

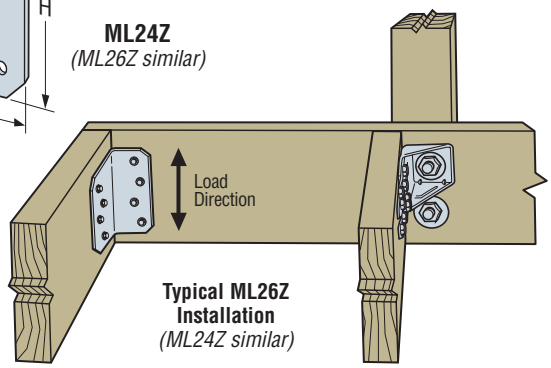
• Simpson Strong-Tie SDS ¼"x1½" are not provided with the angle.

CODES: See page 12 for Code Reference Key Chart.



NEW

ML24Z
(ML26Z similar)



Typical ML26Z Installation
(ML24Z similar)

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

	Model No.	H	Fasteners (Total)	DF/SP Allowable Loads (100)	(115)	(125)	(160)	SPF/HF Allowable Loads (100)	(115)	(125)	(160)	Code Ref.
NEW	ML24Z	4	6-SDS ¼"x1½"	515	515	515	515	440	440	440	440	170
NEW	ML26Z	6	8-SDS ¼"x1½"	1000	1090	1090	1090	720	830	900	935	

1. Allowable loads have been increased as allowed by Code with no further increases allowed.

DECK SPACERS™ *Deck Board Spacing*

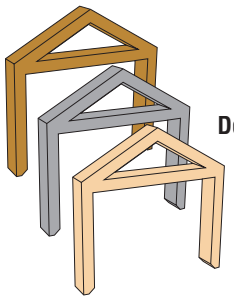
Deck Spacers are small plastic spacers that easily clip onto deck joists during installation to ensure evenly spaced deck boards, enabling quicker installation and reducing labor costs. Deck Spacers are ideal for composite decking and help meet manufacturer warranty requirements. They stay on the joist permanently to help shed debris and moisture off of deck joists for easier wet or dry cleaning. For more information request flier F-DECKSPCR *(see page 191 for details)*.

Features:

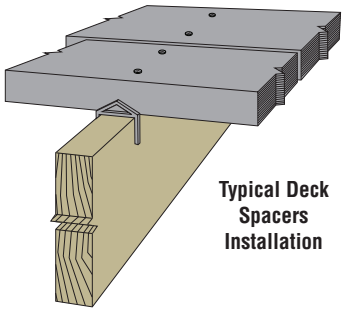
- Provides permanent deck board spacing.
- Quickly and easily snap into place.
- Meet composite decking warranty requirements for spacing.
- UV materials last the life of deck.
- 3 colors to match decking: Gray, Brown and Tan.

INSTALLATION:

- Position the first deck board and fasten. Position Deck Spacers on the deck joists, and slide next deck board snugly against the spacer.
- Fasten deck board with appropriate fasteners and repeat the process.



Deck Spacers
U.S. Patent 6,647,638



Typical Deck Spacers Installation

Model No.	Spacing Thickness (in)	Color	Package Quantities
DSGRAY-R100	¼	Gray	100
DSGRAY-R500			500
DSBRN-R100		Brown	100
DSBRN-R500			500
DSTAN-R100		Tan	100
DSTAN-R500			500

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.

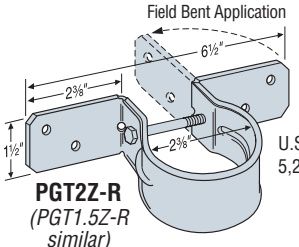
The PGT1.5Z-R is for 1½" pipe *(1⅞" outside diameter)*, and the PGT2Z-R for 2" pipe *(2⅜" outside diameter)*.

MATERIAL: 12 gauge

FINISH: ZMAX® coating, also available in G90.

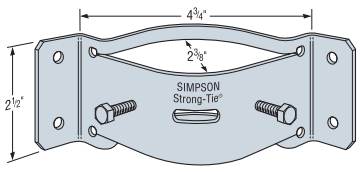
INSTALLATION: • Use all specified fasteners. See General Notes.

- PGTIC2Z-R to Post – Install two set screws *(supplied)* with ⅜ socket in predrilled holes.
- PGTIC2Z-R to Rails – Use Simpson Strong-Tie® Strong-Drive® ¼"x1½" wood screws (SDS) *(not supplied)*.
- Install on vertical pipes, offsetting corners to allow for the correct rail alignment.
- Use 3 to 4 PGTs per pipe; line up to stringline.
- Fasten PGT with ¼" hex head bolt *(supplied)*.
- PGT attaches to rails with four Simpson Strong-Tie SDS ¼"x1½" HDG wood screws *(not supplied)*. See page 20 for 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)*.

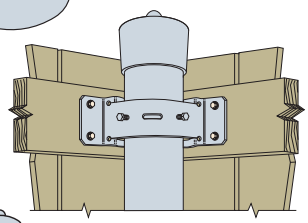


U.S. Patent 5,297,890

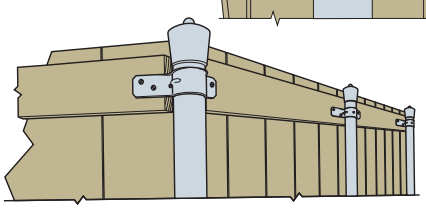
PGT2Z-R
(PGT1.5Z-R similar)



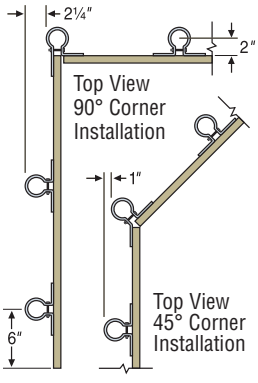
PGTIC2Z-R



Typical PGTIC2Z-R Fence Installation



Typical PGT2Z-R Fence Installation



Corner Installation Top View

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.

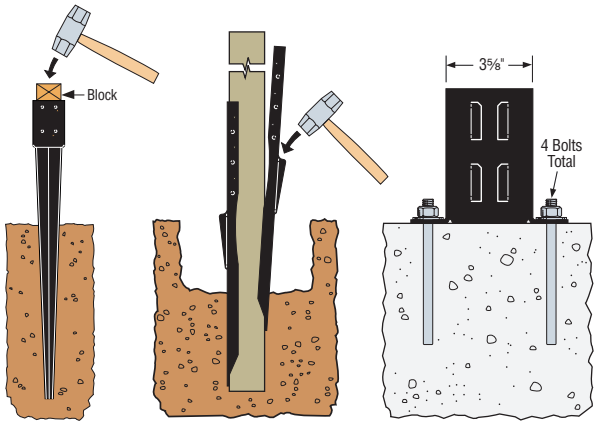
E-Z Mender *(Model No. FPBM44)*
- Allows easy repair of rotted or damaged 4x4 wood posts installed in concrete or dirt.
- Reinforces weakened wood posts without having to replace the post or the concrete.

E-Z Base *(Model No. FPBB44)*
- Allows easy installation of 4x4 wood posts on existing concrete.

MATERIAL: 12 gauge **FINISH**: Black powder-coat

INSTALLATION: • See flier F-EZFPP *(see page 191 for details)*.
- Attach post to E-Z Spike or E-Z Base with 8-¼" SDS screws or ¼" HDG lag screws and attach post to E-Z Mender using 6 HDG nails or screws per part.

NOTE: • Notwithstanding the terms of the Limited Warranty, Simpson Strong-Tie does not guarantee, represent or warrant that this product will perform under, or prevent or reduce damage caused by corrosion, any seismic, wind, atmospheric, or other load-producing event.



E-Z Spike™ (FPBS44) **E-Z Mender™ (FPBM44)** **E-Z Base™ (FPBB44)**

FB/FBR *Fence Brackets*

FB and FBR fence brackets make the connection between fence rails and posts simple and strong. Eliminates the need for toe nailing or screwing. Clean, versatile connections make planning and building fences, deck/porch railings and louvers easier and faster.

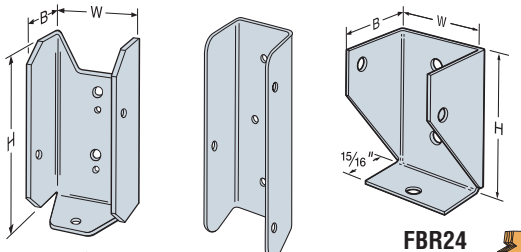
MATERIAL: See table

FINISH: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, page 10-11.

INSTALLATION: • Holes are sized for 8dx1½", 8d commons or #6 wood screws into the supporting member.
- FB24R is sized for 10dx1½".
- FB26 is sized for #14x¾" lag screws.

CODES: See page 12 for Code Reference Key Chart.

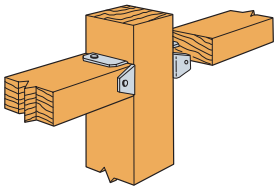
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.



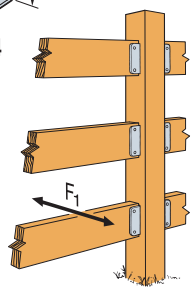
FB24 *(FB24R Similar)* **FB26** **FBR24**

Model No.	Ga	Member Size	Dimensions W	H	B	Code Ref.
FBL24	Deleted see FB24					180
FB24	20	2x4	1⅜16	3⅜	¾	
FB24R	20	2x4 RGH	2	3⅜	¾	
FBR24	18	2x4	1⅜16	2⅞16	1½	
FB26	18	2x6	1⅜16	5	1½	

1. FB26 has an allowable load for F_1 of 365 lbs.
2. FBR24: R = rail *(not rough)*.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long, 8d = 0.131" dia. x 2½" long, 8dx1½ = 0.131" dia. x 1½" long. See page 16-17 for other nail sizes and information.



Typical FB24 Installation



Typical FB26 Fencing Installation

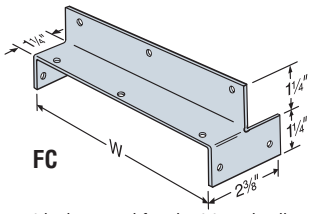
FC *Framing Clips*

For fast, accurate framing. Three-dimensional nailing pattern results in high-strength joint values. Ideal for fence construction.

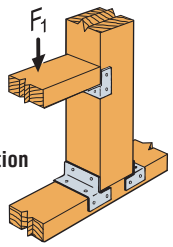
MATERIAL: 16 gauge **FINISH**: Galvanized

INSTALLATION: Use all specified fasteners. See General Notes.

CODES: See page 12 for Code Reference Key Chart.



FC



Typical FC Load Installation

Model No.	W	Fasteners	Allowable F_1 Loads (100)	Code Ref.
FC4	3⅜16	8-16d	800	I14, L4, F13
FC6	5½	10-16d	920	

1. Loads may not be increased for short-term loading.
2. A 2½" minimum lumber thickness is required to achieve the full load.
3. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.

BT *Brick Ties*

Brick Ties provide a connection between the wood structure and brick façade.

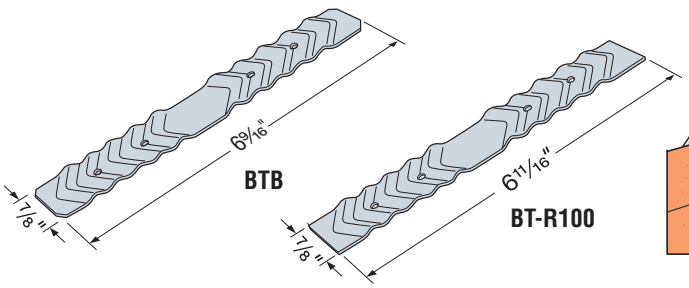
MATERIAL: 22 gauge

FINISH: Galvanized, available in Type 304 stainless steel *(order as BTBSS)*.

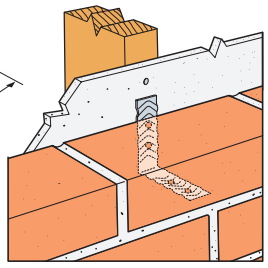
INSTALLATION:
- Holes sized for 10d commons. See code for spacing requirements.

CODES: IRC 2003/2006, R703.7.4

TO ORDER: BT-R100 = retail pack of 100
BTB = bulk carton of 500



BTB **BT-R100**



Typical BT Installation

SIMPSON Strong-Tie®

RR *Ridge Rafter Connector*

An interlock provides alignment control and correct nailing locations. For a rafter-to-face connector, flatten the top flange into the face plane. The RR may be used with rafters sloped up to 30°.

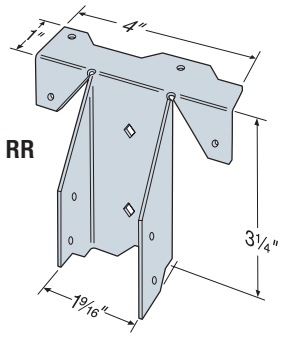
MATERIAL: 18 gauge **FINISH**: Galvanized

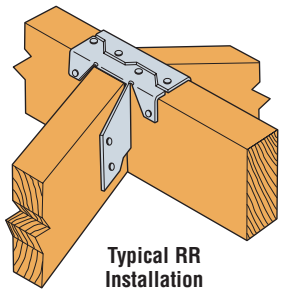
INSTALLATION: • Use all specified fasteners. See General Notes.

CODES: See page 12 for Code Reference Key Chart.

Model No.	Min. Rafter Size	Fasteners		Uplift (160)	Allowable Loads[1]		Code Ref.
		Header	Rafter		DF/SP		
					Floor (100)	Roof (125)	
RR	2x6	4-10dx1½	4-10dx1½	130	365	415	I10, L3, F9

1. Floor loads may be adjusted for other load durations according to the code, provided they do not exceed the table roof loads.
2. **NAILS:** 10dx1½ = 0.148" dia.x1½" long. See page 16-17 for other nail sizes and information.





Typical RR Installation

PSCL/PSCA *Panel Sheathing Clips*

Simpson Strong-Tie® Panel Sheathing Clips are used to brace unsupported sheathing edges. **The PSCA is a new version of the PSCL with less material for a more cost effective solution.** Model sizes include: PSCL⅜, PSCA⁷⁄₁₆, PSCL⁷⁄₁₆, PSCA¹⁵⁄₃₂, PSCL¹⁵⁄₃₂, PSCL½, PSCL⅝; PSCL¹⁹⁄₃₂, PSCL¾.

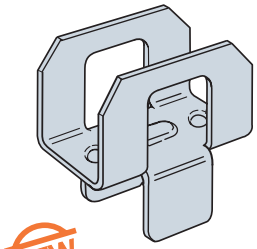
MATERIAL: 20 gauge

FINISH: Galvanized

INSTALLATION: • Use the same size sheathing clip as the panel thickness.
- Maximum spans may be reduced for low slopes or high uniform loads, refer to manufacturer's installation instructions.

CODES: See page 12 for Code Reference Key Chart.

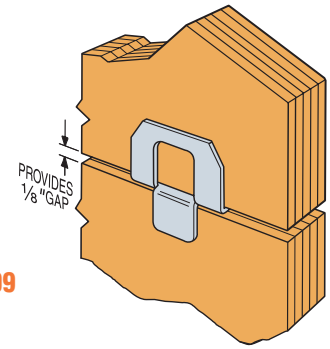
Span Rating	Panel Thickness	Maximum Roof Sheathing Span		No. of Clips Per Span	Code Ref.
		With Clip	Without Clip		
24/0	⅜	24	20	1	180
24/16	⁷⁄₁₆	24	24	1[2]	
32/16	¹⁵⁄₃₂, ½	32	28	1[2]	
40/20	⅝, ¹⁹⁄₃₂	40	32	1	
48/24	¾	48	36	2	



NEW

PSCL
(PSCA similar)

PSCA Available Early 2009



Typical PSCL Installation

1. Span rating and Maximum Roof Sheathing Spans are for reference only, refer to IBC Table 2304.7 (3) for additional important information.
2. **Maximum roof sheathing span with single PSCA is 24". For spans > 24" use two PSCA's.**

SBV/CF-R *Shelf Brackets/Concrete Form Angles*

Use the SBV for shelving, counter brackets, window ledge supports, at a very competitive price.

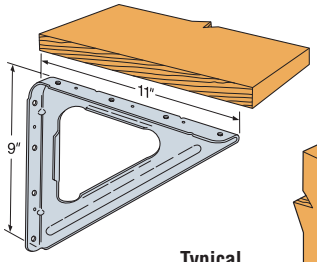
The CF-R is used where a moderate size shelf bracket and reinforcing angle is needed. When used for tilt-up perimeter forming, the nail hole placement ensures substantial re-use.

MATERIAL: 16 gauge **FINISH**: Galvanized

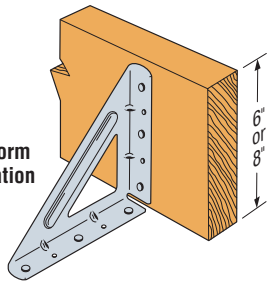
INSTALLATION: • Use all specified fasteners. See General Notes.
- SBV—Reversible for nominal 10" or 12" shelves of any thickness.
- CF-R *(Retail Pack)*—Recommended spacing is 36" for 2x's and 18" for 1x's. Use the 5" leg for 6" lumber and the 6" leg for 8" lumber. Holes are sized for ¼" fasteners or 10d commons.

CODES: See page 12 for Code Reference Key Chart.

Model No.	Fasteners	DF/SP Allowable Downloads (100)	Code Ref.
	Stud		
CF-R	3-SDS ¼"x2"	135	170
SBV	4-SDS ¼"x2"	145	



SBV



Typical CF-R Form Installation

DS *Drywall Stop*

Eliminates costly blocking at top plate, end walls, and corners. A typical residence will use several hundred of these inexpensive clips with a substantial savings in blocking and labor.

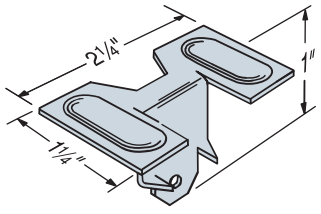
The installation prongs provide even more labor savings.

MATERIAL: 20 gauge

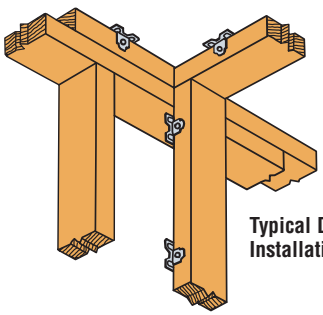
FINISH: Galvanized

INSTALLATION:
- 16" on center or less, using 8d commons.
- DS should not be used where gypsum board is used for structural loads.

CODES: ICC NER-413, ICC-ER 5672.



DS



Typical DS Installation

RTC/FWH *Rigid Tie™ Connectors*

The RTC series secures two wood members to a vertical post forming a 90° corner. The RTC42 and RTC44 are heavy-duty structural connectors. Based on loads of 40 lbs. per sq. ft., a 10'x10' deck can be built using 2x8 joists and 4 RTC42s. See the table for post and joist sizes.

RTB—a bracket for intersecting 2x members.
FWH—4 way connectors for 2x members with bendable flanges.
RTA—connects two 2x wood members at a 90° angle.
RTF—connects two members in a "pass-through" application.
RTR and RTU—a 2x member crosses another.

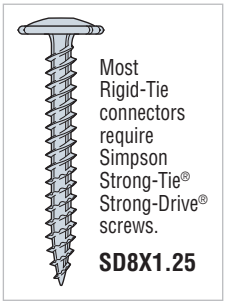
MATERIAL: RTC44—14 gauge; RTA2—16 gauge; RTR and RTB—20 gauge; all others—18 gauge
FINISH: Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, page 10-11.
INSTALLATION:
- Use all specified fasteners. See General Notes.
- Install vertical members first, then attach horizontal members for easier alignment.
- Seat wood member in bracket with a C-clamp before securing to aid positioning and prevent skewing.
- Always follow manufacturer's instructions when using power tools and building equipment.

CODES: See page 12 for Code Reference Key Chart.

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

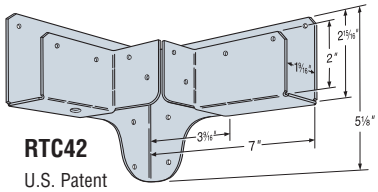
Model No.	Post Size	Joist Size	Fasteners (Total)		Allowable Downloads[1]		Code Ref.
			Post	Joist	Floor (100)	Roof (125)	
FWH2	2x	2x	8-SD8x1.25	8-SD8x1.25	N/A	N/A	180
RTA12	1x	1x	4-SD8x1.25	4-SD8x1.25	N/A	N/A	170
RTA2Z	2x	2x	4-SD8x1.25	4-SD8x1.25	N/A	N/A	
RTA4	4x	4x	7-SD8x1.25	5-SD8x1.25	N/A	N/A	
RTB22	2x	2x	4-SD8x1.25	4-SD8x1.25	N/A	N/A	
RTC22Z	2x	2x	5-SD8x1.25	6-SD8x1.25	N/A	N/A	
RTC24	2x4	2x	9-SD8x1.25	11-SD8x1.25	450	560	I18, F17
RTC42	4x4	2x	14-SD8x1.25	8-SD8x1.25	650	810	
	4x4	2x	14-16d	8-10dx1½	1730	2160	
RTC44	4x4	4x	14-16d Sinkers	15-16d Sinkers	1580	1980	
	4x4	4x	14-16d	15-16d	1875	2345	
RTF2Z	2x4	2x	4-SD8x1.25	8-SD8x1.25	N/A	N/A	170
RTT22	2x	2x	3-SD8x1.25	7-SD8x1.25	N/A	N/A	
RTR	2x	2x	2-SD8x1.25	4-SD8x1.25	N/A	N/A	
RTU2	2x	2x	2-SD8x1.25	4-SD8x1.25	N/A	N/A	

1. Allowable loads must be equally distributed on both joists.
2. Loads are for Doug Fir Larch.
3. **NAILS:** 16d = 0.162" dia. x 3½" long, 16d Sinker = 0.148" dia. x 3¼" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



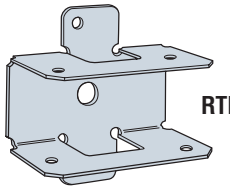
Most Rigid-Tie connectors require Simpson Strong-Tie® Strong-Drive® screws.

SD8X1.25

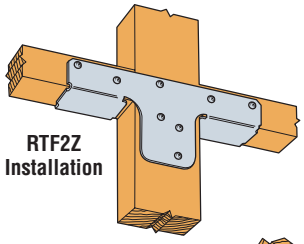


RTC42
U.S. Patent 5,399,044
(RTC22 similar, U.S. Patent 5,328,287; RTC24 similar, U.S. Patent 5,259,685)

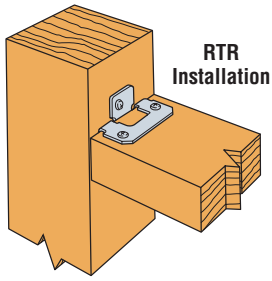
WARNING: Industry studies show that hardened fasteners can experience performance problems in wet and corrosive environments. Accordingly, use the SD8X1.25 screw in dry, interior, and non-corrosive environments only.



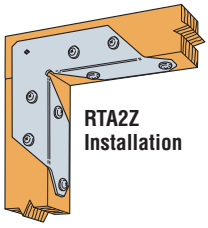
RTR



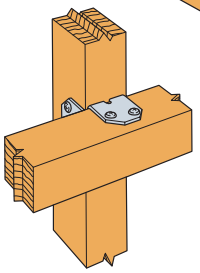
RTF2Z Installation



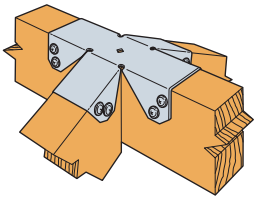
RTR Installation



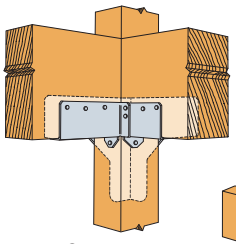
RTA2Z Installation



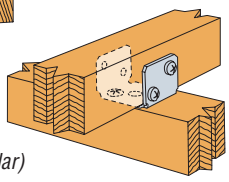
RTB22 Installation



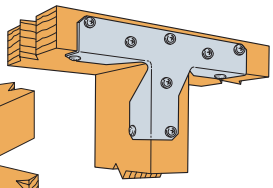
FWH2 Installation



RTC44 Installation
(RTC24 and RTC42 similar)
U.S. Patent 5,372,448



RTU Installation



RTT Installation

J/JP *Floor Beam Levelers*

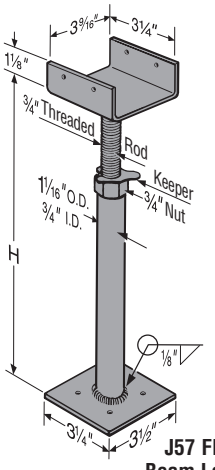
Jack piers and standard floor beam levelers offer unique leveling simplicity during and after construction.

MATERIAL: 12 gauge plates, ¾" threaded rod, 1 1/16" O.D. steel pipe
FINISH: None. Connectors installed in damp areas, or corrosive environments that are not exposed to rain or periodic washing, will deteriorate at a faster rate. Corrosion-resistant finishes and maintenance can improve the connector's service life.
INSTALLATION: • Use all specified fasteners. See General Notes.
- Holes are provided for installation with 4-10dx1½" nails.
- Do not use J/JPs for dynamic jacking of structures, such as houses.

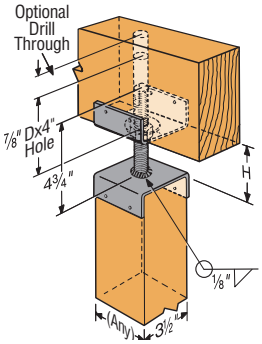
CODES: See page 12 for Code Reference Key Chart.

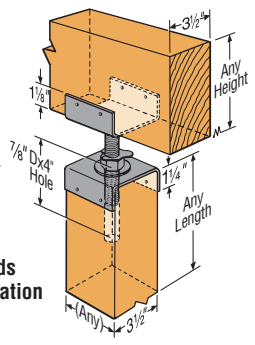
Model No.	Dimensions		Allowable Bearing Loads (100)	Code Ref.
	H (inches) (Min–Max)	Threaded Rod Length		
JP44	2-4	4¾	4440[1]	IL14, L4
J57	5-7	4	4380	

1. Consider allowable loads for 4x4 post.
2. Loads may not be increased for short-term loading.
3. **NAILS:** 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



J57 Floor Beam Leveler





Two Methods of JP44 Installation

SIMPSON Strong-Tie®

MP *Mending Plates*

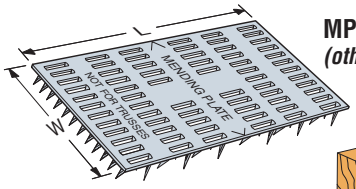
Versatile and easy-to-use mending plates for wood-to-wood connections. No nails or notching of wood required. For non-structural applications only; not for truss applications.

MATERIAL: 20 gauge
FINISH: Galvanized
INSTALLATION:
- Place plate over two pieces of aligned wood with arrows aligned at joint.
- Hammer the plate to embed the prongs.

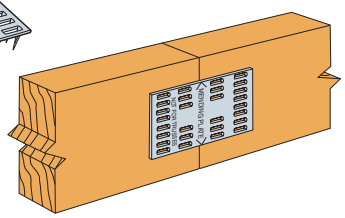
CODES: See page 12 for Code Reference Key Chart.

Model No.	Dimensions W	Dimensions L	Code Ref.
MP14	1	4	180
MP24	2	4	
MP36	3	6	

1. Connectors are not load rated.



MP36
(other sizes similar)



Typical MP Installation

TP/TPA *Tie Plates*

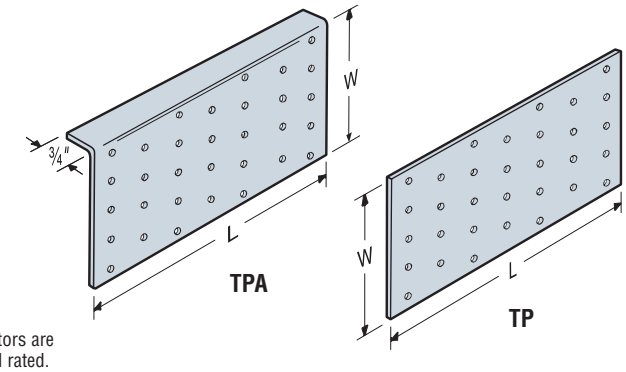
TPs are nail-on tie plates. TPAs are flanged for added support.

MATERIAL: 20 gauge
FINISH: Galvanized
INSTALLATION:
- Holes are sized for 8d common or 8dx1½" nails.

CODES: See page 12 for Code Reference Key Chart.

Model No.	Dimensions W	Dimensions L	Number of Nail Holes	Code Ref.
TP15	1 13/16	5	13	180
TPA37	3½	7	32	
TPA39	3½	9	41	
TP35	3⅛	5	23	
TP37	3⅛	7	32	
TP39	3⅛	9	41	
TP311	3⅛	11	50	
TP45	4⅛	5	30	
TP47	4⅛	7	42	
TP49	4⅛	9	54	
TP411	4⅛	11	66	
TP57	5¾	7	60	
TPA57	5	7	49	

1. Connectors are not load rated.



NS/NSP/PSPNZ *Nail Stoppers*

Nail Stoppers help prevent nails from piercing pipes and electrical lines. Installed over utilities that pass through framing members.

PSPN516Z and PSPN58Z Protecting Shield Plate Nail Stoppers meet IRC, IBC and the International Plumbing Code. PSPN516Z meets structural and protection requirements with one strap.

MATERIAL: 16 gauge
FINISH: Galvanized, PSPN–ZMAX® coating, see Corrosion Information, page 10-11.
INSTALLATION: • PSPN516Z – 16d commons *(see footnote 2 below)*.
- Other models – 8d commons or prongs. For more information request flier F-REPRPROTECT *(see page 191 for details)*.

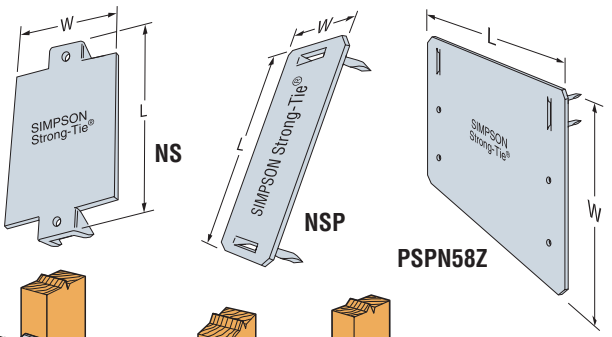
CODES: See page 12 for Code Reference Key Chart.

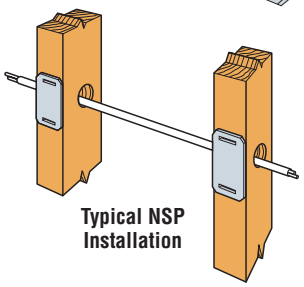
PSPN516Z (16 gauge ZMAX) at top plates
- International Residential Code®- 2000/2003/2006 P2603.2.1 & R602.6.1
- International Building Code®- 2000/2003/2006 2308.9.8
- International Plumbing Code - 2000/2003/2006 305.8

PSPN516Z (16 gauge ZMAX) at bottom plate.
- International Building Code®- 2000/2003/2006 2308.9.8
- International Plumbing Code - 2000/2003/2006 305.8

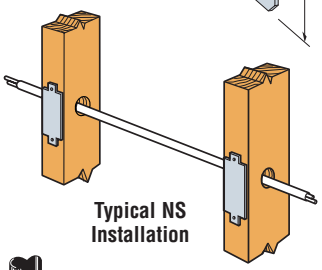
PSPN58Z (16 gauge ZMAX) at top plates and bottom plate.
- International Plumbing Code - 2000/2003/2006 305.8
- International Residential Code®- 2000/2003/2006 P2603.2.1

NS1 – Nail stops to protect supply lines from drywall nails or screws.
- International Residential Code®- 2000/2003/2006 Table E3702.1





Typical NSP Installation

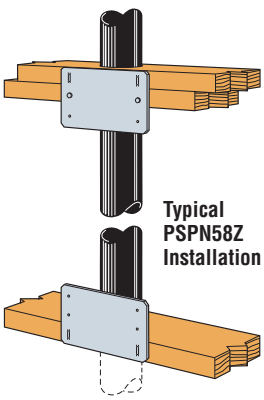


Typical NS Installation

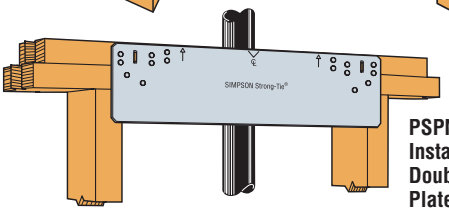
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

Model No.	W	L	Code Ref.
NS1	1½	3	190
NS2	1½	6	
NSP1	1½	2½	
NSP2	1½	5	
PSPN58Z	5	8	
PSPN516Z	5	16 5/16	

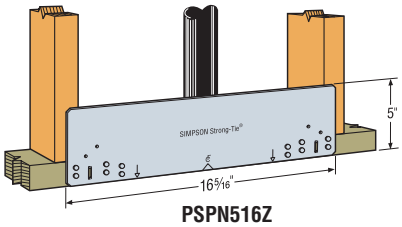
1. PSPN516Z—12-16d nails into sill plate achieves 1365 lbs. for DF/SP, and 1180 lbs. for SPF/HF. 16-16d nails in to top plates achieves 1820 lbs. for DF/SP, and 1575 lbs. for SPF/HF.
2. To meet the prescriptive IRC requirement 16d box nails (0.135" dia. x 3½") may be used.
3. **NAILS:** 16d = 0.162" dia. x 3½" long, 8d = 0.131" dia. x 2½" long. See page 16-17 for other nail sizes and information.



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. Installs over pipe up to 2⅜" outside diameter.

HSS2-3 is designed for triple 2x studs.

HSS Stud Shoes provide tension load capacity as well as increased compression loads. Flared flange provides greater strength.

MATERIAL: 16 gauge **FINISH**: Galvanized

INSTALLATION: Use all specified fasteners. See General Notes.

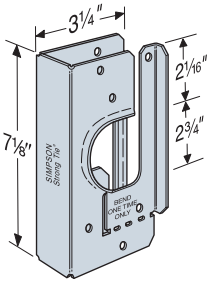
- HSS: Bend flanges at 90° angle during installation, then bend back and screw into position *(screws supplied)*.
- Bend flanges one cycle only.

CODES: See page 12 for Code Reference Key Chart.

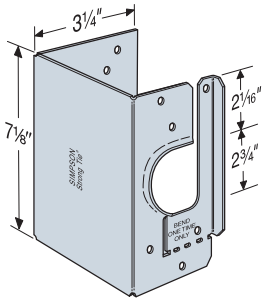
HSS2-SDS1.5 (16 gauge) Heavy stud shoes to reinforce and protect single 2x studs where pipe is located. Uses 12 Simpson Strong-Tie® Strong-Drive® ¼"x1½" screws (SDS) (included).
- IRC - 2006 R602.6 and P2603.2.1
- IBC - 2006 2308.9.10 & 2308.9.11
- IPC - 2000/2003/2006 305.8

HSS2-3-SDS3 (16 gauge) Heavy stud shoe for triple 2x stud. Uses 12 Simpson Strong-Tie SDS ¼"x2" screws (included).
- IRC - 2006 R602.6 and P2603.2.1
- IBC - 2006 2308.9.10 & 2308.9.11
- IPC - 2006 305.8

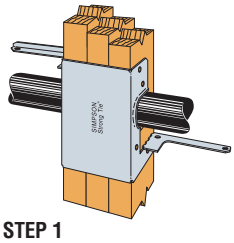
SS1.5 (16 gauge) stud shoes reinforce and protect plumbing in 2x.
- IRC - 2006 R602.6 and P2603.2.1
- IBC - 2006 2308.9.10 & 2308.9.11
- IPC - 2006 305.8



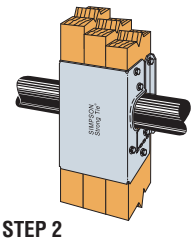
HSS
US Patent 6,176,057



HSS2-3



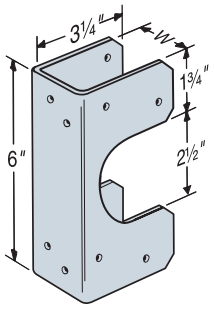
STEP 1
Install HSS *(HSS2-3 shown)* over stud with flanges bent at a 90° angle.



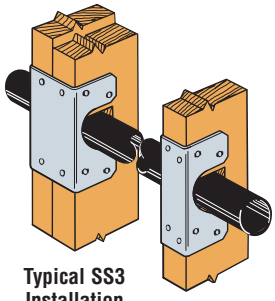
STEP 2
Bend HSS *(HSS2-3 shown)* flanges one time only. Screw into position.

Model No.	Stud Size	Fasteners	Allowable Loads[1] DF/SP Compression Floor (100)	Allowable Loads[1] DF/SP Compression Roof (125)	Allowable Loads[1] DF/SP Tension	Code Ref.
SS1.5	2x	12-10dx1½	500	500	—	I16, F15
SS2.5	3x	12-10dx1½	500	500	—	
SS3	2-2x	12-10d	665	785	—	
SS4.5	3-2x	14-10d	665	785	—	
HSS2-SDS1.5	2x	12-SDS ¼"x1½"	1200	1200	1000	
HSS2-2-SDS3	2-2x	12-SDS ¼"x3"	1200	1200	1000	
HSS2-3-SDS3	3-2x	12-SDS ¼"x3"	1000	1000	970	
HSS4-SDS3	4x	12-SDS ¼"x3"	1200	1200	1000	

1. Roof loads are 125% of floor loads unless limited by other criteria. Floor loads may be adjusted for other load durations according to the code, provided they do not exceed roof loads.
2. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long. See page 16-17 for other nail sizes and information.



SS



Typical SS3 Installation

Typical SS1.5 Installation

RPS *Strap Ties*

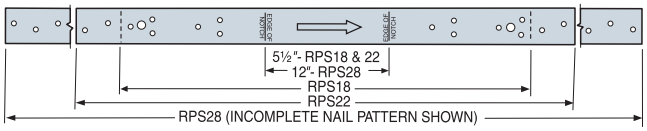
The RPS meets IBC, IRC and City of Los Angeles code requirements for HVAC and pipes in walls.

FINISH: Galvanized, some products available in ZMAX® coating. See Corrosion Information, page 10-11.

INSTALLATION: Use all specified fasteners. See General Notes.

CODES: See page 12 for Code Reference Key Chart.

Use RPS22 or RPS28 (16 gauge) to reinforce top plate.
Use RPS18Z, RPS22Z or RPS28Z (16 gauge ZMAX) to reinforce sill plate.
- International Residential Code®- 2006 R602.6.1
- International Building Code®- 2006 2308.9.8

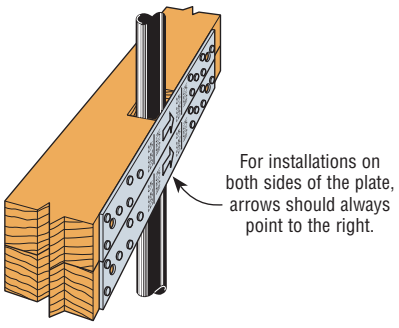


RPS

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 W	Dimensions L	Notch Width	Fasteners (Total) Nails	Allowable Tension Loads (DF/SP) (160)	Allowable Tension Loads (SPF/HF) (160)	Code Ref.
RPS18	16	1½	18⁵⁄16	≤ 5½"	12-16d	1380	1190	I16, L25, F15
RPS22		1½	22⁵⁄16	≤ 5½"	12-16d	1380	1190	
		1½	22⁵⁄16		16-16d	1805	1585	
RPS28		1½	28⁵⁄16	≤ 12"	12-16d	1380	1190	
		1½	28⁵⁄16		16-16d	1805	1585	

1. Loads include a 60% load duration increase on the fasteners for wind or earthquake loading.
2. To meet the prescriptive IRC requirement 10dx1½ (0.148" dia. x 1½" long) may be used.
3. **NAILS:** 16d = 0.162" dia. x 3½" long. See page 16-17 for other nail sizes and information.



Typical RPS Installation
(Only one strap may be necessary to meet IRC requirements)

NCA/TB/LTB *Bridging*

NCA—Nailless installation eliminates callbacks for nail squeaks. Designed for secure grip before the drive-home blow, and deeper prong penetration. Precision-formed into a rigid "V" section.

TB—Tension-type bridging with maximum nailing flexibility. Use just two of the seven nail holes at each end.

LTB—Staggered nail pattern accommodates 2x8 and 2x10 joists. Use just two of the six nail holes at each end. LTB40 has rigid prongs that install easily into the joist, and embossments that allow crisp bends.

MATERIAL: LTB—22 gauge; NCA and TB—20 gauge *(except NCA2x12-16—18 gauge).*

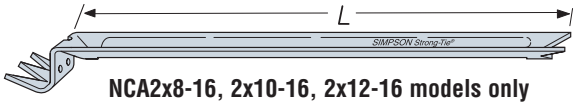
FINISH: Galvanized

INSTALLATION:
- Support floor joists with a depth-to-thickness ratio of six or more with bridging at intervals not exceeding 8'. If span is greater than 8', install on 2x8 or larger joists. If span is greater than 16', use more than one pair.
- Tension bridging works only in tension, so must be used in cross pairs.
- Install bridging tightly; loose installation may allow floor movement.
- NCA may be installed before or after sheathing, from the top or bottom. Simply locate the bend line approximately 1" from the joist edge.
- NCA has nail holes in one end for use if a prong is bent during installation. Fully seat nails if they are used; otherwise, they may lead to squeaks.
- TB requires two 10dx1½ fasteners per end.
- LTB requires two 6d commons per end.

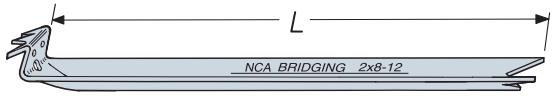
CODES: See page 12 for Code Reference Key Chart.

Code Reference: IRC 2003/2006, R502.7.1

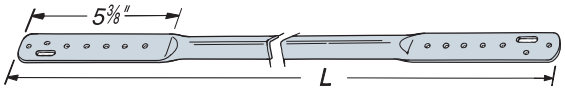
Space bridging to avoid contact noises.



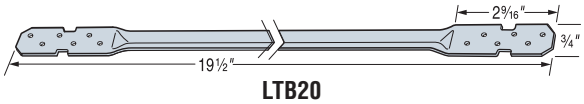
NCA2x8-16, 2x10-16, 2x12-16 models only



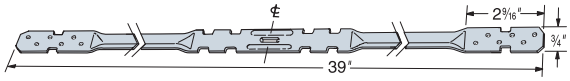
NCA



TB



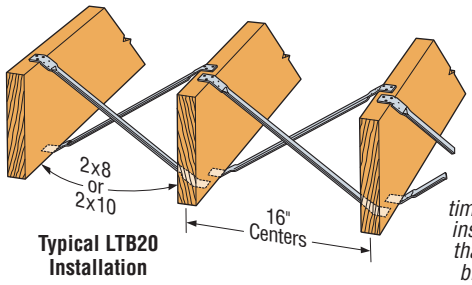
LTB20



LTB40

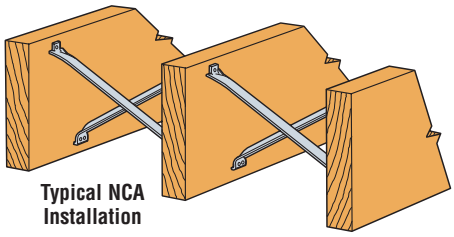
TENSION BRIDGING FOR I-JOISTS

Joist Height	Joist Spacing (inches)								
	12	16	19.2	24	30	32	36	42	48
9 ½	TB20	TB27	TB27	TB30	TB36	TB36	TB42	TB48	TB54
10	TB20	TB27	TB27	TB30	TB36	TB36	TB42	TB48	TB54
11⅞	TB20	TB27	TB27	TB30	TB36	TB36	TB42	TB48	TB54
12	TB20	TB27	TB27	TB30	TB36	TB36	TB42	TB48	TB54
14	TB27	TB27	TB27	TB36	TB36	TB42	TB42	TB48	TB54
16	TB27	TB27	TB30	TB36	TB42	TB42	TB42	TB48	TB54
18	TB27	TB30	TB30	TB36	TB42	TB42	TB48	TB54	TB56
20	TB30	TB30	TB36	TB36	TB42	TB42	TB48	TB54	TB56
22	TB30	TB36	TB36	TB36	TB42	TB42	TB48	TB54	TB56
24	TB36	TB36	TB36	TB42	TB42	TB48	TB48	TB54	TB56
26	TB36	TB36	TB36	TB42	TB48	TB48	TB48	TB54	TB60
28	TB36	TB36	TB42	TB42	TB48	TB48	TB54	TB54	TB60
30	TB36	TB42	TB42	TB42	TB48	TB48	TB54	TB56	TB60
32	TB42	TB42	TB42	TB42	TB48	TB48	TB54	TB56	TB60



Typical LTB20 Installation

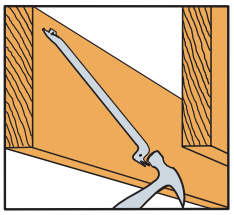
2 to 3 times faster installation than wood bridging.



Typical NCA Installation

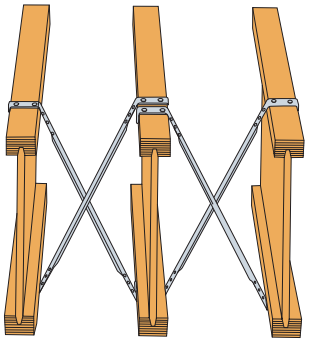
TENSION BRIDGING FOR SOLID SAWN LUMBER

Joist Size	Spacing (in.)	NCA		TB		LTB	Code Ref.
		Model No.	L	Model No.	L	Model No.	
2x8	12	NCA2x8-12	11⁹⁄₁₆	TB20	20	—	I16, L25, F15
2x10	12	NCA2x10-12	12½	TB20	20	—	
2x12	12	NCA2x12-12	13⅝	TB20	20	—	
2x14	12	NCA2x8-16	15¼	TB27	27	—	
2x16	12	NCA2x10-16	15¹³⁄₁₆	TB27	27	—	
2x8	16	NCA2x8-16	15¼	TB27	27	LTB20 or 40	
2x10	16	NCA2x10-16	15¹³⁄₁₆	TB27	27	LTB20 or 40	
2x12	16	NCA2x12-16	16⅞	TB27	27	—	
2x14	16	—	—	TB27	27	—	
2x16	16	—	—	TB27	27	—	
2x10	24	—	—	TB36	36	—	
2x12	24	—	—	TB36	36	—	
2x14	24	—	—	TB36	36	—	
2x16	24	—	—	TB36	36	—	



Install from below as shown, or from above. Drive upper end into joist approximately 1" from the top.

For all bridging avoid contact between steel members *(this may cause squeaks).*



Typical TB Installation

WB/WBC/TWB/RCWB *Wall Bracing*

Simpson Strong-Tie® Wall Bracing products offer effective options to resist racking during construction. Additionally the RCWB and WB/WBC can be used to fulfill the same code bracing requirements as a 1x4 let-in brace, but are cost effective and faster to install. Not designed to replace structural panel shearwall load-carrying component.

The WBC *(coiled WB)* multiple product dispenser pack weighs less than 40 pounds, making storage and transportation easy. WB106C—15 pieces per roll, WB126C—12 pieces per roll, WB143C—10 pieces per roll.

The RCWB features a rolled edge *(the TWB has two rolled edges)* for extra strength and safety.

MATERIAL: WB and WBC—16 gauge; TWB—22 gauge; RCWB—20 gauge

FINISH: Galvanized

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

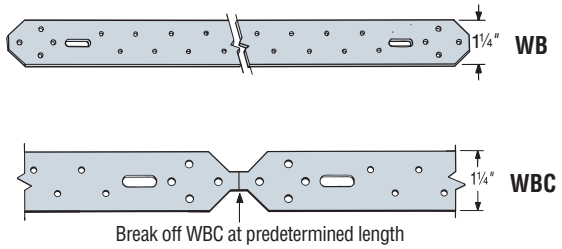
WB and WBC: • Install in "X" pairs or in opposing "V" fashion.

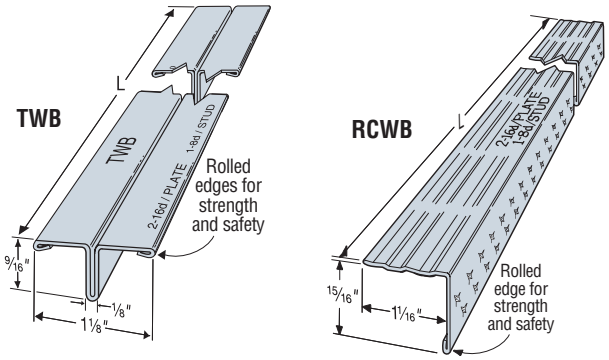
- Use with 16" or 24" o.c. 2x4 (min.) studs.

RCWB and TWB: • Use with 16" o.c. studs.

- Use minimum of 2x4 studs with TWB.
- Use minimum of 2x6 studs with RCWB *(2x4 min. for interior, non-bearing wall).*
- Establish a run-line using the bracing as a straight edge. Single cut a saw kerf 5⁄8" deep (TWB) or 1 1⁄8" deep (RCWB) along the run line. If the wall is pre-framed on the floor, place the part into the saw kerf, and put one nail into the top plate. Tilt the wall up and plumb before nailing off top plate, bottom plate and studs according to the nailing schedule.

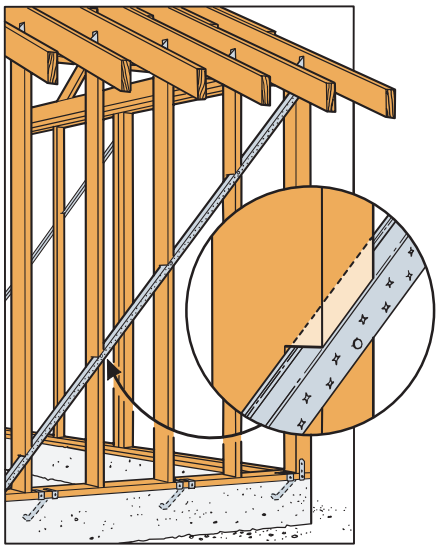
CODES: See page 12 for Code Reference Key Chart.



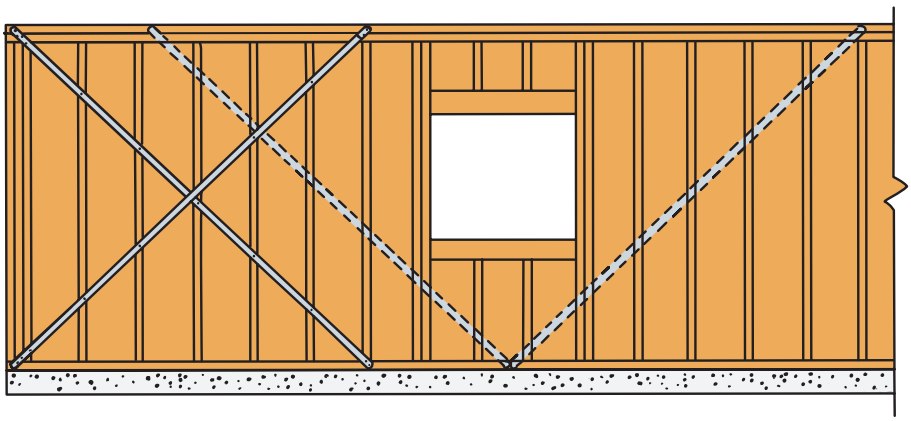


Model No.	L	Angle and Wall Height	Fasteners		Code Ref.
			Plates	Studs	
WB106	9'-5⅝"	8' @ 60	2-16d	1-8d	I16, L25, F15
WB106C	9'-6"	8' @ 60	2-16d	1-8d	
CWB106	**Deleted see other products this page.**				
TWB10	9'-9"	8' @ 55	2-16d	1-8d	I16, L25, F15
RCWB12	11'-4"	8' @ 45	2-16d	1-8d	I16, F15
WB126	11'-4⅜"	8' @ 45	2-16d	1-8d	I16, L25, F15
WB126C	11'-4¾"	8' @ 45	2-16d	1-8d	
CWB126	**Deleted see other products this page.**				
TWB12	11'-4"	8' @ 45	2-16d	1-8d	I16, L25, F15
RCWB12	11'-4"	9' @ 53	2-16d	1-8d	I16, F15
WB126	11'-4⅜"	9' @ 53	2-16d	1-8d	I16, L25, F15
WB126C	11'-4¾"	9' @ 53	2-16d	1-8d	
CWB126	**Deleted see other products this page.**				
TWB12	11'-4"	9' @ 53	2-16d	1-8d	I16, L25, F15
WB143C	14'-3"	10' @ 45	2-16d	1-8d	
RCWB14	14'-2"	10' @ 45	2-16d	1-8d	I16, F15
TWB14	14'-2"	10' @ 45	2-16d	1-8d	

1. **NAILS:** 16d = 0.162" dia. x 3½" long, 8d = 0.131" dia. x 2½" long. See page 16-17 for other nail sizes and information.



Typical RCWB Installation



WB or WBC Wall Bracing "X" and "V" Applications

ICFVL *Ledger Connector System*

The ICFVL Ledger Connector System is engineered to solve the challenges of mounting wood or steel ledgers to insulated concrete form (ICF) walls. The ICFVL is designed to provide both vertical and lateral, in-plane performance. There are many benefits over traditional anchor bolting, including better on center spacing in most cases, faster installation and no protrusions.

The embedded legs of the ICFVL are embossed for additional stiffness and the hole allows for concrete to flow through and around the connector. The exposed flange on the face of the ICF provides a structural surface for mounting either a wood or steel ledger.

MATERIAL: ICFVL—14 gauge; ICFVL-CW and ICFVL-W—16 gauge

FINISH: Galvanized

INSTALLATION: ICFVL in ICF

- For use with a minimum 4" thick core.
- Snap a chalk line for the bottom of the ledger.
- Mark required on center spacing.
- Use ICFVL to mark kerfs locations.
- Cut kerfs as marked.
- Insert ICFVL flush to the face of the ICF.
- Pour concrete.

Wood Ledger Attachment – ICFVL-W or -CW

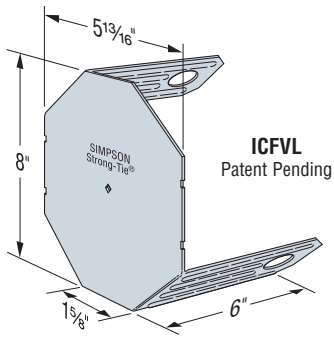
- Slip appropriate ledger connector underneath the ledger.
- Install the eight ICF-D3 screws partially into the ledger.
- Position the ledger level to the chalk line and drive the screws through the wood and into the ICFVL.

Steel Ledger Attachment

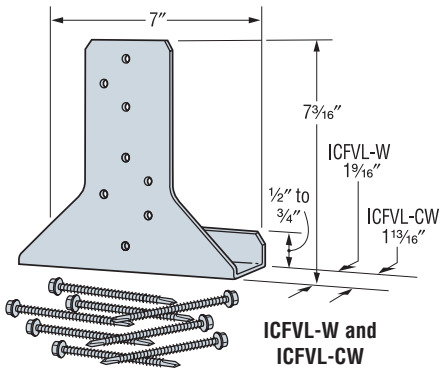
- Position the ledger level to the chalk line and against the ICFVL.
- Attach with four ¼-14x3¾", #3 drill point screws *(not provided)*.
- All screws should be located at least ½" from the edge of the ICFVL.
- Space screws evenly.

CODES: See page 12 for Code Reference Key Chart.

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



ICFVL
Patent Pending



ICFVL-W and ICFVL-CW

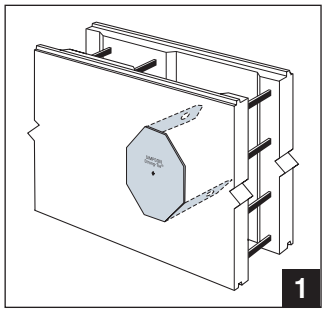
Ledger Type	Fasteners	Allowable Loads (lbs)	
		Download (100/115/125)	Lateral F_1 (160)
Wood	8-ICF D3	1940	1905
Steel	4-¼x3¾[3]	1660	1525

1. Fasteners for wood ledger (D3) are provided with the part and fasteners for steel ledger are not provided.
2. Loads apply to ICF foam thicknesses of 2¾" or less.
3. Alternately, #14 x ¾" fastener may be used.
4. Tabulated loads may not be increased.
5. Concrete f'c = 2500 psi minimum.
6. When combining download and lateral loads, Designer shall evaluate as follows: Design Download/Allowable Download + Design Lateral Load/Allowable Lateral Load ≤ 1.

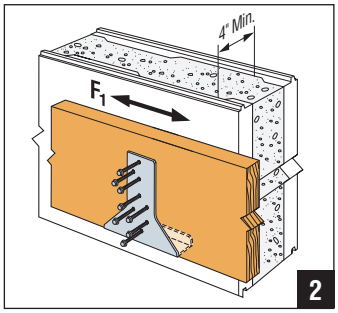
These tables address vertical load applications only.

Ledger Type	Connector Type	ICFVL SPACING TO REPLACE ANCHOR BOLTS (in)[1,2,3]																Code Ref.
		½" Dia. Anchors at				⅝" Dia. Anchors at				(2)-⅝" Dia. Anchors at				¾" Dia. Anchors at				
		12" o.c.	24" o.c.	36" o.c.	48" o.c.	12" o.c.	24" o.c.	36" o.c.	48" o.c.	12" o.c.	24" o.c.	36" o.c.	48" o.c.	12" o.c.	24" o.c.	36" o.c.	48" o.c.	
WOOD LEDGERS																		
DF/SP/SPF	ICFVL w/ ICFVL-W	48	48	48	48	48	48	48	48	24	48	48	48	42	48	48	48	F24
LVL	ICFVL w/ ICFVL-CW	48	48	48	48	48	48	48	48	24	48	48	48	42	48	48	48	F24
STEEL LEDGERS																		
68 mils (0.068")	ICFVL	11	22	33	44	9	18	27	36	—	—	—	—	—	—	—	—	F24
54 mils (0.054")	ICFVL	15	30	45	48	12	24	36	48	—	—	—	—	—	—	—	—	F24

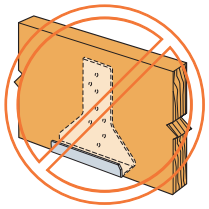
1. The Designer may specify different spacing based on the load requirements.
2. Spacings are based on perpendicular to grain capacity of bolt in wood ledger compared to tested value of ICFVL. Additional connectors required for out-of-plane loads.
3. See flier F-ICFVL for additional connection details *(see page 191 for details)*.
4. For steel ledgers, the 68 mil ledger spacing is closer than the 54 mil ledger because the calculated load of a bolt is higher in a thicker piece of steel.
5. Steel ledger values are based on steel. F_U = 60 ksi.



ICFVL

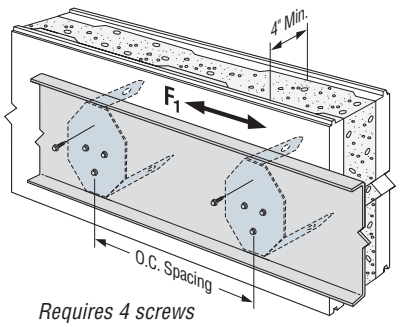


Typical Wood Ledger Installation with ICFVL and ICFVL-W



MISINSTALLATION!

Typical Steel Ledger Installation with ICFVL
(minimum 16 ga steel ledger)



Requires 4 screws at each location. Table provides on center spacing.

ARCHITECTURAL PRODUCTS GROUP

The **Architectural Products Group** consists of aesthetically pleasing, pre-finished connectors and innovative concealed joist ties designed for exposed wood applications. These connectors provide structural performance and, at the same time, add a unique appearance feature to a project. Refer to Simpson Strong-Tie® C-APG catalog.

- **ARCHITECTURAL FINISHES**
  Eliminate time consuming prep work and costly field painting. Available finishes include textured flat black powder-coat, gray paint and hot-dip galvanized coating.
- **AVAILABILITY**
  Select products are in stock and readily available. Contact Simpson Strong-Tie for product availability and lead times for non-stocked items.
- **PRE-ENGINEERED AND TESTED**
  Load-rated products are verified to perform to design loads, unlike custom designed and fabricated connectors.
- **QUALITY ASSURANCE**
  No-Equal quality-controlled manufacturing ensures product consistency and high quality.

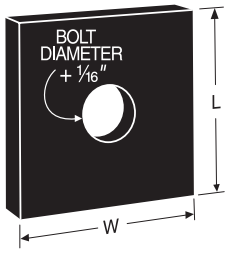
Products shown in this section come with textured flat black powder-coat unless otherwise noted. Most are also available with a galvanized coating or gray primer. Contact Simpson Strong-Tie for availability.

www.strongtie.com/apg

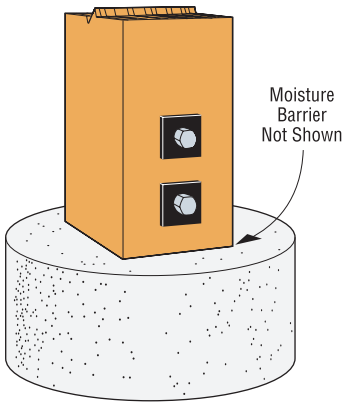
BP – BEARING PLATES

Bearing Plates give greater bearing surface than standard cut washers, and help distribute the load at these critical connections.
MATERIAL: See table
FINISH: Textured flat black powder-coat
INSTALLATION: See General Notes.
CODES: See page 12 for Code Reference Key Chart.

Model No.	Thickness	Dimensions		Bolt Dia.	Code Ref.
		W	L		
BP½PC	3/16	2	2	½	L8, 190
BP⅝-2PC	3/16	2	2	⅝	190
BP⅝PC	¼	2½	2½	⅝	L8
BP¾PC	5/16	2¾	2¾	¾	
BP⅞PC	5/16	3	3	⅞	
BP1PC	⅜	3½	3½	1	



BP

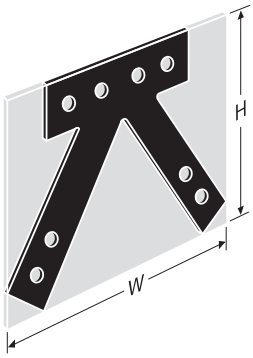


Typical BP Installation

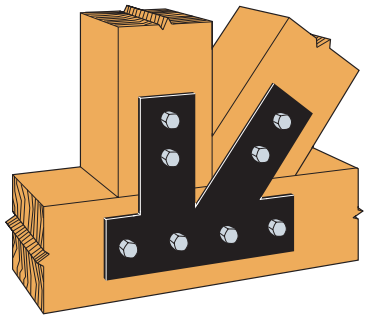
SPECIAL ORDER PLATES

Simpson Strong-Tie can make a variety of flat and bent steel shapes, which include gusset plates for heavy timber trusses, custom ornamental shapes and retaining plates.
MATERIAL: 3 gauge maximum
FINISH: Galvanized, textured powder-coated flat black, Simpson Strong-Tie® gray paint, stainless steel. Contact Simpson Strong-Tie for availability.
TO OBTAIN A QUOTE:

- Supply a CAD drawing in .dxf format complete with plate dimensions, hole diameter and locations, steel thickness, desired finish *(Simpson Strong-Tie Gray Paint, Black Powder-Coat, HDG or raw steel)*.
- Total plate shape and size up to maximum dimensions of 48"x48" *(approx. 1/16" tolerance)*.
- Simpson Strong-Tie does not provide product engineering or load values for Special Order Plates.
- Contact Simpson Strong-Tie for pricing information.
- Refer to General Notes, note g on page 13 for additional information.



"W" and "H" indicate the envelope size of the steel shape.



Typical Installation
(Plate shown has black powder-coat)

CONCEALED JOIST TIES

The CJT is a concealed connector. It can be installed three ways: with no routing of header/post or beam; a routed header/post, or a routed beam.

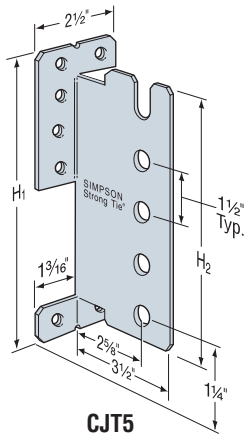
MATERIAL: 12 gauge **FINISH:** Galvanized

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

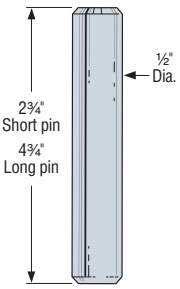
- The CJT Pack is supplied with all pins and screws required. Screws require a hex head driver.
- Router end of beam for screw heads for flush installation.
- The joist/beam may be sloped to 45° with full table loads.
- To provide maximum beam width for use with short pins, center in beam.
- To order: specify short (e.g. CJT3S) or long pins (e.g. CJT3L) *(see footnote #1 below)*.

OPTIONS: See technical bulletin T-CJT *(see page 191 for details)*.

CODES: See page 12 for Code Reference Key Chart.



CJT5
(Others similar)

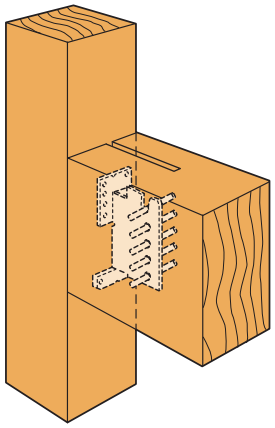


Chamfered Steel Pin
(Galvanized)

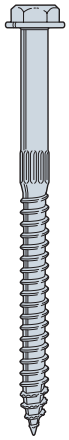
WARNING:
This connector requires special attention to ensure correct installation. The beam must be installed perpendicular to the support member. The connection's components may be damaged if the beam is rotated from its opposite end during or after installation. Damaged components may not be noticeable and may reduce the connector's load carrying capacity.

Model No.	Min. Joist Size	Dimensions		Fasteners		Allowable Loads				Code Ref.
		H_1	H_2	SDS	Pins (2¾" or 4¾")[2]	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	
DOUGLAS FIR										
CJT3	4x8	5⁹⁄₁₆	4⁷⁄₁₆	6	3	1655	1050	1050	1050	I18, F17
CJT4	4x10	7	5¹⁵⁄₁₆	8	4	2460	2440	2805	2815	
CJT5	4x12	8⁹⁄₁₆	7⁷⁄₁₆	10	5	3255	3005	3455	3755	
CJT6	4x12	10	8¹⁵⁄₁₆	12	6	4005	3535	3990	3990	
GLULAM BEAM										
CJT3	3⅛x7½	5⁹⁄₁₆	4⁷⁄₁₆	6	3	1655	1240	1240	1240	I18, F17
CJT4	3⅛x9	7	5¹⁵⁄₁₆	8	4	2460	2440	2805	2900	
CJT5	3⅛x10½	8⁹⁄₁₆	7⁷⁄₁₆	10	5	3255	3005	3455	3755	
CJT6	3⅛x12	10	8¹⁵⁄₁₆	12	6	4005	3535	4065	4420	
PSL										
CJT3	3½x9½	5⁹⁄₁₆	4⁷⁄₁₆	6	3	1655	1840	2115	2160	I18, F17
CJT4	3½x9½	7	5¹⁵⁄₁₆	8	4	2460	2145	2145	2145	
CJT5	3½x9½	8⁹⁄₁₆	7⁷⁄₁₆	10	5	3255	3005	3455	3755	
CJT6	3½x11⅞	10	8¹⁵⁄₁₆	12	6	4005	3535	4065	4420	

1. Center pin in beam. Short pin (2¾") for use with 3⅛ GLB, 4x sawn lumber or 3½" wide PSL. Long pin (4¾") for use with 5⅛ GLB, 6x sawn lumber or greater widths.
2. See technical bulletin T-CJT for additional load information with long pins *(see page 191 for details)*.



Typical CJT Installation
(Note that pins should be centered within beam)



SDS ¼"x3"
U.S. Patent
6,109,850
5,897,280
5,044,853

ORNAMENTAL – JOIST HANGER

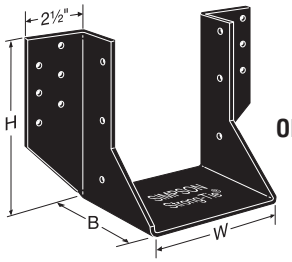
The OHU Ornamental Joist Hangers are heavy duty, load-rated joist hangers that are attached with Simpson Strong-Tie® Strong-Drive® ¼"x3" double-barrier coating wood screws (SDS) *(supplied with product)*.

MATERIAL: 12 gauge

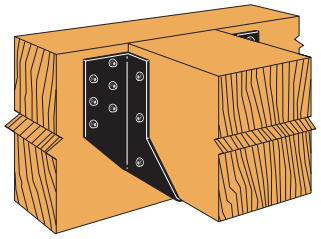
FINISH: Textured powder-coated flat black paint.

OPTIONS: No modifications.

CODES: See page 12 for Code Reference Key Chart.



OHU



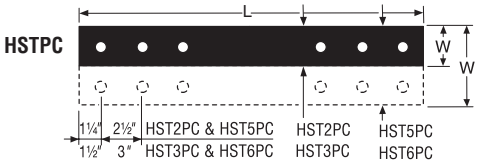
Typical OHU Installation

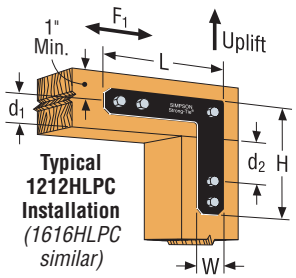
Model No.	Joist Size	Ga	Dimensions			No. of SDS ¼"x3" Wood Screws		DF/SP				SPF/HF				Code Ref.
			W	H	B	Face	Joist	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	Uplift (160)	Floor (100)	Snow (115)	Roof (125)	
OHU46-SDS3	4x6	12	3⁹⁄₁₆	5	4	6	4	1930	2520	2900	3150	1390	1800	2070	2250	170
OHU48-SDS3	4x8	12	3⁹⁄₁₆	6¾	4	8	6	2765	3360	3865	4200	1990	2400	2760	3000	
OHU410-SDS3	4x10	12	3⁹⁄₁₆	8¾	4	12	6	2765	5040	5795	6300	1990	3600	4140	4500	
OHU412-SDS3	4x12	12	3⁹⁄₁₆	10¾	4	12	8	3565	5040	5795	6300	2570	3600	4140	4500	
OHU414-SDS3	4x14	12	3⁹⁄₁₆	12¾	4	14	10	3565	5880	6760	7350	2570	4200	4830	5250	
OHU66-SDS3	6x6	12	5½	5	4	6	4	1930	2520	2900	3150	1390	1800	2070	2250	
OHU68-SDS3	6x8	12	5½	7	4	12	6	2765	5040	5795	5955	1990	3600	4140	4290	
OHU610-SDS3	6x10	12	5½	9	4	14	6	2765	5880	6760	6885	1990	4200	4830	4960	
OHU612-SDS3	6x12	12	5½	11	4	16	8	3565	6720	7730	7815	2570	4800	5520	5630	
OHU614-SDS3	6x14	12	5½	13	4	18	10	3565	7560	8695	8745	2570	5400	6210	6300	

1. Allowable uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.

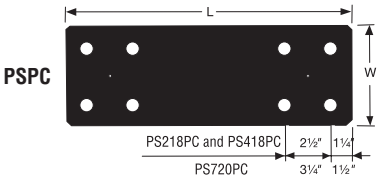
CLASSIC COLLECTION

MATERIAL: As noted in tables
FINISH: Textured powder-coated flat black paint
INSTALLATION: • Use all specified fasteners. See General Notes.
CODES: See page 12 for Code Reference Key Chart.





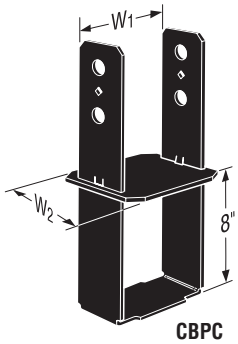
Typical 1212HLPC Installation *(1616HLPC similar)*



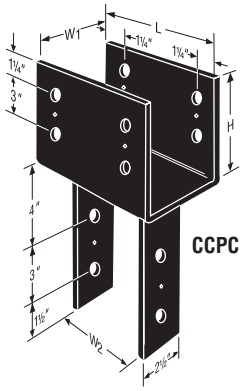
STRAP TIES

Model No.	Ga	Dimensions		Bolts		Allowable Tension Loads[1,2]	Code Ref.
		W	L	Qty	Dia	(160)	
HST2PC	7	2½	21¼	6	⅝	5220	I4, L19, F2
HST5PC	7	5	21¼	12	⅝	10650	
HST3PC	3	3	25½	6	¾	7625	
HST6PC	3	6	25½	12	¾	15360	
PS218PC	7	2	18	4	¾	4990	180
PS418PC	7	4	18	4	¾	5030	
PS720PC	7	6¾	20	8	½	4685	

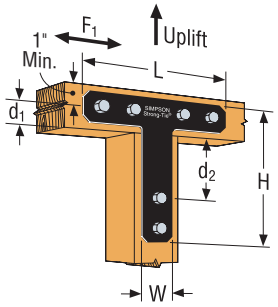
1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Allowable loads are based on parallel-to-grain loading and a minimum member thickness of 3½" with machine bolts in single shear. Straps must be centered about splice joint and bolt edge distances must meet NDS minimum requirements.
3. Designer must determine allowable loads when combining bolts parallel and perpendicular to grain.



CBPC



CCPC



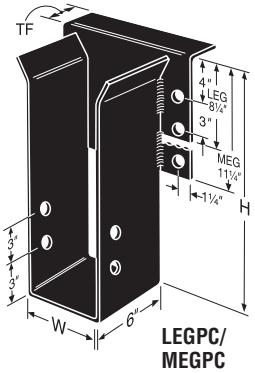
Typical 1212HTPC Installation *(1616HTPC similar)*

BEAM TO COLUMN TIES

Model No.	Ga	Dimensions			Minimum Bolt End & Edge Distances		Bolts		Allowable Loads[1,2]		Code Ref.
									Tension/Uplift	F_1	
		W	H	L	d_1	d_2	Qty	Dia	(100/160)	(100/160)	
1212HLPC	7	2½	12	12	2½	4⅜	5	⅝	1535	565	170
1616HLPC	7	2½	16	16	2½	4⅜	5	⅝	1535	565	
1212HTPC	7	2½	12	12	2½	4⅜	6	⅝	2585	815	
1616HTPC	7	2½	16	16	2½	4⅜	6	⅝	2585	815	

1. 1212HL, 1616HL, 1212HT and 1616HT are to be installed in pairs with machine bolts in double shear. A single part with machine bolts in single shear is not load-rated.
2. Allowable loads are based on a minimum member thickness of 3½".
3. 1212HT, 1616HT loads assume a continuous beam.

MEGPC without Top Flange



LEGPC/ MEGPC

COLUMN BASES

Model No.	Ga	Dimensions		Bolts		Allowable Tension Loads	Code Ref.
		W_1	W_2	Qty	Dia	(160)	
CB44PC	7	3⁹⁄₁₆	3½	2	⅝	4200	IL8
CB46PC	7	3⁹⁄₁₆	5½	2	⅝	4200	
CB48PC	7	3⁹⁄₁₆	7½	2	⅝	4200	
CB66PC	7	5½	5½	2	⅝	4200	
CB68PC	7	5½	7½	2	⅝	4200	
CB88PC	3	7½	7½	2	¾	6650	
CB810PC	3	7½	9½	2	¾	6650	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. See page 51 for glulam beam sizes. Add PC to the model, i.e. CB5-6PC.
3. Minimum side cover for full loads is 3" for CB's.
4. Install with bottom of base flush with concrete.
5. Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.

COLUMN CAPS

Model No.	Ga	Dimensions				Bolts				Allowable Loads		Code Ref.
						Beam		Post		Uplift	Down	
		W_1	W_2	L	H	Qty	Dia	Qty	Dia	(160)	(100)	
CC44PC	7	3⅝	3⅝	7	4	2	⅝	2	⅝	1465	15310	I12, L20, F11
CC46PC	7	3⅝	5½	11	6½	4	⅝	2	⅝	2800	24060	
CC66PC	7	5½	5½	11	6½	4	⅝	2	⅝	4040	30250	
CC68PC	7	5½	7½	11	6½	4	⅝	2	⅝	4040	37810	
CC88PC	3	7½	7½	13	8	4	¾	2	¾	7440	54600	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Post sides are assumed to lie in the same vertical plane as the beam sides.
3. Downloads are determined using F'_c perpendicular equal to 625 psi on seat area; reduce where end bearing value of post, L/R of post, or other criteria are limiting.
4. See pages 55 for glulam beam sizes and end conditions. Add PC to the model, i.e. CC3¼-4PC.
5. Column caps for end conditions available to order, add an "E" to the start of the model number. See page 55 for load values.

BEAM HANGERS

MATERIAL:
Top flange–7 ga,
Stirrups–7 ga.

Model No.	Dimensions			Bolts				Allowable Loads						Code Ref.
	W	Min. H	TF	Header		Joist		Without Top Flange		No Triangle Theory		Triangle Theory		
				Qty	Dia	Qty	Dia	(100)	(125)	(100)	(125)	(100)	(125)	
LEG3PC	3¼	9	2½	4	¾	2	¾	3465	4330	12675	13215	11865	12730	I19, F18
LEG5PC	5¼	9	2½	4	¾	2	¾	3465	4330	16290	16290	11865	12730	
MEG5PC	5¼	9	2½	6	¾	2	¾	5170	6460	19710	19710	13570	14865	
LEG7PC	6⅞	9	2½	4	¾	2	¾	3465	4330	16290	16290	11865	12730	
MEG7PC	6⅞	9	2½	6	¾	2	¾	5170	6460	19710	19710	13570	14865	

1. Allowable loads assume a 5½" carrying member.
2. Specify desired height, minimum height listed in the table.
3. Glulam widths listed in table. To specify other widths add an X to the name and specify.
4. See Glulam Connectors section of this catalog for additional information on these products.
5. Refer to page 114 footnote #4 For triangle theory explanation.

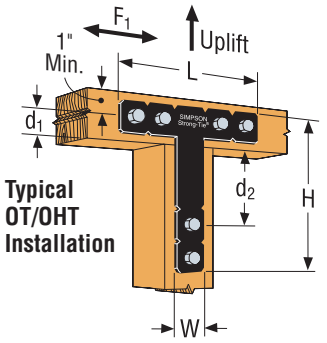
RUSTIC COLLECTION

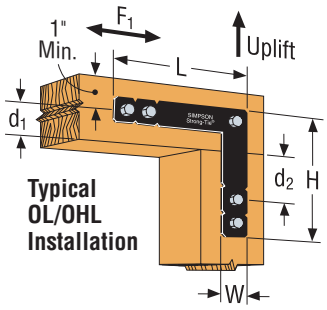
MATERIAL: As noted in tables
FINISH: Textured powder-coated flat black paint
INSTALLATION: • Use all specified fasteners. See General Notes.
CODES: See page 12 for Code Reference Key Chart.

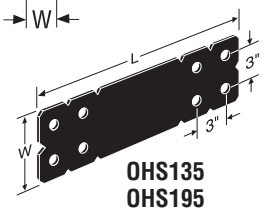
STRAP TIES

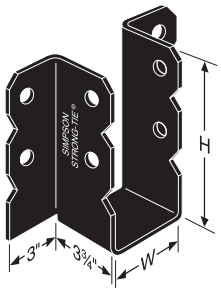
Model No.	Ga	Dimensions		Bolts		Allowable Loads[1,2]	Code Ref.
		W	L	Qty	Dia	Tension/Uplift (160)	
OS	12	2	12	4	½	1565	170
OHS	7	2½	12	4	⅝	2015	
OHS135	7	6	13½	4	¾	5045	
OHS195	7	6	19½	8	¾	10085	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Allowable loads are based on parallel-to-grain loading and a minimum member thickness of 3½" with machine bolts in single shear. Straps must be centered about splice joint and bolt edge distances must meet NDS minimum requirements.
3. Designer must determine allowable loads when combining bolts parallel and perpendicular to grain.





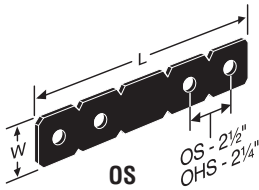




BEAM TO COLUMN TIES

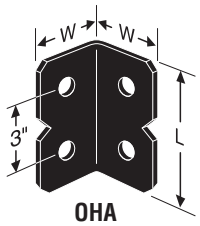
Model No.	Ga	Dimensions			Minimum Bolt End & Edge Distances		Bolts		Allowable Loads[1,2,3]		Code Ref.
									Tension/Uplift	F1	
		W	H	L	d_1	d_2	Qty	Dia	(100/160)	(100/160)	
OL	12	2	12	12	2	3½	5	½	1435	565	170
OHL	7	2½	12	12	2½	4⅜	5	⅝	1535	565	
OT	12	2	12	12	2	3½	6	½	2585	815	
OHT	7	2½	12	12	2½	4⅜	6	⅝	2585	815	

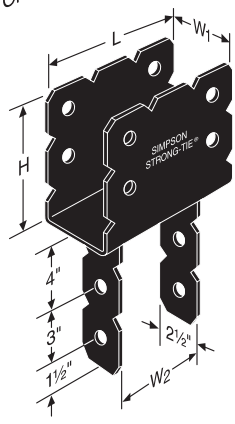
1. OL, OHL, OT and OHT must be installed in pairs with machine bolts in double shear. A single part with machine bolts in single shear is not load-rated.
2. Allowable loads are based on a minimum member thickness of 3½".
3. OT, OHT loads assume a continuous beam.

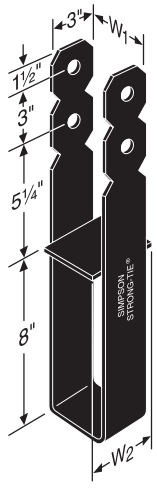


HEAVY ANGLES

Model No.	Ga	Dimensions		Bolts		Code Ref.
		W	L	Qty	Dia	
OHA33	7	3⅛	3	2	¾	180
OHA36	7	3⅛	6	4	¾	







COLUMN BASES

Model No.	Ga	Dimensions		Bolts		Allowable Uplift Loads	Code Ref.
		W_1	W_2	Qty	Dia	(160)	
OCB44	3	3⁹⁄₁₆	3½	2	⅝	4200	170
OCB46	3	3⁹⁄₁₆	5½	2	⅝	4200	
OCB48	3	3⁹⁄₁₆	7½	2	⅝	4200	
OCB66	3	5½	5½	2	⅝	4200	
OCB68	3	5½	7½	2	⅝	4200	
OCB88	3	7½	7½	2	¾	6650	
OCB810	3	7½	9½	2	¾	6650	

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Minimum side cover for full loads is 3" for CB's.
3. Install with bottom of base flush with concrete.
4. Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.

COLUMN CAPS

Model No.	Ga	Dimensions				Bolts				Allowable Loads		Code Ref.
						Beam		Post		Uplift	Down	
		W_1	W_2	L	H	Qty	Dia	Qty	Dia	(160)	(100)	
OCC44	3	3⅝	3⅝	9	4½	2	⅝	2	⅝	1465	15310	170
OCC46	3	3⅝	5½	12	7½	4	⅝	2	⅝	2800	24060	
OCC66	3	5½	5½	12	7½	4	⅝	2	⅝	4040	30250	
OCC68	3	5½	7½	12	7½	4	⅝	2	⅝	4040	37810	
OCC88	3	7½	7½	15	7½	4	¾	2	¾	7440	54600	

1. Allowable uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Downloads are determined by nominal sawn beam allowable bearing at 625 psi on seat area; reduce where shear value of beam, end bearing value of post, L/R of post, or other criteria are limiting.
3. Post sides are assumed to lie in the same vertical plane as the beam sides.
4. For end conditions specify OECC.

JOIST HANGERS

Model No.	Dimensions		Bolts		Allowable Loads[1,2]			Code Ref.
	W	H	Header	Joist	Uplift (160)	Floor (100)	Roof[2] (125)	
OU46	3⁹⁄₁₆	5	2-¾	1-¾	685	1270	1590	170
OU48	3⁹⁄₁₆	7	4-¾	2-¾	1365	2545	3175	
OU410	3⁹⁄₁₆	9	4-¾	2-¾	1365	2545	3175	
OU412	3⁹⁄₁₆	11	6-¾	3-¾	2050	3815	4765	
OU414	3⁹⁄₁₆	13	6-¾	3-¾	2050	3815	4765	
OU68	5½	7	4-¾	2-¾	1365	2545	3175	
OU610	5½	9	4-¾	2-¾	1365	2545	3175	
OU612	5½	11	6-¾	3-¾	2050	3815	4765	
OU614	5½	13	6-¾	3-¾	2050	3815	4765	
OU810	7½	9	4-¾	2-¾	1365	2545	3175	
OU812	7½	11	6-¾	3-¾	2050	3815	4765	
OU814	7½	13	6-¾	3-¾	2050	3815	4765	

1. Load values allowed assume a carrying member of not less than 3½".
2. Roof loads are 125% of floor loads unless a limited by other criteria. Floor loads may be adjusted for other load durations according to the code provided they do not exceed those in the roof column.
3. Additional glulam beam widths are available. Add an "X" to the name and specify width, i.e. OU68X, W = 5.25.
4. Skew and slope options not available.

STANDOFF BASES

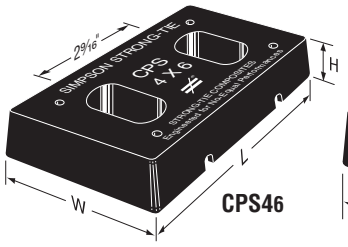
The **PBV** is a hidden standoff post base. Two different sizes fit a variety of posts shapes.
MATERIAL: 14 gauge galvanized steel
FINISH: Textured powder-coated flat black paint or galvanized
ORDER: For powder-coated flat black, order PBV6PC or PBV10PC. For galvanized coating, order PBV6 or PBV10. For kit containing Simpson Strong-Tie® Strong-Drive® screws (SDS), RFB bolt, SET 1.7 adhesive, and powder-coated PBV, order PBV6KT or PBV10KT.

The **CPS** is a Composite Plastic Standoff designed for increased concrete surface area.
MATERIAL: Engineered composite plastic
INSTALLATION: PBV and CPS

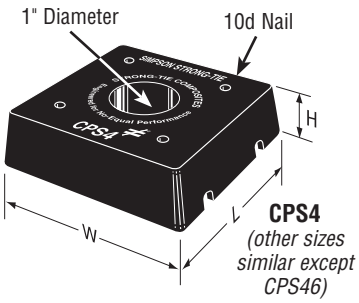
Post:
- Drill a ¾" diameter hole, 10" into the center of the post.
- Clean out dust. Fill hole halfway with Simpson Strong-Tie® SET Epoxy-Tie® adhesive.
- Insert all-thread rod and allow epoxy to set and cure.
- Secure standoff to post using four 10d nails except PBV which uses four Simpson Strong-Tie SDS screws.

Concrete:
- Drill a ¾" diameter hole per anchor design *(see footnote 2 below)*.
- Clean out dust. Fill hole halfway with Simpson Strong-Tie SET Epoxy-Tie adhesive. Insert post subassembly into hole and allow epoxy to set and cure.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non top-supported installations *(such as fences or unbraced carports)*.

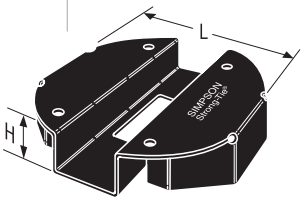
CODES: See page 12 for Code Reference Key Chart.



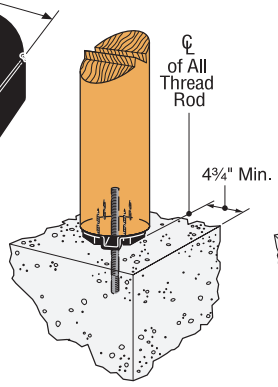
CPS46



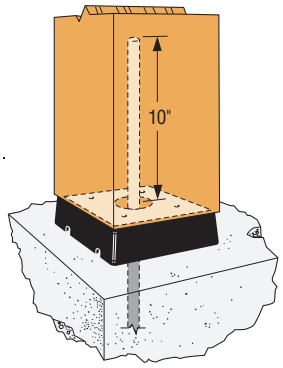
CPS4
(other sizes similar except CPS46)



PBVPC
US Patent
D 399,013



Typical PBV6PC Installation



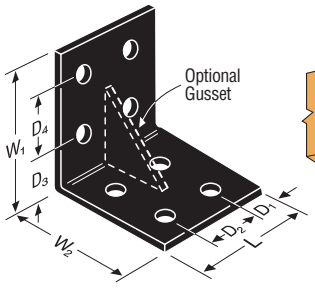
Typical CPS4 Installation

Model No.	Post or Column Size	Dimensions			Fasteners		Allowable Loads		Code Ref.
		L	W	H	Post	Anchor Bolt	Uplift	Down[3]	
CPS4	4x4	3¼	3¼	1	4-10d	⅝"	4490	5195	170
CPS46	4x6	5⁵⁄₁₆	3⁵⁄₁₆	1	4-10d	2-⅝"	4490	5865	
CPS5	5x5	4⅛	4⅛	1	4-10d	⅝"	4490	5865	
CPS6	6x6	5⁵⁄₁₆	5⁵⁄₁₆	1	4-10d	⅝"	4490	7745	
CPS7	8x8	7¼	7¼	1¼	4-10d	⅝"	4490	8315	
PBV6PC	6" Dia	5¼	—	1	4-SDS¼x3	⅝"	3800	9250	I3
PBV10PC	10" Dia	9³⁄₁₆	—	1	4-SDS¼x3	⅝"	3800	19225	

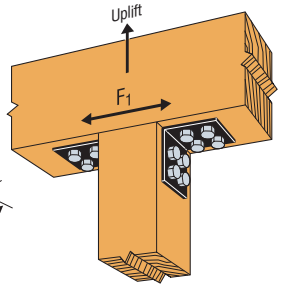
1. Allowable uplift load capacities are for solid sawn posts with specific gravity of 0.36 minimum except the PBV, which is based on round "Viga" *(Ponderosa Pine)* wood posts.
2. All allowable uplift loads are based on a lowest ultimate load from testing divided by a reduction factor of 4. Concrete anchorage to be designed by others, refer to Simpson Strong-Tie® *Anchoring and Fastening Systems for Concrete and Masonry* catalog *(form C-SAS, see page 191 for details)*. Allowable uplift capacities shall not exceed those shown in the table.
3. Download capacities are calculated based on the standoff bearing area and a concrete strength of 2500 psi except the PBV, which is based on the wood bearing strength *(700 psi for Ponderosa Pine)*.
4. Allowable loads may not be increased for short term loading.
5. **NAILS:** 10d = 0.148" dia. x 3" long. See page 16-17 for other nail sizes and information.

HL – HEAVY ANGLES & GUSSETS

Versatile angle gussets and heavy angles promote standardization and construction economy, and are compatible with Simpson Strong-Tie® structural hardware.
FINISH: Textured powder-coated flat black paint, Simpson Strong-Tie® gray paint and also available galvanized
TO ORDER: All products with PC suffix are textured powder-coated flat black paint. 7 gauge products without the PC suffix are galvanized. 3 gauge products without the PC suffix are Simpson Strong-Tie gray paint.
OPTIONS: Gussets may be added to HL models when L ≥ 5". Specify G after numbers in model number as in HL46GPC.
CODES: See page 12 for Code Reference Key Chart.

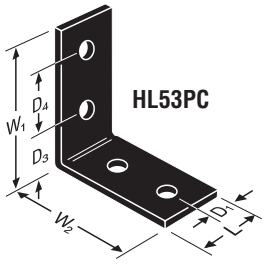


HL55PC



Typical HL55PC Installation

Model No.	Ga	Dimensions						Bolts (Total)		Allowable Loads		Code Ref.
		W₁ & W₂	L	D₁	D₂	D₃	D₄	Qty	Dia	Uplift	F₁	
HL33PC	7	3¼	2½	1¼	—	2	—	2	½	910	1580	170
HL35PC	7	3¼	5	1¼	2½	2	—	4	½	910	1580	
HL37PC	7	3¼	7½	1¼	2½	2	—	6	½	910	1580	
HL53PC	7	5¾	2½	1¼	—	2	2½	4	½	910	1580	
HL55PC	7	5¾	5	1¼	2½	2	2½	8	½	910	1580	
HL57PC	7	5¾	7½	1¼	2½	2	2½	12	½	910	1580	
HL43PC	3	4¼	3	1½	—	2¾	—	2	¾	1555	1580	
HL46PC	3	4¼	6	1½	3	2¾	—	4	¾	1555	2025	
HL49PC	3	4¼	9	1½	3	2¾	—	6	¾	1555	2025	
HL73PC	3	7¼	3	1½	—	2¾	3	4	¾	1555	2025	
HL76PC	3	7¼	6	1½	3	2¾	3	8	¾	2115	3800	
HL79PC	3	7¼	9	1½	3	2¾	3	12	¾	2115	3800	



HL53PC

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Use 0.85 times table load for Hem Fir.
3. Parts should be centered on the face of the member to which they are attached.
4. Wood members for the '3' and '5' series must have a minimum width and thickness of 3½" for table loads to apply.
5. Wood members for the '4' and '7' series must have a minimum width and thickness of 5⅛" for table loads to apply.
6. Parts must be used in pairs. Lag bolts of equal diameter *(minimum 5" long)* may be substituted for machine bolts into beam with no reduction in load.

HANGER OPTIONS GENERAL NOTES

HANGER MODIFICATION OPTIONS AND APPLICATIONS

The Hanger Options Matrix for Face Mount and Top Flange Hangers on pages 182-183 shows hanger modifications and special applications *(uplift, nailers and weldability)* that are available for each model series. Modifications may not be available for all models in the series, and some combinations of hanger options are not available. Many hanger modifications result in load reductions. For all modifications, refer to the listed hanger option pages for additional information regarding the availability of each modification, associated load reductions, and installation requirements. For more information regarding the applications, refer to the individual product pages throughout the catalog.

HANGER OPTIONS GENERAL NOTES

This information applies only to the hangers manufactured by Simpson Strong-Tie and installed per our instructions. Some combinations of these options on a single hanger have not been evaluated. In some cases, combinations of these options cannot be manufactured. A qualified Designer must always evaluate each connection, including header and joist limitations, before specifying the product.

Testing is performed using a standardized hanger test method. The joist in the test setup may include the minimum amount of structural stability where appropriate. For example, the sloped down hanger tests are assembled with a joist cut on the lower end to lie flush with a wood member attached with three 8d common toenails. Header and other attached structural members are assumed fixed in actual installations. Horizontal loads induced by sloped joists must be resisted by other members in the structural system.

MATERIAL: Gauge may vary from that specified depending on the manufacturing process used. U, HU, HUTF, W and B hangers normally have single-piece stirrups; occasionally, the seat may be welded. Hanger configurations, height and fastener schedules may vary from the tables depending on the joist size, skew and slope.

FINISH: See specific hanger tables. Welded specials: Simpson Strong-Tie® gray paint.
Specials that are not galvanized before fabrication can be hot-dip galvanized after fabrication; specify HDG.

CODES: Modified hangers, due to their numerous variations, are not on code reports.

LOADS: For multiple options on the same connector, use the smallest reduction factor to give the lowest design loads.

TO ORDER: Use the abbreviations below to order specials. The example shows a W410 hanger and illustrates most available options; most special hangers have only a few of these features. For assistance, contact Simpson Strong-Tie.

INSTALLATION:

- Fastener quantities may be increased beyond the amount specified in the standard hanger table.
- Fill all holes with the table-specified fastener types.
- Some skewed hangers require bevel cut joists; refer to the specific notes provided for each product.

W410	X	SLD30	SKL20	TFDL20	TFO20	OSR
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)*

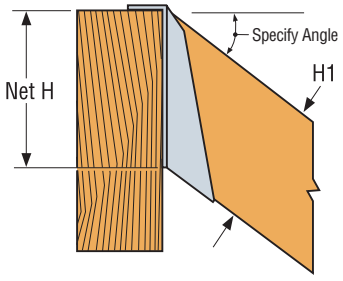
HEIGHT FOR SLOPED HANGERS

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 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					O	●	U	184
HGUM	≤ 45°	●			●	●	U	184
HGUQ							U	—
HGUS	≤ 45°	O					U	185
HHGU					●	●	U	184
HHUS	≤ 45°		≤ 45°	●			U	185
HSUL/HSUR	45° Std.	●			O		U	—
HSULC/HSURC	45° Std.	●			Std.		U	—
HTU	≤ 67½°	●					U	185
HU	≤ 67½°	●	≤ 45°	●	O	O	U, W	184
HUC	≤ 45°	●			Std.		U, W	184
HUCQ					Std.		U	—
HUS					O		U	—
HUSC					Std.		U	—
IUS							U	—
IUT							U	—
LGU					●	●	U	184
LGUM	≤ 45°	●					U	184
LSU/LSSU	Field skewable and slopeable to 45°						U	—
LTHJA							U	—
LTHJR/L	≤ 67½°	●	≤ 45°	●			U	185
LTHMA							U	—
LU							U	—
LUCZ					Std.		U	—
LUS							U	—
MGU					O	●	U	184
MIU							U	—
MTHM							U	—
MUS							U	—
SUL/SUR	45° Std.	●			O		U	—
SULC/SURC	45° Std.	●			Std.		U	—
THGB/THGBH	≤ 45°	●					U	186
THGQH	45°	●					U	186
THJA							U	—
THJU						●	U	185
U	≤ 67½°	●	≤ 45°	●			U	184

1. Refer to the specific product pages for uplift, nailer, and weld information.
2. Refer to the listed pages for each model series for restrictions, required load reductions, and additional information regarding the hanger modifications.

● = Available for all models O = Available for some models **Std.** = Available with standard model *(no modification required)*

HANGER OPTIONS 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	187
BA													U, N, W	—
EG	≤ 45°		≤ 45°										—	189
EGQ	≤ 45°		≤ 45°										U	189
GB			≤ 45°								●		U, W	187
GH	≤ 45°										●		—	190
GLS	≤ 50°		≤ 45°	●			●			●	●		U, W	186
GLT	≤ 50°		≤ 45°	●			●			●			U, W	186
GLTV	≤ 50°		≤ 45°	●			●			●			U, N, W	186
HB	≤ 45°		≤ 45°	●		●	●	●	●		●		U, N, W	187
HGB			≤ 45°								●		U	187
HGLS	≤ 50°		≤ 45°				●			●	●		U, W	186
HGLT	≤ 50°		≤ 45°				●			●			U, W	186
HGLTV	≤ 50°		≤ 45°				●			●			U, W	186
HHB			≤ 45°			●					●		U, W	187
HIT													U, N	—
HUCTF					Std.								U	189
HUSTF					○								U	—
HUSCTF					Std.								—	—
HUTF/HUITF	≤ 45°	●	≤ 45°	●	○								U	189
HW/HWI	≤ 84°	○	≤ 45°	●			●	●		●	●	○	N, W	188
HWU	≤ 45°		≤ 45°	●									U, N, W	188
ITS													U, N	—
ITT													U, N	—
ITTM													U	—
LB													U, N, W	—
LBV	≤ 45°		≤ 45°	●		●	●	●	●		●		U, N, W	187
LEG	≤ 45°	●	≤ 45°							●			—	189
MBHA	≤ 45°	●											—	190
MEG	≤ 45°	●	≤ 45°							●			—	189
MIT													U, N	—
MSC	25°-45°	●	≤ 45°	●		○							—	—
MSCPT	25°-45°	●	≤ 45°	●		○							U	—
PF													U	—
THA					○								U, N	—
THAC					Std.								U, N	—
THAI													N	—
THAR/L	45° Std.	●											U, N	—
THASR/L	22°-84° Field Skewable	●											U	—
W/WI	≤ 84°	○	≤ 45°	●			●	●	●	●	●	○	N, W	188
WM/WMI	≤ 45°		≤ 45°	●						●			—	190
WNP/WP/WPI	≤ 84°	○	≤ 45°	●			●	●	●	●	●	○	N, W	188
WPU/WNPU	≤ 45°		≤ 45°	●									U, N, W	188

See foonotes on page 182.

● = Available for all models ○ = Available for some models **Std.** = Available with standard model *(no modification required)*

HANGER OPTIONS

U/HU

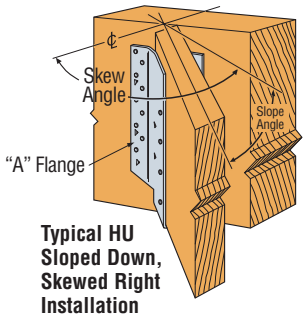
See Hanger Options General Notes.
Not all slope and skew combinations are available.

SLOPED AND/OR SKEWED

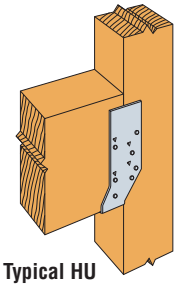
- For low-cost, code-reported 45° skews, see SUR/SUL and HSUR/HSUL. See also LSU/LSSU connectors.
- These options only apply to wood-to-wood connections.
- U/HU may be skewed to a maximum of 45° and sloped to a maximum of 45°. Hangers 5½" or less in width may be skewed to 67½°. Hangers skewed 51°- 67½° require a square cut.
- For all options, uplift loads are 0.75 of table loads.
- For combined slopes and skews, the maximum allowable download is 0.80 of the table load.
- For skewed hangers 3⁹⁄₁₆" and less in width, the allowable download is 100% of the table load. For skewed hangers over 3⁹⁄₁₆" in width the allowable download is 80% of the table load. For slope only, the allowable download is 100% of the table load.

STRAIGHT OR CONCEALED FLANGE

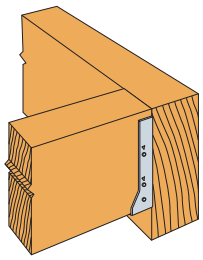
- HU is available with the A flanges straight at 100% of the table loads if W ≥ 3½".
- If W < 3", use N10 nails at 0.64 of the table load.
- If W ≥ 3", use 10d nails at 0.84 of the table load.
- HU is available with A flanges concealed, provided the W dimension is 2⁵⁄₁₆" or greater, at 100% of the table load. Specify HUC.
- HU is available with one flange concealed when the W dimension is less than 2⁵⁄₁₆" at 100% of the table load.
- For skewed only HUC hangers, the flange on the acute side can be concealed at 100% of the table load. See table for skew limitations.
- For sloped only hangers, flanges can be concealed at 100% of the table load.
- For sloped and skewed hangers, the flange on the acute side can be concealed at 0.80 of the table load. Contact Simpson Strong-Tie for skew limitations.
- When nailing into the carrying member's end grain, the allowable load is 0.67 of the table load.
- For welding see technical bulletin T-HUHUC-W *(see page 190 for details).*



Typical HU Sloped Down, Skewed Right Installation



Typical HU Installation Manufactured with Flanges Straight

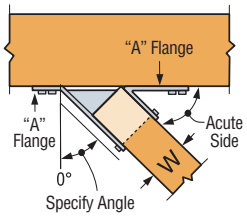


Typical HUC Installed on a Beam

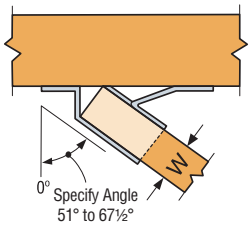
Maximum Skew Degree for Skewed HUC Hangers

Hanger Width	Maximum Skew
2⁵⁄₁₆"	26°
2⁵⁄₈"	26°
2⁹⁄₁₆"	29°
2¾"	29°
3⅛"	37°
3¼"	38°
3⁵⁄₁₆"	39°
3⁹⁄₁₆"	42°
4⅛"	42°
4⁹⁄₃₂"	42°

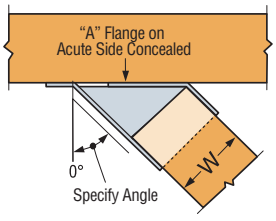
1. Widths greater than 4⁹⁄₃₂" maximum skew is 45°.



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)*

LGU/MGU/HGU/HHGU/LGUM/HGUM

See Hanger Options General Notes.

CONCEALED FLANGE

LGU, MGU, HGU, HHGU and HGUM hangers are available with one flange concealed.
Order as an "X" version and specify flange to conceal. Example: LGU3.25X, Right flange concealed.

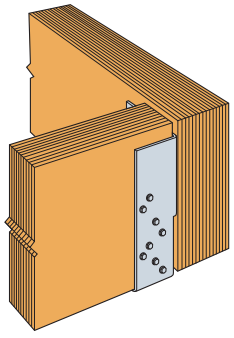
Allowable Loads for One Flange Concealed Option:

- LGU Series = 1.00 of table load
- MGU Series = 0.88 of table load
- HGU Series = 0.75 of table load
- HHGU Series = 0.75 of table load
- **HGUM = contact Simpson Strong-Tie**

Note: MGU3.63, MGU5.25 and HGU5.25 can not be concealed.

SKEWED

- **LGUM and HGUM hangers are available skewed at 45°. Contact Simpson Strong-Tie for allowable loads.**
- **LGU, MGU, HGU and HHGU are not available in skew options.**



Typical GU Installation with Right Flange Concealed

HANGER OPTIONS

HTU

See Hanger Options General Notes.

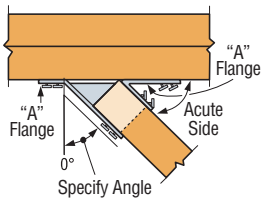
SKEWED SEAT

- Skewable up to 67½°.
- Available in single and 2-ply size.
- No bevel cut required.

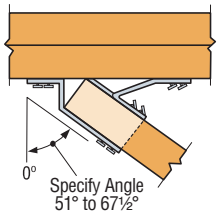
Allowable Loads for Skewed HTU Hangers

Model No.	Skew Angle (Degree)	Fasteners		DF/SP Allowable Loads[1,2]	
		Carrying Member	Carried Member	Uplift (160)	Download (100/115/125)
HTU26	<51	20-16d	14-10dx1½	1315	2945
	51-67½	20-16d	12-10dx1½	970	2595
HTU28	<51	26-16d	20-10dx1½	2015	3060
	51-67½	26-16d	17-10dx1½	1485	2815
HTU210	<51	32-16d	26-10dx1½	2715	3175
	51-67½	32-16d	22-10dx1½	2005	3040
HTU26-2	<51	20-16d	14-10d	1335	2555
	51-67½	20-16d	12-10d	1110	2700
HTU28-2	<51	26-16d	20-10d	2470	3890
	51-67½	26-16d	17-10d	1710	3775
HTU210-2	<51	32-16d	26-10d	3600	4935
	51-67½	32-16d	22-10d	2255	4790

1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Allowable downloads may not be increased.
3. Maximum hanger gap between end of joist *(truss)* and face of carrying member is ⅛".
4. **NAILS:** 16d = 0.162" dia. x 3½" long, 10dx1½ = 0.148" dia. x 1½" long, 10d = 0.148" dia. x 3" long.



Top View HTU Hanger Skewed Right < 51°



Top View HTU Hanger Skewed Right ≥ 51°

HGUS/HHUS

See Hanger Options General Notes.

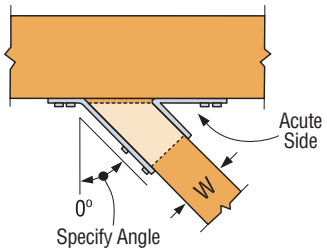
HHUS – SLOPED AND/OR SKEWED SEAT

- HHUS hangers can be skewed to a maximum of 45° and/or sloped to a maximum of 45°.
- For skew only, maximum allowable download is 0.85 of the table load.
- For sloped only or sloped and skewed hangers, the maximum allowable download is 0.65 of the table load.
- Uplift loads for sloped/skewed conditions are 0.72 of the table load, not to exceed 2475 lbs.
- The joist must be bevel-cut to allow for double shear nailing.

HGUS – SKEWED SEAT

- HGUS hangers can be skewed only to a maximum of 45°. Allowable loads are:

HGUS Seat Width	Joist	Down Load	Uplift
W < 2"	bevel or square cut	0.62 of table load	0.46 of table load
2" < W < 6"	bevel cut	0.67 of table load	0.41 of table load
2" < W < 6"	square cut	0.46 of table load	0.41 of table load
W > 6"	bevel cut	0.40 of table load	0.41 of table load



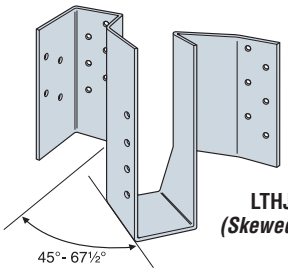
Top View HHUS Hanger Skewed Right
(joist must be bevel cut)
All joist nails installed on the outside angle *(non-acute side).*

LTHJR/L

See Hanger Options General Notes.

SLOPE AND/OR SKEW

- Available in hip slopes up to 45° and/or skews left or right from 46° to 67°.
- For optional configurations, loads are 100% of table loads.
- To order specify:
  – slope direction and degree and/or
  – skew direction and degree.
  Example: To order an LTHJR sloped down 45° and skewed right 55°, order an LTHJRX SLD45 SKR55.



LTHJR/L
(Skewed Right)

THJU

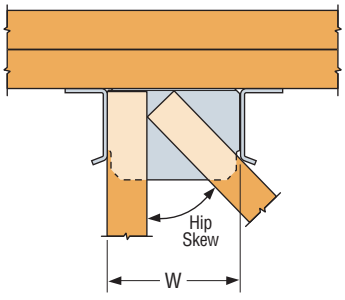
See Hanger Options General Notes.

HANGER WIDTHS

- THJU is available in intermediate seat widths between 5⅛" *(THJU26 width)* and 7⅞" *(THJU26-W width).*
- Allowable download and uplift for all intermediate widths is 100% of the THJU26-W table loads.
- For double hip installation, divide the total allowable load by 2 to determine the allowable load for each hip.
- Order as THJU26X and specify width; see table for reference.

THJU Intermediate Width Options

Carried Member Combination	Hip Skew	Width (W)
2-Ply Hip and Single-Ply Jack	45-degree	6⅜
Single-Ply Hip and 2-Ply Jack	45-degree	6¾
Double (Terminal) Hip	45-degree	7⅜
2-Ply Hip and 2-Ply Jack	45-degree	Use THJU26-W
Single-Ply Hip and Single-Ply Jack	44°- 46°	Use THJU26
	47°- 49°	5½
	50°- 52°	5¾
	53°- 55°	6
	56°- 57°	6⅜
	58°- 59°	6⅝
	60°- 61°	7
	62°- 63°	7⅜
	64°- 65°	Use THJU26-W



THJU Top View Installation

HANGER OPTIONS

THGQH

See Hanger Options General Notes.

SKEWED SEAT

- THGQH may be skewed 45°. Carried members may be bevel cut.
- For Hem-Fir or Spruce-Pine-Fir members, multiply tabulated allowable loads for the skewed THGQH by 0.86. Connector must be installed centered on girder vertical webs.

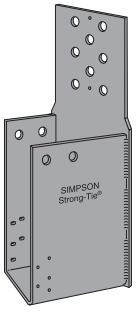
Model #	Max. B.C. Depth (in.)	Min. Vertical Web Size	Fasteners		DF/SP Allowable Loads	
			Face	Joist	Uplift (160)	Down (100/115/125)
THGQH2 SK45	17	2x6	18-SDS ¼"x3"	18-SDS ¼"x3"	4570	6090
		2x8	28-SDS ¼"x3"			9470
THGQH3 SK45	14	2x8	30-SDS ¼"x4½"	18-SDS ¼"x4½"	3875	10270
		2x10	36-SDS ¼"x4½"			12480
THGQH4 SK45	13	2x8	34-SDS ¼"x6"	18-SDS ¼"x6"	3180	11890
		2x10	40-SDS ¼"x6"			13990

THGB/THGBH

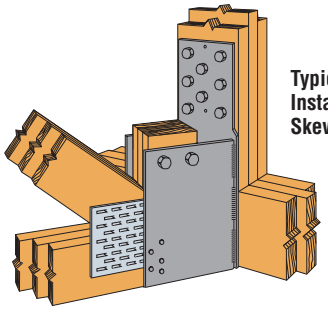
See Hanger Options General Notes.

SKEWED SEAT

- THGB/THGBH hangers can be skewed to a maximum of 45°.
- The maximum allowable down load and uplift load for skew is 0.87 of the table load.



THGBH3
(Skewed Left)



Typical THGBH Installation Skewed Left

GLT/HGLT/GLS/HGLS/GLTV/HGLTV

See Hanger Options General Notes.

INSTALLATION: • Bevel-cut the carried beam for skewed hangers.

HANGER HEIGHT

- For hangers exceeding the joist height by ½", allowable load is 50% of the table roof load.

SLOPED AND/OR SKEWED SEAT

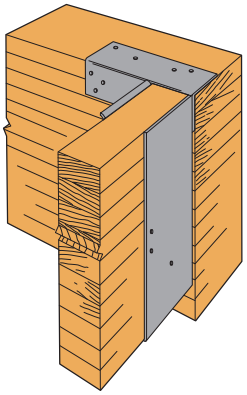
- GLT/GLTV/HGLT/HGLTV and GLS/HGLS series may be skewed to a maximum of 50° or sloped to a maximum of 45°.
- For skews greater than 15°, multiply the table uplift load by 0.50.
- For sloped only, the maximum allowable load is 6500 lbs. for the GLT/GLS/GLTV, 9165 lbs. for the HGLT/HGLS/HGLTV.
- For skewed only, the maximum allowable load is 6550 lbs. for the GLT/GLS/GLTV, 7980 lbs. for the HGLT/HGLS/HGLTV. The deflection at full loading may reach ¼".
- Sloped and skewed GLT/GLS/GLTV configurations have a maximum allowable load of 5500 lbs. Sloped and skewed combinations are not allowed for the HGLT/HGLS/HGLTV.
- Sloped and/or skewed seat hangers may not be installed in non-backed nailer/header installations.

SLOPED TOP FLANGE

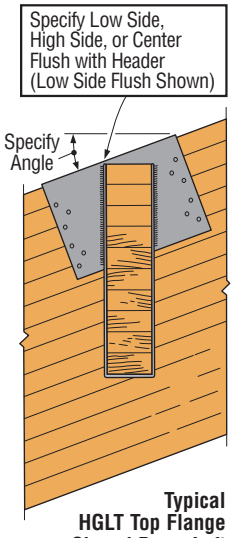
- A top flange may be sloped down left or down right to 30° with or without a sloped and/or skewed seat *(see illustration)*. Reduce allowable table loads using straight-line interpolation *(see page 188)*.

OFFSET TOP FLANGE

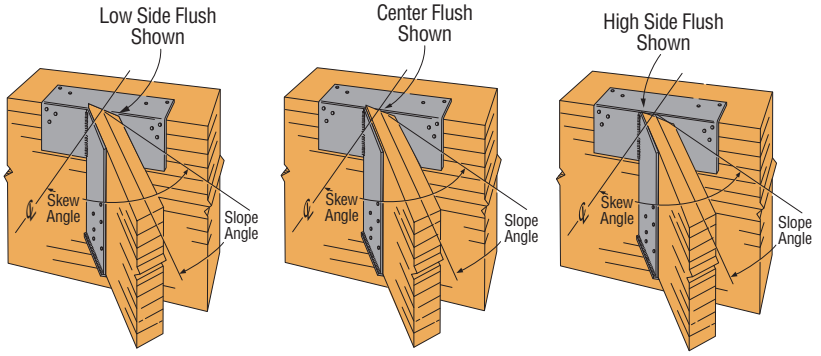
- The top flange may be offset left or right for placement at the end of a header. Minimum seat width 3¼". The maximum allowable load is 0.50 of the table roof load for the GLT/GLS/GLTV, and 0.45 for the HGLT/HGLS/HGLTV.
- For skewed and offset top flange hangers, the maximum allowable load is 3500 lbs.
- No uplift load.



Typical GLT Top Flange Offset Left
(HGLT similar)



Typical HGLT Top Flange Sloped Down Left with Low Side Flush



Typical GLT Sloped Down, Skewed Right
When ordering, specify Low Side Flush, Center Flush or High Side Flush

HANGER OPTIONS

B/LBV/HB/HHB/GB/HGB

See Hanger Options General Notes.

MATERIAL:

- Gauge may vary from that specified depending on the manufacturing process used. Hanger configurations, height and fastener schedules may vary from the tables depending on the joist size, skew and slope.

CODES:

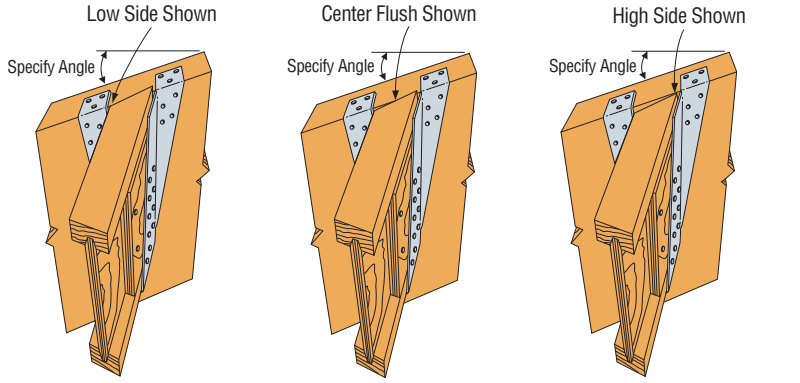
- Modified hangers, due to their numerous variations, are not in code reports.

LOADS:

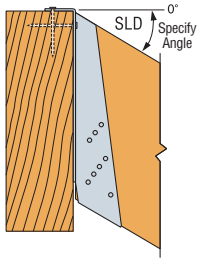
- For multiple modifications on the same connector, use the single multiplier factor that yields the lowest design loads.

INSTALLATION:

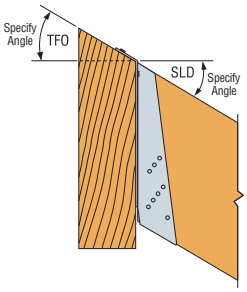
- Fastener quantities will typically increase beyond the amount specified in the standard hanger tables.
- Web stiffeners are required for I-joists.
- Fill all holes with the table-specified fastener types.
- Bevel cut the carried member for skewed applications.
- Sloped B, HB and LBV hangers less than 14" are assumed backed. For non-backed installations, contact Simpson Strong-Tie.



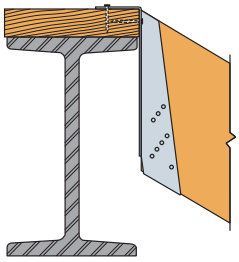
B Hanger Sloped Down and Skewed Left with Sloped Top Flange Installation
When ordering, specify Low Side Flush, Center Flush or High Side Flush



Typical LBV Sloped Down Installation with Full Backing



Typical LBV Sloped Down with Top Flange Open

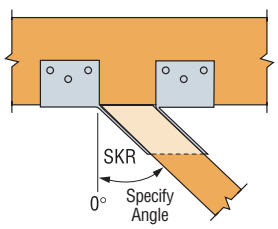


Typical LBV Sloped Down on Nailer Non-Backed

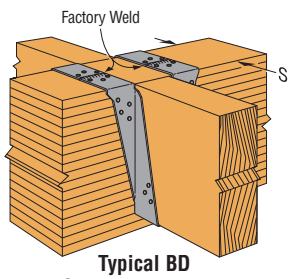
Allowable Load Reduction Factors for Modified Hangers[1,2]

Hanger Series			Sloped Down	Sloped Up	Skewed only	Sloped Down & Skewed		Sloped Up & Skewed		TF Down		TF Open / Closed	
LBV	Angle Limit		45	45	45	45		45		35		30	
	Minimum Height (in.)		6	6	6	9¼	14	9¼	14	9¼	14	9¼	14[3]
	All Widths	Download	1.00	0.91[8]	1.00	0.56	1.00	0.45[8]	0.91[8]	(90-x)/115	(90-x)/90	(90-x)/115	(90-x)/90
		Uplift	1.00	1.00	1.00	—[4]	1.00	—[4]	1.00	—[5]	1.00	—[5]	1.00
B	Angle Limit		45	45	45	45		45		35		30	30
	Minimum Height (in.)		6	6	6	9¼	14	9¼	14	9¼	14	9¼	14[3]
	Less than 2½" Wide	Download	0.82	0.66[8]	0.95	—[10]	0.82	—[10]	0.64[8]	(90-x)/140	(90-x)/90	(90-x)/140	(90-x)/90
		Uplift	1.00	1.00	1.00	—[6]	1.00	—[6]	1.00	—[6]	1.00	—[6]	1.00
	2½" and Wider	Download	1.00	0.80[8]	0.95	0.46	1.00	0.37[8]	0.80[8]	(90-x)/140	(90-x)/90	(90-x)/140	(90-x)/90
		Uplift	1.00	1.00	1.00	—[6]	1.00	—[6]	1.00	—[6]	1.00	—[6]	1.00
HB	Angle Limit		45	45	45	45		45		35		30	30
	Minimum Height (in.)		8	8	8	11¼	14	11¼	14	11¼	14	11¼	14[3]
	Less than 2½" Wide	Download	0.84	0.70	1.00	—[10]	0.84	—[10]	0.70[8]	(90-x)/140	(90-x)/90	(90-x)/140	(90-x)/90
		Uplift	1.00	1.00	0.71[9]	—[6]	0.71[9]	—[6]	0.71[9]	—[6]	1.00	—[6]	1.00
	2½" and Wider	Download	0.87	0.70[8]	0.96	0.38	0.87	0.38	0.70[8]	(90-x)/140	(90-x)/90	(90-x)/140	(90-x)/90
		Uplift	1.00	1.00	1.00	—[7]	1.00	—[7]	1.00	—[7]	1.00	—[7]	1.00
HHB, GB, HGB	Angle Limit		45	—	—	—	—	—	—	—	—	—	—
	Minimum Height (in.)		9¼	—	—	—	—	—	—	—	—	—	—
	Download		0.70	—	—	—	—	—	—	—	—	—	—
	Uplift		1.00	—	—	—	—	—	—	—	—	—	—

1. Use this table to calculate allowable loads for modified hangers. Apply reduction factor to the appropriate allowable load for the header condition, including nailers.
2. HB Hangers less than 2½' wide are assumed to use 10dx1½" joist nails. HB Hangers 2½" and wider are assumed to use 16dx2½" joist nails.
3. Minimum height for TF Opened/Closed is 14" when combined with any skew. Minimum height for TF Opened/Closed combined with slope only is the same as listed for slope only.
4. For sloped and skewed LBV hangers less than 14" allowable uplift shall be limited to 190 lbs.
5. For LBV Hangers with a modified top flange allowable uplift shall be limited to 240 lbs. when using 2-10dx1½" joist nails.
6. For B and HB hangers less than 14" allowable uplift shall be limited to 480 lbs.
7. For HB hangers less than 14" use 4-16d or 16dx2½" joist nails. Allowable uplift shall be limited to 615 lbs.
8. These hangers may deflect an additional 1/32" at design load.
9. For HB hangers on nailers, 100% of allowable nailer uplift value may be used. *(See nailer table)*
10. For hangers with slope and skew less than 14" use 1150 lbs. for B hangers and 1430 lbs. for HB hangers.
11. In the table the term "x" refers to the angle of the modification.



Top View B Hanger Skewed Right



Typical BD Saddle Installation

SADDLE HANGER

Saddle hangers are made to order; add "D" to model *(e.g. BD412)*; specify S *(for saddle)* dimension. They may be used for most conditions except at end wall locations and are preferred for nailer applications. Minimum S dimension *(saddle width)* is 3 9/16". Minimum supporting member width is 3½". Minimum nailer thickness apply *(see page 69 and 92)*. Saddle hangers achieve catalog load listed. Saddle hangers on stud walls do not achieve catalog loads.

HANGER OPTIONS

W/WNP/WNPU/WP/WPU/HW/HWU

See Hanger Options General Notes.
Models that have an "I" in the model number (e.g., HWI) have the same properties and modifications as the standard models without the "I" in the name (e.g., HW).

INSTALLATION: • Some models are available in Type A *(Bevel Cut)* and Type B *(Square Cut)* styles; all models are available in Type B style. Contact Simpson Strong-Tie when ordering.
- Bevel-cut the joist for skewed Type A hangers *(see illustration)*. Butt-cut the joist for Type B hangers.
- Hangers with a skew greater than 15° may have all the joist nails on the outside angle.
- Skewed HWs have face nails and require a minimum header depth of 3½".

HANGER HEIGHT
- For hanger heights exceeding the joist height by more than ½", the allowable load is 0.50 of the table load.

SLOPED AND/OR SKEWED SEAT
- Non-skewed hangers can carry the design load when the seat slope is within ¼:12 of the joist slope. Designer must check that wood bearing is not limiting.
- W/WNP/WP/HW series may be skewed to a maximum of 84° and/or sloped to a maximum of 45°.
- For slope only, skew only, or slope and skew combinations, the allowable load is 100% of the table load.
- Sloped seat hangers are assumed backed. For non-backed installations, specify "non-backed", which adds more joist fasteners low on the joist flange.

UPLIFT LOADS (WPU, WNPU, HWU only)
- Uplift loads not available on W, WNP, WP, HW hangers. See page 190 for WMU.
- Hangers can be sloped to 45° and/or skewed 45° at 100% of the uplift load.
- Skew option is only on hangers with "W" 3⁹⁄₁₆" or less.
- Specify the slope up or down in degrees from the horizontal plane and/or the skew right or left in degrees from the perpendicular vertical plane. Specify whether low side, high side or center of joist will be flush with the top of the header *(see illustration)*.
- Uplift loads are not available for open/closed TF, TF sloped, and offset options.

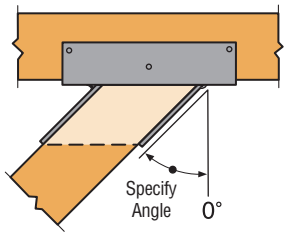
SLOPED TOP FLANGE
- A top flange may be ordered sloped down left or down right to 35° with or without a sloped and/or skewed seat *(see illustration)*. Reduce allowable table loads using straight-line interpolation
  Example: For a top flange sloped down 30°, reduce load to [(90-30)/90] x table load.

OFFSET TOP FLANGE
- The top flange may be offset left or right for placement at the end of a header *(see illustration)*. The allowable load is 0.50 of the table load.
- For skewed and offset top flange hangers, the maximum allowable load is 0.50 of the table load or 2000 lbs., whichever is lower.
- For type B hangers skewed and top flange offset in the opposite direction, hangers 3½" and less wide have allowable load of 25% of the table load or 1335 lbs. whichever is lower, and for hangers wider than 3½", the allowable load is 30% of the table load or 1620 lbs. whichever is lower.

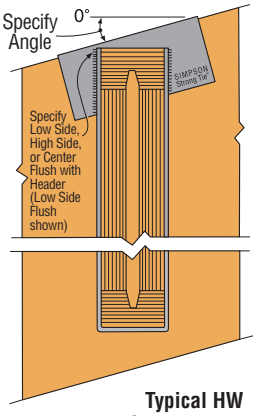
OPEN/CLOSED TOP FLANGE
- The top flange may be opened more or closed less than the standard 90° *(see illustration)* to a maximum of 30°, except the HW which cannot be closed. W and WI hangers must use 10dx1½" nails for closed application. Reduce allowable loads using straight-line interpolation *(see sloped top flange)*.

SADDLE HANGER
- To order, add D to model and specify S dimension *(see illustration)*.

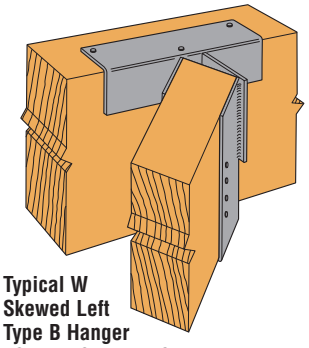
RIDGE HANGER *(not available for uplift models)*
- Top flange may be sloped to a maximum of 35° to accommodate a ridge *(see illustration)*. Specify angle of the slope. Reduce allowable load using straight-line interpolation. See Open/Closed example.
- Recommended S dimension is 1⁄16" oversized for carrying members 2½" wide and less or ⅛" oversized for greater than 2½" wide.



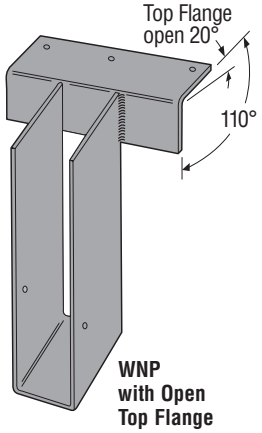
Typical W Top View Skewed Left Type A Hanger
(Bevel Cut Joist Shown)



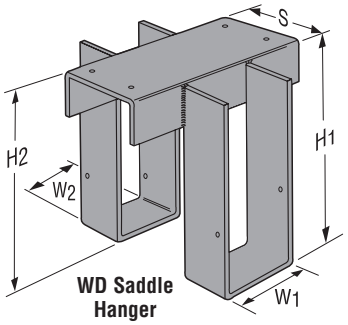
Typical HW Top Flange Sloped Down Left with Low Side Flush



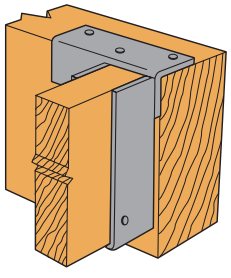
Typical W Skewed Left Type B Hanger
(Square Cut Joist Shown)



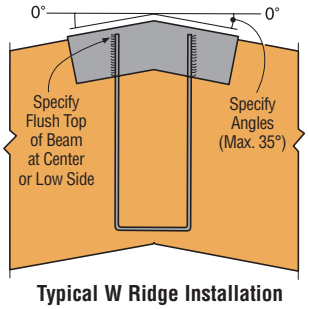
WNP with Open Top Flange



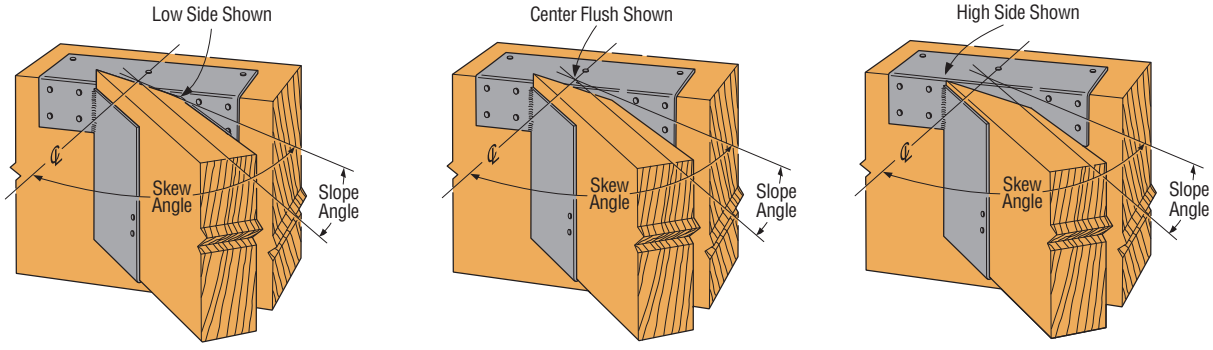
WD Saddle Hanger



Typical W Top Flange Offset Left



Typical W Ridge Installation



Typical HW Sloped Down, Skewed Right with Type A Hanger *(Joist end must be bevel cut)*
When ordering, specify Low Side Flush, Center Flush or High Side Flush

HANGER OPTIONS

LEG/MEG/EG

See Hanger Options General Notes.

SKEWED SEAT — TOP FLANGE MODELS ONLY

- The LEG/MEG/EG series can be skewed up to 45°. The maximum allowable load is 10,000 lbs. for LEG and MEG, 14,250 lbs. for EG.

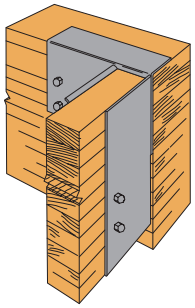
SLOPED SEAT — TOP FLANGE MODELS ONLY

- The LEG/MEG/EG series can be sloped up to 45°. The maximum allowable load is 9665 lbs.; see illustration.

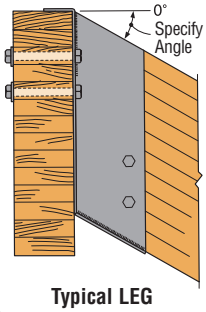
NO SLOPED AND SKEWED COMBO AVAILABLE.

OFFSET TOP FLANGE

- The LEG/MEG (only) top flange may be offset left or right for placement at the end of a header *(see illustration)*. The maximum allowable load is 5665 lbs. *(Min. H = 11" for MEG, 9" for LEG)*
- No skews allowed on offset hangers.



Typical LEG/MEG Top Flange Offset Left



Typical LEG Sloped Down Installation *(MEG/EG similar)*

EGQ

See Hanger Options General Notes.

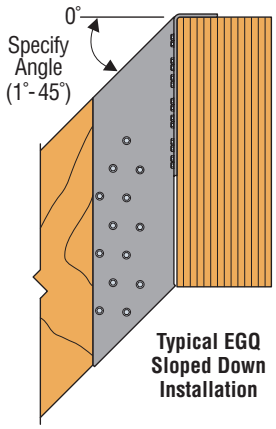
SKEWED SEAT

- The EGQ can be skewed a maximum of 45°.
- The maximum allowable download when skewed is 16,300 lbs.
- The maximum allowable uplift when skewed is 5770 lbs.
- Joist must be bevel cut for skewed seat installation.

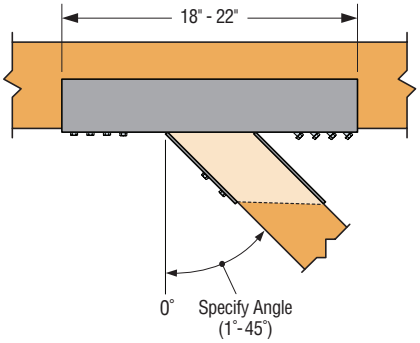
SLOPED SEAT

- The EGQ can be sloped up or down a maximum of 45°.
- The maximum allowable download when sloped is 15360 lbs.
- The allowable uplift when sloped is 100% of the table load.
- Sloped seat installation requires an additional 14 joist screws *(supplied with the connector)*.

NO SLOPED AND SKEWED COMBO AVAILABLE.



Typical EGQ Sloped Down Installation



Top View EGQ Skewed Right

HUTF/HUITF

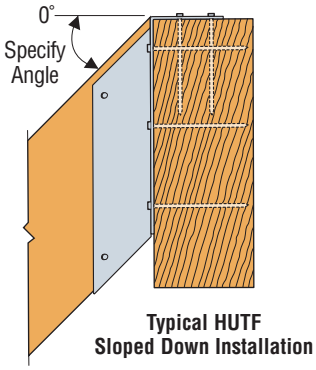
See Hanger Options General Notes.

SLOPED AND/OR SKEWED SEAT

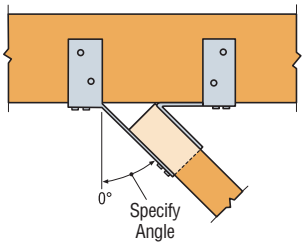
- HUTF can be skewed to a maximum of 45° or sloped to a maximum of 45°. HUTF can be skewed and sloped down only, provided W ≥ 2⅜". Hangers with a skew greater than 15° may have all the joist nailing on the outside angle. No skew with slope up options available.
- For the skewed-only HU34TF, HU24-2TF and HU44TF, the allowable loads are 0.50 of the table load. All other models have a maximum allowable load of 0.60 of the table loads.
- For skews greater than 15°, uplift loads are 0.75 of the table loads.
- For sloped and skewed hangers, the allowable loads are 0.70 of the table loads.
- For sloped down only hangers, allowable load is 0.78 of the table load.

CONCEALED FLANGE

- HUTF is available with one A flange concealed at 0.85 of the catalog table load. HUTF is also available with both flanges concealed provided the W dimension is 2⁹⁄₁₆" or greater, at 0.85 of the table load. Specify HUCTF for both flanges concealed. No skew options available.



Typical HUTF Sloped Down Installation



Top View HUTF Hanger Skewed Right

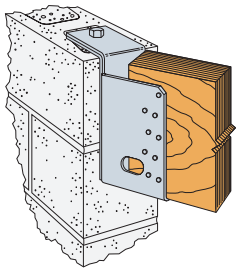
HANGER OPTIONS

MBHA

See Hanger Options General Notes.

SKEWED SEAT

- Seat can be skewed at 45° only. The maximum allowable download is 3495 lbs. and 1585 lbs. uplift for Height 7¼". For all other models, use the table listed download and uplift of 2390 lbs.



Typical MBHA Skewed Right Installation

WM/WMI/WMU

See Hanger Options General Notes.

INSTALLATION: • Bevel-cut the joist for skewed hangers *(see illustration)*.

HANGER HEIGHT

- For hanger heights exceeding the joist height, the allowable load is 0.50 of the table load.

SLOPED AND/OR SKEWED SEAT

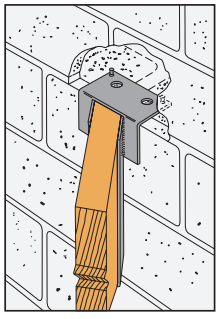
- WM/WMI may be skewed and/or sloped to 45° maximum.
- The allowable load is 100% of the table load.

OFFSET TOP FLANGE

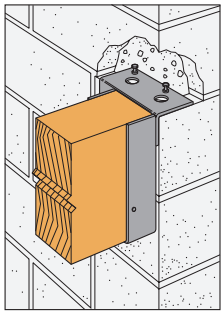
- The top flange may be offset left or right for placement at the end of a header. The allowable load is 0.50 of the table roof load.

UPLIFT *(WMU Only)*

- No modifications on WMU.



Typical WM Sloped Down, Skewed Right Block Wall Installation



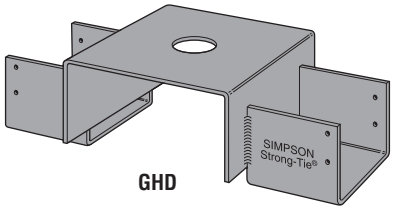
Typical WM Top Flange Offset Left

GH Girder Hanger

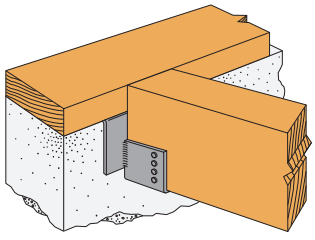
See Hanger Options General Notes.

SKEWED SEAT

- GH hangers may be skewed to a maximum of 45°; bevel cut required.
- The allowable loads are 100% of the table load.
- Specify GHD for saddle-style hangers. GHD may not be skewed.



GHD



Typical GH Installation Skewed Right

LITERATURE REFERENCE

SIMPSON Strong-Tie®

Simpson Strong-Tie maintains an extensive library of literature, providing information on a wide variety of subjects ranging from specific product lines and alternate product installations to industry issues and specifier guides.

Below is a list of the literature referenced in this catalog. You can access the complete library by visiting ***www.strongtie.com*** or you can call 800-999-5099 and have publications mailed to you.

FORM NUMBER	DESCRIPTION
C-APG	Architectural Product Group catalog
C-ATS	Anchor Tiedown Systems catalog
C-CFS	Connectors for Cold-Formed Steel Construction
C-QD	Quik Drive® Systems catalog
C-SAS	Anchoring and Fastening Systems for Concrete and Masonry
C-SW	Strong-Wall® Shearwalls catalog
F-DECKSPCR	Deck Spacer™ deck board spacers
F-EZFPP	E-Z fence post products
F-FSC	Floor span connector *(information on installation on offset studs)*
F-FWAZ	Foundation Wall Anchor
F-ICFVL	Additional connection details for connectors used with Insulated Concrete Forms
F-PLANS	Seismic retrofit guide helps educate how earthquakes affect a home and the steps to take to reinforce the structural frame of a house
F-RBC	Application and specification information for the Roof Boundary Clip
F-REPRPROTECT	Code Compliant Repair and Protection guide for the installation of utilities in wood frame construction
F-RUZNRUZ	RUZ and NRUZ retrofit hangers for panelized roof construction
F-SAS-THD4HD	Titen HD® anchors for holdowns
F-THGBV	THGB/THGBH/THGW hangers in LVL widths
S-INSTALL	Field guide for proper installation various of Simpson Strong-Tie® connectors
T-AIRNAIL	Provides information regarding installations with EZ CODE™ fasteners by the Air Nail Company
T-ANCHORSPEC	Simpson Strong-Tie Anchor Systems® specifications for use with Simpson Strong-Tie® connectors
T-ANSITPIDF	ANSI/TPI allowable loads for Douglas Fir lumber
T-ANSITPISP	ANSI/TPI allowable loads for Southern Pine lumber
T-ANSITPISPF	ANSI/TPI allowable loads for Spruce-Pine-Fir lumber
T-BOSTITCH	Provides information regarding installations with Bostitch Metal Connector Fasteners
T-CCLTC-WS	Worksheet for ordering custom multiple beam column caps
T-CCQLTC-WS	Worksheet for ordering custom multiple beam column caps
T-CJT	Concealed Joist Tie Kit
T-CMST	Coil strap alternative nailing schedule and Lap Splice Spacing
T-HCAGUIDE	Hinge connector specifier guide
T-HD-LA	City of L.A. RR values for holdowns
T-HD2AGRDRL	HD2A holdowns for deck guardrail applications
T-HFHANGER	HF24N and HF26N panelized roof hangers
T-HTIEBEARING	Allowable bearing enhancement loads for selected hurricane ties
T-HUHUC-W	HU and HUC hangers welded to steel members
T-HUHUCTTN	HU and HUC allowable loads with Titen® screws in masonry
T-MASSW	MAS anchors for shearwalls in seismic regions
T-MSC-WS	Multiple Seat Connector (MSC) special order worksheet
T-NAILERUPLFT	Uplift design loads for top flange hangers installed on nailers or I-beams
T-NAILGUIDE	Correct nails for use with Simpson Strong-Tie® connectors
T-OPTUPLIFT	Alternate uplift options for IUS, IUT and ITT hangers
T-PAUPLIFT	PA foundation straps for uplift resistance
T-PLYWOOD	HPAHD22 and STHD Holdowns installed over Shearwall Diaphragm
T-PNEUMATIC	Refer to T-AIRNAIL, T-BOSTITCH, T-POSITIVENL, and T-TRUESPECHAL
T-POSITIVENL	Provides information regarding installations with Positive Placement fasteners by Paslode
T-PTBARRIER	Using a membrane barrier with preservative-treated wood for additional corrosion protection
T-PTWOOD	Corrosion issues related to the use of new chemicals in preservative-treated wood
T-RBCP	RBCP pre-attached to truss blocking
T-REDHEEL	Allowable loads for reduced truss heel heights
T-RIMBDHGR	Joist hangers on rim board headers
T-SCLCOLUMN	Descriptions of various SCL posts and associated loads listed by product category
T-SDSCREWAPPS	SDS screws to attach multi-ply members
T-SLOPEJST	The effects on load values caused by installing a sloped joist into a non-sloped hanger
T-STRAPS	LSTA24 and MSTA24 field formed as a stud to mudsill anchor
T-TRUESPECHAL	Provides information regarding installations with Halsteel Fasteners using the Truespec™ Nail Identification System
T-WELDUPLFT	Top flange hanger welded to structural steel members
T-WT	Wedge Tie Spacing

NOTES

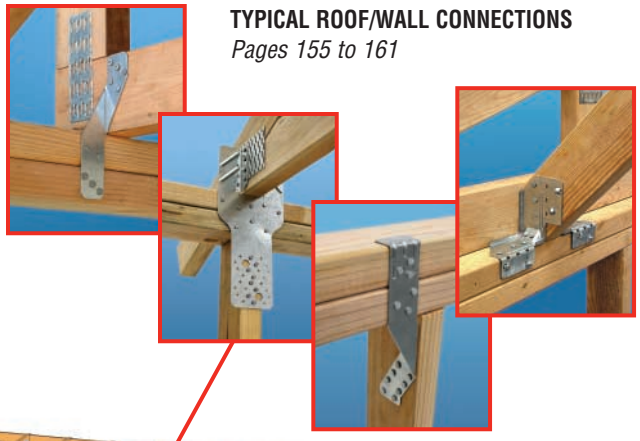
CONTINUOUS LOAD TRANSFER PATH

SIMPSON Strong-Tie®

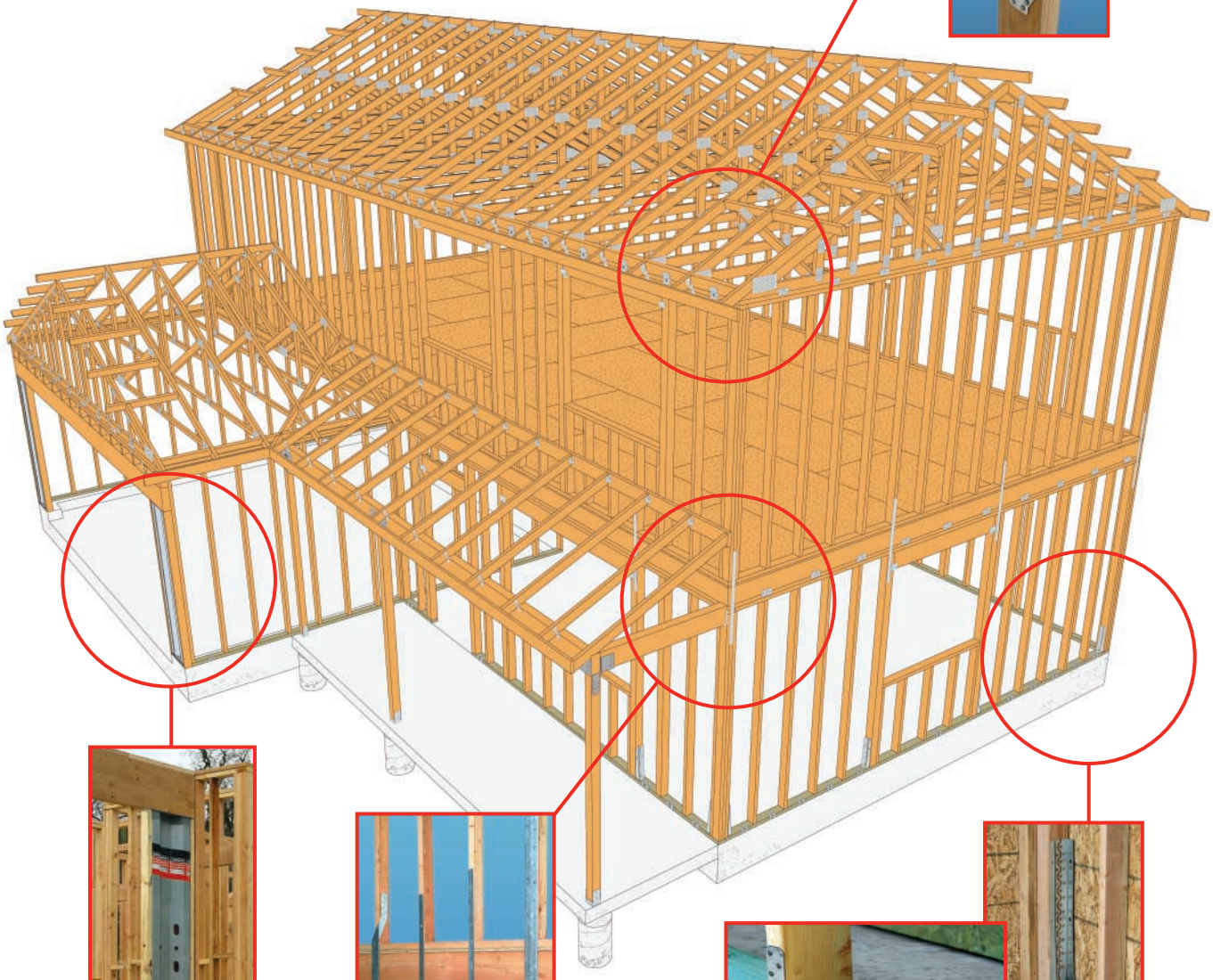
This drawing shows the connection points for a continuous load transfer path from the rafters to the foundation of a two-story house.

Building with a continuous load path is an essential part of creating a structure better able to withstand the forces of mother nature.

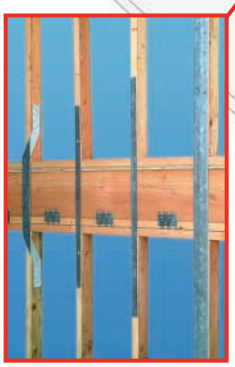
This drawing is for illustrative purposes only and should not be considered an engineered system. Refer to the page numbers for the full range of Simpson Strong-Tie® connectors. Consult a qualified Designer to ensure that correct connector quantities and installation methods are used to achieve the full design load values.



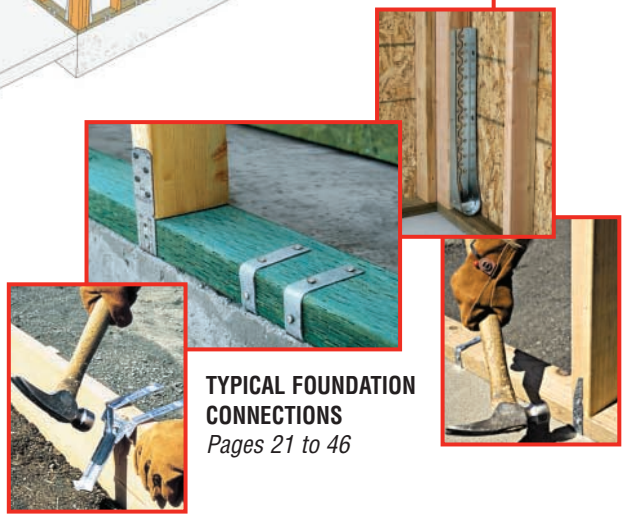
TYPICAL ROOF/WALL CONNECTIONS
Pages 155 to 161



LATERAL SYSTEMS
Pages 58 to 59



TYPICAL FLOOR-TO-FLOOR CONNECTIONS
Pages 37 to 41, 148 to 153



TYPICAL FOUNDATION CONNECTIONS
Pages 21 to 46

TECHNICAL PUBLICATIONS

*Anchoring and Fastening Systems for Concrete and Masonry**

Includes application information, specifications and load values for adhesive and mechanical anchors, P.A.T. and carbide drill bits.

**Available in English and Spanish versions.*

High Wind-Resistant Structural Connectors

For builders and homeowners on retrofitting and new construction in high wind areas.

Anchor Tiedown Systems

This system is designed to provide the over-turning holdown capacity for multi-story commercial buildings. This holdown application is easy to specify, install and inspect.

Strong-Wall® Shearwalls

All the information on our Strong-Wall shearwalls is now in one easy to use catalog: technical data, installation information, structural details and more. The catalog also features new solutions for two-story and balloon frame applications as well as an extensive section on braced frame requirements under the various building codes.

Cold-Formed Steel Connectors Catalog

30 products have been developed and tested using screw fasteners to obtain actual load values. Includes installation requirements and illustrations.

Deck Framing Connection Guide

Developed for deck building professionals and general contractors to help explain products and techniques used in designing and constructing residential decks.

Anchoring Solutions for Simpson Strong-Tie Connectors Catalog

Simpson Strong-Tie Anchor Systems® specifications with our connector line. It should be used in conjunction with the current connector and anchor systems catalogs.

High Wind Framing Connection Guide

Developed for designers and engineers as a companion to the AF and PA Wood Frame Construction Manual.

Stainless-Steel Connectors

Featuring stainless-steel connectors for using in high exposure and some outdoor environments to protect against corrosion and some preservative-treated woods.

Simpson Strong-Tie Free CD-ROM

Our CD-ROM features our latest catalogs, fliers, technical bulletins, code reports, product list prices, UPC information, and the Simpson Strong-Tie Connector Selector program. It also includes the Drawing Library.

In addition to the publications shown above, Simpson Strong-Tie maintains an extensive library of literature, providing information on a wide variety of subjects. You can access the library by visiting ***www.strongtie.com/tech-bulletins*** or you can call 800-999-5099 and have publications mailed to you.

SOFTWARE

Simpson Strong-Tie offers three software programs to simplify product selection and specification. Each of these programs is available on CD ROM or for free download at ***www.strongtie.com***.

Connector Selector

The Connector Selector finds the products that are appropriate for your connection and sorts them by lowest installed cost. Solutions are available for a wide variety of applications using solid sawn lumber, engineered wood and structural composite lumber, glulam beams and wood trusses. Available in U.S. *(Allowable Stress Design)* and Canadian *(Limit States Design)* versions.

Strong-Wall Selector

The Strong-Wall Selector helps specifiers choose a lateral force resisting system using Wood or Steel Strong-Wall® Shearwalls. Optimized or Manual input provides the most cost effective solution or allows designers to choose and check whether any type and number of walls satisfy the shear load requirements.

ATS Selector

The ATS Selector recommends the correct ATS system components based upon load requirements and building code options input by the Designer. It can also recommend the corresponding compression post designs. Resulting calculations can be printed and AutoCAD drawings can be inserted into plans.

SIMPSON Strong-Tie ANCHOR SYSTEMS

For assistance specifying post-installed anchors for concrete and masonry, visit ***www.simpsonanchors.com*** to download the Anchor Designer software. Two versions are available for allowable stress design and ultimate strength design, including cracked concrete.

This catalog reflects changes in the allowable loads and configurations of some Simpson Strong-Tie Company Inc. products. ***This catalog is effective until December 31, 2010,*** *and supersedes all information in all earlier publications, including catalogs, brochures, fliers, technical bulletins, etc. Use this edition as a current printed reference. Information on allowable loads and configurations is updated annually.*

We post our catalogs on www.strongtie.com. Please visit our site, and sign up for any information updates. *Allowable loads in this catalog are for the described specific applications of properly-installed products. Product modifications, improper loading or installation procedures, or deviations from recommended applications will affect connector allowable load-carrying capacities.*

SIMPSON Strong-Tie®

Supporting You from the Ground Up

At Simpson Strong-Tie, we believe quality is not only about the products we produce, but about the experience and interactions our customers have with us. We work hard to provide value to all our customers whether they're specifying our product or installing it. That means providing things like **engineering support, training, product testing, job site visits** and **nationwide product availability**. These services are integral to how we do business with our customers.

In these tough economic times, we also believe it's very important to support the communities we live and work in, which is why for many years we've donated our time and products to Habitat for Humanity. Our local and national support is providing safe, affordable housing to people in need.

Simpson Strong-Tie is committed to supporting our customers and communities while delivering high-quality, innovative structural and fastening products. You've trusted us for more than 50 years, and we will continue to earn that trust.

Together We're Building Safer, Stronger Homes and Buildings

Habitat for Humanity®

SIMPSON Strong-Tie®

engineering support | training | product testing | job site visits | nationwide product availability

Every day we work hard to earn your business, blending the talents of our people with the quality of our products and services to exceed your expectations. This is our pledge to you.

Home Office
5956 W. Las Positas Boulevard
Pleasanton, CA 94588
Tel: 925/560-9000 • Fax: 925/847-1603

Northwest USA
5151 S. Airport Way
Stockton, CA 95206
Tel: 209/234-7775 • Fax: 209/234-3868

Southwest USA
260 N. Palm Street
Brea, CA 92821
Tel: 714/871-8373 • Fax: 714/871-9167

Northeast USA
2600 International Street
Columbus, OH 43228
Tel: 614/876-8060 • Fax: 614/876-0636

Southeast USA
2221 Country Lane
McKinney, TX 75069
Tel: 972/542-0326 • Fax: 972/542-5379

Quik Drive® Factory
436 Calvert Drive
Gallatin, TN 37066
Tel: 888/487-7845 • Fax: 615/451-9806

INTERNATIONAL FACILITIES
Please visit our website for address and contact information for our European facilities.

Kent Specials Factory
22035 W. Valley Highway
Kent, WA 98032
Toll Free: 877/564-2041

Eagan Warehouse & Specials Factory
3711 Kennebec Drive, Suite 700
Eagan, Minnesota 55122
Tel: 651/681-2061 • Fax: 651/681-2046

Eastern Canada
5 Kenview Boulevard
Brampton, ON L6T 5G5
Tel: 905/458-5538 • Fax: 905/458-7274

Western Canada
11476 Kingston Street
Maple Ridge, B.C. V2X 0Y5
Tel: 604/465-0296 • Fax: 604/465-0297

Simpson Strong-Tie Anchor Systems®
136 Official Road
Addison, IL 60101
Tel: 630/543-2797 • Fax: 630/543-7014

Distribution Centers
Enfield, CT; High Point, NC;
Jacksonville, FL; Jessup, MD;
Langley, B.C.; Ontario, CA

C-2009 Effective 1/1/2009 Expires 12/31/2010

SIMPSON
Strong-Tie
®

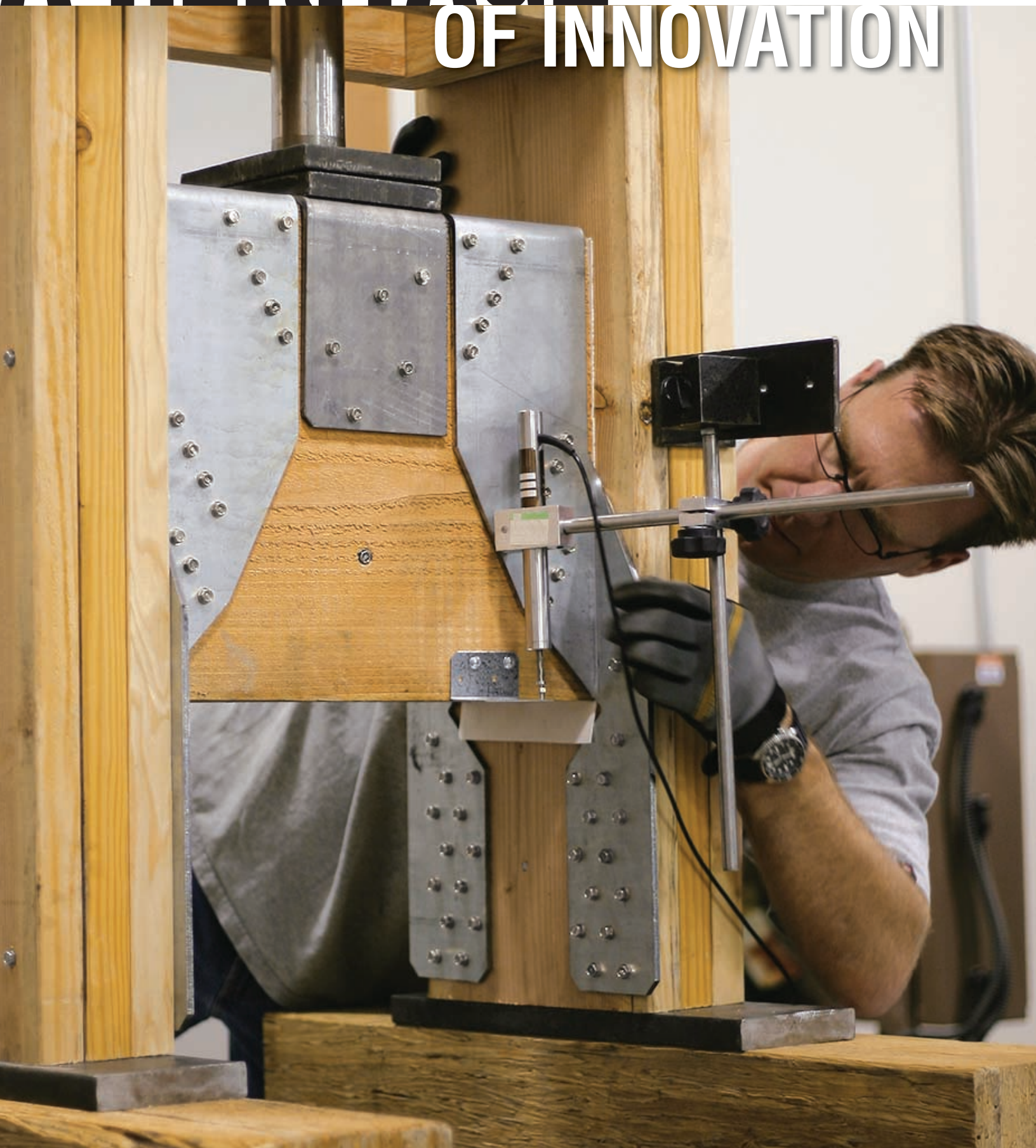
2010 ADDENDUM

WOOD CONSTRUCTION CONNECTORS

F-C2009ADD

(800) 999-5099
www.strongtie.com

A HERITAGE OF INNOVATION



Twenty years ago if you asked someone in our industry about Simpson Strong-Tie they probably would have described us as “the company that makes connectors”. And while today that still holds true – after all, connectors are still our core business – we are always looking for new ways to meet the needs of the building industry. So while we continue to grow our connector product line, we are also using our key strengths to expand into other product categories that offer value for our customers and the industry.

On the following pages you will see the results of our efforts to thoughtfully diversify our focus. While our company continues to grow and evolve, one thing that hasn’t changed is our brand promise to our customers – to deliver the highest quality products, backed by prompt, knowledgeable service.

To learn more about all of our product lines, visit:
www.strongtie.com

Structural Connectors:
A history of innovative solutions and leadership

Since Barclay Simpson made his first connector more than 50 years ago, Simpson Strong-Tie has worked with the engineering and building communities to develop products that significantly improve the structural integrity of homes and buildings. We are constantly introducing new connectors to address the unique applications and performance needs of our customers. Our dedication to providing these solutions has resulted in the most complete line of structural connectors in the world.

- *Angles and Clips*
- *Straps and Anchors*
- *Seismic Holdowns*
- *Joist Hangers*
- *Hurricane Ties*
- *Column/Post Caps and Bases*
- *Embedded Products for Concrete and Masonry*
- *Engineered-Wood and Truss Products*
- *Connectors for Cold-Formed Steel Framing*

LATERAL SOLUTIONS

The 2009 NEESWood Capstone test is the largest full-scale earthquake test in history. It featured a seven-story, 40' x 60' condominium tower that was outfitted with Simpson Strong-Tie® lateral systems products and subjected to the ground motions equivalent to a 7.5 magnitude quake.

Learn more at www.strongtie.com/capstonetest.

Combining design flexibility with structural performance

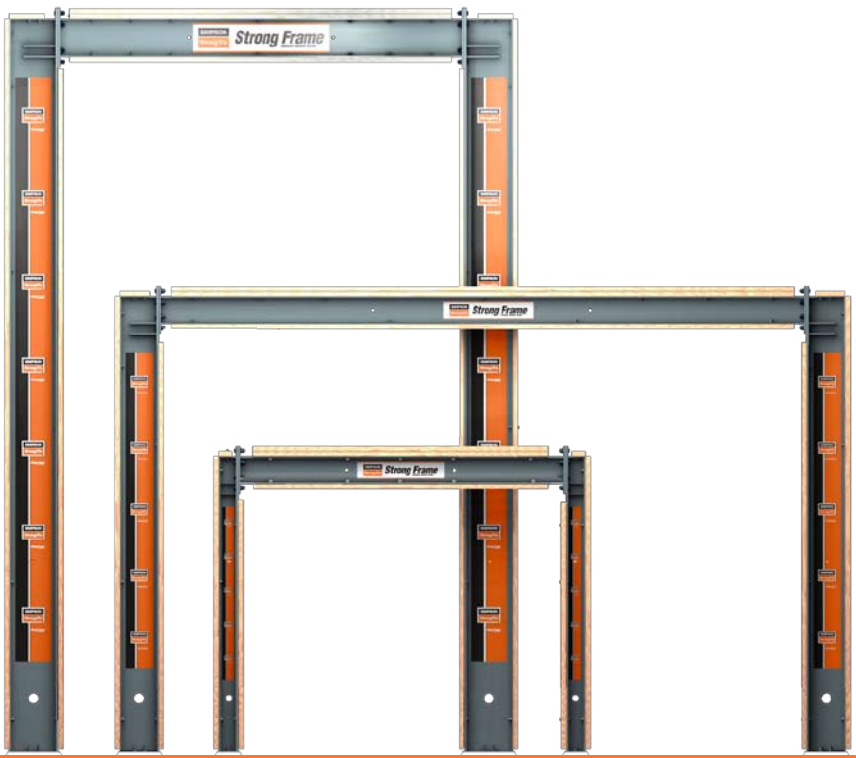
As the leading manufacturer of seismic holdowns for site-built shearwalls, it was natural for Simpson Strong-Tie to apply our expertise to structural systems that resist lateral forces from seismic and high-wind events. Our wood and Steel Strong-Wall® products are a result of our research efforts to improve the efficiency of shearwalls, as is our Anchor Tiedown System for multi-story structures.

Our latest addition, the Strong-Frame™ ordinary moment frame, rounds out our lateral-systems offering and provides specifiers and builders a cost-effective alternative to site-built moment frames.

All of our lateral systems product lines allow designers the freedom to include larger window and door openings as well as open spaces in their designs while still meeting the requirements of the building codes.

There is no other company in the industry that offers such a wide variety of lateral systems solutions – solutions our customers use to make buildings safer and stronger.

To learn more, visit:
www.strongtie.com/lateralsystems



Steel Strong-Wall® shearwalls

Strong Frame™ moment frames

Anchor Tiedown Systems

FASTENING SOLUTIONS

SIMPSON Strong-Tie®

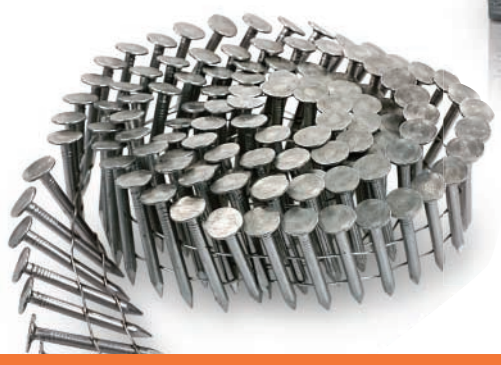
Premium products that increase efficiency and stand the test of time

Since fasteners are vital to the performance of connectors, Simpson Strong-Tie has always been on the fringe of the fastener industry for years. After having sold nails for years, in 1996 we introduced our first proprietary fastener – the Strong-Drive® SDS screw. Designed to replace bolts in some connectors, the SDS screw is also a load-rated fastener for wood-to-wood applications. And that was just the beginning.

Today we offer a line of fasteners and fastening systems that add value through innovation, performance and longevity. Quik Drive® auto-feed screw driving systems feature quick-loading fastener strips and a patented auto-advance mechanism to provide higher quality fastening in less time. With our recent acquisition of Swan Secure we now offer the most extensive range of stainless-steel screws, nails and related fasteners that stand the test of time and the elements. And our structural fastener group continues to grow with the introduction of the Strong-Drive® SD structural-connector screw – the first screw designed to replace nails in some of our most popular connectors. When it comes to fastening, look for continued innovation from Simpson Strong-Tie as we strive to address new challenges and opportunities.

To learn more, visit:
www.strongtie.com/fasten

- *Structural Fasteners*
- *Quik Drive® Auto-Feed Screw Driving Systems*
- *Stainless-Steel Hand-Drive Nails and Screws*
- *Stainless-Steel Collated Nails*
- *Copper and Aluminum Nails*
- *EB-TY® Hidden Deck Fastening Systems*
- *Stainless-Steel Staples and Brads*



ANCHORING SOLUTIONS

SIMPSON
Strong-Tie
ANCHOR SYSTEMS

In The Specs, On The Job, At Your Service™

With the introduction of Epoxy-Tie® ET anchoring adhesive in 1994, Simpson Strong-Tie entered the world of anchoring and fastening and has never looked back. Structural products, code listings and specifier support are just some of the parallels between the connector and anchoring industries, so this was another natural direction for growth.

From introducing the first anchoring adhesive approved for seismic applications (Epoxy-Tie SET, 1996) to being the first U.S. manufacturer to introduce a wedge anchor designed and tested for cracked-concrete applications (Strong-Bolt™ anchor, 2004), Simpson Strong-Tie has earned a leadership position in the industry for product development and testing.

As a result we are now one of the only manufacturers with multiple code-listed solutions for the new 2006 IBC cracked-concrete code requirements. And we've also made servicing specifiers and contractors a priority with our Field Engineer and Technical Sales teams. So we're sticking to our motto:

In The Specs, On the Job,
At Your Service.

To learn more, visit:
www.simpsonanchors.com

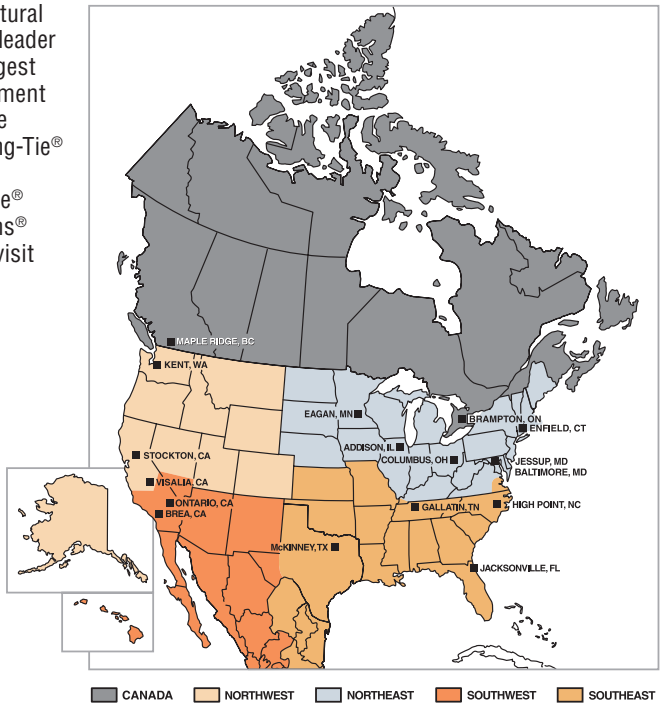
- *Anchoring and Crack Repair Adhesives*
- *Mechanical Anchors*
- *Powder & Gas-Actuated Tools and Fasteners*
- *Carbide Drill Bits, Core Bits and Chisels*

INTRODUCTION

For more than 50 years, Simpson Strong-Tie has focused on creating structural products that help people build safer and stronger homes and buildings. A leader in structural systems research and technology, Simpson is one of the largest suppliers of structural building products in the world. Simpson's 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, Strong-Wall® prefabricated shearwalls, Anchor Tiedown Systems for multi-story buildings, Quik Drive® auto-feed screw driving systems and Simpson Strong-Tie Anchor Systems® anchors and fasteners for concrete and masonry. For more information, visit the company's Web site at ***www.strongtie.com***.

The Simpson Strong-Tie Company Inc. "NO EQUAL" pledge includes:

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



THE SIMPSON STRONG-TIE® QUALITY POLICY

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

Tom Fitzmyers
Chief Executive Officer

Terry Kingsfather
President

GETTING FAST TECHNICAL SUPPORT

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

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

WE ARE ISO 9001-2000 REGISTERED

Simpson Strong-Tie is an ISO 9001-2000 registered company. ISO 9001-2000 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's products and services.

TABLE OF CONTENTS

IMPORTANT INFORMATION & GENERAL NOTES

Welcome to the 2010 addendum to our 2009 *Wood Construction Connectors* catalog.

Since the 2009 *Wood Construction Connectors* catalog is effective for two years, this brochure is intended to highlight new products and testing for 2010. It is also a good idea to visit ***www.strongtie.com*** occasionally to get updated on mid-year developments that are not included here.

Important Information in the 2009 *Wood Construction Connectors* catalog (C-2009)

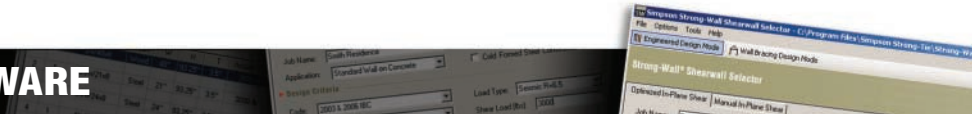
There is important information pertaining to the specification and installation of Simpson Strong-Tie® products that is included in the front section of the C-2009 catalog. Please see that catalog for the following:

- Corrosion information
- Important information and general notes
- Warnings about improper installation
- General instructions for the Installer
- General instructions for the Designer
- Limited Warranty and terms and conditions of sale

See *www.strongtie.com* for important updates to the 2009 *Wood Construction Connectors* catalog.

Since the 2009 *Wood Construction Connectors* catalog is effective for two years, we want to make sure that our customers are still up to date. Therefore, a list of corrections is now available at ***www.strongtie.com/corrections***. This list will be continually updated if new questions and issues arise.

VALUE-ADDED SOFTWARE



Simpson Strong-Tie offers software solutions to make product selection and specification easier. Visit ***www.strongtie.com*** to download your free versions.

Connector Selector

Finding the right connector just got easier. Input the details of your application and the Simpson Strong-Tie® Connector Selector software suggests appropriate connectors and lists them by their installed cost. The program offers solutions for solid-sawn lumber, I-joists, engineered wood and trusses, and can also take into consideration factors such as wood species and masonry type. Save, print or email your solutions as well as auto-generated job files and material lists.

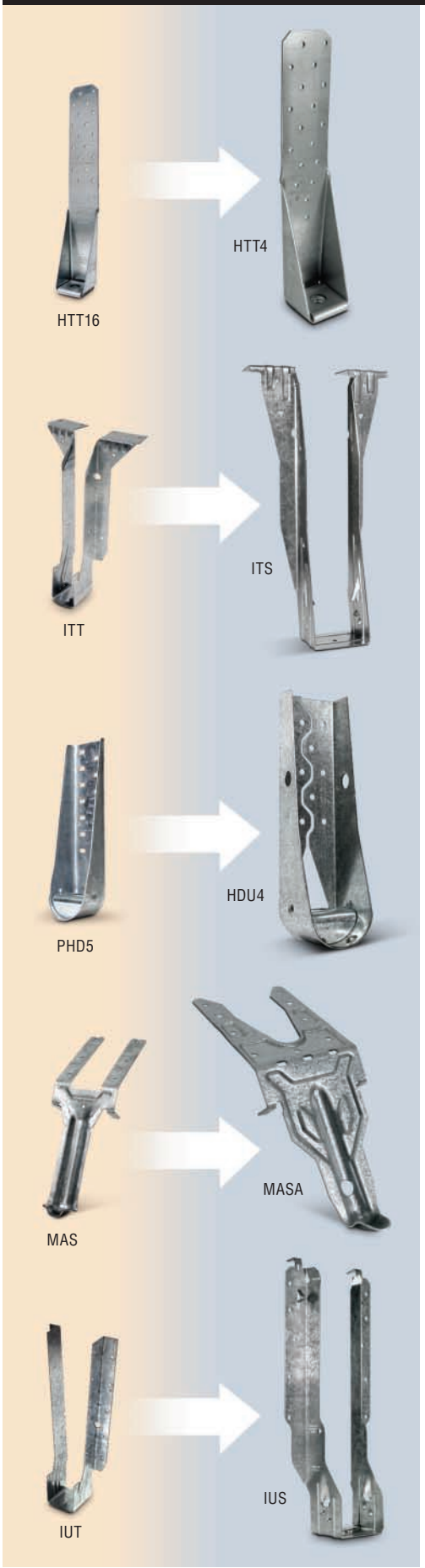
Strong-Wall® Shearwall Selector

Looking for a faster way to identify shearwalls for your designs? The Strong-Wall® Shearwall Selector software suggests suitable wood or Steel Strong-Wall® solutions based upon the parameters you input for your project. The program features two design modes, engineered-design and prescriptive wall bracing, to suggest appropriate solutions based on framing and foundation preferences. Solutions for one- and two-story applications as well as for balloon-framed walls are available. Output can be saved, printed or attached to email for maximum versatility.

Strong Frame™ Selector – Available Early 2010

The Strong Frame™ ordinary moment frame takes a lot of the work out of specifying moment frames, and the Strong Frame™ Selector software will make it even easier. The user inputs information such as size of the opening, lateral/gravity loads and drift requirements and the software suggests the appropriate solution from 368 available stock frames. Custom solutions can also be suggested if we don't offer a stock frame to match the application. Save, print or email solutions depending on your needs.

DISCONTINUED PRODUCTS



Products that will be discontinued in 2010

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 we introduce new connectors 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 will no longer be included in our *Wood Construction Connectors* catalog when the 2011 edition is published and the products we recommend in their place. While we will maintain technical information for discontinued products 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 these products will no longer be available from our distribution partners, we plan to stop manufacturing them sometime in 2010.

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
HTT16 Tension tie	HTT4 Tension tie
HTT22 Tension tie	HTT5 Tension tie
ITT Hanger	ITS Hanger
IUT Hanger	IUS Hanger
ITTM Hanger	WM Hanger
LTHJR/L Hanger	THJA Hanger
MTT28B Tension tie	HTT5 Tension tie
PHD2 Holdown	HDU2 Holdown
PHD5 Holdown	HDU4 Holdown
PHD6 Holdown	HDU5 Holdown
PHD8 Holdown	HDU8 Holdown
MAS Mudsill anchor	MASA Mudsill anchor
MASP Mudsill anchor	MASAP Mudsill anchor
TBD20 Truss brace	TBD22 Truss brace
VTC2 Valley truss clip	VTCR Valley truss clip
CBQ44-SDS2 Column base	CBSQ44-SDS2 Column base
CBQ46-SDS2 Column base	CBSQ46-SDS2 Column base
CBQ66-SDS2 Column base	CBSQ66-SDS2 Column base

New Strong-Drive® SDS Screw Options

Our line of Strong-Drive® SDS screws now includes stainless-steel versions and an 8" length of our original carbon-steel screw.

STAINLESS STEEL

The SDS Strong-Drive ¼" wood screw is known as an easy-to-install fastener solution for many of our connectors. Now the line has expanded to include stainless-steel SDS screws suitable for some of our stainless-steel products. Offering the same easy-driving, split-reducing installation of the standard SDS screw, these screws are made from type 316 stainless steel. Also ideal for various wood-to-wood fastening applications, the new stainless-steel SDS screws are great for higher-exposure environments where maximum corrosion-resistance is required.

MATERIAL: Type 316 stainless steel
CODES: Submitted for listing

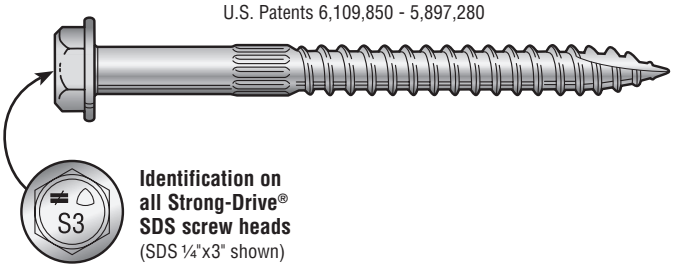
8" LENGTH

The new 8" SDS screw offers a new option for wood-to-wood fastening applications where a longer fastener is needed. This new length features the same double-barrier coating as the other sizes of our standard SDS screws, providing corrosion resistance equivalent to hot-dip galvanized fasteners.

MATERIAL: Heat-treated carbon steel
FINISH: Double-barrier coating
CODES: ICC-ES ESR-2236 *(8" carbon-steel screw only)*

NEW

¼"x3" Stainless-Steel SDS Screw
U.S. Patents 6,109,850 - 5,897,280



Identification on all Strong-Drive® SDS screw heads
(SDS ¼"x3" shown)

SDS ¼"x8" Screw
U.S. Patents 6,109,850 - 5,897,280

These products feature additional corrosion protection.

SDS ¼"x8" Wood Screws

Size (in.)	Model No.	Thread Length (in.)	Fasteners per Carton	DF/SP Allowable Loads[4]						SPF/HF Allowable Loads[4]					
				Shear (100)					Withdrawal[5] (100)	Shear (100)					Withdrawal (100)
				Wood Side Plate		Steel Side Plate				Wood Side Plate		Steel Side Plate			
				1½"	1¾" SCL	16 ga	14 ga & 12 ga	10 ga or Greater	Wood or Steel Side Plate	1½"	1¾" SCL	16 ga	14 ga & 12 ga	10 ga or Greater	Wood or Steel Side Plate
¼ x 8	SDS25800	3¼	400	350	340	250	420	420	560	250	245	180	300	300	395

Stainless-Steel SDS Wood Screws

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

1. Screws may be provided with the 4CUT or Type 17 tip.
2. SDS screws install best with a low speed ½" drill with a ⅜" hex head driver.
3. All applications are based on full penetration into the main member. Refer to technical bulletin T-SDSCREWAPPS for allowable loads for other side member thicknesses.
4. Allowable loads are shown at the wood load duration factor of C_D=1.00. Loads may be increased for load duration by the building code up to a C_D=1.60.
5. Withdrawal loads shown are in pounds (lbs.) and are based on the entire threaded section installed into the main member. If thread penetration into the main member is less than the Thread Length as shown in the table, reduce allowable load by 172 lbs. x inches of thread not in main member. Use 121 lbs./inch for SPF.
6. Fasteners per Carton represent the quantity of screws which are available in bulk packaging. Screws are also available in mini bulk and retail packs. Refer to Simpson Strong-Tie® List Price book. Contact Simpson Strong-Tie for more information.
7. LSL wood-to-wood applications that require 8" SDS screws are limited to interior-dry use only.

The Strong-Drive® SD screw for use with Simpson Strong-Tie® connectors

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

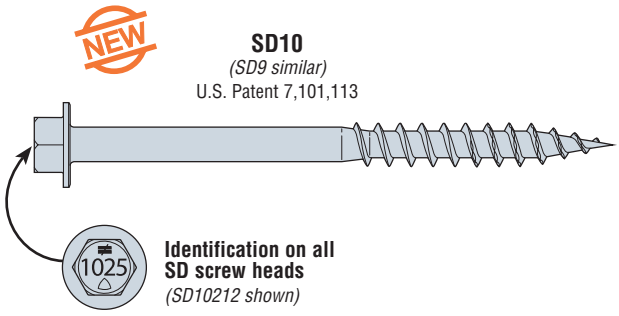
The SD structural-connector screw features an optimized shank which is specifically designed to match the diameter of the fastener holes in Simpson Strong-Tie connectors. The hex head virtually eliminates cam-out and helps avoid stripping of the head during installation. The sharp point of the screw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

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

MATERIAL: Heat-treated carbon steel

FINISH: Mechanically galvanized *(ASTM Class 55)*

CODES: Submitted for listing. Simpson Strong-Tie warranties installations of suitable connectors *(see next page)* with the correct size of SD structural-connector screw. Until the code listing is issued for the SD screw some building departments may not consider it an acceptable substitute for nails. Check with the local building department to determine suitability.



These products feature additional corrosion protection.

Product Information

Model No.	Shank Size	Length (in.)	Quantities	
			Box	Carton
SD9112R100	#9 (0.131")	1½	100	1000
SD9112R500			500	3000
SD9112MB			—	3000
SD9212R100		2½	100	1000
SD9212R500			500	3000
SD9212MB			—	2000
SD10112R100	#10 (0.161")	1½	100	1000
SD10112R500			500	3000
SD10112MB			—	3000
SD10212R100		2½	100	1000
SD10212R500			500	3000
SD10212MB			—	2000

Size (in.)	Model No.	Thread Length (in.)	DF/SP Allowable Loads (lbs) (100)		SPF/HF Allowable Loads (lbs) (100)	
			Shear Steel Side Plate 20 ga - 12 ga	Withdrawal	Shear Steel Side Plate 20 ga - 12 ga	Withdrawal
#9x1½	SD9112	1	171	144	112	122
#9x2½	SD9212	1	200		112	
#10x1½	SD10112	1	173	144	138	122
#10x2½	SD10212	1	215		165	

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

Connectors approved for use with the SD structural-connector screw

Model No.	SD9		SD10	
	#9x1½"	#9x2½"	#10x1½"	#10x2½"
A21	•			
A23	•			
A33	•			
A34	•			
A35	•			
A44	•			
ABA44	•			
ABA46			•	
ABA66			•	
ABU44			•	
AC4 (Max)			•	
AC6 (Max)			•	
BC4			•	
BC40			•	
BC60			•	
BCS2-2/4		•		
DJT14Z				•
DPT5Z	•			
DPT7Z	•			
EPB44PHDG			•	
FB24	•			
FB24R	•			
FB26	•			
FBR24	•			
FPBM44	•			
FWH2	•			
GA1	•			
GA2	•			
H1	•			
H10	•			
H2.5	•			
H2.5A	•			
H5	•			
H8	•			
HPTZ			•	
HRS12	•			
HRS6	•			
HRS8	•			
HTP37Z	•			
HUS26				•
HUS28				•
L30	•			
L50	•			
L70	•			

Model No.	SD9		SD10	
	#9x1½"	#9x2½"	#10x1½"	#10x2½"
L90	•			
LCE4			•	
LPC4	•			
LSCZ	•			
LSTA12	•			
LSTA15	•			
LSTA18	•			
LSTA21	•			
LSTA24	•			
LSTA30	•			
LSTA36	•			
LSTA9	•			
LSTI49	•			
LSTI73	•			
LTP4	•			
LU210 (10d)	•			
LU24 (10d)	•			
LU28 (10d)	•			
LUC210Z (10d)	•			
LUC210Z (16d)			•	
LUC26Z (10d)	•			
LUC26Z (16d)			•	
LUS210		•		
LUS210-2				•
LUS24		•		
LUS24-2				•
LUS26		•		
LUS26-2				•
LUS28		•		
LUS28-2				•
MST27			•	
MST37			•	
MST48			•	
MST60			•	
MST72			•	
MSTA12	•			
MSTA15	•			
MSTA18	•			
MSTA21	•			
MSTA24	•			
MSTA30	•			
MSTA36	•			
MSTA49	•			
MSTA9	•			

Model No.	SD9		SD10	
	#9x1½"	#9x2½"	#10x1½"	#10x2½"
MSTC28	•			
MSTC40	•			
MSTC52	•			
MSTC66	•			
MSTC78	•			
MSTI26	•			
MSTI36	•			
MSTI48	•			
MSTI60	•			
MSTI72	•			
MTS12	•			
MTS16	•			
MTS20	•			
NS1	•			
NS2	•			
PC44			•	
PSPN58Z			•	
RR	•			
RSP4	•			
ST12			•	
ST18			•	
ST2115			•	
ST2122			•	
ST22			•	
ST292			•	
ST2215			•	
ST6215			•	
ST6224			•	
ST6236			•	
ST9			•	
TP15	•			
TP311	•			
TP35	•			
TP37	•			
TP39	•			
TP411	•			
TP45	•			
TP47	•			
TP49	•			
TPA37	•			
TPA39	•			
TPA57	•			

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

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

PAB *Pre-Assembled Anchor Bolt*

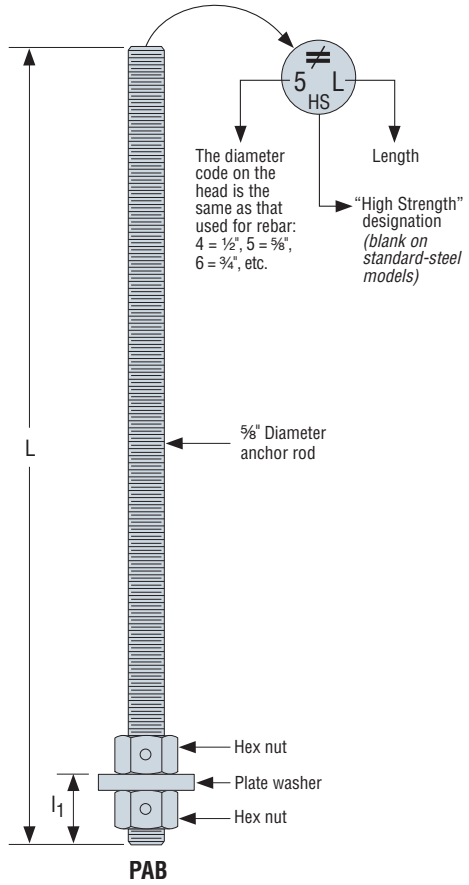
The PAB anchor bolt is a versatile new cast-in-place anchor bolt ideal for high-tension-load applications. It features a plate washer at the embedded end sandwiched between two fixed hex nuts and a head stamp for easy identification after the pour.

- Available in diameters from ½" to 1¼" in lengths from 6" to 36" (in ½" 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 – F_u = 58 ksi
High-Strength Steel *(up to 1" dia.)* – F_u = 120 ksi
High-Strength Steel *(1⅛" and 1¼" dia.)* – F_u = 125 ksi

FINISH: None

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



PAB Anchor Bolt – Standard Steel

Diameter (in.)	Plate Washer Size (in.)	l_1 (in.)	Root Model No.	Length Range
½	¼ x 1¼ x 1¼	1	PAB4-XX	6" to 36" (in ½" 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.

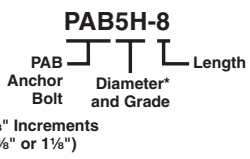
For a ⅝"x16½" anchor bolt, the model number would be PAB5-16.5 *(or PAB5H-16.5 for high strength)*.

PAB Anchor Bolt – High-Strength Steel

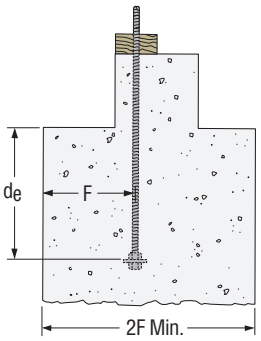
Diameter (in.)	Plate Washer Size (in.)	l_1 (in.)	Root Model No.	Length Range
½	¼ x 1¼ x 1¼	1	PAB4H-XX	6" to 36" (in ½" increments)
⅝	⅜ x 1½ x 1½	1¼	PAB5H-XX	
¾	⅜ x 2 x 2	1⅜	PAB6H-XX	
⅞	⅜ x 2¼ x 2¼	1½	PAB7H-XX	
1	⅜ x 2½ x 2½	1⅝	PAB8H-XX	
1⅛	⅜ x 2¾ x 2¾	1¾	PAB9H-XX	
1¼	½ x 3 x 3	2½	PAB10H-XX	

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

Naming Scheme:



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



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

PAB Anchor Bolt – Anchorage Solutions

Design Criteria	Diameter (in.)	Anchor Bolt Model No.	2500 psi Concrete				3000 psi Concrete			
			Dimensions (in.)		Tension Load (lbs.)		Dimensions (in.)		Tension Load (lbs.)	
			d_e	F	ASD	LRFD	d_e	F	ASD	LRFD
Wind	⅝	PAB5	4	6	4,200	6,720	4	6	4,600	7,360
			5	7½	5,870	9,390	5	7½	6,140	9,830
	¾	PAB6	5	7½	5,870	9,390	5	7½	6,430	10,290
	⅞	PAB7	6	9	7,720	12,350	5	7½	6,430	10,290
			8	12	11,880	19,010	7	10½	10,650	17,040
		PAB7H	10	15	16,600	26,560	10	15	18,190	29,100
			14	28	25,970	41,560	13	26	25,970	41,560
	1	PAB8	8	12	11,880	19,010	7	10½	10,650	17,040
			10	15	16,470	26,350	9	13½	15,530	24,840
		PAB8H	11	16½	19,040	30,470	11	16½	20,860	33,380
			16	24	34,070	54,520	15	22½	34,070	54,520
	1⅛	PAB9	6	9	7,720	12,350	6	9	8,450	13,520
			9	13½	14,180	22,680	9	13½	15,530	24,840
			11	16½	19,040	30,470	10	15	18,190	29,100
	1¼	PAB10	12	24	22,010	35,220	11	16½	20,860	33,380
Seismic	⅝	PAB5	7	10½	6,870	9,830	6	9	6,870	9,830
	¾	PAB6	9	13½	10,170	14,550	8	12	10,170	14,550
	⅞	PAB7	11	16½	14,050	20,090	10	15	14,050	20,090
		PAB7H	16	24	29,060	41,560	15	22½	29,060	41,560
	1	PAB8	12	18	18,430	26,350	12	18	18,430	26,350
		PAB8H	19	28½	38,120	54,520	18	27	38,120	54,520
	1⅛	PAB9	14	21	23,220	33,200	13	19½	23,220	33,200
	1¼	PAB10	16	24	29,480	42,160	16	24	29,480	42,160

1. Anchorage designs conform to ACI 318 Appendix D and assume cracked concrete with no supplementary reinforcement.
2. Seismic indicates Seismic Design Category C through F. Detached one- and two-family dwellings in SDC C may use wind anchorage solutions. Seismic anchorage designs conform to ACI 318-05 Section D3.3.4.
3. Wind includes Sesmic Design Category A and B.
4. Foundation dimensions are for anchorage only. Foundation design *(size and reinforcement)* by Designer. The registered design professional may specify alternate embedment, footing size, and anchor bolt.
5. Allowable Stress Design (ASD) values are obtained by dividing Load Factor Resistance Design (LRFD) capacities by 1.43 for Seismic and 1.6 for Wind.

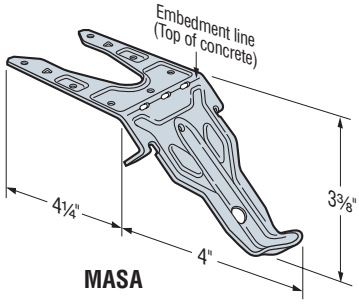
MASA/MASAP *Mudsill Anchors*

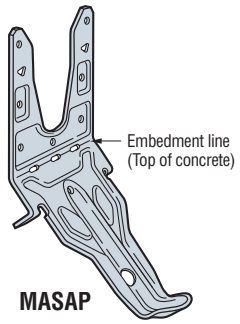
New Testing for MASA Anchors

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. It also eliminates the need for 3" square plate washers for seismic design and, in some cases, has load capacities that meet or exceed the parallel and perpendicular to plate shear capacity of other cast-in-place anchors. Two versions of the MASA are available – the standard MASA for installation on standard forms and the MASAP for panelized forms.

The MASA and MASAP are code listed by ICC-ES under the 2006 and 2009 IBC® and IRC® and 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.

CODES: ICC-ES ESR-2555



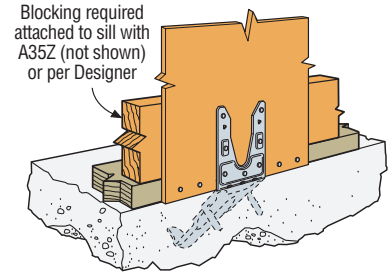


These products are available with additional corrosion protection.

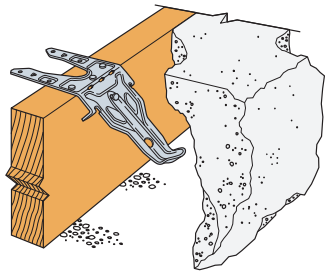
Model No.	Sill Size	Fasteners		Allowable Loads (lbs)[1,2,3,4,5,6]											
				Non Cracked						Cracked					
				Wind and SDC A & B[5,6]			SDC C-F[6]			Wind and SDC A & B[5,6]			SDC C-F[6]		
		Sides	Top	Uplift	F_1	F_2	Uplift	F_1	F_2	Uplift	F_1	F_2	Uplift	F_1	F_2
STANDARD INSTALLATION – Attached to DF/SP Sill Plate															
MASA or MASAP	2x4, 2x6	3-10dx1½	6-10dx1½	920	1515	1095	745	1235	1045	785	1515	910	660	1235	765
	3x4, 3x6	5-10dx1½	4-10dx1½	650	1215	725	550	1020	725	495	1215	725	415	1020	640
ONE LEG UP INSTALLATION – Attached to DF/SP Sill Plate															
MASA or MASAP	2x4, 2x6	6-10dx1½	3-10dx1½	785	1005	995	660	845	995	595	1005	965	500	845	810
BOTH LEGS OVER MAX. ½" PLYWOOD OR OSB INSTALLATION – Attached to DF/SP Sill Plate															
MASA or MASAP	2x4, 2x6	9-10dx1½	—	880	1150	900	740	965	755	665	1150	660	560	965	550
DOUBLE 2x INSTALLATION – Attached to DF/SP Sill Plate															
MASA or MASAP	Dbl 2x4, Dbl 2x6	5-10dx1½	2-10dx1½	875	1075	785	735	900	785	660	1075	785	555	900	785
STANDARD INSTALLATION – Attached to HF Sill Plate															
MASA or MASAP	2x4, 2x6	3-10dx1½	6-10dx1½	790	1305	940	640	1060	900	675	1305	785	570	1060	660
	3x4, 2x6	5-10dx1½	4-10dx1½	560	1045	625	475	875	625	425	1045	625	355	875	550
ONE LEG UP INSTALLATION – Attached to HF Sill Plate															
MASA or MASAP	2x4, 2x6	6-10dx1½	3-10dx1½	675	865	855	565	725	855	510	865	830	430	725	695
BOTH LEGS OVER MAX. ½" PLYWOOD OR OSB INSTALLATION – HF Sill Plate															
MASA or MASAP	2x4, 2x6	9-10dx1½	—	570	990	775	635	830	650	570	990	565	480	830	475
DOUBLE 2x INSTALLATION – Attached to HF Sill Plate															
MASA or MASAP	Dbl 2x4, Dbl 2x6	5-10dx1½	2-10dx1½	750	925	675	630	775	675	660	925	675	555	775	675

For SI: 1 inch = 25.4 mm, 1 pound = 4.45 N, 1 psi = 6.895 kPa

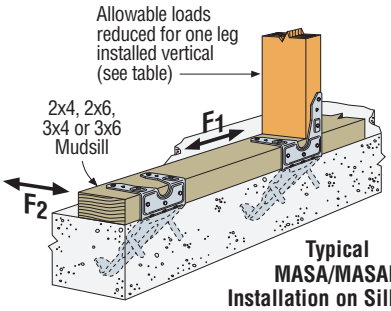
1. Loads are based on allowable stress design (ASD) and include the load duration factor C_D (with C_D = 1.6) for wind/earthquake loading. No further increase is allowed. Reduce where other loads govern.
2. Minimum concrete compression strength, f'_c is 2500 psi.
3. Allowable loads are based on a minimum stemwall width of 6".
4. For simultaneous loads in more than one direction, the connector must be evaluated using the Unity Equation.
5. Per Section 1613 of the 2006 IBC, detached one- and two-family dwellings in SDC C may use the "Wind and SDC A&B" allowable loads.
6. In SDC D-F a 3x sill plate is required when the allowable design shearwall shear load is equal to or greater than 600 plf. If the allowable design shear load is greater than 350 plf but less than 600 plf, it is acceptable to use a 2x sill plate provided that the sill is anchored using double the number of MASA mudsill anchors required by design.
7. MASA/P loads are based on testing procedures and calculations from ICC-ES Acceptance Criteria, AC398.
8. **NAILS:** 10dx1½" = 0.148" dia. x 1½" long.



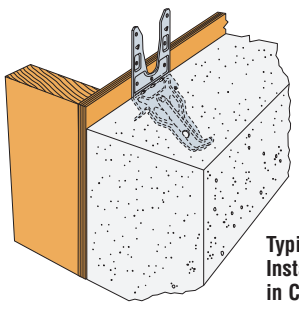
MASA/MASAP Rim Joist or Blocking Installation in Concrete over Max. ½" Sheathing



Typical MASA Installation in Concrete



Typical MASA/MASAP Installation on Sill Plate



Typical MASAP Installation in Concrete

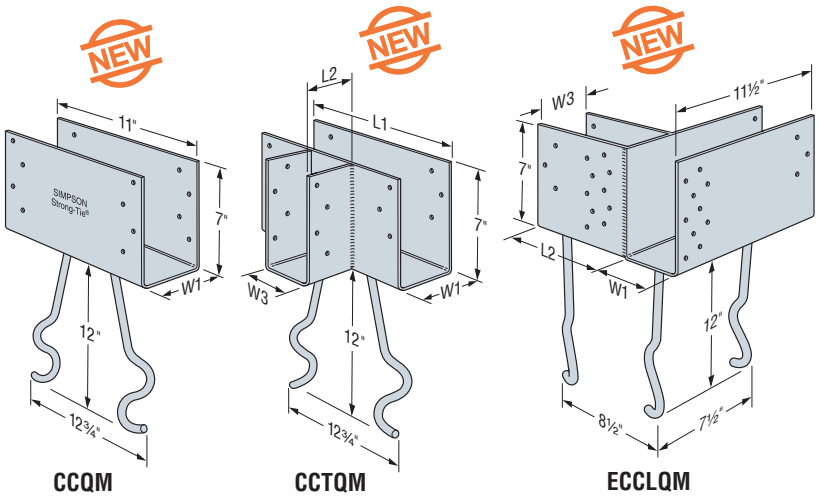
CCQM/CCTQM/ECCLQM *Column Caps for CMU and Concrete Piers*

The new CCQM/CCTQM/ECCLQM embedded column caps are designed for use in raised-pier foundations and applications where heavy timbers rest on concrete or concrete-block columns. The heavy-gauge beam seats and unique SSTB anchor bolts provide the high uplift and lateral resistance needed to help resist high-wind events.

- Framing is fastened with Simpson Strong-Tie® Strong-Drive® SDS wood screws *(included)* which install with no pre-drilling and feature a corrosion resistant double-barrier coating
- Hot-dip galvanized coating for corrosion resistance
- CCQM—Intended for use along a floor support beam and non-corner locations
- CCTQM—Also for use along a floor support beam and non-corner locations with a side bucket that accommodates intermediate support beams coming in at 90°
- ECCLQM-KT—Intended for use at the corners with a strap to make the connection from the ECCLQM to the wall framing above

MATERIAL: 7 gauge **FINISH:** Hot-dip galvanized

OPTIONS: • For variable widths on side stirrups specify W3 (3¼"-5½") and add an "X" to the end of the core model number.
Example: CCTQM5.50X-SDSG W3 = 3⅝"
- Contact Simpson Strong-Tie for other coating options.

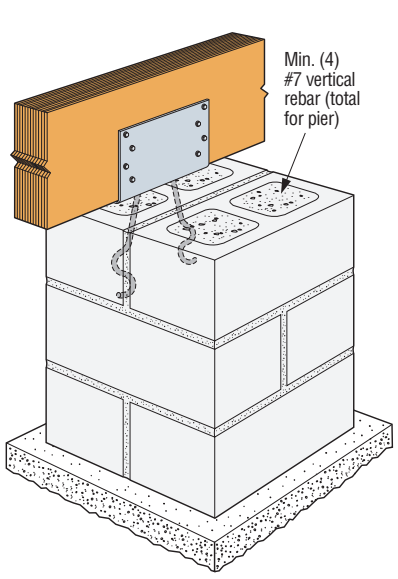


CCQM **CCTQM** **ECCLQM**

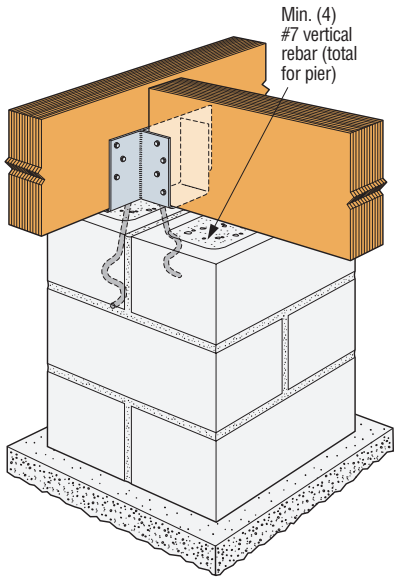
Dimensions

Model No.	Main Channel Width (W_1)	Side Stirrup Width (W_3)	Main Channel Length (L_1)	Main Channel Length (L_2)
CCQM3.62-SDSHDG	3⅝	—	11	—
CCQM4.62-SDSHDG	4⅝	—	11	—
CCQM5.50-SDSHDG	5½	—	11	—
CCTQM3.62-SDSG	3⅝	3⅝	11½	4
CCTQM4.62-SDSG	4⅝	4⅝	13½	4
CCTQM5.50-SDSG	5½	5½	13½	4
ECCLQM3.62G-KT[1]	3⅝	3⅝	11½	7¾
ECCLQM4.62G-KT[1]	4⅝	4⅝	11½	7¾
ECCLQM5.50G-KT[1]	5½	5½	11½	7¾

1. The MSTQM strap is a component of the ECCLQM kits. It is 12 ga. (0.101"); 3" wide and 48" long.



Typical CCQM Installation

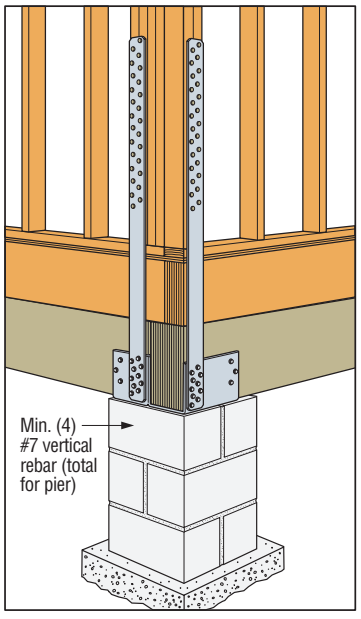


Typical CCTQM Installation

These products feature additional corrosion protection.

Model No.	No. of SDS ¼"x2½" Screws		16" Sq. x 16" Tall Grout-Filled CMU Pier[6]				16" Sq. x 8" Tall CMU Shell Filled with 3 ksi Concrete			
			Uplift (160)			Lateral (160)	Uplift (160)			Lateral (160)
	Main Beam	Side Beam	Main Beam	Side Beam	Total		Main Beam	Side Beam	Total	
CCQM-SDSHDG	12	—	6750	—	6750	2460	6855	—	6855	2770
CCTQM-SDSG	12	8	6750	5375	6750	2460	6855	6720	6855	2770
ECCLQMG-KT	16	16	6240	6240	7300	2220	6240	6240	8260	2680

1. The allowable loads have been increased for wind or earthquake loading with no further increase allowed.
2. Total uplift load and lateral load is based on tested anchor failure in the pier.
3. Allowable loads are based on either a 16" square grout-filled CMU pier with f'_m of 1500 psi or a 16" sq. x 8" tall CMU shell filled with 3000 psi concrete. A minimum of (4) #7 vertical rebars are required. The Designer shall design and detail the CMU/concrete pier to resist all forces including uplift, shear, and moment.
4. Side beam and main beam uplift loads assume DF members and are not additive.
5. The ECCLQM-KT is a kit packaged with (2) MSTQM straps and (32) SDS ¼" x 2½" screws. One strap may be installed on each face of the ECCLQM *(as shown)*, using the SDS screws into the beams and 26-16d x 2½" nails *(not provided)* into the wall framing. The MSTQM strap's allowable tension load is 6240 lbs.
6. The allowable loads listed for grout-filled CMU apply to solid concrete piers of 2500 psi concrete a minimum of 16" square.



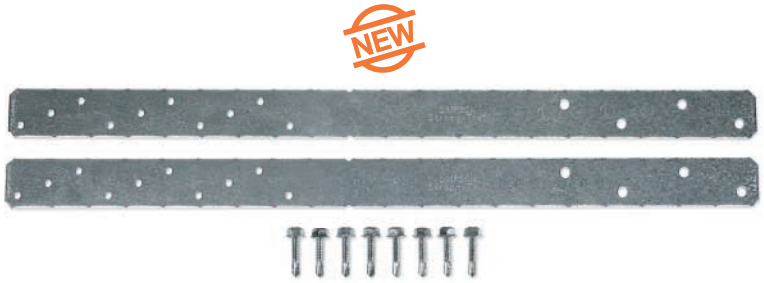
Typical ECCLQM Installation

STEEL STRONG-WALL® SHEARWALLS *Portal Connection Kit*

The new Garage Portal Connection Kit improves the performance of standard Steel Strong-Wall® shearwalls in the garage portal application. By providing extra strength and rigidity at the connection between the shearwall and the header, the kit provides higher loads and reduced concrete anchorage requirements.

- Complete kit (model SSWP-KT) includes 2 straps and self-drilling fasteners to attach the strap to the shearwall. 10dx2½" nails for the strap-to-header connection not included
- Still uses standard Steel Strong-Wall anchor-bolt template

See our *Strong-Wall® Shearwalls* catalog for more information as well as new load values issued under the 2006 IRC/IBC, which meet the testing and evaluation requirements of the latest ICC-ES Acceptance Criteria (AC322).



SSWP-KT

VTCR *Single-Sided Valley Truss Clip*

The new VTCR is single-sided valley truss clip that provides a positive connection between the valley truss and the supporting framing below. Installed on top of the roof sheathing, it eliminates the need to add a support wedge under the valley truss or to bevel the bottom chord to match the roof pitch.

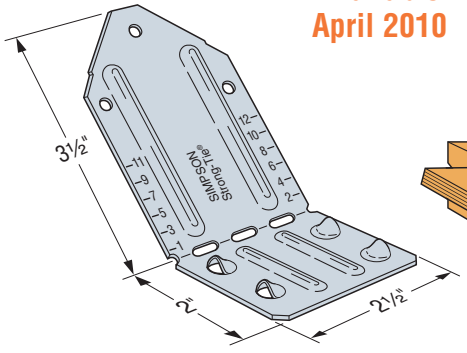
- Single-sided for new construction or retrofit applications – can be installed after the valley truss is set in place
- Accommodates pitches from 0:12 to 12:12
- Can be installed on either beveled or non-beveled bottom chords
- Uses fewer fasteners than our VTC2, which it will replace
- Installs with nails or Simpson Strong-Tie® Strong-Drive® SD structural-connector screws *(see page 8)* for higher loads

MATERIAL: 18 gauge **FINISH:** Galvanized

INSTALLATION:

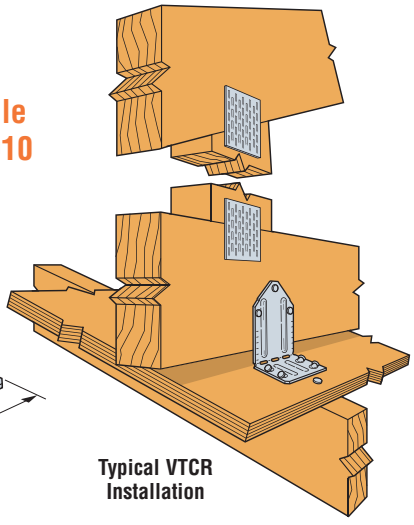
- The dome holes assist in installing the fasteners into the supporting framing at approximately 55°

Available April 2010



VTCR

U.S. Patent 6,840,020



Typical VTCR Installation

Model No.	Fasteners		Supporting Roof Pitch	DF/SP Allowable Loads		SPF/HF Allowable Loads	
	Supporting Framing	Valley Truss		Uplift[3] (160)	Download[5] (100/115/125/160)	Uplift[3] (160)	Download[6] (100/115/125/160)
VTCR	4-10d	3-10dx1½"	< 4:12	370	790	320	655
			4:12 to 12:12	370	790	320	655
	4-SD #9x2½"	3-SD #9x1½"	< 4:12	390	790	335	655
			4:12 to 12:12	500	790	430	655

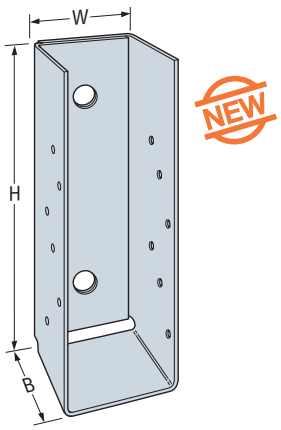
1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed.
2. Loads are based on installation over 7/16" or 15/32" sheathing.
3. When attached directly to the supporting framing with either screws or nails, the allowable uplift for pitches less than 4:12 is 240 lbs. (DF/SP) and 205 lbs. (SPF/HF). For pitches 4:12 to 12:12, use the tabulated uplift loads.
4. Allowable uplift loads are based on the lower of the test loads at 3/16" deflection or the ultimate load divided by 3.
5. Southern pine allowable download is 750 lbs.
6. Hem fir allowable download is 625 lbs.
7. When the valley truss and supporting framing are of different species, use the lower tabulated values.
8. **NAILS:** 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long.
9. **SCREWS:** SD #9x1½" *(model SD9112)* = 0.131" dia. x 1½" long, SD #9x2½" *(model SD9212)* = 0.131" dia. x 2½" long *(see page 8)*.

MBHU *Masonry Beam Hanger*

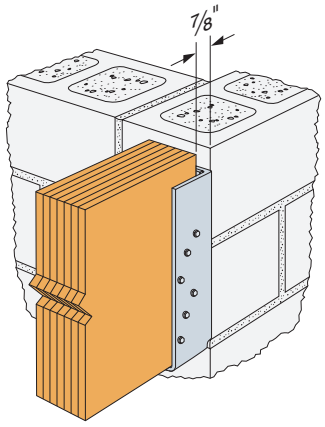
The new MBHU beam hanger provides a face-mounted solution for connecting beams to masonry or concrete walls. A non-welded, one-piece connector, the MBHU is suitable for solid sawn and engineered beams as well as trusses. Installation is simplified because the Titen HD® screw anchor and Strong-Drive® SDS screws are included with the hanger. Since the Titen HD anchor is installed after the wall is built, locating the anchor in the right spot is easier than with cast-in-place bolts.

MATERIAL: 10 gauge
FINISH: Galvanized
INSTALLATION: • Use all specified fasteners *(included)*.

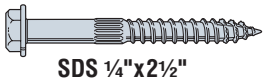
- Attach hanger to a concrete or grouted CMU wall using Titen HD anchors. Note the following:
  - Drill holes using drill bits equal in diameter to the specified Titen HD anchor.
  - Holes shall be drilled ½" deeper than the specified Titen HD length *(i.e. 5½" for a 5" long Titen HD anchor)*
  - Caution: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with the base material and will reduce the anchor's load capacity.
- Titen HD is not recommended for exposed exterior applications.
- Provide moisture barrier between beam and wall per jurisdictional requirements.

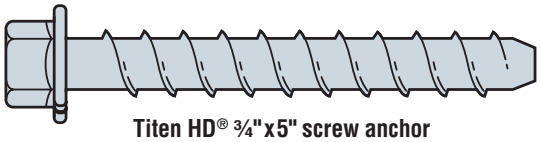


MBHU



Typical MBHU Installation


SDS ¼"x2½"

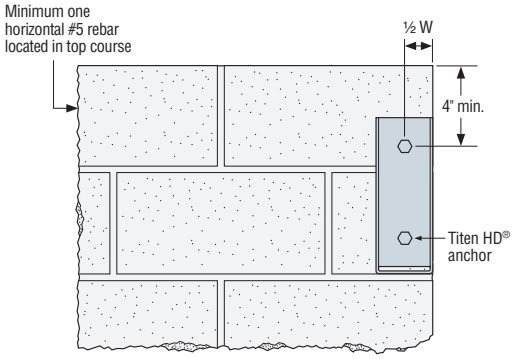

Titen HD® ¾"x5" screw anchor

Model No.	Dimensions	
	Width (W) (in.)	Height (H) (in.)
MBHU3.56/9.25KT	3⁹⁄₁₆	9¼
MBHU3.56/11.25KT	3⁹⁄₁₆	11¼
MBHU3.56/11.88KT	3⁹⁄₁₆	11⅞
MBHU3.56/14KT	3⁹⁄₁₆	14
MBHU3.56/16KT	3⁹⁄₁₆	16
MBHU3.56/18KT	3⁹⁄₁₆	18
MBHU5.50/9.25KT	5½	9¼
MBHU5.50/11.25KT	5½	11¼
MBHU5.50/11.88KT	5½	11⅞
MBHU5.50/14KT	5½	14
MBHU5.50/16KT	5½	16
MBHU5.50/18KT	5½	18

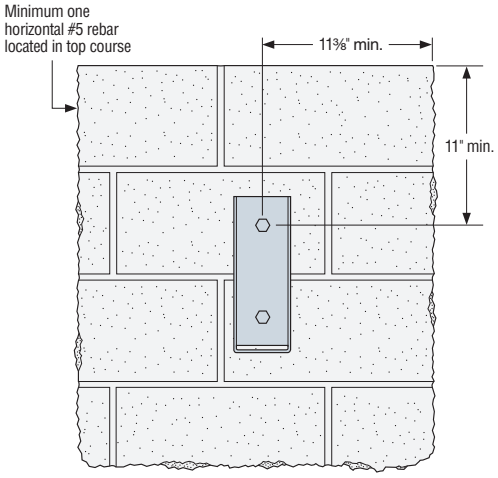
1. Each MBHU hanger includes (2) ¾"x5" Titen HD® anchors and (12) ¼"x2½" Strong-Drive® SDS screws.

Series Model No.	Ga	Dimensions (in.)			Fasteners		Allowable Loads End of Wall / Outside Corner DF/SP				Allowable Loads Away from Edge DF/SP	
							CMU		Concrete		CMU/Concrete	
		W	H	B	CMU/ Concrete	Joist	Uplift[3]	Download	Uplift	Download	Uplift	Download
					Titen HD® Anchors	SDS Screws	(160)	(100/ 115/125)	(160)	(100/ 115/125)	(160)	(100/ 115/125)
MBHU3.56	10	3⁹⁄₁₆	9¼ to <14	3½	2 - ¾"x5"	12 - ¼"x2½"	1720	2440	2715	4190	2210	4005
			14 to 18				1720	2440	2715	4190	3345	6065
MBHU5.50	10	5½	9¼ to <14	3½	2 - ¾"x5"	12 - ¼"x2½"	1720	2440	2715	4190	2210	4005
			14 to 18				2175	3260	3485	6970	3345	6065

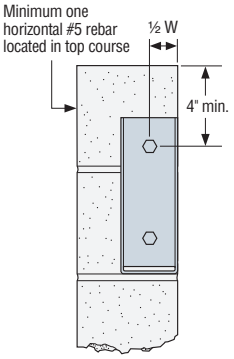
1. Uplift loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Minimum CMU compressive strength f'_m shall be 1500 psi and concrete compressive strength f'_c shall be 2500 psi.
3. Structural composite lumber (SCL) shall have a minimum specific gravity of 0.5.
4. Allowable loads only apply to installation on 8" nominal grouted CMU walls, with minimum one horizontal #5 rebar located in the top course.
5. Products shall be installed such that the Titen HD® anchors are not exposed to the weather.
6. Allowable loads are based upon the tested ultimate load with a safety factor of 3.



Minimum Load
(End of wall face)



Maximum Load
(Away from end or edge of wall)



Minimum Load
(On end of wall)

DTT2 *Deck Tension Tie*

Two New Versions of the DTT2 Offer More Solutions for Decks and Shearwalls

The DTT2 tension tie is ideal as a deck-railing post connector as well as a holdown in site-built shearwalls. Now two more options are available to further increase applications for this versatile product.

DTT2SS Stainless-Steel Tension Tie for Decks
The new DTT2SS is made from stainless steel for applications in higher-exposure environments. Whether it's a deck guardrail-post application or the lateral-load connection from the deck to the adjacent structure, the new stainless-steel 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 wood screws *(included)*.

MATERIAL: 14 gauge, type-316 stainless steel

The DTT2 is ideal for two critical deck connections:

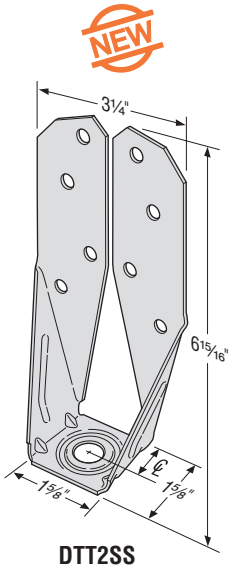
Guardrail-Post Connection
- Ties the guardrail post into deck framing
- Stronger and safer than nails, lag screws or bolts
- Meets provisions set in the International Residential Code® (IRC) for guardrail reinforcement (Table R301.5)
- Single post-to-deck connection tested for the concentrated load specified in ICC-ES acceptance criteria for Handrails and Guards (AC273)

Lateral-Load Connection
- Ties the deck into the house for a stronger, safer ledger connection
- Helps prevent a common type of deck failure
- Meets provisions set by the 2009 International Residential Code® (IRC) for lateral deck-to-house connections (R502.2.2.3)

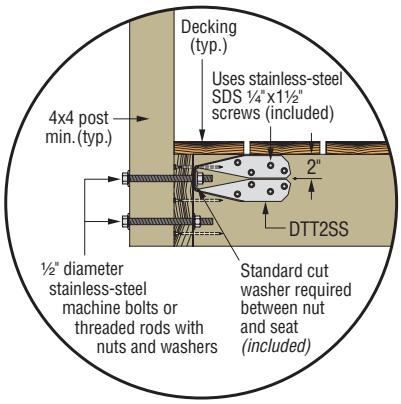
DTT2Z-SDS2.5 for Double-Stud Applications in Shearwalls
The new DTT2Z-SDS2.5 is our standard DTT2Z packaged with 2½" Simpson Strong-Tie® Strong-Drive® SDS wood screws instead of the standard 1½" fasteners. These longer screws allow the DTT2Z to achieve a load capacity in excess of 2100 lbs. when used as a holdown on double studs in a shearwall application. The DTT2Z-SDS2.5 is also suitable in deck applications when double 2x members are used for deck joists or blocking.

MATERIAL: 14 gauge
FINISH: ZMAX® coating

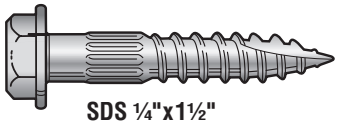
The DTT2Z is a new holdown solution for site-built shearwalls
- Meets minimum requirements for many alternate braced-wall panels per Section R602.10.6.1 of the 2006 IRC *(see table R602.10.6, item 1)*
- Installs quickly onto double 2x post and attaches to a ½" diameter anchor
- The DTT2Z was tested in accordance with the ICC-ES acceptance criteria for Holdowns Attached to Wood Members (AC155)



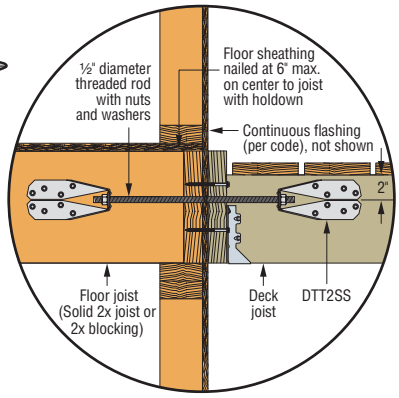
DTT2SS



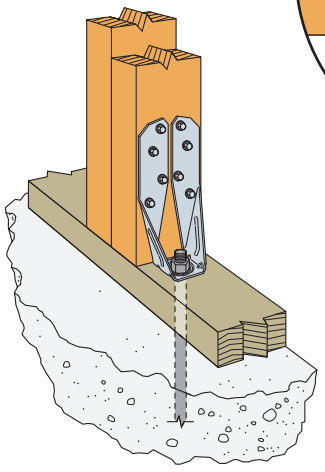
DTT2SS Installed as a Lateral Connector for a Deck Guardrail Post
For more information on guardrail-post connections see technical bulletin T-GRDRLPST



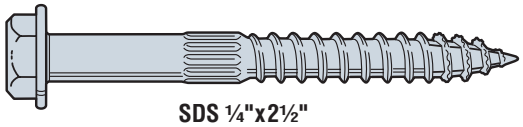
SDS ¼"x1½"
(Stainless steel)



Typical Deck-to-House Lateral-Load Connection



Typical DTT2Z-SDS2.5 Vertical Installation for Shearwall Applications



SDS ¼"x2½"

These products feature, or are available with, additional corrosion protection.

Model No.	℄	Anchor Diameter	Fasteners	Minimum Wood Member Thickness (in.)	Allowable Tension Load[1]				Deflection at Allowable Load[3] (in.)
					DF/SP		SPF/HF		
					(100)	(160)[2]	(100)	(160)[2]	
DTT2SS	13⁄16	½	8-SDS ¼"x1½" SS	1½	1825	1825	1440	1800	0.105
				3	2000	2145	1440	1835	0.128
DTT2Z-SDS2.5	13⁄16	½	8-SDS ¼"x2½"	3	2145	2145	2105	2105	0.141

1. Load values are valid if the DTT2SS is installed flush or raised off of the sill plate or ledger.
2. Where noted, allowable loads have been increased up to 60% for short load durations with no further increase allowed.
3. Deflection at highest allowable load includes fastener slip, DTT2SS elongation, and bolt/rod elongation (L = 4½"). Additional elongation of bolt/rod shall be accounted for by the Designer for bolt/rod lengths greater than 4½".

LSCZ *Adjustable Stringer Connector*

The new LSCZ 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 LSCZ connector is suitable for either solid or notched stringers.

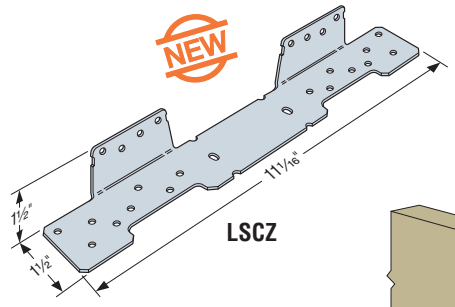
Make stair stringer connections faster and easier with LSCZ

- Replaces additional framing and toe-nailing
- Suitable for installation 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
- Features a ZMAX® coating for additional corrosion protection. Suitable for interior and some exterior applications. See ***www.strongtie.com/info*** for more information
- Installs with HDG nails or our new Strong-Drive® SD screw

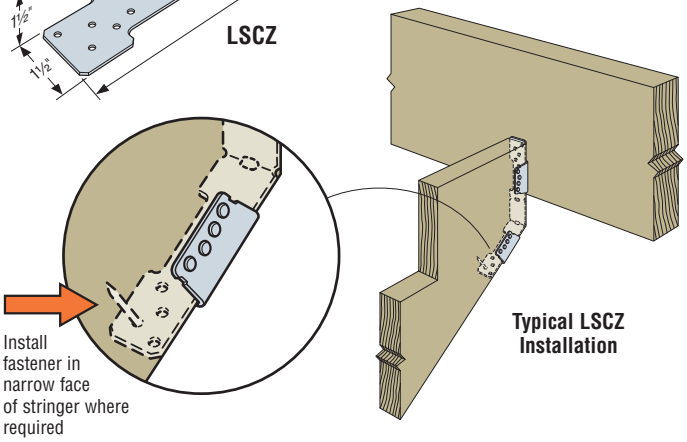
MATERIAL: 18 gauge
FINISH: ZMAX® coating
INSTALLATION:


Designed for Connectors

- Use all specified fasteners, see table.
- Before fastening, position the stair stringer with the LSCZ on the carrying member to verify where the bend should be located.
- Tabs on the LSCZ 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.



LSCZ



Typical LSCZ Installation

These products feature additional corrosion protection.

Model No.	Rim Joist Installation	Fastener Schedule			DF/SP Allowable Loads		SPF/HF Allowable Loads	
		Rim Joist[3]	Stringer Wide Face	Stringer Narrow Face	Floor (100)	Snow (115)	Floor (100)	Snow (115)
LSCZ	Supported[1,7]	8-10dx1½"	8-10dx1½"	1-10dx1½"	950	1000	815	860
	Supported[1]	8-SD#9x1½"	8-SD#9x1½"	—	865	865	670	670
	Standard[2,7]	8-10dx1½"	8-10dx1½"	1-10dx1½"	755	755	650	650
	Cantilever[5,6]	8-10dx1½"	8-10dx1½"	1-10dx1½"	520	520	445	445
	Cantilever[5,6]	8-SD#9x1½"	8-SD#9x1½"	—	545	545	445	445

1. Supported installations require bearing support within 12" of LSCZ.
2. Standard installations require bearing support within 4' of the LSCZ.
3. When cross-grain tension forces cannot be avoided in the members, 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 LSCZ tabs to the end of the rim joist is required.
6. A maximum rim joist cantilever length of 12" measured from face of bearing support to end of rim joist is permitted for cantilever installation.
7. Simpson Strong-Tie® SD #9x1½" screws may be substituted for 10dx1½" nails to achieve published nail values if the extra screw is installed in the narrow face of stringer.
8. **NAIL:** 10dx1½ = 0.148" dia. x 1½" long. Nails shall be hot-dip galvanized.
9. **SCREWS:** SD #9x1½" *(model SD9112)* = 0.131" dia. x 1½" long *(see page 8)*.

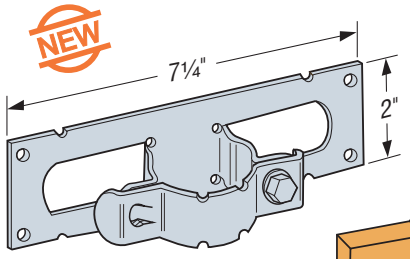
PGT2E *Pipe-Grip Tie*

Simpson Strong-Tie introduces the latest time-saving solution for building fences with 2" steel posts. The PGT2E pipe-grip tie features a unique two-piece design that installs quickly and provides a solid connection between fence stringer and post. Snap the attachment plate onto the post for easy positioning and secure the strap using one thread-tapping screw *(included)*.

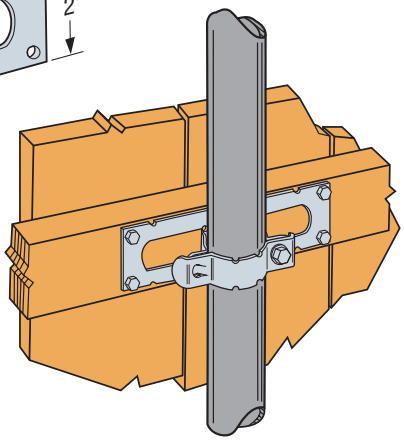
- Faster to install than other two-piece fence-post brackets
- Safer to use, eliminating protruding carriage bolts and sharp corners
- Unique locking tab for the strap means only one screw is needed to fasten

MATERIAL: 12 gauge
FINISH: Galvanized
INSTALLATION:

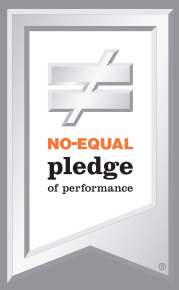
- Fasten stringers using ¼" Simpson Strong-Tie® Strong-Drive® SDS wood screws or ¼" lag screws *(follow code requirements for pre-drilling)*.



PGT2E


Typical PGT2E Installation

NOTES



Every day we work hard to earn your business, blending the talents of our people with the quality of our products and services to exceed your expectations. This is our pledge to you.

Home Office
5956 W. Las Positas Boulevard
Pleasanton, CA 94588
Tel: 925/560-9000 • Fax: 925/847-1603

Northwest USA
5151 S. Airport Way
Stockton, CA 95206
Tel: 209/234-7775 • Fax: 209/234-3868

Southwest USA
260 N. Palm Street
Brea, CA 92821
Tel: 714/871-8373 • Fax: 714/871-9167

Northeast USA
2600 International Street
Columbus, OH 43228
Tel: 614/876-8060 • Fax: 614/876-0636

Southeast USA
2221 Country Lane
McKinney, TX 75069
Tel: 972/542-0326 • Fax: 972/542-5379

Quik Drive® Factory
436 Calvert Drive
Gallatin, TN 37066
Tel: 888/487-7845 • Fax: 615/451-9806

INTERNATIONAL FACILITIES
Please visit our website for address and contact information for our European facilities.

Kent Specials Factory
22035 W. Valley Highway
Kent, WA 98032
Toll Free: 877/564-2041

Eagan Warehouse & Specials Factory
3711 Kennebec Drive, Suite 700
Eagan, Minnesota 55122
Tel: 651/681-2061 • Fax: 651/681-2046

Eastern Canada
5 Kenview Boulevard
Brampton, ON L6T 5G5
Tel: 905/458-5538 • Fax: 905/458-7274

Western Canada
11476 Kingston Street
Maple Ridge, B.C. V2X 0Y5
Tel: 604/465-0296 • Fax: 604/465-0297

Simpson Strong-Tie Anchor Systems®
136 Official Road
Addison, IL 60101
Tel: 630/543-2797 • Fax: 630/543-7014

Distribution Centers
Enfield, CT; High Point, NC;
Jacksonville, FL; Jessup, MD;
Langley, B.C.; Ontario, CA

This flier is effective until December 31, 2010, and reflects information available as of December 1, 2009. This information is updated periodically and should not be relied upon after December 31, 2010; contact Simpson Strong-Tie for current information and limited warranty or see www.strongtie.com.

F-C2009ADD 12/09 exp.12/10

800-999-5099
www.strongtie.com