

**STRUCTURAL CONNECTORS**

2015-2016 Product Catalog



Limit States Design



**EXCLUSIVELY FROM MITEK**  
**FWH Fire Wall Hanger**

**USPconnectors.com**  
**1-800-328-5934**

**MiTek**<sup>®</sup>  
Better Technology. Better Building.<sup>™</sup>

# Integrated Solutions for Optimized Structures

MiTek Builder Products, a division of MiTek, USA, combines three previously independent companies: **USP Structural Connectors**<sup>®</sup>, **Hardy Frame**<sup>®</sup> **Shear Wall System**, and **Z4**<sup>™</sup> **Continuous Tie-Down System**. Aligned in its purpose, our combined team serves the construction industry with a full range of structural and design solutions for a more efficient construction process and optimized structures.

The **USP Structural Connectors** brand offers a comprehensive line of code-evaluated connectors, framing hardware, fasteners, anchors and epoxy solutions for the residential, commercial and DIY markets. Our structural products are supported by a

nationwide team of knowledgeable engineering, sales and customer service professionals who are complemented by leading edge specification, design and modeling software.

Our single goal: to serve you seamlessly with industry-leading technological innovation, products and support with a passionate commitment to your success. It's how we deliver Better Technology. Better Building.<sup>SM</sup>

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# 2015 NEW PRODUCTS

## Fasteners



### HDG Hex Head Wood Screws

USP's WS Structural Wood Screws in Hot-Dip Galvanized finish are designed for installation with our Triple-Zinc G-185 and hot-dip galvanized connector products as well as wood-to-wood installations. They are recommended for outdoor applications and with treated wood.

See [Page 20](#) for more information.

## Concrete & Masonry

### Adhesive Anchoring Systems

A complete line of high performance epoxy for heavy industrial seismic and wind applications to household projects.

See [Pages 25-26](#) for more information.



### FA4 Foundation Anchor

The FA4 foundation anchors can be installed as a replacement for anchor bolts while achieving the same load capacity. They can also be used to replace 1/2" diameter anchor bolts.

See [Page 37](#) for more information.

## Adj. Steel Column Products



### T2JPMD Adjustable Support Columns

Medium-Duty Type 2 Support Columns are an intermediate offering to our Type 2 Heavy Duty Adjustable Support Columns series. Available in (8) sizes in adjustable heights from 80" to 120". Tested to meet or exceed the CAN/CGSB-7.2-94 Adjustable Steel Columns Standard.

See [Page 43](#) for more information.

## Holdowns



### HTT45 Tension Ties

The newest addition to our line of Tension Ties is the HTT45 which provides an increased load carrying capacity by utilizing the diamond hole nailing pattern. Easily installs with 10d or 16d nails. The 16d Max nailing can be used when lower deflections are required by design.

See [Page 48](#) for more information.

## Angles & Straps



### JA Joist Anchor

The JA Joist Anchor is designed to laterally connect a joist to a concrete wall. The anchor is embedded into the wall at one end and nailed to the joist at the strap end, typically used where there is a fire separation wall such as in town houses.

See [Page 92](#) for more information.

## Hangers



### FWH Fire Wall Hangers

The FWH Fire Wall Hanger series is the best solution for attaching floor framing to fire rated walls in wood frame construction. The advanced design allows the installation of the FWH before the drywall is attached and permits the building project to be completely framed-up, and weather-tight before the drywall sheathing work starts.

See [Pages 109-110](#) for more information.

## EWP Hangers



### THFI Face Mount I-Joist Hangers

The THFI is a face mount hanger designed to attach EWP I-Joist members to wood headers. The unique design of the THFI combines the installation ease of a top mount hanger with the installation flexibility of a face mount hanger. The side flanges extend to the top chord of the I-Joist so web stiffeners are not required. The THFI hangers also feature strategically placed Seat Cleats® which lock the bottom flange of the I-joist to the hanger eliminating the need for joist nails to be installed.

See [Pages 128 and 133](#) for more information.



### HBPH Top Mount Hangers

HBPH Top Mount Hangers are designed to support LVL, LSL and PSL beams and purlins in heavy capacity load conditions.

See [Pages 138, 145-154](#) for more information.

## Plated Truss



### MSHA Adjustable Strap Skewed Hangers

The MSHA Series hanger offers the most flexible field solution for truss-to-truss connections accommodating a range of skews and challenging web-chord geometry often found in truss framing. Eliminating the need for special order hangers, the MSHA Series provides economical solutions for 2x and 4x trusses skewed between 22½° to 75° and can be used in top mount, face mount or combination installation.

See [Pages 186-187](#) for more information.



### THDHQ Girder Truss Hangers

The THDHQ hangers are designed to attach multi-ply girder trusses together using USP's WS Wood Screws for high load capacity. THDHQ hangers can also be used to attach structural composite lumber (SCL) to other framing members.

See [Page 176](#) for more information.

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## About the Reference Numbers

Reference numbers shown throughout the charts in this catalog are part numbers which may be more familiar to customers in various regions. These are included for the convenience of our new customers who have recently switched from a competitor's product line to USP.

The reference numbers in this catalog are for general application comparison only and should not be used as a substitution tool. The user is responsible to compare specific load values, fastener schedules, material specifications, and other factors to determine suitability of use for any particular product.

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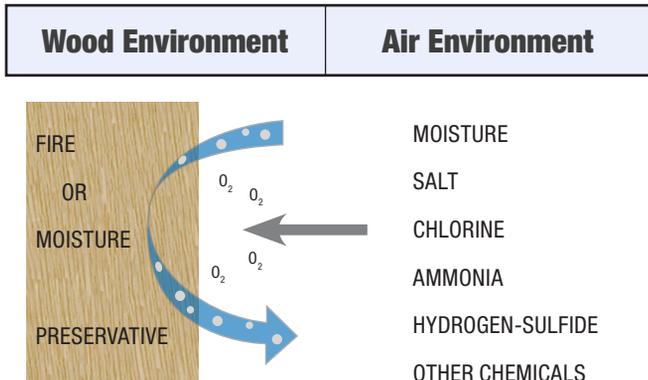
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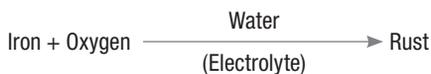
For the majority of applications, metal hangers and connectors are used in interior, above ground, dry service conditions. They are typically not being exposed to corrosive environments which can significantly reduce their strength and longevity.

### What is Corrosion?

Corrosion is the destructive degradation of steel due to its interaction with the environment. Here the steel is the connector and the environment is whatever the connector interacts with, namely wood and air. Each environment may contain one or more corrodents (substances that cause corrosion) acting independently or in combination to degrade the strength of the connectors.



Electrochemical oxidation is the most common type of corrosion affecting metal connectors. It is a process in which iron (Fe) reacts with oxygen (O<sub>2</sub>) in the presence of an electrolyte such as water (H<sub>2</sub>O) to form iron oxide (Fe<sub>2</sub>O<sub>3</sub>), a brown and flaky by-product commonly known as rust.



Steel is an iron-based metal alloy which is susceptible to this type of corrosion, even when exposed to normal atmospheric air, since air contains oxygen and water as part of its normal composition. While steel is very strong, rust is not. Over time, the continuous formation of rust eats away the base metal and reduces the strength of the connector. The rate of oxidation generally increases with increasing moisture content, the presence of salt, or when galvanic corrosion is a contributing factor.

Galvanic Series (Abbreviated)	
More Active (Anodic-)	
↑	Zinc
	Aluminum
	Steel
	Brass
	Copper Nickel
	Stainless Steel - Type 304
Stainless Steel - Type 316	
More Passive (Cathodic +)	

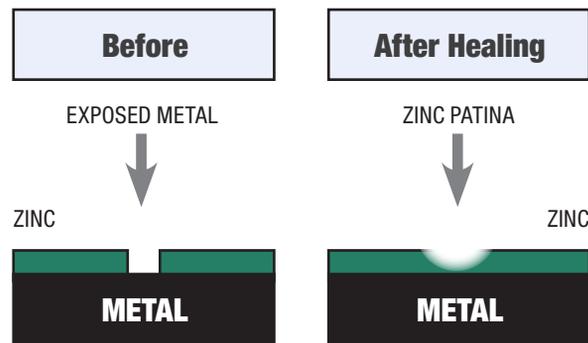
Galvanic corrosion occurs when there is an interaction between dissimilar metals that are in contact with one another. The degree of corrosion depends on where the metals reside in the galvanic series, which is a compilation of known metals and their relative reactivity. The more active metal (anode) will corrode preferentially while shielding the more

passive metal (cathode) from further degradation. For example, with galvanized steel, zinc is used as a coating on the steel because it sacrificially corrodes to protect the steel substrate underneath. The coupling between zinc and steel is said to have a lower galvanic potential than the coupling between zinc and stainless steel because zinc and steel are closer to each other in the galvanic series. In general, the coupling with a lower galvanic potential would result in a slower corrosion rate.

### Corrosion Protection Options

#### Zinc Galvanizing:

Most connectors are manufactured from pre-galvanized sheet steel or coiled steel, which is typically made by the hot-dip process in accordance with ASTM-A653 and ASTM-A924 standards. Fasteners are galvanized in accordance with ASTM-A153. In the manufacturing of the connectors, the punching and shearing processes create exposed bare metal surfaces. Thankfully, zinc has an incredible ability to ‘heal’ itself; the zinc around the exposed metal corrodes and deposits a layer of zinc corrosion by-product called zinc patina (white powdery appearance) over the exposed metal to further protect it.



By being more reactive than steel, zinc sacrificially corrodes at a steady rate over time to shield the steel from the effect of corrosion. The protection ability of zinc is proportional to its thickness, which is proportional to the amount of zinc applied. Zinc coating is specified as the total weight on both sides of the sheet steel, measured in ounces per square foot (oz/ft<sup>2</sup>). For example, G90 means that there are 0.90 oz/ft<sup>2</sup>; G185 has 1.85 oz/ft<sup>2</sup> and would last about two times longer than G90. G90 is the minimum protection for connectors and is standard in MiTek connectors.

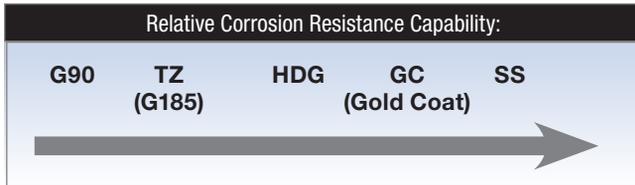
#### Design Guidelines:

Where there are governing national or local building code requirements, they should be used in the selection of the connectors and their protection against corrosion. In the absence of such requirements, the decision rests on the experience and judgment of the building designer/engineer. Design guidelines are presented in this section to aid the building designer/engineer in this selection process, but it is the responsibility of the building designer/engineer to determine the most viable solution based on an evaluation of the connectors to the specific corrosive environment(s). The guidelines consist of best practices, recommended protection levels for the connectors, and strength modification factors for the lumber/connectors.

Where there are multiple options suggested, do not automatically default to the lowest protection level. The lower protection level is intended to address less severe conditions while the higher protection level is meant to address more severe conditions. Select the option that eliminates or adequately reduces the vulnerability of the connectors to the corrodents. When in doubt, use a higher level of protection than anticipated or seek professional consultation.

## Relative Corrosion Resistance Capability:

The chart below ranks the available options in terms of their relative effectiveness against corrosion. As expected, the ability to resist corrosion increases with increasing zinc thickness, so G185 is the most durable pre-galvanized product available. Gold Coat offers enhanced protection compared to G185 while stainless steel offers the best protection for most applications.



## Galvanic Corrosion:

The simplest and most practical solution to minimize galvanic corrosion is to make sure that the components that are in direct contact with each other are made of the same material or coating. Once this is achieved, there is no net galvanic potential between the components and galvanic corrosion is eliminated or significantly reduced. For example, use galvanized nails for galvanized connectors and stainless steel nails for stainless steel connectors.

## Wet Service Condition:

For lumber, this refers to any service condition in which the average equilibrium moisture content is 15% or more over a year or may exceed 19% at any time. For lumber to get above 19% moisture, the relative humidity in the air needs to reach above 80%. Unfortunately, this is above the critical humidity level for the electrochemical oxidation of steel, which is around 70%. Beyond 70%, the rate of corrosion in the connectors increases rapidly due to the abundant availability of moisture.

G90 may not be suitable for use in wet service condition.

## Preservative (Pressure) Treated Wood:

Although most preservatives do not reduce the strength of the lumber, some are corrosive to the metal hangers. Chromated copper arsenate (CCA), which had been the industry's standard preservative for many years, is no longer permitted for use in residential applications. It had been replaced by other preservatives such as alkaline copper quaternary (ACQ) and copper azole (CA) for exterior applications, and borates-based formulations such as disodium octaborate tetrahydrate (SBX or DOT) for interior applications.

Research conducted by USP Structural Connectors and others in the industry have concluded that ACQ and CA are more corrosive to the metal connectors than CCA, while borates-based preservatives are no more corrosive than untreated lumber. It is generally agreed and recommended that G185 should be used as the minimum protection for use with ACQ and CA treated lumber.

## Fire Retardant Treated (FRT) Wood:

Although most common FRT products are not corrosive to metal connectors, not all products are non-corrosive. Additionally, they typically require proprietary strength reductions applied to the lumber in accordance with the manufacturer's specifications. Since the lumber strength is lower, the lateral and withdrawal resistance of nails must also be reduced accordingly. It is important to note that some fire retardants cause the wood to absorb more moisture from the air than untreated lumber. Consequently, the connector may be exposed to a higher level of moisture, resulting in more corrosion.

## Swimming Pools:

This is one of the most hazardous environments for steel connectors due to continuous exposure to high temperature, high moisture content, and corrosive chemicals such as chlorine, bromine, and other disinfectants. The combination of all these factors can lead to accelerated corrosion and premature structural failure. This environment is so corrosive that all possible preventive measures should be employed to prevent the hanger from being exposed to the pool water. These include the use of a vapor barrier and a ventilation system that does not take the air from the pool environment.

Additionally, it has been known that certain grades of stainless steel (304, 316, and others) are susceptible to a mode of structural failure known as stress corrosion cracking (SCC) when exposed to a swimming pool environment. SCC is usually localized near areas of high residual stress and small cracks can rapidly propagate and cause catastrophic failures. See warning below.

### WARNING

Stainless steel connectors and fasteners shall not be used for metal hangers over swimming pools due to stress corrosion cracking. SCC has been known to occur under the following conditions:

- Use of certain grades of stainless steel (grades 304, 316 and others).
- Structural members subjected to high tensile stress.
- Presence of certain chemicals, including chlorine and bromine.

Gold Coat may be the best choice in this environment.

The **Structural Connectors Coating Recommendations** chart below was developed by reviewing field service performance and accelerated corrosion test results. They are offered as general guidelines and are not intended to cover all possible service conditions. Additional consideration may also be needed for:

- wet service conditions
- preservation treated lumber
- fire retardant treated lumber
- strength reducing chemicals
- building near salt water coastal areas.

Additionally, the **Corrosion Protection Guidelines** to the right may also be used to assist in making the proper choice of corrosion protection.

The building designer/engineer has the ultimate responsibility of selecting the most viable protective coating based on knowledge of project specific corrosive environments and local building code requirements.

### Corrosion Protection Guidelines:

- USP recommends stainless steel connectors for the highest level of corrosion protection. As an economical alternative to stainless steel our new Gold Coat connectors are specifically designed for exterior application when in contact with preservative treated wood.
- For connectors in contact with preservative treated wood, the Triple Zinc option provides the minimum G-185 coating thickness required by code and is an economical alternative for exterior applications.
- The use of correct fastener with the connector is critical. Stainless steel connectors require stainless steel fasteners. For exterior applications, hot-dip galvanized fasteners (HDG) must be used with both Triple Zinc and hot-dip galvanized finishes. Gold Coat connectors require gold coat or hot-dip galvanized fasteners.
- USP's zinc dichromate WS Wood Screws are not recommended for use with preservative or fire-retardant treated wood. Some wood screws are available in Gold Coat or hot-dip galvanized.
- USP clearly differentiates standard interior G90 connectors from the corrosion resistant connectors. Gold Coat connectors are distinguishable from other connectors due to their gold color.

## Structural Connectors Coating Recommendations

AWPA <sup>9</sup> Use Category	Service Conditions	Use Environment	Example Applications	Preservatives and Retentions <sup>6,7,10</sup>	Minimum Coating Requirements <sup>1,2,3,4</sup>
<b>UC1</b> Interior/Dry	Interior construction, Above ground, Dry	Continuously protected from weather or other sources of moisture	General framing, interior construction	Untreated	G90
<b>UC2</b> Interior/Damp	Interior construction, Above ground, Damp	Protected from weather, but may be subject to sources of moisture	Sill plates	SBX-DOT, Organic ACQ-D (0.15), CA-B (0.10), CA-C (0.06), MCQ (0.06), µCA-C (0.05)	G90 Triple Zinc (G-185) <sup>8,9</sup>
<b>UC3A</b> Above Ground Protected	Exterior construction, Above ground, Rapid water runoff	Exposed to all weather cycles, not exposed to prolonged wetting	Exposed exterior beams or columns in an open, covered structure	ACQ-D (0.25), MCQ (0.15), CA-B (0.10), CA-C (0.06), µCA-C (0.05), Organic	Triple Zinc (G-185) or USP Gold Coat
<b>UC3B</b> Above Ground Exposed	Exterior construction, Above ground, Poor water runoff	Exposed to all weather cycles, including prolonged wetting	Deck beams and joists	ACQ-D (0.25), MCQ (0.15), CA-B (0.10), CA-C (0.06), µCA-C (0.05), Organic	Triple Zinc (G-185) or USP Gold Coat
<b>UC4A</b> Ground Contact General Use	Ground contact, Fresh water; includes above ground applications	Ground contact or fresh water exposed to all weather cycles, Normal exposure	Deck posts, beams and joists. Fresh water docks <sup>11</sup>	ACQ-D (0.40), MCQ (0.23), CA-B (0.21), CA-C (0.15), µCA-C (0.14)	Triple Zinc (G-185) or USP Gold Coat <sup>5</sup>
<b>UC4B</b> Ground Contact Heavy Duty	Exterior construction, Ground contact, Critical components	Ground contact, fresh/salt water water splash exposed to all weather cycles	Permanent wood foundations, critical structural members	ACQ-D (0.60), MCQ (0.23), CA-B (0.31), CA-C (0.25), µCA-C (0.23)	Stainless Steel

- 1) G90 and G-185 refer to galvanization requirements for ASTM A653 material.
- 2) Connectors galvanized to ASTM A123 may be used in place of either G90 or G185 coatings.
- 3) Other coating may be suitable for a given environment if the conditions are known and predictable.
- 4) For G185 connectors use fasteners galvanized per ASTM A153. For Gold Coat connectors, use Gold Coat fasteners and for stainless steel connectors, use stainless steel fasteners.
- 5) If the environment has the potential to contain elements which may make it more corrosive, the use of stainless steel is recommended.
- 6) MCQ is a micronized copper treatment such as *Micro Pro* by Koppers. µCA-C is a dispersed copper treatment manufactured by Arch Treatment Technologies. Organic preservatives include L<sup>3</sup> from Arch Treatment Technologies and EcoLife II from Viance, LLC.
- 7) For wood treatments not shown, contact USP or the wood preservative manufacturer for recommended coatings.
- 8) Testing by USP has found that in interior applications where the treated wood will remain relatively dry during its service life the use of G90 connectors with MCQ or µCA-C treated wood is appropriate.
- 9) American Wood Protection Association Standard U1-16.
- 10) SBX/DOT= Sodium Borate; ACQ-D = Alkaline Copper Quat Type D; CA-B = Copper Azole Type B; CA-C = Copper Azole Type C; MCQ = Micronized Copper Quat; µCA-C = Dispersed Copper Azole Type C. The number listed in the parenthesis is the required retention level in pounds per cubic foot, or PCF.
- 11) Deck joists and beams must be treated to Use Category UCA4 when they are difficult to maintain, repair or replace and are critical to the performance and safety of the deck.

USP offers several corrosion resistant finishes to cover a range of corrosion performance. For products available in corrosion resistant finishes, reference the “Corrosion Finish” column in the charts and Corrosion Key located by the chart footnotes or our Corrosion Protection Advisory Technical Bulletin [www.USPconnectors.com/pdf/resources/technical-bulletins](http://www.USPconnectors.com/pdf/resources/technical-bulletins).

Corrosion Protection Level	Finish / Material	Description	Required Fastener	Ordering
<b>CONNECTORS</b>				
	MiTek Primer	Primer paint is used to protect steel during shipping and installation but is not considered a corrosion protection method when installed in corrosive environments.	Bright fasteners	Stock number as listed in the chart
	G90 Galvanizing	Galvanizing provides a prefabrication coating of 0.90 ounces of zinc per square foot of surface area (both sides) measured in accordance with ASTM A 653.	Bright fasteners	Stock number as listed in the chart
	Triple Zinc (TZ) (G-185 Galvanizing)	TZ galvanizing provides a prefabrication coating of 1.85 (G-185) ounces of zinc per square foot of surface area (both sides) measured in accordance with ASTM A 653.	Hot-dip galvanized or <b>Exterior Coat</b> fasteners	To order, add TZ to stock number, as in C44-TZ
	Hot-Dip Galvanized (HDG)	HDG coating provides an after-fabrication hot-dipped zinc coating. The coating thickness is dependent on the connector material, but generally ranges from 1.2 to 2.3 ounces of zinc per square foot of surface area (both sides). Hot-dip products meet requirements set forth in ASTM A 123.	Hot-dip galvanized or <b>Exterior Coat</b> fasteners	To order, add HDG to stock number, as in KCC44-HDG
	Gold Coat (GC)	Gold Coat is a proprietary multi-layer protection system. It is comprised of an organic top coat barrier layer and a zinc layer placed over a steel substrate.	Gold Coat or Hot-dip galvanized fasteners	To order, add GC to stock number, as in AC7-GC
	Stainless Steel (SS)	Best option for corrosion protection. Quality stainless steel (316SS grade steel) is used to fabricate connectors. Although costs are higher, some applications may need the virtual corrosion proof quality of stainless steel.	Stainless Steel fasteners	To order, add SS to stock number, as in PBES44-SS
<b>FASTENERS</b>				
	Yellow Zinc	Zinc yellow chromate finish		Stock number as listed in the chart
	Hot-Dip Galvanized (HDG)	HDG coating provides an after-fabrication hot-dipped zinc coating. The coating thickness is dependent on the connector material, but generally ranges from 1.2 to 2.3 ounces of zinc per square foot of surface area (both sides). Hot-dip products meet requirements set forth in ASTM A 123.		Stock number as listed in the chart
	Exterior Coat (EXT)	EXT finish is a double barrier coating over zinc.		Stock number as listed in the chart
	Gold Coat (GC)	Gold Coat is a proprietary multi-layer protection system. It is comprised of an organic top coat barrier layer and a zinc layer placed over a steel substrate.		Stock number as listed in the chart
	Stainless Steel (SS)	Best option for corrosion protection.		Stock number as listed in the chart

Updated product information is designated in **blue font**.

**DISCLAIMER** - The general information and guidelines provided in this USP Product Catalog shall not be used as a substitute for competent professional examination and verification. It is the responsibility of the building designer/engineer to determine the applicability and suitability of the information provided. Anyone making use of this information assumes all responsibility and liability arising from such use.

## U.S. Standard Steel Gauge Equivalents in Nominal Dimensions

Gauge	Approximate Dimensions		Decimals (inches)		
	Inches	Millimeters	Uncoated Steel	Galvanized Steel (G90)	Triple Zinc (G-185)
3	1/4	6.0	0.238	---	---
7	3/16	4.5	0.171	0.186	---
10	9/64	3.4	0.129	0.138	0.140
11	1/8	3.0	0.114	0.123	0.125
12	7/64	2.7	0.099	0.108	0.110
14	5/64	2.0	0.070	0.078	0.080
16	1/16	1.5	0.055	0.063	0.065
18	3/64	1.2	0.044	0.052	0.054
20	1/32	1.0	0.033	0.040	0.042
22	1/32	0.8	0.029	0.033	0.036

\*Actual steel dimensions will vary from nominal dimensions according to industry tolerances.

## Maximum Shear Capacity of Joist or Rafter

The table below indicates the calculated shear capacity of different dimensional lumber sizes for various wood species.

Nom Dim	DF Factored Shear Resistance <sup>1,2,4</sup>				S-P-F Factored Shear Resistance <sup>1,2,4</sup>			
	Lbs		kN		Lbs		kN	
	100%	115% <sup>3</sup>	100%	115% <sup>3</sup>	100%	115% <sup>3</sup>	100%	115% <sup>3</sup>
2 x 4	1476	1697	6.57	7.55	1165	1340	5.18	5.96
2 x 6	1910	2197	8.50	9.77	1508	1734	6.71	7.71
2 x 8	2158	2482	9.60	11.04	1703	1958	7.58	8.71
2 x 10	2524	2903	11.23	12.91	1992	2291	8.86	10.19

- 1) Applies to nominally dimensioned joist as listed in dry service conditions and temperatures less than 38° C.
- 2) Loads apply to: DF: Douglas Fir-Larch (G=0.49),  $f_v=1.9$  Mpa; S-P-F: Spruce-Pine-Fir (G=0.42),  $f_v=1.5$  Mpa
- 3) 115% loads are increased for short term loading in accordance with the code.  $K_D = 1.15$ .
- 4) Assumes system factor  $K_{tj} = 1.00$ .

## Roof Pitch

If common Rafter Roof Pitch is ...

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

Then Hip/Valley Rafter Roof Pitch becomes ...

Rise / Run (inches)	Slope (degrees)
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

Slope Conversion Table

Rise / Run (inches)	Slope (degrees)
0/12	Flat
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

- 1) Use this conversion table only for hip/valley rafters that are skewed 45° right or left. All other skews or dual pitch roofs will cause the slope to change from that listed above.

## Special & Custom Connectors

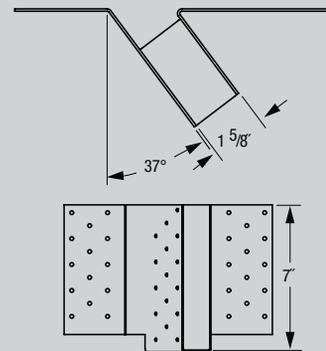
USP is committed to meeting every need you have and we understand that stock connectors will not meet all application or design requirements. Our Technical Assistance Representatives will work with you to develop and fabricate the Special or Custom connector you need.

### What is the difference between a "Special" and a "Custom" connector?

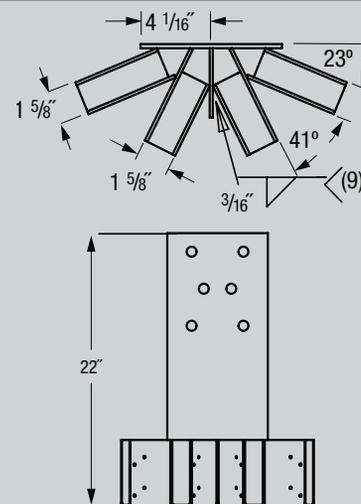
A "Special" is a stock USP connector that is modified within the limits listed in the Specialty Options chart for that connector. A summary of Specialty Options can be found on page 220 of this catalog.

A "Custom" is a connector that does not closely resemble a stock or special part offered in our catalog. Also, a "Custom" connector may be a stock connector that is modified outside of the limits listed in the Specialty Options charts or is not listed in the catalog as having a specialty option available. Product drawings must be provided by the customer and will be manufactured by USP in accordance to customer specifications.

See pages 220-224 for additional information.



Special Order EXAMPLE: Skewed HD < 45°



Custom Order EXAMPLE: 4-Pocket Girder Truss Hanger

- 1) This catalog reflects the most current information available at the time of printing. However, we are continually improving our products through better engineering design and development and recommend visiting our website for the latest on-line version of the catalog. USP Structural Connectors reserves the right to change specifications, designs, and models at any time without notice and liability for such changes. This catalog may not be reproduced in whole or in part without the prior written approval of USP Structural Connectors.
- 2) This catalog reflects changes to product design and factored resistance to some USP Structural Connectors products. The information presented in this publication supersedes all previously published Product Catalogs and is valid until December 31, 2016.
- 3) This Product Catalog was designed as a general reference for the USP Structural Connectors Product Line. Various specialized publications have also been developed for design professionals, truss manufacturers, contractors, and building material distributors. Consequently, product information may vary from one publication to another due to product development testing and revisions to code evaluation report upgrades. We recommend visiting our website for the latest on-line version of these specialized publications.
- 4) The type and quantity of fasteners used to install USP Structural Connectors products is critical to connector performance. To achieve the factored resistance presented in this catalog, all specified fasteners must be used and proper installation procedures observed. Verify that the dimensions of the supporting members are sufficient to receive the specified fasteners. All product modifications will void the warranty unless prior written consent from USP Structural Connectors has been obtained.
- 5) Some connector models are listed more than once to indicate installation and/or fastener options.
- 6) New products or updated product information are designated in **blue**.
- 7) Throughout this catalog, dimensions are expressed in inches and loads in pounds unless specifically noted otherwise.
- 8) Some USP Structural Connectors products show both nail fastening and bolt schedules. In those cases, specific loads for each has been identified. Nail and bolt values cannot be combined unless noted otherwise.
- 9) Load values for 8d, 10d, 16d, and 20d designations in the fastener schedules throughout this catalog refer to common wire nails unless noted otherwise. Nails shall conform to a recognized national standard, such as ASTM F1667, as prescribed by the model building codes.
- 10) Diamond holes are for optional nailing.
- 11) Fastener installation may cause wood to split and reduce a fastener's ability to transfer loads into the supporting member. If wood splitting occurs, consider pre-drilling holes not exceeding 75% of the nail diameter (per the National Design Specification for Wood Construction (NDS) Section 11.1.6.3).
- 12) Bolts specified in this catalog are through-bolts and must conform to requirements for ASTM A 307 Grade A, or ASME SAE Grade 2, or better unless noted otherwise.
- 13) Anchor Bolts must conform to ASTM F 1554.
- 14) USP connectors listed in this catalog are manufactured for specific sizes of standard dimensional lumber, plated trusses, or structural composite lumber. For applications involving unusual supporting conditions environments, contact USP. Wood shrinkage or expansion, caused by lack of moisture or excessive moisture, may adversely affect connector installation. Evaluate potential shrinkage or expansion to ensure proper connector installation and performance.
- 15) The load values listed in this catalog are based on installation to wood with a moisture content of less than 19%, and used in dry service conditions. Load reductions, in accordance with the applicable local Building Code, shall be taken where wood moisture content is greater than 19% at the time of installation or where used in wet service conditions.
- 16) Unless otherwise noted, USP products may not be bent or cut for any reason unless prior written consent from USP Structural Connectors has been obtained. Field alterations may significantly reduce the published factored resistances values in this catalog.

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

**Factored uplift / Factored uplift resistance + Factored parallel to plate / Factored parallel to plate resistance + Factored perpendicular to plate / Factored perpendicular to plate  $\leq 1.0$**

- 2) Connector ratings may exceed the tensile strength or other aspects of the wood members involved in the connection. A qualified designer should verify wood member capacities when specifying connectors.
- 3) Verify that the size of the supporting member can accommodate the connector's specified fasteners.
- 4) Some illustrations in this catalogue may not reflect additional mechanical reinforcements which may be required to reduce cross grain tension or wood member bending under loading. The design professional is responsible for determining if additional mechanical reinforcement is required.
- 5) USP recommends the hanger height be a minimum of 60% of the joist height for stability.

## Limit States Design

The factored resistance values presented in this catalogue are for Limit States Design (LSD) in accordance with the 2010 National Building Code of Canada (NBCC). The values have been developed by either testing to CSA 086, or soft converted from working stress design. These procedures are summarized as follows:

### (a) Testing to CSA 086

Products that have been evaluated to the CSA Standard are listed under the Codes heading in each product series section if applicable. Visit USP's Web Site, <<http://www.USPconnectors.com/>>, or specific code agencies web site for current listing. Code evaluation numbers listed in this catalogue may not apply to all stock numbers or product series listed.

Standard term resistance values have been established by testing to ASTM and the CSA-086 using the following criteria:

- Lowest corrected ultimate load multiplied by 0.91 and a resistance factor of 0.6.
- The average load at 1/8" deflection multiplied by 2.42 and a resistance factor of 0.6.

### (b) Soft Conversion from Working Stress Design

The soft converted values use the allowable working loads developed in the United States using the 2005 National Design Specification and the ICC-ES AC13 "Acceptance criteria for Joist Hangers and Similar Devices." These allowable working loads are based on testing to ASTM D7147, D1761 and calculations on the fasteners and wood bearing using the NDS. They were soft converted by multiplying the floor load case ( $(K_D)=1.0$ ) by 1.44 to obtain standard term load resistance in Limit States Design.

The soft converted value of each bolted connector has been also compared to the calculated resistance of the bolts as given in CSA 086. The lower of the two values is given in the tables.

## Material

USP selects steel for its various products in accordance with application needs and steel properties, including tensile strength, ductility, corrosion resistance, gauge, and weldability. See specific code evaluations or consult USP for steel information on specific products. USP Structural Connectors® are manufactured from steel which meets ASTM A 653, ASTM A 1011, or ASTM A 36.

## Product Design Loads

Factored resistance values in this catalogue are given for standard term loading and/or short term loading as described below:

### (a) Standard term loading

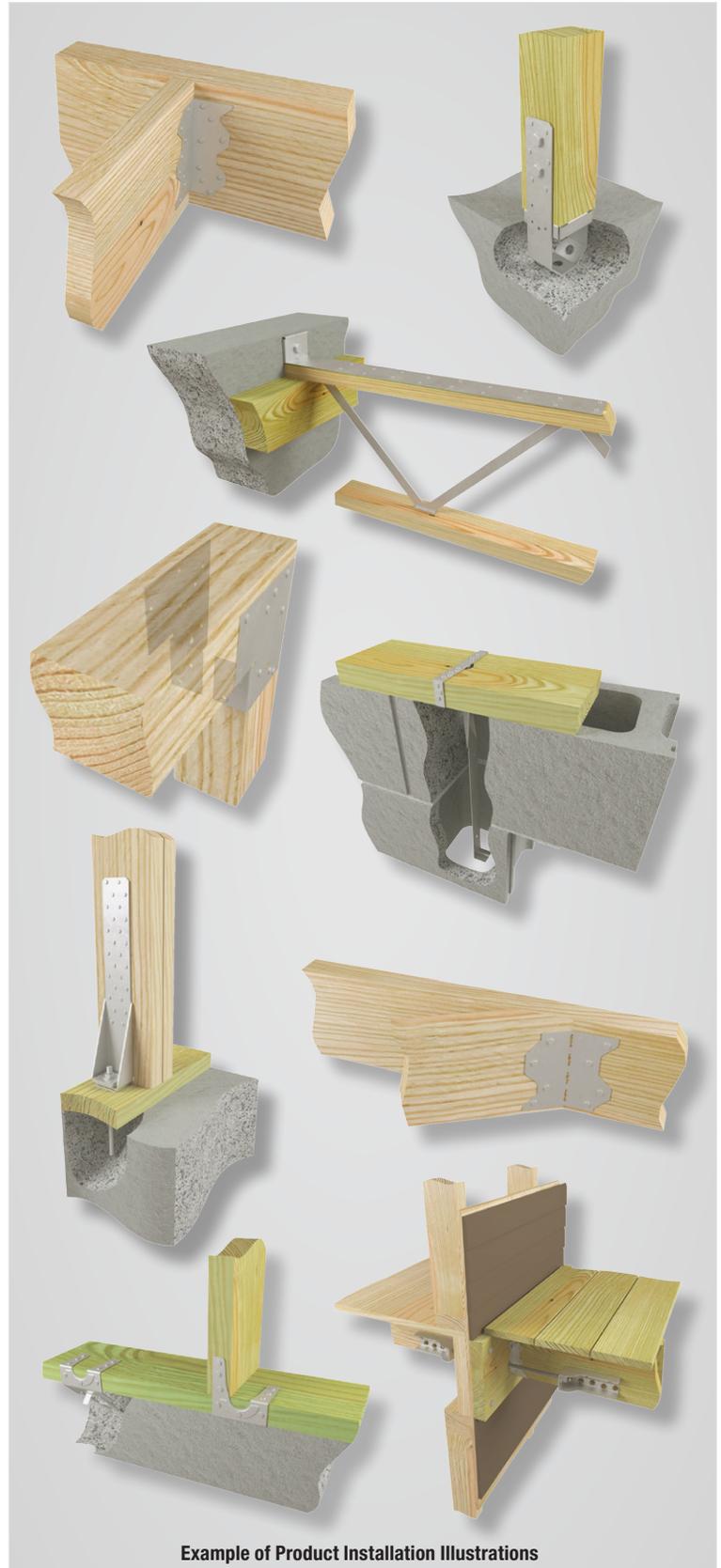
This includes the effects of dead loads plus loads due to snow or use and occupancy in which the duration of load factor ( $K_D$ ) in CSA 086 is equal to 1.0. Therefore, connectors carrying roof or floor members should be selected using the standard term load resistance. In many tables this is designated as "vertical (100%)" or "bearing (100%)". The 100% indicates that no duration of load increase is included.

### (b) Short term loading

This case refers to loading that will not exceed 7 days throughout the life of the structure and includes wind and earthquake loads. Short term loading has a duration of load factor ( $K_D$ ) of 1.15 included. In the tables short term loading resistance is also designated as "uplift (115%)".

In some cases the strength of the steel governs the resistance values and therefore no increase for short term loading is included.

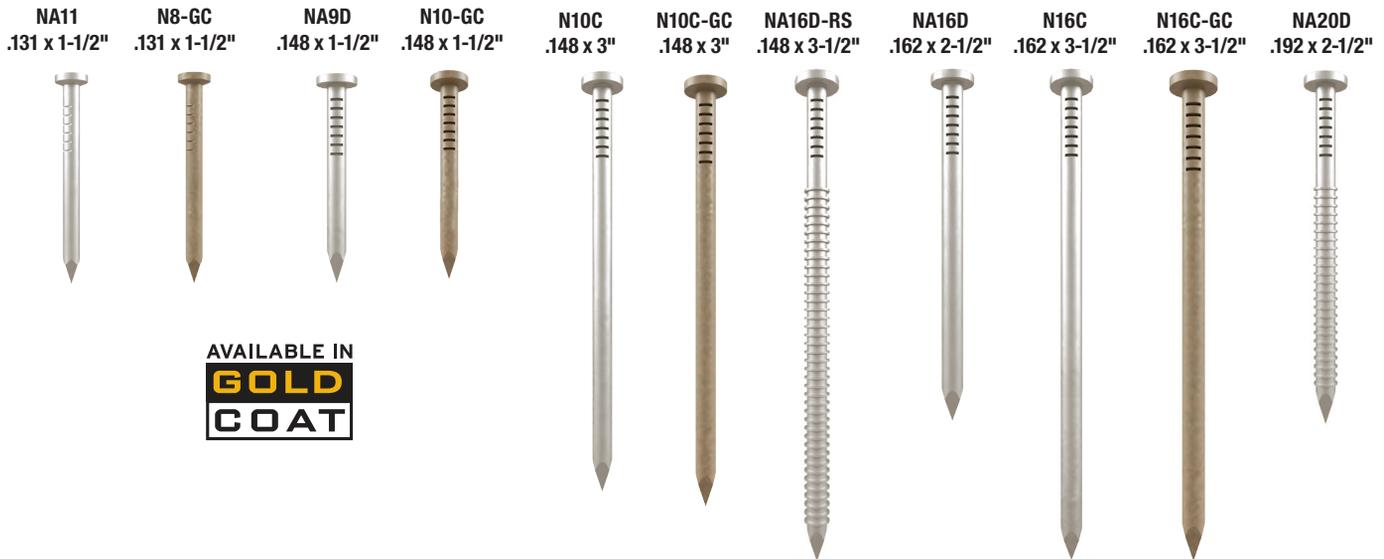
- 1) Use proper safety equipment during connector installations. Always wear gloves when handling connectors.
- 2) All field welding should be done in accordance with CSA W59 Codes. Caution: Welding galvanized steel may produce harmful fumes and should only be performed in well-ventilated environments.
- 3) The type and quantity of fasteners used to install USP products is critical to connector performance. To achieve the factored resistance shown in this catalogue, install with the fasteners specified for that particular product. Some products allow for alternate nail installations. Refer to the "Optional Nails for Face Mount Hangers" chart on page 19 of this catalogue for load adjustments when using alternate nailing. All specified fasteners must be properly installed prior to applying load of any kind to the connection.
- 4) Drill bolt holes a minimum of 1/32" and a maximum of 1/16" larger than the diameter of the bolt to be installed. Per CSA O86-14 Clause 12.4.1.2.
- 5) Washers should always be used under the head or nut of a bolt when not in contact with the connector unless noted otherwise.
- 6) It is permissible to use nail guns to install connectors as long as the specified nails are installed through pre-punched nail holes and all specified nail holes are filled. USP recommends the use of nail guns featuring hole-locating mechanisms. Please note that many nail guns use fasteners smaller than the common nail size and load reductions will result. Contact USP or visit our Web Site for additional information. Caution: Always follow nail gun manufacturer's safety guidelines.
- 7) Joists installed in hangers should bear fully on the connector seat and shall be cut to fit against the header with a gap no greater than 1/8" between the joist end and header face.
- 8) Multiple-ply members must be fastened securely together to act as one member.
- 9) Top mount hangers shall be installed with the face of the hanger tight to the face of the header
- 10) Top mount hangers installed in floor systems may produce unevenness. This may vary by the thickness of the hanger top flange steel and the nail heads. If a problem is anticipated, the effects can be mitigated by dapping the beam or cutting the subfloor at hanger locations. The use of face mount hangers will eliminate this problem.



Example of Product Installation Illustrations

Proper fasteners are a critical component in a sound wood frame structure. To ensure successful installations of its connectors, USP offers a full range of structurally-rated nails. All galvanized nails supplied by USP are Hot-dipped for greater corrosion resistance. Any USP connector requiring a NA16D-RS or NA20D nail is shipped with the nails attached to the connector in convenient poly bags.

Fasteners



Nail Specification Table

Finish	Size (in)	USP Stock No.	Ref. No.	Metric (mm)		DF Factored Shear Resistance <sup>3</sup>		S-P-F Factored Shear Resistance <sup>3</sup>	
				Dia	Length	Lbs	kN	Lbs	kN
HDG	8d (0.131) x 1-1/2	NA11	N8	3.33	38.1	178	0.79	163	0.72
	10d (0.148) x 1-1/2	NA9D	N10	3.76	38.1	200	0.89	184	0.82
	10d (0.148) x 3	N10C	10DHDG	3.76	76.2	218	0.97	201	0.90
	16d (0.162) x 2-1/2	NA16D	N16, N16EG	4.11	63.5	250	1.11	230	1.02
	16d (0.162) x 3-1/2	N16C	16DHDG	4.11	88.9	250	1.11	230	1.02
	20d (0.192) x 2-1/2	NA20D	---	4.88	63.5	323	1.44	296	1.32
GC	8d (0.131) x 1-1/2	N8-GC	---	3.33	38.1	178	0.79	163	0.72
	10d (0.148) x 1-1/2	N10-GC	---	3.76	38.1	200	0.89	184	0.82
	10d (0.148) x 3	N10C-GC	---	3.76	76.2	218	0.97	201	0.90
	16d (0.162) x 3-1/2	N16C-GC	---	4.11	88.9	250	1.11	230	1.02
SS	8d (0.131) x 1-1/2	SSNA8D	SSN8	3.33	38.1	178	0.79	163	0.72
	10d (0.148) x 1-1/2	SSNA10D	SSN10	3.76	38.1	200	0.89	184	0.82
	8d (0.131) x 2-1/2	SSN8C	SS8D	3.33	63.5	181	0.81	168	0.75
	10d (0.148) x 3	SSN10C	SS10D	3.76	76.2	218	0.97	201	0.90
Bright	16d (0.162) x 3-1/2	SSN16C	SS16D	4.11	88.9	250	1.11	230	1.02
	8d (0.131) x 2-1/2	8d Common	---	3.33	63.5	181	0.81	168	0.75
	10d (0.148) x 3	10d Common	---	3.76	76.2	218	0.97	201	0.90
	16d (0.148) x 3-1/4	16d Sinker	---	3.76	82.6	218	0.97	201	0.90
	16d (0.148) x 3-1/2 Ring Shank	NA16D-RS	---	3.76	88.9	218	0.97	201	0.90
	16d (0.162) x 3-1/2	16d Common	---	4.11	88.9	250	1.11	230	1.02
	20d (0.192) x 4	20d Common	---	4.88	101.6	323	1.44	296	1.32
	8d (0.110) x 2-1/2 Spiral Shank	2-1/2" Common Spiral	---	2.77	63.5	139	0.62	130	0.58
	10d (0.122) x 3 Spiral Shank	3" Common Spiral	---	3.10	76.20	163	0.73	151	0.67
	12d (0.122) x 3-1/4 Spiral Shank	3-1/4" Common Spiral	---	3.10	82.60	163	0.73	151	0.67
16d (0.152) x 3-1/2 Spiral Shank	3-1/2" Common Spiral	---	3.86	88.9	227	1.01	209	0.93	

- 1) Factored shear resistance values determined in accordance with **CSA 086-14 Section 12.9**.
- 2) Factored shear resistance values apply to DF: Douglas Fir (SG=0.49, fv=1.9 MPa) and S-P-F: Spruce-Pine-Fir (SG=0.42, fv=1.5 MPa).
- 3) Fastener values shown in this table are for 16Ga steel side member with Fu=45,000 psi and design metal thickness of 0.058 inch (1.47mm).  
Approximate fastener values for other steel thicknesses can be determined as follows:  
For 18Ga steel (0.046 inch, 1.17mm), multiply table values by 0.91  
For 14Ga steel (0.074 inch, 1.88mm), multiply table values by 1.05  
For 12Ga steel (0.104 inch, 2.64mm), multiply table values by 1.05
- 4) Fastener values shown are based on standard-term load duration of K<sub>0</sub> = 1.00. Values may be adjusted for other load durations.
- 5) HDG = Hot-Dip Galvanized; SS = Stainless Steel; GC = Gold Coat; Bright = No Finish.
- 6) Bright finish common, sinker, and spiral nails are listed for reference only. USP does not stock these type nails.  
New products or updated product information are designated in **blue font**.

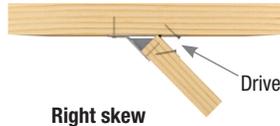
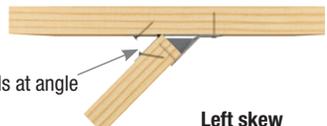
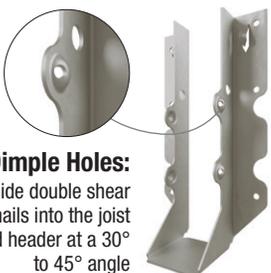
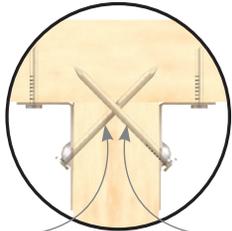
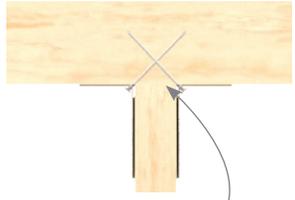
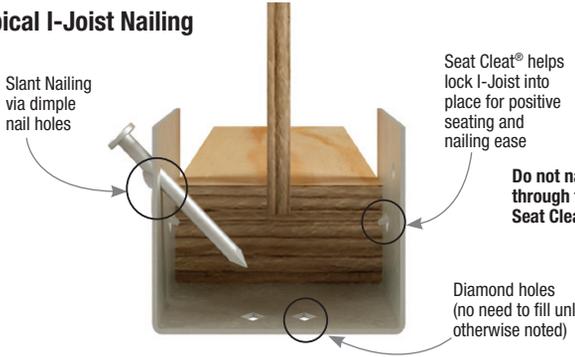
### Gun-Nails:

It is permissible to use nail guns to install connectors.

**Note:**

1. Many nail guns use fasteners smaller than the common nail size specified with USP product, factored resistance must be reduced accordingly.
2. Drive through pre-punched nail holes only.
3. Do not over drive.
4. Recommend the use of guns featuring hole-locating mechanisms.

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	<p><b>Round Holes:</b> Always fill all (normal-size) round nail holes, unless otherwise noted.</p>		<p><b>Diamond Holes:</b> For maximum listed capacity.</p>	<p>When there are <b>MIN</b> and <b>MAX</b> values: <b>MIN:</b> fill all round nail holes <b>MAX:</b> fill all round and diamond holes</p>
	<p><b>Large Round Holes:</b> For concrete/masonry installation; no need to be filled when connected to wood.</p>	<p><b>Obround Holes:</b> For ease of nailing at a tight location; always fill.</p>   <p>Right skew</p>  <p>Left skew</p> <p>Drive nails at angle</p>		
 <p><b>Dimple Holes:</b> Guide double shear nails into the joist and header at a 30° to 45° angle</p>	 <p>Use specified standard length common nails. 16d common and 10d common nails are 3-1/2" and 3" long respectively.</p>	 <p><b>Bend-line Holes</b></p>  <p>Drive bend line nails into header at 45° to achieve published strength</p>		
<p><b>Typical I-Joist Nailing</b></p>  <p>Slant Nailing via dimple nail holes</p> <p>Seat Cleat® helps lock I-Joist into place for positive seating and nailing ease</p> <p>Do not nail through the Seat Cleat®</p> <p>Diamond holes (no need to fill unless otherwise noted)</p>		<p><b>Common Nailing Errors</b></p> <p><b>Wrong Angle</b> When a nail is driven into the bottom flange of the wood I-Joist parallel to the glue lines, separation of veneers can occur which substantially reduces the design loads of the connection.</p> <p><b>Nail Too Long</b> When using nails longer than USP's recommended nails, bottom flange splitting may occur. Also, this can raise the wood I-Joist off the seat, resulting in uneven surfaces and squeaky floors along with reduced factored resistance.</p>		

**Optional Nails for Face Mount Hangers**  
(Does not apply to slant nail hangers: HUS, JUS, MSH, MUS, THDH)

Specified Nail	Replacement Nail	Strength Adjustment Factor
10d x 1-1/2 (0.148" x 1-1/2")	8d x 1-1/2 (0.131" x 1-1/2")	0.88
10d common (0.148" x 3") 12d common (0.148" x 3-1/4")	8d common (0.131" x 2-1/2")	0.82
	10d spiral (0.122" x 3")	0.73
	10d x 1-1/2 (0.148" x 1-1/2")	0.90
16d common (0.162" x 3-1/2")	8d common (0.131" x 2-1/2")	0.71
	10d common (0.148" x 3")	0.86
	12d common (0.148" x 3-1/4")	0.86
	10d spiral (0.122" x 3")	0.61
	12d spiral (0.122" x 3-1/4")	0.61
	16d spiral (0.152" x 3-1/2")	0.90
	10d x 1-1/2 (0.148" x 1-1/2")	0.78
	16d x 2-1/2 (0.162" x 2-1/2")	1.00

1. This chart does not apply to custom hangers or hangers modified to skew and/or slope.
2. This chart applies to metal side member of 14Ga or thinner. For steel thicker than 14Ga, contact USP for exceptions.
3. Strength adjustment factor is the multiplier to the published factored resistance when a nail of different size and/or type is used in lieu of a Specified Nail.
4. Roofing nails shall not be substituted for any nail size or type.
5. Decking nails are not to be used as a substitution for any load carrying nails.

The WS Wood Screw is a self-drilling screw used for numerous framing applications. This screw features a reverse locking serration on the bottom of the screw head to help prevent over tightening against a steel plate. The USP head stamp identifies screws for easy inspection.

Screw shear capacities are based on a diameter of 0.242" when the shear plane is on the screw shank (SH) and 0.185" when the shear plane is on the knurl or threads (T). USP WS Wood Screws have a bending yield strength of 180,000 psi. For conditions not charted here, screw loads may be calculated in accordance with CSA 086-14 Clause 12.11.

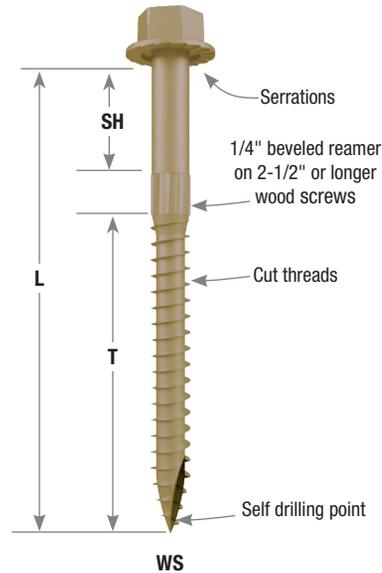
**Materials:** 1/4" diameter Grade 5 steel

**Finish:** See chart

**Options:** See chart for Corrosion Finish Options.

**Installation:**

- Screws are self-drilling.
- Install using a low speed clutch drill with 3/8" hex head driver. The washer head should be flat to the surface and the serrations will oppose turning and release the clutch. Do not over-tighten the screws.
- Installing the screw at an angle may introduce additional bending and tension forces into the fastener if the screw head is not flat on the bearing surface. Care should be given to ensure the fastener is installed perpendicular to the plane of the side plate.
- For attaching multi-ply wood trusses or LVL or PSL members, or floor trusses, see pages 21-23.



Size		MiTek Stock No.	Ref. No.	Dimensions (in)			Finish <sup>1</sup>	Unit	DF Factored Resistance (100%) <sup>2,3</sup>							S-P-F Factored Resistance (100%) <sup>2,3</sup>							Corrosion Finish
in	mm			L	SH	T			Wood-to-Wood <sup>5,7</sup>	Steel to Wood				Withdrawal <sup>5,6</sup>	Wood-to-Wood <sup>5,7</sup>		Steel to Wood						
										Shear	Shear <sup>4</sup>				Shear	Shear <sup>4</sup>			Withdrawal <sup>5,6</sup>				
		1-1/2" Side	1-3/4" Side	14 Ga	10 Ga	7 Ga	3 Ga	Withdrawal <sup>5,6</sup>	1-1/2" Side	1-3/4" Side	14 Ga	10 Ga	7 Ga	3 Ga	Withdrawal <sup>5,6</sup>								
1/4 x 1-1/2	6.1 x 38	WS15	SDS25112	1-1/2	1/4	1-1/4	Zinc	Lbs	--	--	358	496	660	807	326	--	--	332	471	635	692	248	
								kN	--	--	1.59	2.21	2.93	3.59	1.45	--	--	1.48	2.09	2.83	3.08	1.10	
1/4 x 2	6.1 x 50.8	WS2	SDS25200	2	1/4	1-3/4	Zinc	Lbs	--	--	423	561	724	1033	456	--	--	387	526	691	900	347	
								kN	--	--	1.88	2.49	3.22	4.60	2.03	--	--	1.72	2.34	3.07	4.00	1.54	
1/4 x 2-1/2	6.1 x 63.5	WS25	SDS25212	2-1/2	1/4	2	Zinc	Lbs	--	--	487	625	789	1033	521	--	--	443	582	746	900	396	
								kN	--	--	2.17	2.78	3.51	4.60	2.32	--	--	1.97	2.59	3.32	4.00	1.76	
1/4 x 3	6.1 x 76.2	WS3	SDS25300	3	3/4	2	Zinc	Lbs	387	387	552	690	853	1033	521	332	332	498	637	801	900	396	
								kN	1.72	1.72	2.46	3.07	3.80	4.60	2.32	1.48	1.48	2.21	2.83	3.56	4.00	1.76	
1/4 x 3-1/2	6.1 x 88.9	WS35	SDS25312	3-1/2	3/4	2-1/2	Zinc	Lbs	452	452	616	754	918	1033	651	387	387	553	692	857	900	495	
								kN	2.01	2.01	2.74	3.36	4.08	4.60	2.90	1.72	1.72	2.46	3.08	3.81	4.00	2.20	
1/4 x 4-1/2	6.1 x 114.3	WS45	SDS25412	4-1/2	1-1/4	3	Zinc	Lbs	542	575	680	825	997	1033	781	480	498	618	763	890	900	595	
								kN	2.41	2.56	3.02	3.67	4.44	4.60	3.47	2.14	2.22	2.75	3.40	3.96	4.00	2.65	
1/4 x 5	6.1 x 127	WS5	SDS25500	5	1-3/4	3	Zinc	Lbs	542	575	680	825	997	1033	781	480	508	618	763	890	900	595	
								kN	2.41	2.56	3.02	3.67	4.44	4.60	3.47	2.14	2.26	2.75	3.40	3.96	4.00	2.65	
1/4 x 6	6.1 x 152.4	WS6	SDS25600	6	1-3/4	4	Zinc	Lbs	542	575	680	825	997	1033	1042	480	508	618	763	890	900	793	
								kN	2.41	2.56	3.02	3.67	4.44	4.60	4.64	2.14	2.26	2.75	3.40	3.96	4.00	3.53	
1/4 x 8	6.1 x 203.2	WS8	SDS25800	8	4-3/4	3	Zinc	Lbs	542	575	680	825	997	1033	781	480	508	618	763	890	900	595	
								kN	2.41	2.56	3.02	3.67	4.44	4.60	3.47	2.14	2.26	2.75	3.40	3.96	4.00	2.65	

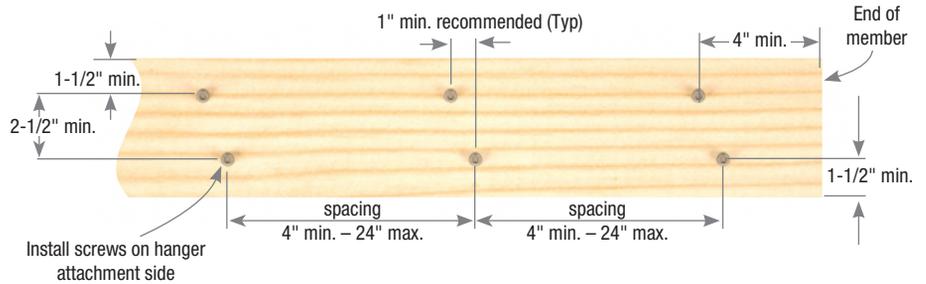
1) Zinc = Yellow Zinc Dichromate.  
 2) Factored Resistance values determined in accordance with CSA 086-14 Clause 12.11; apply modification factors  $K_p$ ,  $K_{sf}$  and  $K_t$  where applicable.  
 3) Factored resistances assume full screw penetration into the main member.  
 4) Factored shear resistances for steel-to-wood connections assume a side plate tensile strength of 45 ksi (310 MPa) for 14 gauge and 10 gauge, 52 ksi (359 MPa) for 7 gauge, and 58 ksi (400 MPa) for 3 gauge.  
 5) Factored basic withdrawal resistance is 260 lb per inch (45.6 N/mm) of the threaded shank penetrated into a DF main member, and 198 lb per inch (34.7 N/mm) into a S-P-F main member.  
 6) Factored withdrawal resistances for steel-to-wood connections assume a side plate thickness of 1/4" or less.  
 7) Factored withdrawal resistances for wood-to-wood connections may be limited by the factored head pull-through resistance of 223 lb (991 N) for 1-1/2" thick wood side members, or 260 lb (1156 N) for 1-3/4" thick wood side members.  
 New products or updated product information are designated in blue font.

**Joining 2, 3, or 4 Ply Wood Trusses**

The installation instructions and design example shown below are intended for a design professional who will be responsible for determining the location and number of wood screws to adequately transfer all loads on the truss.

**Installation:**

- Screw spacing shall not be greater than 24" on center and less than 4" on center. However, the location of any individual screw may be adjusted up to one-half the required screw spacing to avoid lumber defects or interference with other hardware.
- Load or hanger spacing shall not be greater than 24" center-to-center.
- The last truss ply must have a minimum of 1-1/4" of screw penetration and no more than 1/8" gap between each ply.
- Screws cannot be installed through metal truss plates unless the Truss Engineer approves pre-drilling.
- On 2x4 members, use one row of wood screws. On 2x6 and 2x8 use two rows, and on 2x10 use three rows. Stagger all rows.
- The truss bottom chord shall have lateral bracing installed as called out by the Truss Engineer to prevent any displacement from torsional forces.
- Install screws from one side without flipping the truss.
- Top and bottom chords require screws and in some cases the webs may require screws.
- All lateral bracing should be attached to each truss ply.
- Increase edge and end distance if wood splitting occurs.



Size		USP Stock No.	Dimensions (in)			Finish	Shear Plane Location	DF Factored Resistance		S-P-F Factored Resistance	
in	mm		L	SH	T			Shear 100% <sup>1,2,3,4</sup>		Shear 100% <sup>1,2,3,4</sup>	
								Lbs	kN	Lbs	kN
1/4 x 3	6.1 x 76.2	WS3	3	3/4	2	Zinc	SH, T	387	1.72	332	1.48
1/4 x 4-1/2	6.1 x 114.3	WS45	4-1/2	1-1/4	3	Zinc	SH, T	543	2.42	480	2.14
1/4 x 6	6.1 x 152.4	WS6	6	1-3/4	4	Zinc	SH, T	543	2.42	480	2.14

- 1) Factored Resistance values determined in accordance with **CSA 086-14 Clause 12.11**.
- 2) The Truss Engineer shall apply all applicable adjustment factors.
- 3) Table values are based on 1-1/2" thick wood side members. **Where the side and main members are of different specific gravities, use the lower of the two.**
- 4) **Table values depicted assume the wood screws installed with the screw heads in the loaded ply.**

**Design Example**

**3 Ply with Mixed Wood Species:**

Bottom Chord: 2x6 Douglas Fir-Larch  
 Top Chord: 2x4 Spruce-Pine-Fir

**WS45 Wood Screw Factored Resistance:**

Douglas Fir-Larch: 543 lbs. each at 100%  
 Spruce-Pine-Fir: 480 lbs. each at 100%

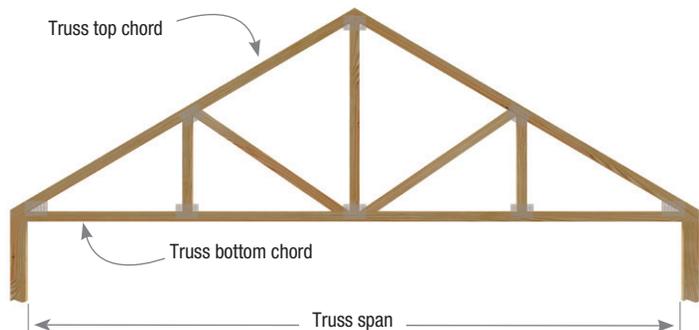
**Bottom Chord Wood Screw Spacing:**

Using 2 rows of WS45 Wood Screws in 2x6  
 $2 \times 543/1000 \times \frac{\# \text{ Plies}}{\# \text{ Plies} - 1} = 1.63 \text{ ft.}$   
 Use maximum spacing of 19".

**Top Chord Wood Screw Spacing:**

Only 1 row of WS45 Wood Screws in 2x4 member  
 $1 \times 480/120 \times \frac{\# \text{ Plies}}{\# \text{ Plies} - 1} = 6 \text{ ft.}$   
 Use maximum spacing of 24".

**Required Loads:**  
 Bottom Chord Factored Load: 1000 plf  
 Top Chord Factored Load: 120 plf

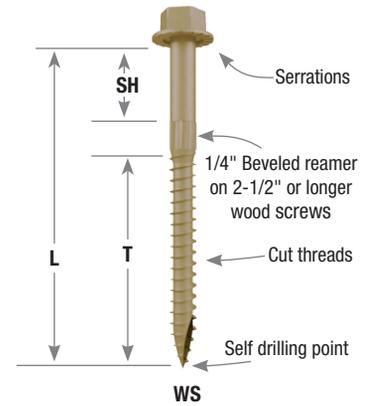


**Typical Truss Profile (profile may vary)**

**Joining 2, 3, or 4 Ply LVL, LSL or PSL Members**

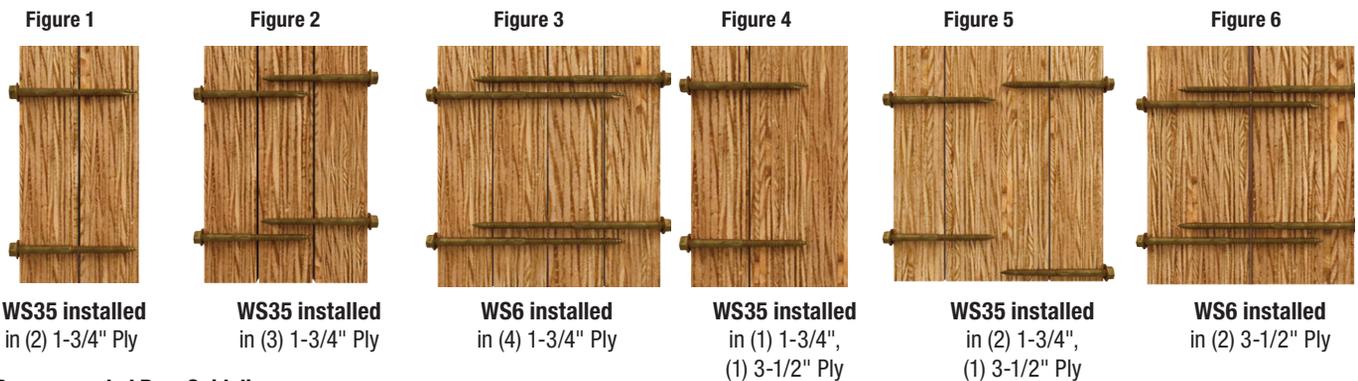
**Installation Notes:**

- For 2 ply members, wood screws shall be installed with the screw heads in the loaded ply.
- For 3 or 4 ply members, wood screws shall be installed in both outer plies.
- Designer shall specify all wood screws locations.
- Increase edge and end distances if wood splitting occurs.
- Stagger all screws installed into the opposite face.
- A minimum of 2 rows of screws shall be used for all members with H = 5-1/2" and larger.

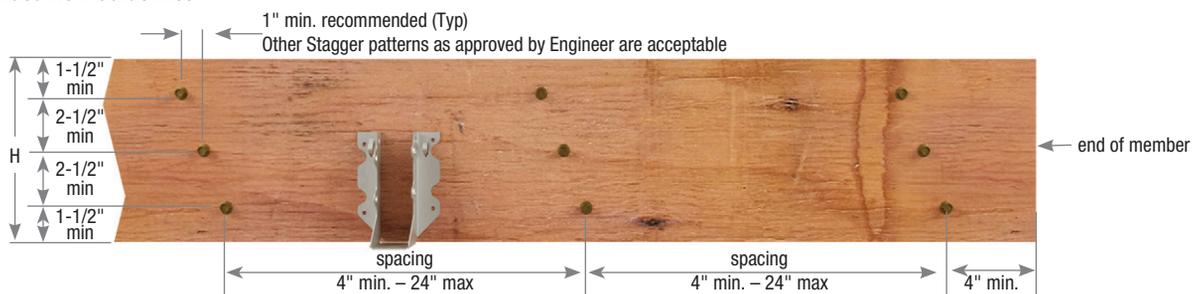


Size (in)	USP Stock No.	Dimensions (in)			Multiple Members Installation Figure <sup>3,7,9,10</sup>	Maximum Factored Uniform Loads that can be applied to either outside member <sup>1,2,3,4,5,6</sup>											
		L	SH	T		Wood Screw Spacing											
						12-in O.C.		18-in O.C.		24-in O.C.							
						2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows						
Lbs/ft		kN/m		Lbs/ft		kN/m		Lbs/ft		kN/m							
1/4 x 3-1/2	WS35	3-1/2	3/4	2-1/2	1	1845	26.93	2765	40.35	1230	17.95	1845	26.93	920	13.43	1385	20.21
					2	1385	20.21	2075	30.28	920	13.43	1385	20.21	690	10.07	1035	15.11
					4	1385	20.21	2075	30.28	920	13.43	1385	20.21	690	10.07	1035	15.11
					5	1230	17.95	1845	26.93	820	11.97	1230	17.95	615	8.98	920	13.43
1/4 x 6	WS6 <sup>8</sup>	6	1-3/4	4	3	1560	22.77	2340	34.15	1040	15.18	1560	22.77	780	11.38	1170	17.08
					6	5470	79.83	8210	119.82	3650	53.27	5470	79.83	2735	39.92	4105	59.91

- 1) Factored Resistance values determined in accordance with CSA 086-14 **Clause 12.11**.
  - 2) Loads are based on SCL with an equivalent S.G. = 0.50 and a side member thickness of 1-3/4", except for Figure 6 installation with a side member thickness of 3-1/2".
  - 3) Load values depicted assume that the uniform load is applied to the most narrow outside ply only.
  - 4) Except for Figure 6 installation, load values neglect any contribution of screws installed to opposite side, even if they extend significantly into the loaded ply.
  - 5) Loads are for normal (100%) duration of load, and may be increased in accordance with the code.
  - 6) Uniform loads in table represent the capacity of the fasteners. The capacity of the LVL or PSL beam may be less and should be checked by a qualified designer or with the manufacturer's literature.
  - 7) A qualified designer shall ensure the adequacy of a 7" wide beam to resist the applied load on one edge; otherwise, the loads shall be uniformly distributed across the width or applied equally on both sides.
  - 8) Wood screws longer than 3-1/2" are not recommended for use with Parallam® PSL or TimberStrand® LSL.
  - 9) For Figure 1: The head of the wood screw is on the same side as the loaded ply.
  - 10) For Figures 2, 3, 5, and 6: Stagger the screws on opposite face by half minimum spacing requirements.
- New products or updated product information are designated in **blue font**.



**Recommended Row Guidelines**



**Joining 2 Ply 4x2 Floor Trusses**

The following information pertains to the use of the USP's WS6 Wood Screws to fasten together a two-ply 4x2 floor truss girder, such that the induced loads are supported by both truss plies. Screw spacing and the location of each specific screw may vary depending on the design criteria for each application, and therefore must be determined by the truss or building designer. However, in the determination of screw locations, the following criterion shall also be considered. These criterion are varying dependent upon how trusses are loaded as follows:

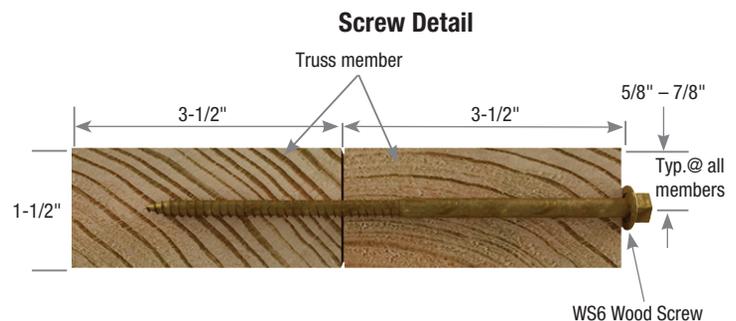
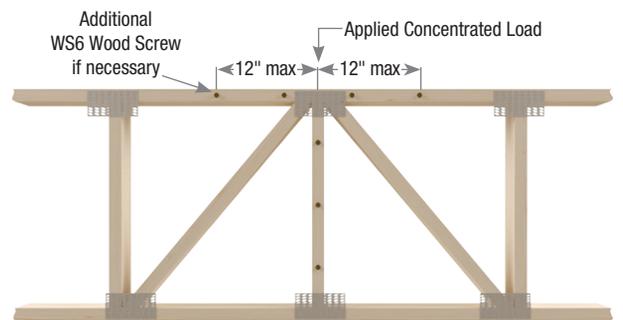
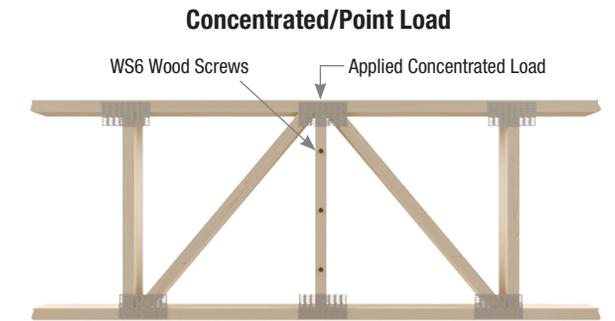
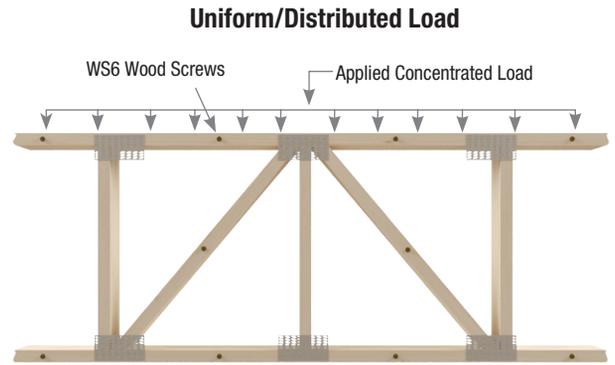
**Uniform/Distributed Load**

- Screws shall be installed into the top chord with a horizontal spacing between screws of not less than 4-inches on center and not more than 24-inches on center.
- A minimum end distance of 4-inches must be maintained. If necessary, additional screws may be installed in the bottom chord.
- Center screw vertically on 1-1/2" dimension of top chord. If splitting occurs, it may be necessary to predrill the holes in accordance with the code.
- The screws shall be installed with the headed end of the screw on the loaded truss. If either ply is "the loaded truss", the screws shall be divided between the two plies, with the spacing on each side twice the minimum indicated above.
- The screws shall not be installed through the metal truss plates, unless approved by the truss designer and the plates are predrilled, on each side to a 1/4-inch diameter. Do not drill through the wood.
- The maximum gap between the wood members of the two trusses shall be 1/8-inch.
- Individual screw locations may need to be adjusted to avoid conflicts with connectors, problematic wood or other framing members. Adjustments should follow the criteria described in this section.

**Concentrated/Point Load**

The placement of fasteners for concentrated loading includes all requirements of uniform loading with the following additional criteria:

- Loads must occur over a vertical member, and the necessary concentration of screws shall be installed in the vertical member.
- Additional screws may be installed on the top chord and adjacent web members if necessary.
- The fasteners should be grouped as close to the concentrated load as possible, but satisfy the same minimum spacing indicated for uniform loading.
- In no case shall the required group of fasteners extend beyond 12-inches from the location of the concentrated load.



USP Stock No.	DF Factored Resistance		S-P-F Factored Resistance	
	Lbs	kN	Lbs	kN
WS6	672	2.99	591	2.63

1) Factored Resistance values determined in accordance with **CSA 086-14 Clause 12.11**.

New products or updated product information are designated in **blue font**.

# LL LumberLok Structural Connector Screws

The LumberLok Structural Connector Screw is a self-drilling screw that can be used with a number of USP Structural Connectors and also for wood-to-wood applications. The screws feature a T20 Torx® head with integral washer and gimlet point for ease of installation. The twin-lead threads drive in twice as fast as the single lead threads significantly reducing installation time. The USP head stamp identifies the screw length for easy inspection.

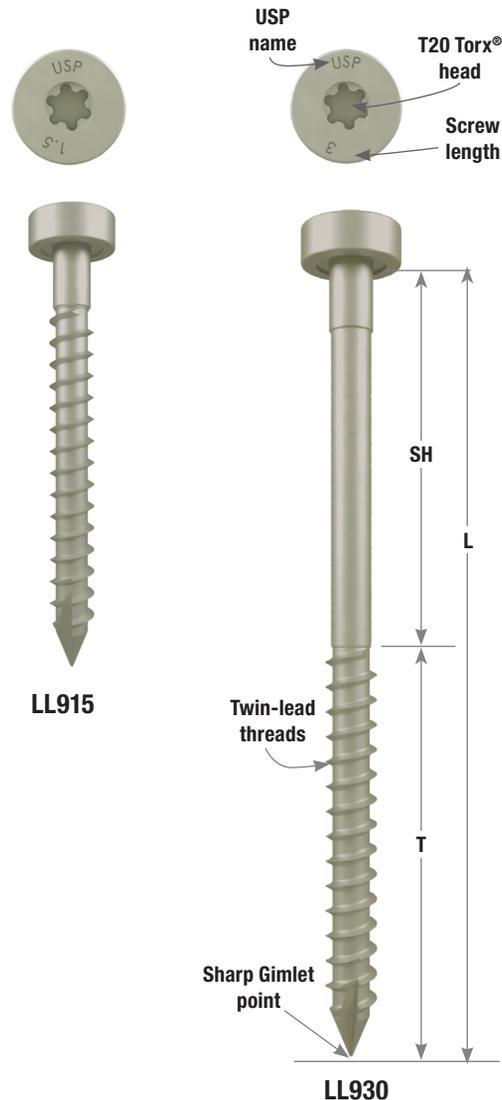
Screw shear capacities are based on a diameter of 0.162" when the shear plane is on the screw shank (SH) and 0.109" when the shear plane is on the threads (T). USP LumberLok Structural Connector Screws have a bending yield strength of 180,000 psi.

**Materials:** Low carbon hardened steel

**Finish:** Gold Coat

### Installation:

- Screws are self-drilling.
- Install using a low speed clutch drill with T20 Torx® bit (not included). The washer head should be flat to the surface. Do not over-tighten the screws.
- Installing the screw at an angle may introduce additional bending and tension forces into the fastener if the screw head is not flat to the bearing surface. Care should be given to ensure the fastener is installed perpendicular to the plane of the fastener hole.
- **Impact drills are not recommended for use with LumberLok Screws**



Size	MiTek Stock No.	Ref. No.	Dimensions (in.)			Finish <sup>1</sup>	Unit	DF Factored Resistance (100%) <sup>2,3</sup>				S-P-F Factored Resistance (100%) <sup>2,3</sup>			
			L	SH	T			Wood to Wood	Steel to Wood			Wood to Wood	Steel to Wood		
									Shear <sup>4</sup>	18 Ga	16 Ga		Withdrawal <sup>5</sup>	Shear <sup>4</sup>	18 Ga
								Shear <sup>6</sup>				18 Ga			
#9 x 1-3/8	LL915	SD9112	1-3/8	1/4	1-1/8	GC	Lbs	--	190	208	<b>214</b>	--	173	191	<b>163</b>
							kN	--	0.85	0.93	<b>0.95</b>	--	0.77	0.85	<b>0.73</b>
#9 x 2-7/8	LL930	SD9212	2-7/8	1-3/8	1-1/2	GC	Lbs	228	249	265	<b>285</b>	196	226	243	<b>217</b>
							kN	1.01	1.11	1.18	<b>1.27</b>	0.87	1.01	1.08	<b>0.97</b>

1) GC = Gold Coat over Clear Zinc Trivalent.

2) Factored Resistance values determined in accordance with [CSA 086-14 Clause 12.11](#); apply modification factors  $K_D$ ,  $K_{SF}$  and  $K_T$  where applicable.

3) **Factored resistances assume full screw penetration into the main member.**

4) Factored shear resistances for steel-to-wood connections assume a side plate tensile strength of 45 ksi (310 MPa).

5) Factored withdrawal resistances for steel-to-wood connections assume a side plate thickness of 1/4" or less.

6) Factored shear resistances for wood-to-wood connections assume a wood side member thickness of 1-1/2".

New products or updated product information are designated in **blue font**.

## CIA-GEL 7000-C Epoxy

CIA-GEL 7000-C Epoxy is an adhesive designed to attach anchor bolts into concrete that is, or may become, cracked due to cyclic loading from wind or earthquakes. It may also be used with fully grouted CMU construction. It is a low odor, solvent free, non-shrink, non-sag adhesive. The two-component (resin and hardener) epoxy is supplied in equal volume cartridges, which are combined in a 1:1 ratio when dispensed through the attached mixing nozzle. Either a hand powered or air-powered dispenser may be used. The cartridges are sealed with a D-plug which opens easily on the job-site and allows partially used cartridges to be saved for later use. The epoxy has a two year shelf life when stored in unopened containers at temperatures between 10°C / 50°F and 25°C / 77°F.

### Applications:

- Anchors continuously threaded steel rod and deformed rebar into concrete.
- Holdowns into concrete for high seismic zones ( $I_E F_a S_a (0.2) \geq 0.35$ ).
- Horizontal and overhead anchoring applications (requires special inspection).



Available in:  
 8.5 oz. – GEL7C-10  
 20.3 oz. – GEL7C-22

## CIA-GEL 7000 Epoxy

CIA-GEL 7000 Epoxy is a structural adhesive specifically designed to attach anchor bolts into fully grouted concrete masonry units (CMU) and has recently been evaluated for seismic, sustained load, elevated temperature and freeze-thaw suitability conditions. It can also be used to install anchor bolts into uncracked concrete and reinforced brick. It is a low odor, solvent free, non-shrink adhesive. The two-component (resin and hardener) epoxy is supplied in equal volume cartridges, which are combined in a 1:1 ratio when dispensed through the attached mixing nozzle. Either a hand powered or air-powered dispenser may be used. The cartridges are sealed with a D-plug which opens easily on the job-site and allows partially used cartridges to be saved for later use. The epoxy has a one year shelf life when stored in unopened containers at a temperature of 21°C / 70°F.

### Applications:

- Anchors All-Thread rod and deformed rebar into fully grouted CMU.
- Brick veneer anchoring.
- Crack injection of medium to wide cracks.
- Anchors rebar and threaded steel rod into uncracked concrete.



Available in:  
 8.6 oz. – GEL7-10  
 21.2 oz. – GEL7-22

## CIA-GEL 6000-GP Epoxy

CIA-GEL 6000-GP is a superior epoxy specifically designed for general purpose structural applications that require quick load times and for doweling applications. It is a two-component (1:1 ratio) adhesive epoxy with 100% solids and is solvent free, moisture insensitive, non-sag and has no odor. It provides exceptional strength in anchoring and doweling applications and can be used in temperatures between 1°C / 35°F and 45°C / 110°F. The epoxy has a two year shelf life when stored in unopened containers at temperatures between 4°C / 40°F and 35°C / 95°F.

### Applications:

- Doweling applications for rebar and tie bars for full depth concrete pavement repairs.
- Anchoring and bracing for short term tensile load where dynamic, vibratory, wind or intermittent loads exist.
- Use in concrete, grout filled block and unreinforced masonry for general purpose anchoring and doweling applications.
- Concrete doweling road repairs where DOT approval is required.



Available in:  
 21.2 oz. – GEL6GP-22

## CIA-EA Epoxy Acrylate

CIA-EA Adhesive Anchoring System is an epoxy acrylate specifically designed to be a high strength, fast cure structural adhesive for anchoring threaded rod and deformed rebar into uncracked concrete. It has the added advantage of being formulated to be used in colder temperatures 0°C / 32°F while maintaining excellent flowability. CIA-EA may also be used with fully grouted CMU and reinforced brick construction. It is a 2-component, 100% solids, moisture insensitive adhesive that is ideally suited for a wide range of applications. It is composed of a proprietary blend of solvent free epoxy acrylate resin and is backed by independent research and testing. The epoxy has a 15 month shelf life when stored in unopened containers at temperatures between 5°C / 41°F to 25°C / 77°F.

### Applications:

- Anchors All-Thread rod into concrete
- May also be used to anchor rebar, starter bars and dowels
- Applications requiring fast cure times
- Cold weather applications
- Can be used in horizontal anchoring applications
- Can be used in overhead anchoring applications (requires special inspection)



Available in:  
9.4 oz. – EA-10  
S

## IB-9 Incredi-Bond® Epoxy

Incredi-Bond® is a high strength two-component epoxy specifically designed to be a bonding agent for almost all household materials including wood, steel, concrete, brick, stone and CMU block. It is moisture insensitive and can also be used to fill cracks in concrete, block and stone. The epoxy has a 2 year shelf life when stored in unopened containers in dry conditions between 4°C / 40°F to 35°C / 95°F.

### Applications:

- Bonding applications for:
  - Concrete
  - Brick
  - CMU block
  - Stone
  - Metal
  - Wood
- Repair vertical and overhead cracks in concrete (non-structural)
- Repair vertical and overhead spalls in concrete (5/8" deep & 3" diameter max)
- Non-sag consistency makes this ideal for corner repairs to concrete and block walls
- Repair and replace brick
- Replace pool tile (no need to empty pool)
- Fill holes and cracks
- Not recommended for structural applications



Available in:  
8.6 oz. – IB-9

Mechanical anchor expanded into a hole that has been undercut at the bottom using an undercutting drill bit creating a true bearing type anchor that performs like a cast-in-place headed anchor. Load is transferred into the concrete through bearing, not friction like traditional expansion anchors. Excellent performance in seismic and dynamic loading conditions.

**Rod Materials:** ASTM A36 (L Series), A193 Grade B7 (H Series), or AISI 316 Stainless Studs

**Anchor Body Materials:** ASTM A 513 Type 5, or AISI 316 Stainless



**DUC Undercut Anchor**



**UCB Undercut Drill Bit**

**Installation:**



**1**  
Drill the hole to proper depth and diameter per specifications using rotohammer and stop drill.

**2**  
Clean the hole using a blow-out bulb or compressed air.

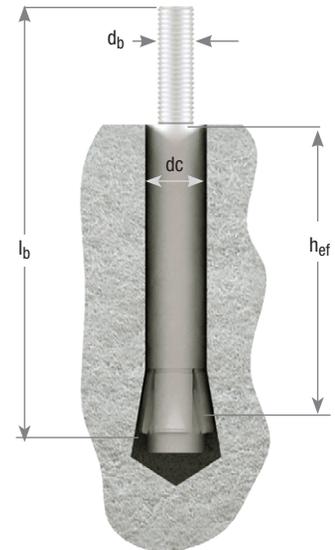
**3**  
Insert the undercut bit and start rotohammer. Undercutting is complete when the stopper sleeve is fully compressed (gap closed).

**4**  
Clean the hole again using a blow-out bulb or compressed air.

**5**  
Insert anchor into hole. Place setting sleeve over anchor and drive the expansion sleeve over the expansion coupling.

**6**  
Verify that the setting mark is visible on the threaded rod above the sleeve.

**7**  
Apply proper torque.



**Tension and shear capacities for DUC Anchors in  $f'_c \geq 2,500$  psi concrete**

USP Stock No.	Rod Dia. $d_b$		Anchor Length, $l_b$		Expansion Coupling Dia. $d_c$		Drilled Hole Depth of Stop Bit		Effective Embedment $h_{ef}$		Ultimate Tensile Capacity		Ultimate Shear Capacity	
	in	mm	in	mm	in	mm	in	mm	in	mm	Lbs	kN	Lbs	kN
	DUC38-275L	3/8	9.5	5-1/2	139.7	5/8	15.9	3-1/8	79.4	2-3/4	69.9	4650	20.69	2790
DUC38-275LT	6-3/4			171.5	4-3/8			111.1	4	101.6	9690	43.10	5815	25.87
DUC38-400H					DUC38-400HT			4-3/8	111.1	4	101.6	9690	43.10	5815
DUC12-400L	1/2	12.7	7	177.8	3/4	19	4-1/4	107.9	4	101.6	8515	37.88	5110	22.73
DUC12-400LT			8	203.2			5-1/4	133.4	5	127	17740	78.91	10645	47.35
DUC12-500H														
DUC12-500HT														
DUC12-675H														
DUC12-675HT	9-3/4	247.6	7	177.8	6-3/4	171.5								
DUC58-450L	5/8	15.9	7-3/4	196.9	1	25.4	5	127	4-1/2	114.3	13560	60.32	8135	36.19
DUC58-450LT			10-3/4	273.1			8	203.2	7-1/2	190.5	28250	125.67	16950	75.40
DUC58-750H														
DUC58-750HT														
DUC58-900H														
DUC58-900HT	12-1/4	311.2	9-1/2	241.3	9	228.6								
DUC34-500L	3/4	19	8-5/8	219.1	1-1/8	28.6	5-7/8	149.2	5	127	20040	89.15	12025	53.49
DUC34-500LT			13-5/8	346.1			10-7/8	276.2	10	254	41750	185.72	25050	111.43
DUC34-1000H														
DUC34-1000HT														

1) Factored resistance and shear capacities are for anchors installed at standard edge distance and spacing in uncracked concrete.

The Wedge-Bolt®+ anchor is a one piece, heavy duty screw anchor with a finished hex head. It is simple to install, easy to identify and fully removable. The Wedge-Bolt®+ has features and benefits that make it well suited for many applications. The steel threads along the anchor body tap into the hole during installation to provide key engagement. Suitable base materials include normal-weight concrete, structural sand-lightweight concrete, concrete over steel deck, concrete masonry and solid clay brick. The anchor is designed for structural loading in cracked and uncracked concrete.

**Wedge-Bolt®+**

Finish	USP Stock No. <sup>2</sup>	Ref. No.	Anchor Size (in) <sup>1</sup>	Code Ref.
Zinc Plated	7204SD	--	1/4 x 1-1/4	3, 19
	7206SD	THD25134H	1/4 x 1-3/4	
	7208SD	THD25214H	1/4 x 2-1/4	
	7210SD	THD25300H	1/4 x 3	
	7220SD	THD37134H	3/8 x 1-3/4	
	7222SD	THD37212H	3/8 x 2-1/2	
	7224SD	THD37300H	3/8 x 3	
	7226SD	THD37400H	3/8 x 4	
	7228SD	THD37500H	3/8 x 5	
	7230SD	THD37600H	3/8 x 6	
	7242SD	THD50212H	1/2 x 2-1/2	
	7244SD	THD50300H	1/2 x 3	
	7248SD	THD50500H	1/2 x 5	
	7268SD	THD50612H	1/2 x 6-1/2	
	7252SD	THD50800H	1/2 x 8	
	7262SD	THD62400H	5/8 x 4	
	7264SD	THD62500H	5/8 x 5	
	7266SD	THD62600H	5/8 x 6	
	7270SD	THD62800H	5/8 x 8	
	7282SD	THD75400H	3/4 x 4	
	7284SD	THD75500H	3/4 x 5	
	7286SD	THD75600H	3/4 x 6	
	7288SD	--	3/4 x 8	
	7290SD	THD75100H	3/4 x 10	

Finish	USP Stock No. <sup>2</sup>	Ref. No.	Anchor Size (in) <sup>1</sup>	Code Ref.
Mechanically Galvanized	7726SD	THD37400HMG	3/8 x 4	3, 19
	7728SD	THD37500HMG	3/8 x 5	
	7746SD	THD50400HMG	1/2 x 4	
	7748SD	THD50500HMG	1/2 x 5	
	7750SD	THD50600HMG	1/2 x 6	
	7751SD	THD50612HMG	1/2 x 6-1/2	
	7752SD	THD50800HMG	1/2 x 8	
	7764SD	THD62500HMG	5/8 x 5	
	7766SD	THD62600HMG	5/8 x 6	
	7768SD	THD62612HMG	5/8 x 6-1/2	
	7770SD	THD62800HMG	5/8 x 8	
	7786SD	--	3/4 x 6	
	7789SD	THD75812HMG	3/4 x 8-1/2	
	7790SD	THD75100HMG	3/4 x 10	

- 1) The anchor size includes the diameter and length of the anchor measured from under the head.
- 2) Wedge-Bolt®+ is marked with a blue tip and must be installed with a matched tolerance Wedge-Bit. Wedge-Bits must be ordered separately.



Wedge-Bolt®+ (Zinc Plated)



Wedge-Bolt®+ (Mechanically Galvanized)

**Wedge-Bits**

USP Stock No.	Description	Usable Length (in)
1314	SDS 1/4" x 6"	4
1318	SDS 3/8" x 8"	6
1384	HD Straight Shank 3/8" x 13"	4
1322	SDS 1/2" x 10"	8
1354	SDS-Max 1/2" x 13"	8
1394	HD Straight Shank 1/2" x 13"	11
1324	SDS 5/8" x 8"	6
1326	SDS 5/8" x 12"	10
1356	SDS-Max 5/8" x 13"	8
1396	HD Straight Shank 5/8" x 13"	11
1328	SDS 3/4" x 8"	6
1358	SDS-Max 3/4" x 13"	8



SDS-Max Wedge Bit



SDS-Plus Wedge Bit

**Power-Stud™ Mechanical Anchors**

The Power-Stud™ HD5 anchor is a fully threaded, torque-controlled, wedge expansion anchor. Suitable base materials include normal-weight concrete and structural sand-lightweight concrete. The anchor is manufactured with a hot-dip galvanized carbon steel body and stainless steel expansion clip. Nut and washer are included.

USP Stock No. <sup>2</sup>	Ref. No.	Anchor Size (in) <sup>1</sup>	Thread Length (in)
7723HD5	WA50414MG	1/2 x 4-1/2	2-3/4
7724HD5	WA50512MG	1/2 x 5-1/2	3-3/4
7726HD5	WA50700MG	1/2 x 7	5-1/4
7733HD5	-- --	5/8 x 5	3
7734HD5	WA62600MG	5/8 x 6	4
7738HD5	-- --	5/8 x 8-1/2	6-1/2

- 1) The anchor size includes the diameter and the overall length of the anchor.
- 2) All anchors are packaged with nuts and washers.



Power-Stud™ HD5

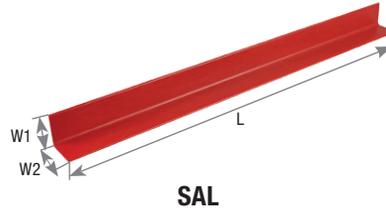
**SAL** Steel Angle Lintels

Steel Angle Lintels are used as support headers in door and window framing. For maximum allowable spans and minimum required bearing length check with applicable municipal, provincial or national building codes.

**Materials:** 3 gauge

**Finish:** Red primer

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		
			W1	W2	L
SAL36	---	3	3-1/2	3-1/2	36
SAL42	---	3	3-1/2	3-1/2	42
SAL48	---	3	3-1/2	3-1/2	48
SAL60	---	3	3-1/2	3-1/2	60
SAL72	---	3	3-1/2	3-1/2	72
SAL91	---	3	3-1/2	3-1/2	91



**Typical SAL installation**

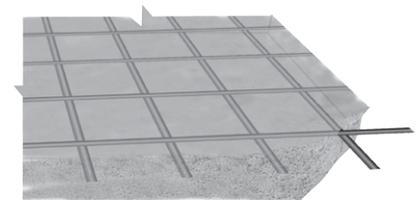
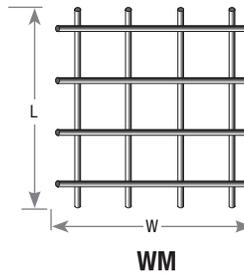
**WM** Welded Wire Mesh

Welded wire adds strength and stability to concrete foundations.

**Materials:** 9 gauge carbon steel wire

**Finish:** None

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)	
			W	L
WM48	---	9	48	96
WM60	---	9	60	600



**Typical WM installation**

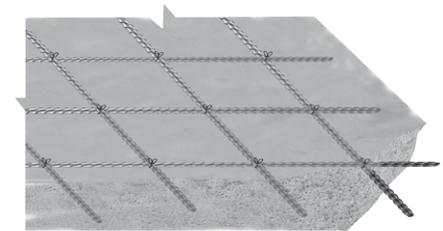
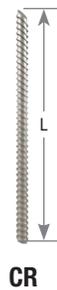
**CR** Concrete Reinforcing Rod

Concrete Reinforcing Rod provides added strength and stability for any concrete projects.

**Materials:** Carbon steel conforms to A615 Steel

**Finish:** None

USP Stock No.	Ref. No.	Dimensions	
		D	L (in)
CR12	--	10 mm	12
CR24	--	10 mm	24
CR36	--	10 mm	36
CR48	--	10 mm	48
CR72	--	10 mm	72
CR96	--	10 mm	96
<b>CR120</b>	--	10 mm	120



**Typical CR installation**

New products or updated product information are designated in **blue font**.

**TW** – Tie Wire is used to secure concrete reinforcing rods in place during concrete forming.

**TWTT** – Tie Wire Tying Tool.

**Materials:** See chart

**Finish:** – Black annealed iron wire

USP Stock No.	Ref. No.	Steel Gauge	Dimensions
TW1	--	18	1-in x 6-in
TW3	--	16	3-in x 340-ft/roll
<b>TW5-1000</b>	--	16	5-in x 1000-pc/roll
<b>TW5-2500</b>	--		5-in x 2500-pc/roll
<b>TW6-1000</b>	--	16	6-in x 1000-pc/roll
<b>TW6-2500</b>	--		6-in x 2500-pc/roll

New products or updated product information are designated in **blue font**.



**TW3**



**Typical TW installation**



**TW5**



**TWTT**



**Typical TWTT installation**

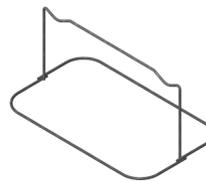
## RCD / RCT Rod Chairs

Rod chairs hold reinforcing bars for proper placement during the pouring or application of concrete.

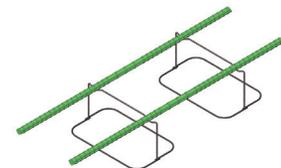
**Materials:** Welded Wire

**Finish:** None

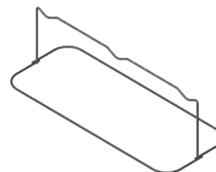
USP Stock No.	Ref. No.	Description	Dimensions (in)
RCD	-- --	Double Rod Chair	4 x 5 x 8-1/4
RCT	-- --	Triple Rod Chair	3-1/2 x 4 x 12



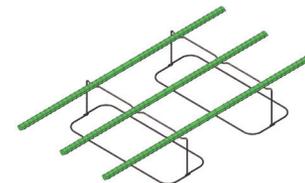
**RCD**



**Typical RCD installation**



**RCT**



**Typical RCT installation**

## SCV / SCH Safety Caps

Brightly colored safety caps protect against injuries from vertical rebar.

**Materials:** Composite Plastic

**Finish:** None

USP Stock No.	Ref. No.	Description	Dimensions (in)
SCH	-- --	Horizontal Safety Cap	2-3/8 x 2-1/2 x 2-1/2
SCV	-- --	Vertical Safety Cap	3-1/4 x 3-3/4 x 3-3/4



**SCH**



**Typical SCH installation**



**SCV**



**Typical SCV installation**

# THR Threaded Rods

USP has added longer length THR's to support the new deck oriented code requirements for mechanically reinforced railing post and deck to house ledger board attachments.

**Materials:** ASTM A 36 Steel, also conforms to ASTM F 1554 Grade 36

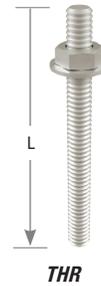
**Finish:** Hot-dip galvanized

**Installation:**

- Install into wet concrete or drill minimum 1/16" oversized hole and secure with anchor epoxy



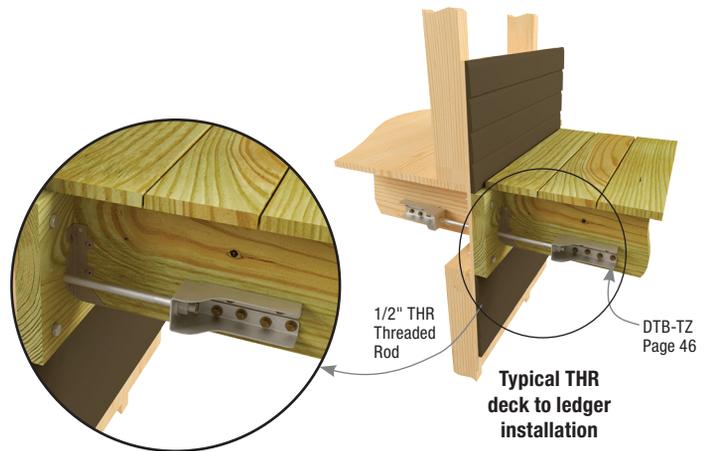
Typical THR installation



THR

USP Stock No.	Ref. No.	Bolt Dia.	L (in)	Corrosion	Finish
THR125-HDG	RFB#4X5HDG	1/2	5		
THR126-HDG	RFB#4X6HDG	1/2	6		
THR128-HDG	RFB#4X8HDG	1/2	8		
THR1218-HDG	---	1/2	18		
THR1224-HDG	---	1/2	24		
THR1236-HDG	---	1/2	36		
THR588-HDG	RFB#5X8HDG	5/8	8		
THR5812-HDG	RFB#5X12HDG	5/8	12		
THR5816-HDG	RFB#5X16HDG	5/8	16		

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc



Typical THR deck to ledger installation

# CRE Epoxy Coated Rebar

Epoxy coated rebar provides maximum protection against corrosion.

**Materials:** A615 Steel

**Finish:** Epoxy Dipped

USP Stock No.	Ref. No.	Dimensions	
		Dia	L (in)
<b>CRE12</b>	---	10 mm	12
CRE24	---	10 mm	24
CRE36	---	10 mm	36
CRE48	---	10 mm	48

New products or updated product information are designated in **blue font**.



CRE



Typical CRE installation

# NSR Round Nail Stake

Nail stakes are used to secure form boards to prevent movement and bowing.

**Materials:** Steel

**Finish:** Black Primer

**Installation:**

- Fastener holes will accommodate up to a 16d duplex nail.

USP Stock No.	Ref. No.	Dimensions (in)	
		Dia	L
NSR	---	3/4	18



NSR



Typical NSR installation

Uses heavy gauge HRPO steel and a large surface area to distribute seismic forces on masonry exteriors.

**Materials:** 3/8" plate

**Finish:** USP primer

**Options:** See chart for Corrosion Finish Options

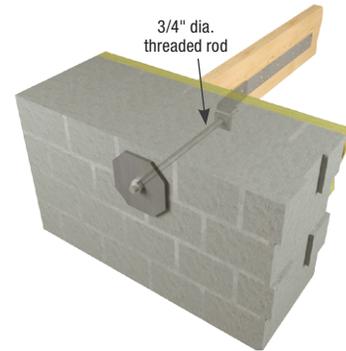
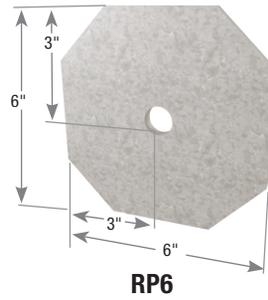
**Installation:**

- Install with a 3/4" diameter steel threaded rod.

USP Stock No.	Ref. No.	Corrosion Finish
RP6	RP6	

**Corrosion Finish**

- Stainless Steel
- Gold Coat
- HDG
- Triple Zinc



Typical RP6 installation

Concrete & Masonry

## STB / STBL Anchor Bolts

Embossed ends provide guides for embedment angle and depth. An embedment line is embossed on the shaft for easy installation. Features rolled threads for high tensile strength.

**STB** – For monolithic slabs and concrete stem walls.

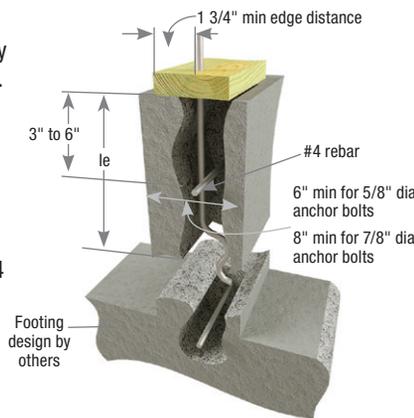
**STBL** – Designed for use with 3x sill plates.  
Excellent choice for use with taller holdown washers like those in the PHD series.

**Materials:** ASTM A 36 steel, also conforms to ASTM F1554 and ASTM A 307 requirements for bolts.

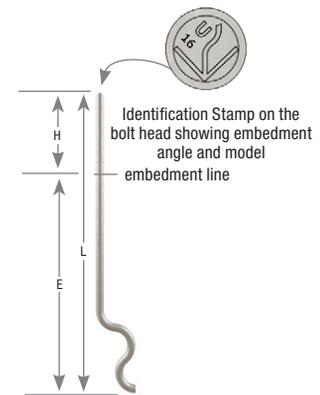
**Finish:** None

**Options:** See Chart for Corrosion Finish Options on page 33.

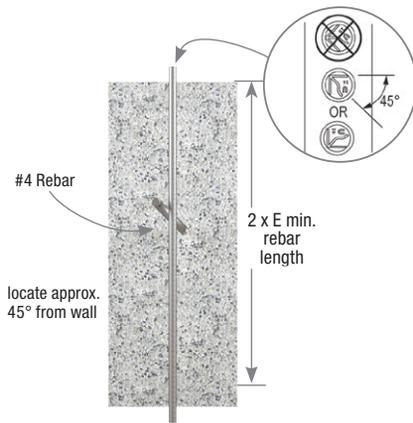
**Codes:** Load values are derived from data submitted to various North American building code evaluators.



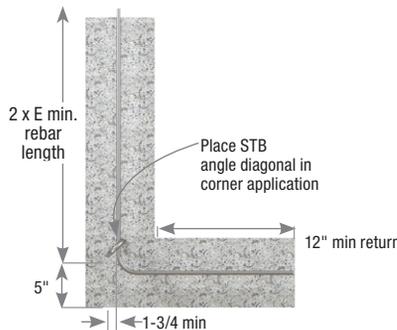
Typical STB Anchor Bolt installation



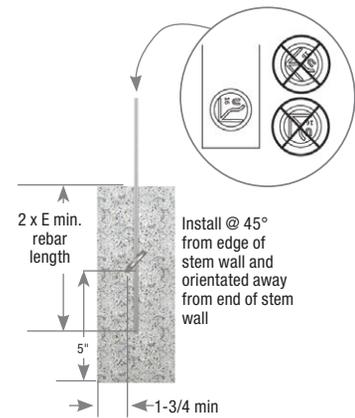
STB/STBL



Plain view along continuous stem wall installation



Plain view of corner of stem wall installation



Plain view of End of Stem Wall installation

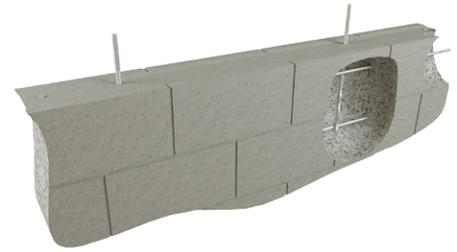
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**Monolithic or Stem Wall Foundations** – Prior to pour, install the STB or STBL in an upright position and at a 45° angle to the wall. Install one horizontal #4 rebar at a depth of 4" (minimum). (See illustrations.)

**Concrete Block Applications** – Prior to cell pour, install the STB or STBL in an upright position and at a 45° angle to the wall. (See illustrations.) Use the embossed angle guide on the end of the STB or STBL shaft as a guide. Install one horizontal #4 rebar at a depth of 4" and one vertical #4 rebar maximum 48" o.c. spacing. Fill all cells with concrete having a minimum 2,500 psi compressive strength.

**Installation:**

- Select appropriate STB or STBL Anchor Bolt.
- Use normal weight concrete with minimum compressive strength of 2,500 psi.
- Minimum center-to-center spacing between bolts is 3(E) for anchors acting simultaneously in tension.
- Match embedment depth with embedment line on the STB or STBL shaft.
- The STB or STBL does not need to be tied to the rebar.
- Nuts and washers are not included.

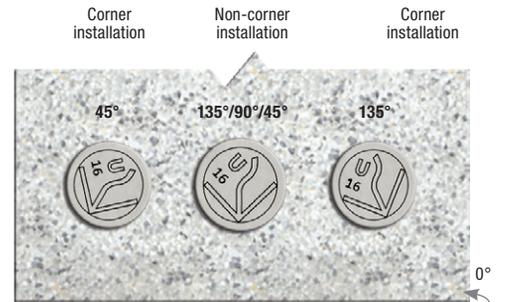


**Typical STB/STBL concrete block installation**

**Anchor Bolt Selection Table**

USP Stock No.	2x, 3x, (2) 2x Sill Plates <sup>1</sup>
	Mono Pour
PHD2A	STB16 STBL16
TDX2-TZ	
LTS20B	
HTT45	
HTT4	
HTT16	STB20 STBL20
PHD4A	
HTT45	
TDX5	STB24 STBL24
HTT45	
HTT5	STB28 STBL28
PHD8	
UPHD8	
TD7	
TD9	
TD12	

\* Recommend installation of washer under nut of anchor bolt.  
 1) STBL model are recommended for use with PHD and UPHD8 holdowns on (2) 2x and 3x sill plates.



**Plan view of STB/STBL placement in concrete stemwall**

Outside edge of concrete

USP Stock No.	Ref. No.	Dimensions (in)					Factored Tensile Resistance <sup>1,2</sup>									Corrosion Finish	
		Stemwall Width	Dia.	L	H	Min. Embed. (E)	Unit	Seismic I <sub>e</sub> F <sub>a</sub> S <sub>a</sub> (0.2) < 0.35			Wind I <sub>e</sub> F <sub>a</sub> S <sub>a</sub> (0.2) < 0.35			Seismic I <sub>e</sub> F <sub>a</sub> S <sub>a</sub> (0.2) ≥ 0.35			
								Midwall	Corner	End Wall	Midwall	Corner	End Wall	Midwall	Corner		End Wall
STB16	SSTB16	6	5/8	17-13/16	5	12-13/16	Lbs	5920	5920	5920	6770	6770	6770	4935	4935	4935	
							kN	26.33	26.33	26.33	30.12	30.12	30.12	21.95	21.95	21.95	
STB20	SSTB20	6	5/8	21-13/16	5	16-13/16	Lbs	7170	6635	6635	8185	6770	6770	5970	4975	4975	
							kN	31.90	29.52	29.52	36.41	30.12	30.12	26.56	22.13	22.13	
STB24	SSTB24	6	5/8	25-13/16	5	20-13/16	Lbs	8385	8280	8280	9585	8910	8910	6985	6545	6545	
							kN	37.30	36.83	36.83	42.64	39.64	39.64	31.07	29.11	29.11	
STB28	SSTB28	8	7/8	31	5	26	Lbs	14140	13285	13285	14575	14575	14575	10710	10710	10710	
							kN	62.90	59.10	59.10	64.84	64.84	64.84	47.64	47.64	47.64	
STB34	SSTB34	8	7/8	36	6	30	Lbs	15980	14735	14350	18225	16840	15050	13320	12280	11060	
							kN	71.09	65.55	63.83	81.07	74.91	66.95	59.25	54.63	49.20	
STB36	SSTB36	8	7/8	38	8	30	Lbs	15980	14735	14350	18225	16840	15050	13320	12280	11060	
							kN	71.09	65.55	63.83	81.07	74.91	66.95	59.25	54.63	49.20	
STBL16	SSTBL16	6	5/8	19-9/16	6-3/4	12-13/16	Lbs	5920	5920	5920	6770	6770	6770	4935	4935	4935	
							kN	26.33	26.33	26.33	30.12	30.12	30.12	21.95	21.95	21.95	
STBL20	SSTBL20	6	5/8	23-9/16	6-3/4	16-13/16	Lbs	7170	6635	6635	8185	6770	6770	5970	4975	4975	
							kN	31.90	29.52	29.52	36.41	30.12	30.12	26.56	22.13	22.13	
STBL24	SSTBL24	6	5/8	27-9/16	6-3/4	20-13/16	Lbs	8385	8280	8280	9585	8910	8910	6985	6545	6545	
							kN	37.30	36.83	36.83	42.64	39.64	39.64	31.07	29.11	29.11	
STBL28	SSTBL28	8	7/8	32-3/4	6-3/4	26	Lbs	14140	13285	13285	14575	14575	14575	10710	10710	10710	
							kN	62.90	59.10	59.10	64.84	64.84	64.84	47.64	47.64	47.64	

1) Loads may not be increased for short term loading.  
 2) Minimum center to center spacing between bolts is 3(E) for anchors acting in tension simultaneously.  
 3) Minimum edge distance is 1-3/4".  
 4) Concrete stemwall shall be a minimum of 6" thick for 5/8" anchor bolts and 8" for 7/8" anchor bolts.  
 5) End distance shall be no less than 5".

6) Connection is limited by lowest of bolt or holdown capacity.  
 7) Concrete block shall be minimum 10" block.  
 New products or updated product information are designated in blue font.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

Anchor bolts are used to secure wood plates to foundation walls. Washers are available in various package combinations.

**Materials:** Bolt: ASTM F 1554, Nut: ASTM A 563, Washers: ASTM F 844

**Finish:** AB126-HDG, AB128-HDG, AB1212-HDG, AB5812-HDG – Hot-dip galvanized; All others – None

**Installation:**

- Select appropriate AB or ABP Anchor Bolt.
- Use concrete with minimum compressive strength of 2,500 psi at 28 days.
- Nuts and washers are included.
- Anchor bolts intended for use to satisfy code prescribed anchoring of mudsill plates, and shall be installed as defined in the code.
- Factored resistance shall be derived in accordance with the code.



Typical AB128-HDG installation



ABP



AB128-HDG

USP Stock No.	Ref. No.	Bolt Dia.	L (in)	Corrosion Finish
AB126-HDG	---	1/2	6	
AB128-HDG	---	1/2	8	
AB1212-HDG	---	1/2	12	
AB5812-HDG	---	5/8	12	
AB6NW	---	1/2	6	
AB8NW	---	1/2	8	
ABP6NW	---	1/2	6	
ABP8NW	---	1/2	8	

**Corrosion Finish**

- Stainless Steel
- Gold Coat
- HDG
- Triple Zinc

## BP / HBPS / LBP / LBPS Bearing Plates

**BP / LBP** – Designed to meet code requirements for mudsill-to-foundation.

**HBPS / LBPS** – Offers anchor bolt adjustment slots.

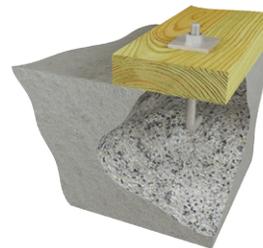
**Materials:** See chart

**Finish:** BP / HBPS – none; LBP / LBPS – G-185 galvanizing

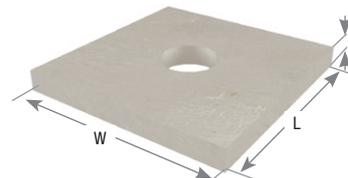
**Options:** See Chart for Corrosion Finish Options

**Installation:**

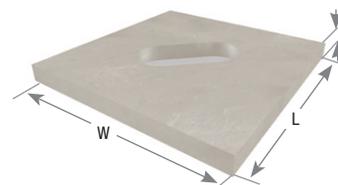
- Bolt holes are sized 1/16" larger than Bolt Dia. shown in chart.



Typical Bearing Plate installation



BP/LBP Standard Bearing Plate



HBPS/LBPS Slotted Bearing Plate

USP Stock No.	Ref. No.	Plate Thickness (T)	Dimensions (in)		Bolt Dia. (in)	Corrosion Finish	
			W	L			
LBP12-TZ	LBP1/2, LBP1/2Z	10 Ga	9/64	2	2	1/2	
LBP58-TZ	LBP5/8, LBP5/8Z	10 Ga	9/64	2	2	5/8	
LBPS12-TZ	LBPS1/2, LBPS1/2Z	10 Ga	9/64	3	3	1/2	
LBPS58-TZ	LBPS5/8, LBPS5/8Z	10 Ga	9/64	3	3	5/8	
HBPS12	BPS1/2-3	3 Ga	1/4	3	3	1/2	
HBPS34	BPS3/4-3	3 Ga	1/4	3	3	3/4	
HBPS58	BPS5/8-3	3 Ga	1/4	3	3	5/8	
BP12	BP1/2	7 Ga	3/16	2	2	1/2	
BP582	BP5/8-2	7 Ga	3/16	2	2	5/8	
BP583	BP5/8, BP5/8-3	3 Ga	1/4	3	3	5/8	
BP343	BP3/4-3	3 Ga	1/4	3	3	3/4	

**Corrosion Finish**

- Stainless Steel
- Gold Coat
- HDG
- Triple Zinc

**FT** – Connect 1x and 2x nominal form lumber in low foundation walls up to 4 feet high.

**WG** – V-shaped wedge assures rigidity and consistent form spacing.

**Materials:** FT – 18 gauge, WG – 14 gauge

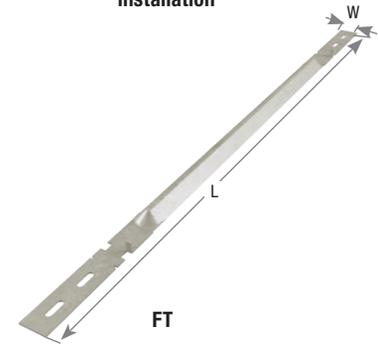
**Finish:** G90 galvanizing

**Installation:**

- Use the Spacing Guide chart to determine spacing between FT units. Each level in chart assumes 12" form boards. Wall thickness from 6" to 12".
- Install with "V" facing up.
- Use (2) WG wedges for each tie. Insert wedge into inside slots for 1x nominal forms and outside slots for 2x nominal forms.
- No walers or stiff-backs are used.
- Vertical ties to keep forms from separating are not included.
- Form deflection may be substantial. Check deflection, if it is critical, and move ties to compensate.
- Forming lumber is assumed to have fb of 1,000 psi.
- **Not recommended for pours greater than 4 feet in height.**



Typical FT/WG installation



FT



WG Wedge must order separately

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Wedge		Footing Width or Wall Thickness (ft)
			W	L	Qty	Type	
FT6	WT6	18	5/8	10-5/8	2	WG	6
FT8	WT8	18	5/8	12-5/8	2	WG	8
FT10	WT10	18	5/8	14-5/8	2	WG	10
FT12	WT12	18	5/8	16-5/8	2	WG	12
WG	W1	14	11/16	3-5/8	---	---	---

- 1) May be used with either 3/4-in or 1-1/2-in forming materials.
- 2) Breaking strength is approximately 775 pounds ultimate. Space as necessary to prevent form blow-out.

**Spacing Guide Chart**

Concrete Lift Height (in)	Level 1		Level 2		Level 3		Level 4	
	1x	2x	1x	2x	1x	2x	1x	2x
12 or Less	2' 6"	4' 0"	---	---	---	---	---	---
12 - 24	1' 6"	3' 0"	2' 6"	4' 0"	---	---	---	---
24 - 36	1' 0"	2' 0"	1' 6"	3' 0"	2' 6"	4' 0"	---	---
36 - 48	0' 9"	1' 6"	1' 0"	2' 0"	1' 6"	3' 0"	2' 6"	4' 0"

- 1) Factor of safety against tensile failure of tie is 1.5 or more.

## RKS Kwik Strip Ties

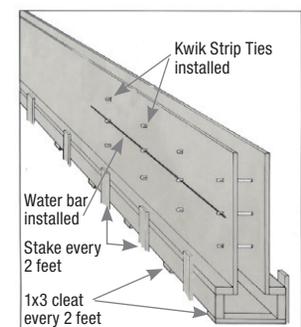
For foundation applications where rental forms are used. Ease of form wall erection and removal makes this system very practical and economical. Use Kwik Strip Ties to hold form walls parallel, to prevent bulging and to prevent them from collapsing while concrete is being poured. 2 x 4 studding is not required for form work.

**Materials:** 16 gauge Cold Roll

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Footing Width or Wall Thickness
			W	L	
RKS200	---	16	3/4	12-1/8	approximates 8-in



RKS



Typical RKS installation



# FA4 Foundation Anchor

The FA4 foundation anchors can be installed as a replacement for the 5/8" diameter anchor bolts or also the commonly used 1/2" diameter anchor bolts while achieving the same load carrying capacity.

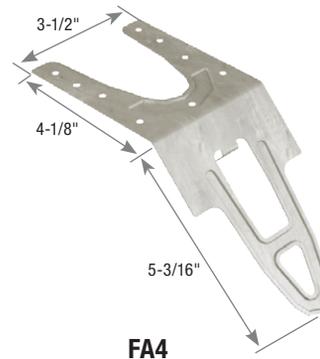
**Materials:** 16 gauge

**Finish:** G90 galvanizing

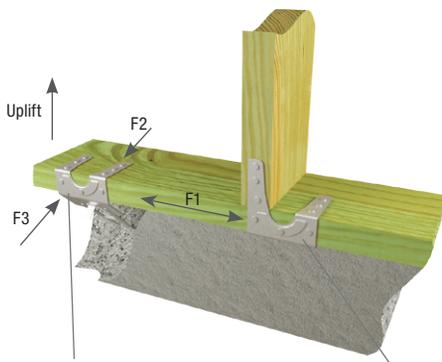
**Options:** See chart for Corrosion Finish Options

**Installation:**

- The FA4 can be mounted to the form board before placing the concrete or inserted into the wet concrete after it is poured. See Detail A installation.
- Place the mudsill in position after the concrete cures. Secure the FA4 to the mudsill (and stud, if applicable) by bending the flanges as needed for a tight fit and nailing into place with the size and quantity of fasteners specified in the chart.

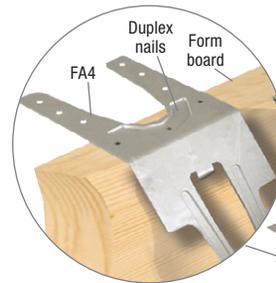


FA4

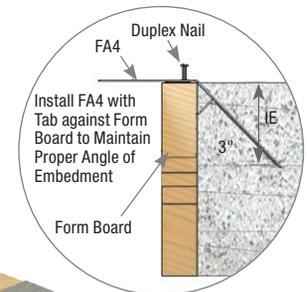


Typical FA4 Mudsill only installation

Typical FA4 Mudsill & Stud installation



Detail A



Detail B



Typical FA4 form board installation

Plate Size	USP Stock No.	Ref. No.	Ga.	Fastener Schedule <sup>6</sup>			Concrete <sup>3</sup>	Unit	DF Factored Resistance <sup>1,2,5</sup>								S-P-F Factored Resistance <sup>1,2,5</sup>								Corrosion Finish													
				Sill Plate <sup>4</sup>		Stud			Type	Wind and $I_E F_a S_a(0.2) < 0.35$				$I_E F_a S_a(0.2) \geq 0.35$				Wind and $I_E F_a S_a(0.2) < 0.35$				$I_E F_a S_a(0.2) \geq 0.35$																
				Side	Top					Qty	Qty	Qty	Uplift	F1	F2	F3	Uplift	F1	F2	F3	Uplift	F1	F2	F3		Uplift	F1	F2	F3									
				Qty	Qty	Qty			115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%		115%	115%	115%	115%									
2 x 4 or 2 x 6	FA4 Mudsill Only	MASA	16	3	6	---	10d x 1-1/2	Uncracked	Lbs	1615	2265	1825	990	1395	2035	1395	990	1450	2030	1635	885	1395	2030	1395	885	Green												
								Cracked	Lbs	1340	1900	1340	975	1005	1425	1005	730	1340	1900	1340	885	1005	1425	1005	730		kN	5.96	8.45	5.96	4.34	4.47	6.34	4.47	3.25	5.96	8.45	5.96
	FA4 Mudsill & Stud			3	3	3	10d x 1-1/2	Uncracked	Lbs	1395	1485	1915	780	1395	1485	1395	780	1250	1335	1915	700	1250	1335	1395	700		1250	1335	1395	700								
								Cracked	Lbs	1340	1485	1340	780	1005	1425	1005	730	1250	1335	1340	700	1005	1335	1340	700		1005	1335	1005	700	kN	5.96	6.61	5.96	3.47	4.47	6.34	4.47

1) Short-term load duration factor 115% for wind and earthquake has been taken into consideration; no further increased is allowed.  
 2) Factored resistances are based on a minimum stemwall thickness of 6-inches, minimum end distance of 5-1/2" and minimum spacing of 7 inches.  
 3) Minimum 28-day concrete compressive strength  $f'c = 2500$  psi (17.25 MPa).  
 4) Factored resistances are based on using a single-ply 2x sill plate. Sill plate may be treated lumber.  
 5) When loads in more than one direction are present, interaction effects shall be considered using the unity equation - Refer to USP catalog Design Notes (1).  
 6) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long.  
 New products or updated product information are designated in blue font.

**Corrosion Finish**  
 ■ Stainless Steel  
 ■ Gold Coat  
 ■ HDG  
 ■ Triple Zinc

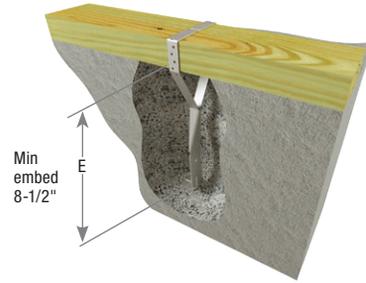
**ST1-TZ** – For installation into concrete slab or poured stemwalls.  
The ST1-TZ features a prebent base flange to assure proper anchoring into concrete.

**ST2-TZ** – For installation into concrete slab, poured stemwalls or concrete/masonry.  
The ST2-TZ features a prebent base flange to assure proper anchoring into concrete.

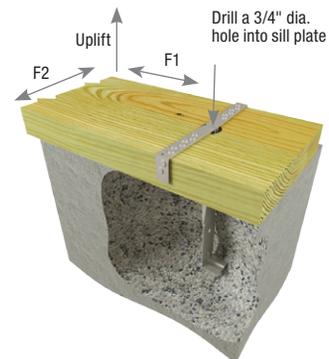
**Materials:** 18 gauge  
**Finish:** G-185 galvanizing  
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

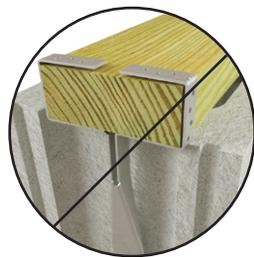
- Use all specified fasteners. See Product Notes, page 15.
- Use a minimum of two anchors per mudsill. An anchor should always be within 12" of the end of each mudsill section.
- Do not rely on these anchors to secure concrete sections together between cold joints.
- Spread sill flanges to mudsill width prior to insertion into wet concrete (minimum strength of 2,500 psi, 17.25 MPa). Alternate installation is possible by inserting unbent flanges through 3/4" center hole predrilled in mudsill. Foundation anchors may also be attached to mudsill and then inserted into wet concrete. When installing ST2-TZ into concrete block, fill cells with grout with a minimum strength of 2,500 psi or 17.25 MPa. Concrete block edges may need to be beveled to facilitate installation.
- ST2-TZ in masonry construction shall be installed in the core of the block and grouted with concrete grout designed for that purpose. In no case, shall they be installed in a mortar joint.
- Do not use in red clay brick.



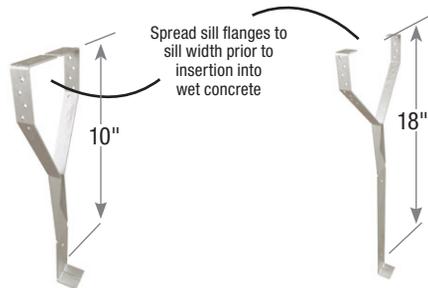
**Typical ST1-TZ installation in concrete**



**Alternate ST1-TZ installation with 3/4" center hole**



**DO NOT install ST1-TZ and ST2-TZ without pre-bending sill flanges in "Y" configuration**



**ST1-TZ**

**ST2-TZ**



**Alternate ST2-TZ installation with 3/4" center hole in mudsill**

Plate Size	USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>2</sup>			Min. Embed (E) (in)	Unit	DF Factored Resistance <sup>1</sup>			S-P-F Factored Resistance <sup>1</sup>			Corrosion Finish
				Mudsill Top	Mudsill Side	Type			Uplift	F1	F2	Uplift	F1	F2	
				Qty	Qty				115%	115%	115%	115%	115%	115%	
2 x 4-6	ST1-TZ	MAB15, MAB15Z	18	4	4	8d x 1-1/2 HDG	8-1/2	Lbs	1000	680	1005	855	585	860	Green
								kN	4.45	3.02	4.47	3.80	2.60	3.83	
	ST2-TZ	MAB23, MAB23Z	18	4	4	8d x 1-1/2 HDG	16-1/2	Lbs	1000	680	1005	855	585	860	
								kN	4.45	3.02	4.47	3.80	2.60	3.83	

1) Short term load duration has been taken into consideration. No increase allowed.  
2) **NAILS:** 8d x 1-1/2 nails are 0.131" diameter by 1-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

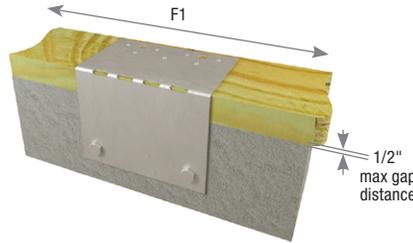
**SFA** – Mudsill anchors for retrofit applications. Features a slotted bend line for easy adjustment when foundation walls are slanted.

**SFJA** – Ties floor joists directly to foundations with bolt fastening.

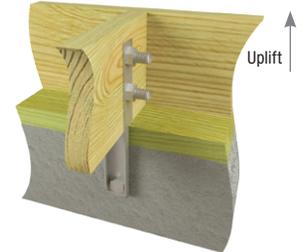
**Materials:** 12 gauge  
**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- A design professional must specify anchor bolt type, length, and embedment. Anchor bolts are laterally loaded. Follow installation instructions for epoxy adhesive.
- Factored resistances assume a minimum concrete compressive strength of 2,500 psi.
- Bolts must be ordered separately.



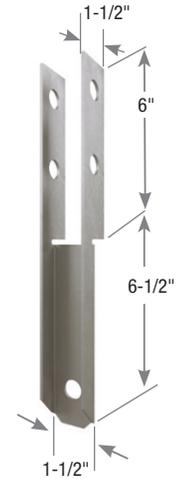
Typical SFA8 installation



Typical SFJA installation



SFA8



SFJA

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule						DF Factored Resistance <sup>1</sup>		S-P-F Factored Resistance <sup>1</sup>	
			Anchor Bolts		Framing				F1	Uplift	F1	Uplift
			Qty	Dia.	Nails <sup>3</sup>	Bolts <sup>2</sup>						
SFJA	FJA	12	1	5/8	---	---	2	5/8	---	1620	---	1360
SFA8	---	12	2	1/2	7	10d x 1-1/2	---	---	1085	---	915	---

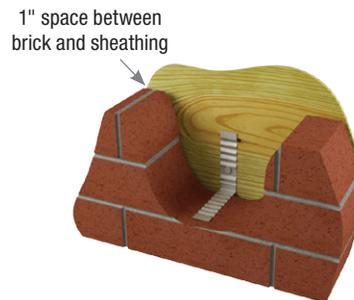
1) The 115% values are short-term loads such as wind and earthquake.  
2) Bolts shall conform to ASTM A 307 or better.  
3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long.

**WT** Wall Ties

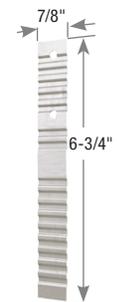
**Materials:** 22 gauge  
**Finish:** G90 galvanizing; WT22B-HDG – Hot-dip galvanized  
**Options:** See chart for Corrosion Finish options

**Installation:**

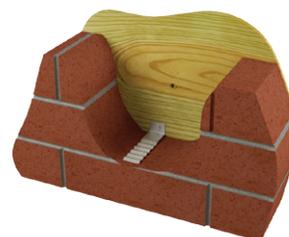
- Use nails appropriate for intended use. See Product Notes, page 15.
- The opposite end must be bonded in the mortar joint of brick facade.
- Meets prescriptive requirements of CSA A370 for corrugated strip ties.



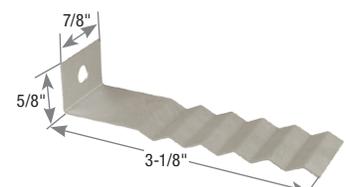
Typical WT17HD/WT22 installation



WT17HD/WT22



Typical WT22B-HDG installation



WT22B-HDG

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>2</sup>		Corrosion Finish
			Qty	Type	
WT17HD	---	22	2	10d	
WT22 <sup>1</sup>	BTB	22	2	10d	
<b>WT22B-HDG</b>	---	22	1	#10 HDG wood screw	

1) WT22 is bulk packed in 500 pieces.  
2) **NAILS:** 10d nails are 0.148" dia. x 3" long.  
New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

**KGLB** – Single bolt, bearing only.

**KGLBT** – Double bolt with Structural Tee provides uplift and horizontal resistance.

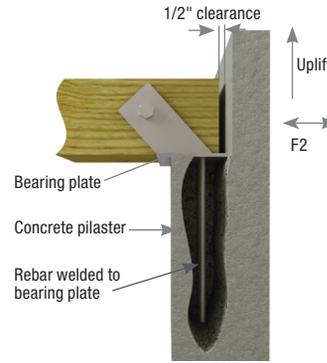
**KHGLB** – Double bolt design provides uplift and horizontal resistance.

**Materials:** Flanges – 1/4" steel  
 Bearing Plate – See chart for "T" dimension  
 Anchor dowels – 3/4" x 12" rebar

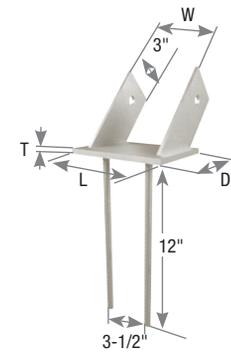
**Finish:** USP primer

**Options:** Consult USP for non-catalog variations.

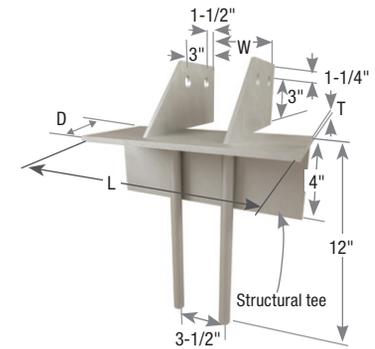
**Codes:** Load values are derived from data submitted to various North American building code evaluators.



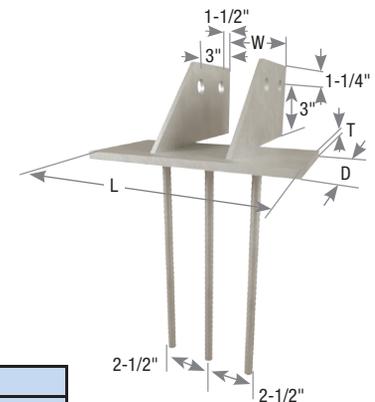
**Typical KGLB installation**



**KGLB**



**KGLBT**



**KHGLB**

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Bolt holes shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt diameter.
- Concrete or masonry walls must be checked by a design professional for adequacy to resist lateral or uplift loads transferred from the beam seat anchor.
- Bolts must be ordered separately. See page 17 for available sizes.

USP Stock No.	Ref. No.	Dimensions (in)				Bolt Schedule		Factored Bearing Resistance <sup>1,4,5</sup>			
		W	L	T	D	Qty	Dia. (in)	Masonry @ 375 psi <sup>2</sup>		Concrete <sup>3</sup>	
								Lbs	kN	Lbs	kN
KGLB5A	GLB5A	5-1/4	7	1/4	5	1	5/8	16980	75.53	16980	75.53
KGLB5B	GLB5B	5-1/4	7	3/8	6	1	5/8	20370	90.61	20370	90.61
KGLB5C	GLB5C	5-1/4	7	3/8	7	1	5/8	23765	105.72	23765	105.72
KGLB5D	GLB5D	5-1/4	7	3/8	8	1	5/8	27160	120.82	27160	120.82
KGLB7A	GLB7A	6-7/8	9	1/4	5	1	3/4	22355	99.44	22355	99.44
KGLB7B	GLB7B	6-7/8	9	3/8	6	1	3/4	26825	119.33	26825	119.33
KGLB7C	GLB7C	6-7/8	9	3/8	7	1	3/4	31300	139.23	31300	139.23
KGLB7D	GLB7D	6-7/8	9	3/8	8	1	3/4	35770	159.12	35770	159.12

- 1) Beams must fully bear on plates.
- 2) Factored bearing resistances are based on the bearing value listed times the bearing area equal to W x D. (Note that full bearing plate area is not used.) Factored bearing resistances shall be reduced where limited by wood bearing on the plate.
- 3) Factored bearing resistances on concrete are based on factored bearing strength in compression perpendicular to grain ( $\phi$  fcp) of 662 psi and actually beam width times beam bearing length.
- 4) Designer shall specify minimum edge and spacing requirements in masonry or concrete structure.
- 5) Concrete or masonry support structure is assumed adequate to support loads listed.

USP Stock No.	Ref. No.	Dimensions (in)				Bolt Schedule		Factored Bearing Resistance <sup>1,5</sup>							
		Range W	D	L	T	Qty	Dia. (in)	Masonry @ 375 psi	On Concrete with Beam Width <sup>1</sup>				F2 <sup>3,4</sup>	Min. 3-1/8 Beam Width (W) Uplift 115% <sup>3</sup>	
									5-1/8	6-3/4	8-3/4	10-3/4			100%
KHGLBA	HGLBA	3-1/4 to 9	5	10	3/8	2	3/4	Lbs	27000	16980	22355	28980	---	9445	4045
								kN	120.11	75.53	99.44	128.91	---	42.02	17.99
KHGLBB	HGLBB	3-1/4 to 9	6	10	3/8	2	3/4	Lbs	32400	20370	26825	34775	---	9445	4045
								kN	144.13	90.61	119.33	154.69	---	42.02	17.99
KHGLBC	HGLBC	3-1/4 to 9	7	10	3/8	2	3/4	Lbs	37800	23765	31300	40570	---	9445	4045
								kN	168.15	105.72	139.23	180.47	---	42.02	17.99
KHGLBD	HGLBD	3-1/4 to 9	8	10	3/8	2	3/4	Lbs	43200	27160	35770	46370	---	9445	4045
								kN	192.17	120.82	159.12	206.27	---	42.02	17.99
KGLBT512	GLBT512	3-1/4 to 11	5-1/2	12	1/3	2	3/4	Lbs	35640	18670	24595	31880	39170	9445	4045
								kN	158.54	83.05	109.41	141.81	174.24	42.02	17.99
KGLBT612	GLBT612	3-1/4 to 11	6-1/2	12	3/8	2	3/4	Lbs	42120	22070	29065	37680	46290	9445	4045
								kN	187.37	98.18	129.29	167.62	205.92	42.02	17.99
KGLBT516	GLBT516	3-1/4 to 15	5-1/2	16	1/3	2	3/4	Lbs	39170	18670	24595	31880	39170	9445	4045
								kN	174.24	83.05	109.41	141.81	174.24	42.02	17.99
KGLBT616	GLBT616	3-1/4 to 15	6-1/2	16	3/8	2	3/4	Lbs	46290	22070	29065	37680	46290	9445	4045
								kN	205.92	98.18	129.29	167.62	205.92	42.02	17.99
KGLBT520	GLBT520	3-1/4 to 19	5-1/2	20	1/3	2	3/4	Lbs	39170	18670	24595	31880	39170	9445	4045
								kN	174.24	83.05	109.41	141.81	174.24	42.02	17.99
KGLBT620	GLBT620	3-1/4 to 19	6-1/2	20	3/8	2	3/4	Lbs	46290	22070	29065	37680	46290	9445	4045
								kN	205.92	98.18	129.29	167.62	205.92	42.02	17.99

- 1) Beams must fully bear on plates.
- 2) Factored bearing resistances on concrete are based on factored bearing strength in compression perpendicular to grain ( $\phi$  fcp) of 662 psi and actually beam width times beam bearing length.
- 3) The 115% values are short-term loads such as wind and earthquake and are based on bolt in wood values only. Factored resistances assume concrete or masonry structure is adequate to resist loads in those directions.
- 4) Factored resistances must be reduced if the allowable lateral load (F2) for masonry or concrete column governs.
- 5) Designer shall specify minimum edge and spacing requirements in masonry or concrete structure.

Connects girder beams to foundation walls and eliminates the need to block out pockets or inserts while forming foundation.

**Materials:** 12 gauge

**Finish:** USP primer

**Options:** Consult USP for non-catalog design variations.

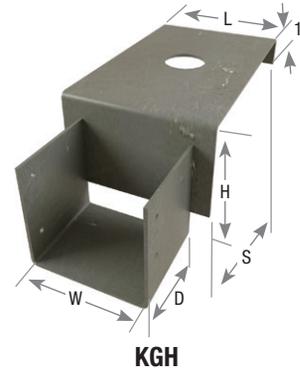
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- H dimension assumes 2x mudsill. For 3x or larger mudsill, please contact factory.
- The 1-1/2" hole, centered in the saddle, allows for installation over any protruding foundation bolts. This is not required.
- Placement of a wood sill over the top of the KGH top flange is required to achieve factored resistance.



Typical KGH installation



KGH

Girder Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)					Fastener Schedule <sup>3</sup>		DF Factored Resistance		SPF Factored Resistance	
				W	L	D	S	H	Qty	Type	Download 100% <sup>1,2</sup>		Download 100% <sup>1,2</sup>	
											Lbs	kN	Lbs	kN
4 x 6	KGH46-6	GH46-6	12	3-9/16	5	3-1/4	6	4	4	16d	<b>2975</b>	<b>13.23</b>	<b>2335</b>	<b>10.39</b>
	KGH46-8	GH46-8	12	3-9/16	5	3-1/4	8	4	4	16d	<b>2975</b>	<b>13.23</b>	<b>2335</b>	<b>10.39</b>
4 x 8	KGH48-6	GH48-6	12	3-9/16	5	3	6	6	4	16d	<b>2975</b>	<b>13.23</b>	<b>2335</b>	<b>10.39</b>
	KGH48-8	GH48-8	12	3-9/16	5	3	8	6	4	16d	<b>2975</b>	<b>13.23</b>	<b>2335</b>	<b>10.39</b>
6 x 6	KGH66-6	GH66-6	12	5-1/2	6-1/4	3	6	4	4	16d	<b>2955</b>	<b>13.14</b>	<b>2320</b>	<b>10.32</b>
	KGH66-8	GH66-8	12	5-1/2	6-1/4	3	8	4	4	16d	<b>2955</b>	<b>13.14</b>	<b>2320</b>	<b>10.32</b>
6 x 8	KGH68-6	GH68-6	12	5-1/2	6-1/4	3	6	6	4	16d	<b>2955</b>	<b>13.14</b>	<b>2320</b>	<b>10.32</b>
	KGH68-8	GH68-8	12	5-1/2	6-1/4	3	8	6	4	16d	<b>2955</b>	<b>13.14</b>	<b>2320</b>	<b>10.32</b>

1) Factored download resistances shall not be increased for short-term load duration.

2) Placement of a wood sill over the top of the KGH top flange is required to achieve listed factored download resistances.

3) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

New products or updated product information are designated in **blue font**.

**Specialty Options Chart –**

refer to Specialty Options pages 220, 222-223 for additional details.

Option	Skewed <sup>1,2</sup>	Saddle
Range	1° to 45°	-- --
Factored Resistance	100% of table load.	100% of table load per side.
Ordering	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and square cut ( <i>SQ</i> ) or bevel cut ( <i>BV</i> ) to product number. Ex. KGH46-6_SK45R_BV	Add <i>SA</i> , and saddle width required to product number. Ex. KGH46-6_SA=5-1/2"

1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.

2) For skewed hangers, the required cut type (square or bevel) of joist member may vary based on skew angle and width of hanger. Some square cut hangers will require custom pricing due to welded back plate.



KGH saddle

Adjustable Support Columns may be used to support carport roofs and beams carrying loads not more than two wood frame floors, where the length of joists carried by such beams does not exceed 16' and a live load on any floor does not exceed 50 lbs/ft<sup>2</sup>.

**Materials:** 3 gauge steel plates (3-1/2" x 6"); 12 gauge outer tube (2-3/4" O.D.); 11 gauge inner tube (2-1/2" O.D.)

**Finish:** Grey Primer Paint

**Codes:** Conforms to NBC 2010, Article 9.17.3.4.(1) and to CAN/CGSB-7.2-94.

**Installation:**

- Elevate top tubing to approximate height and insert locking pin. Rotate jack screw to desired height, then fasten top plate in position. Ensure top and bottom plates are properly fastened to supported beam members and properly aligned to the supported base footing. Always ensure product is installed 90° to beam and footing.
- Fasten the supported beam to the top plate with two (2) 1/4" x 2" lag screws.**



JP



Typical JP installation

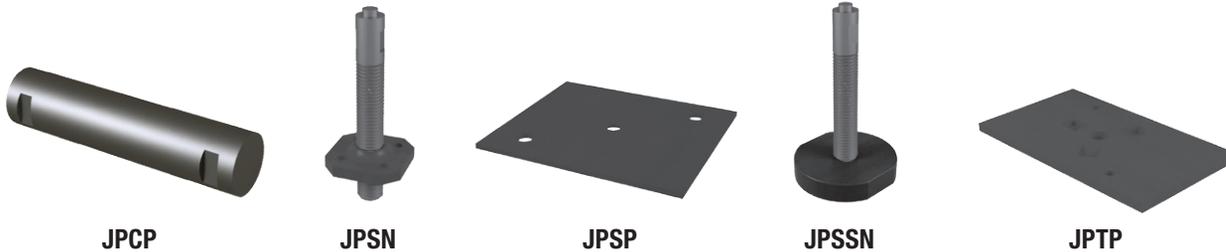
Adj. Steel Column Products

USP Stock No.	Ref. No.	Adjustable Height		Allowable Load <sup>1,3</sup>		Factored Resistance <sup>2,3</sup>	
		in	mm	Lbs	kN	Lbs	kN
JP24	-- --	17 - 24	432 - 610	8555	38.06	12320	54.80
<b>JP36</b>	-- --	24 - 36	610 - 914	8555	38.06	12320	54.80
JP60	-- --	36 - 60	914 - 1524	8555	38.06	12320	54.80
JP96	-- --	60 - 96	1524 - 2438	8555	38.06	12320	54.80
JP108	-- --	72 - 108	1829 - 2743	8177	36.37	11775	52.38

- 1) Allowable loads were established in accordance with CAN/CGSB-7.2-94.
  - 2) The factored resistances given above were soft converted by multiplying the allowable loads by 1.44.
  - 3) The bearing resistance of the supported beam should be checked by the building designer using the appropriate CSA standard.
- New products or updated product information are designated in **blue font**.

**Replacement Parts for Adjustable Support Columns**

USP Stock No.	Description	Qty/Package
JPCP	Setting Pin	1
JPSN	Screw & Nut Assembly	1
JPSP	6" x 7" Steel Plate	15
JPSSN	Screw & Nut Assembly	1
JPTP	Top Plate	1



Type 2 Adjustable Support Columns are designed and tested to meet or exceed the CAN/CGSB-7.2-94 Adjustable Steel Columns standard.

- Materials:** Top & Bottom Plates (4-1/2" x 6") – 3 gauge  
 T2JPLD Tube (2-1/2" x 2-1/2") – 11 gauge  
 T2JPMD Tube (3" x 3") – 10 gauge  
 T2JPHD Tube (3" x 3") – 8 gauge

- Finish:** T2JPLD & T2JPHD Tube – Powder-Coated Red Paint  
 T2JPMD Tube – Powder-Coated Black Paint  
 Plates – Grey Primer Paint

**Installation:**

Turn threaded collar to extend the column to the desired height. Secure the top plate to wood beam with four (4) 1/4" x 2" lag screws.

- Ensure column is installed in a vertical and plumb position.
- Column base shall be aligned and secured to a proper supporting slab.
- Top plate shall cover the full width of the supported beam. Beam shall be centered on the top plate and continuous across the entire length of the plate.



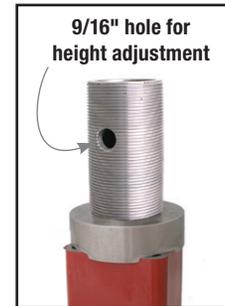
Light & Heavy duty



Medium duty

Adj. Steel Column Products

Light Duty Type 2 Column										
MiTek Stock No.	Adjustable Height		Extended Length		Allowable Load <sup>1,3</sup>			Factored Resistance <sup>2,3</sup>		
	in	mm	in	mm	kN	Lbs	kg	kN	Lbs	kg
T2JPLD84	80 - 84	2032 - 2134	84	2134	75.2	16900	7665	115.8	26000	11815
T2JPLD88	84 - 88	2134 - 2235	88	2235	68.9	15500	7030	108.1	24300	11020
T2JPLD90	86 - 90	2184 - 2286	90	2286	66.7	15000	6805	105.4	23700	10750
T2JPLD96	92 - 96	2337 - 2438	96	2438	60.5	13600	6170	97.4	21800	9935
T2JPLD102	98 - 102	2489 - 2591	102	2591	56.9	12800	5805	89.2	20050	9095
T2JPLD108	104 - 108	2642 - 2743	108	2743	54.3	12200	5535	82.2	18400	8385
T2JPLD114	110 - 114	2794 - 2896	114	2896	51.2	11500	5215	75.7	17000	7710
T2JPLD120	116 - 120	2946 - 3048	120	3048	48.5	10900	4945	69.8	15600	7120



Adjustment assembly

Medium Duty Type 2 Column										
MiTek Stock No.	Adjustable Height		Extended Length		Allowable Load <sup>1,3</sup>			Factored Resistance <sup>2,3</sup>		
	in	mm	in	mm	kN	Lbs	kg	kN	Lbs	kg
T2JPMD84	80 - 84	2032 - 2134	84	2134	135.2	30400	13790	184.6	41500	18825
T2JPMD88	84 - 88	2134 - 2235	88	2235	122.8	27600	12520	176.1	39600	17960
T2JPMD90	86 - 90	2184 - 2286	90	2286	117.4	26400	11975	171.7	38600	17510
T2JPMD96	92 - 96	2337 - 2438	96	2438	106.8	24000	10885	160.6	36100	16375
T2JPMD102	98 - 102	2489 - 2591	102	2591	101.9	22900	10385	149.7	33650	15265
T2JPMD108	104 - 108	2642 - 2743	108	2743	99.2	22300	10115	139.7	31400	14245
T2JPMD114	110 - 114	2794 - 2896	114	2896	97.9	22000	9980	133.0	29900	13560
T2JPMD120	116 - 120	2946 - 3048	120	3048	97.4	21900	9935	121.0	27200	12340



Square tube design

Heavy Duty Type 2 Column										
MiTek Stock No.	Adjustable Height		Extended Length		Allowable Load <sup>1,3</sup>			Factored Resistance <sup>2,3</sup>		
	in	mm	in	mm	kN	Lbs	kg	kN	Lbs	kg
T2JPHD84	80 - 84	2032 - 2134	84	2134	176.1	39600	17960	222.5	49900	22685
T2JPHD88	84 - 88	2134 - 2235	88	2235	162.8	36600	16600	210.4	47300	21455
T2JPHD90	86 - 90	2184 - 2286	90	2286	157.9	35500	16100	206.4	46400	21045
T2JPHD96	92 - 96	2337 - 2438	96	2438	142.8	32100	14560	193.5	43400	19730
T2JPHD102	98 - 102	2489 - 2591	102	2591	133.4	30000	13610	179.3	40300	18280
T2JPHD108	104 - 108	2642 - 2743	108	2743	125.9	28300	12835	167.7	37600	17105
T2JPHD114	110 - 114	2794 - 2896	114	2896	122.3	27500	12475	156.2	35100	15920
T2JPHD120	116 - 120	2946 - 3048	120	3048	119.2	26800	12155	145.5	32700	14840
<b>T2JPHD144</b>	140 - 144	3556 - 3658	144	3658	94.7	21300	9660	110.6	24800	11250



Universal plate

- HEAVY DUTY ADJUSTMENT ASSEMBLY FOR MAXIMUM LOADS
- MODULAR DESIGN FOR GREATEST JOB SITE FLEXIBILITY
- SQUARE POST FOR EASY AND ACCURATE CUT DOWN
- USE REBAR/ROD THROUGH 9/16" HOLE FOR HEIGHT ADJUSTMENT

1) The Allowable Load values have been determined thru testing standards prescribed in the National Research Council Evaluation Directive for Adjustable Steel Columns using a safety factor of 2.25.  
 2) The Factored Resistance (ΦPn) values are established in accordance with the Canadian Standards Association S16, Design of Steel Structures, using a Resistance Factor Φ = 0.90.  
 3) The bearing resistance of the supported beam should be checked by the building designer using the appropriate CSA standard.

New products or updated product information are designated in blue font.

# T2TP Type 2 Top / Bottom Plates

Type 2 Top Plates are compatible with Type 2 Adjustable Support Columns and provide additional bearing for Structural Composite Lumber (SCL) beams and dimensional lumber. They are easily placed and aligned on top of the standard steel column top plate supplied with each USP Type 2 column and can be quickly fastened to the supported beam.

**T2TP527** – 5-1/4" bearing width (Typical: 3 ply 1-3/4" LVL or 6x beam)

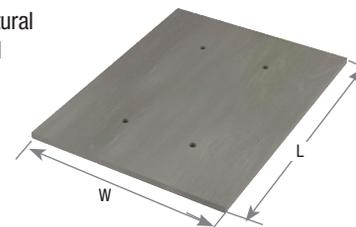
**T2TP79** – 7" bearing width (Typical: 4 ply 1-3/4" LVL or 8x beam)

**Materials:** 3 gauge ASTM A 36 steel

**Finish:** USP primer

**Installation:**

- Place Top Plate on top of standard Type 2 Top Plate.
- Align holes in Top Plate with holes in standard Type 2 Top Plate.
- Install appropriate lag screws through stacked top plates into bottom of supported beam.
- T2TP shall cover the full width of the supported beam. Beam shall be centered on the T2TP and continuous across the entire length of the plate.



**T2TP79**  
(T2TP527 similar)



**Typical T2TP79 installation**  
(T2TP527 similar)

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule		DF Factored Resistance		S-P-F Factored Resistance	
			W	L	Qty	Type	Bearing (100%)		Bearing (100%)		
							Lbs	kN	Lbs	kN	
<b>T2TP527</b>	--	3	5-1/4	7	4	1/4" x 2" Lag Screw	29300	131.3	22600	101.3	
<b>T2TP79</b>	--	3	7	9	4	1/4" x 2" Lag Screw	<b>38500</b>	<b>172.6</b>	<b>34000</b>	<b>152.4</b>	

- 1) Factored resistances are for standard term loading; reduce or increase for other load durations in accordance with the code.
  - 2) Bearing loads are based on compression perpendicular to grain values published in the Canadian Standards Association **CSA-086-14** and having the top plate in full contact with the supported member.
  - 3) Factored resistances are based on lumber with a specific gravity of DF = 0.49 and S-P-F = 0.42 and a moisture content of 19% or less.
  - 4) Lag Screws are not supplied. WS2 Wood Screws (1/4" dia. x 2" long) may be ordered separately and used in lieu of lag screws.
  - 5) Beams shall be designed to support the required loads. Beam shear may limit loads to less than listed loads for device.
  - 6) The factored resistance of the T2TP may exceed the column capacity. Refer to the Type 2 Column load tables for the maximum factored resistance based on column length.
- New products or updated product information are designated in **blue font**.

# T2CC Type 2 Column Caps

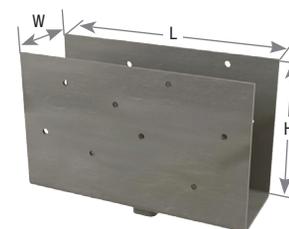
Cap only version for Type 2 Adjustable Support Columns. Adds bearing capacity and resists beam rotation.

**Materials:** T2CC35: 7 gauge ASTM A1011; T2CC525, T2CC71: 3 gauge ASTM A 36 steel

**Finish:** USP primer

**Installation:**

- Replaces standard Type 2 Top Plate.
- Slide column cap tube into top of existing threaded pipe component for complete adjustability.
- WS3 Wood Screws, 1/4" dia. x 3" long, are supplied with T2CC Column Caps.
- Beam shall be continuous across the entire length of the column cap.



**T2CC35**



**Typical T2CC installation**

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>4</sup>		DF Factored Resistance		S-P-F Factored Resistance	
			W	H	L	Beam		Bearing (100%)		Bearing (100%)	
						Qty	Type	Lbs	kN	Lbs	kN
<b>T2CC35</b>	--	7	3-5/8	6-1/2	11	16	WS3	31270	139.1	23675	105.3
<b>T2CC525</b>	--	3	5-1/4	8	13	16	WS3	54115	240.7	40970	182.2
<b>T2CC71</b>	--	3	7-1/8	6-1/2	11	16	WS3	62540	278.2	47350	210.6

- 1) Factored resistances are for standard term loading; reduce or increase for other load durations in accordance with the code.
  - 2) Bearing loads are based on compression perpendicular to grain values published in **CSA 086-14** and having the bucket base in full contact with the supported member.
  - 3) Factored resistances are based on lumber with a specific gravity of DF-L = 0.49 and S-P-F = 0.42 and a moisture content of 19% or less.
  - 4) WS3 Wood Screws (1/4" dia. x 3" long) are included with T2CC Column Caps.
  - 5) Beams shall be designed to support the required loads. Beam shear may limit loads to less than listed loads for device.
  - 6) The factored resistance of the T2CC may exceed the column capacity. Refer to the Type 2 Column load tables for the maximum factored resistance based on column length.
- New products or updated product information are designated in **blue font**.

Reduces eccentricity in the studs/post with decreased centerline dimension. No thru-bolts to countersink.

**Materials:** See chart.

**Finish:** G90 galvanizing

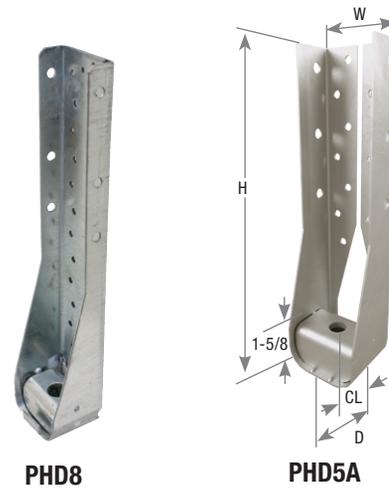
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- **Place the PHD/PHDA over the anchor bolt. No washer is required.**
- Install with USP's code evaluated WS3 (1/4" x 3") Wood Screws, which are provided with the holdown.
- Tighten anchor bolt nuts finger tight, snug, to base, plus 1/3 to 1/2 additional turns with a wrench.
- **PHD/PHDA Predeflected Holdowns may be installed off sill plate with no load reduction.**
- The design engineer may specify any alternate anchorage calculated to resist the tension load for a specific application. Anchorage exposure length should take the bearing plate height of 1-5/8" into account, anchor bolt thread should visibly extend above nut.
- If used to anchor a built-up post, such as a double 2 x 4, the post component shall be designed to act as a single unit. Holddown fasteners specified shall not be considered to attach multiple plies together.
- For anchorage options see STBL Anchor Bolt section on pages 32-33.



Typical PHD5A installation



PHD8

PHD5A

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)				Fastener Schedule				Unit	DF Factored Resistance	S-P-F Factored Resistance
			W	H	D	CL <sup>6</sup>	Anchor Bolts <sup>2</sup>		Wood Screws <sup>4</sup>			Uplift	Uplift
							Qty	Dia.	Qty	Type		115% <sup>1,5</sup>	115% <sup>1,5</sup>
PHD2A	HDU2-SDS2.5	14	3	7-3/4	2-5/8	1-3/8	1	5/8	6	WS3	Lbs	3330	2795
PHD4A	HDU4-SDS2.5	14	3	9-3/4	2-5/8	1-3/8	1	5/8	10	WS3	kN	14.81	12.43
											Lbs	5400	4535
PHD5A	HDU5-SDS2.5	14	3	11-11/16	2-5/8	1-3/8	1	5/8	14	WS3	Lbs	6755	5670
											kN	30.05	25.22
PHD8	HDU8-SDS2.5	12	3-1/4	16-1/2	3	1-3/8	1	7/8	24	WS3	Lbs	8470	7115
											kN	37.68	31.65

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) The designer must specify anchor bolt type, length, and embedment.  
 3) The PHD/PHDA may be elevated off the sill.  
 4) WS3 wood screws are 1/4" x 3" and are included with PHD/PHDA models.  
 5) Minimum post thickness is 3". Consult USP for installations less than 3".  
 6) "CL" denotes the distance between the post and center of the anchor bolt.

The DTB-TZ Deck Tie Back provides positive anchorage between the deck framing and the exterior wall. When used in conjunction with USP triple-zinc or gold-coat joist hangers, the DTB-TZ transfers the lateral loads into the exterior wall while the joist hangers support the vertical loads. The DTB-TZ can also be used to reinforce the connection between the rail post and the deck.

**Finish:** G-185 galvanizing

**Options:** See chart for Corrosion Finish Options

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

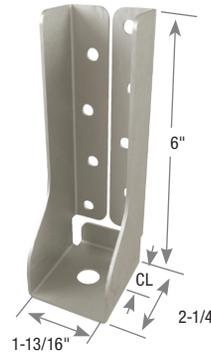
- Use all specified fasteners. See Product Notes, page 15.
- Install with USP's THR 1/2" threaded rod or equivalent.
- Position DTB-TZ on deck joist in a location where the 1/2" threaded rod or bolt may be threaded through the bolt hole.
- Drive WS15-HDG wood screws into joist.
- Re-install threaded rod or anchor bolt. Secure with washer and nut.
- Tighten anchor bolt nuts finger tight, snug, to base plus 1/3 to 1/2 additional turns with wrench.



**Typical DTB-TZ installation**



**Typical DTB-TZ deck to ledger installation**



**DTB-TZ**

USP Stock No.	Ref. No.	Steel Gauge	Rod / Bolt Anchor Dia. (in)	CL (in)	Fastener Schedule <sup>2</sup>		DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish
					Qty	Wood Screws	Lbs		kN		Lbs		kN		
							100%	115% <sup>1</sup>	100%	115% <sup>1</sup>	100%	115% <sup>1</sup>	100%	115% <sup>1</sup>	
DTB-TZ	DTT2Z, FSC	14	1/2	1-1/8	8	WS15-HDG	2640	2640	11.74	11.74	2220	2220	9.88	9.88	Green/Blue

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) WS15-HDG Wood Screws are 1/4" dia. x 1-1/2" long and are included with DTB-TZ Deck Tie-Backs. New products or updated product information are designated in blue font.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

**LTS series** – The LTS19 is designed for nail-on installation to 2x joists or studs, and the LTS20B provides a nail or bolt fastening option. The LTS20B will accommodate wood I-Joists if 10d x 1-1/2" nails are used instead of the specified 16d nails.

**LTTI31** – An open web joist tension tie designed for use with masonry or concrete construction.

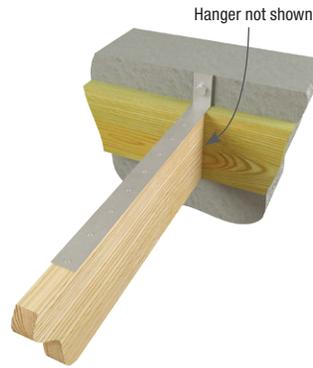
**Materials:** See chart

**Finish:** G90 galvanizing; LTS19-TZ — G-185 galvanizing

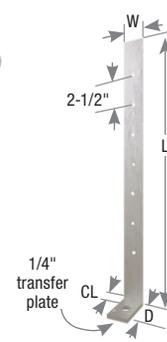
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

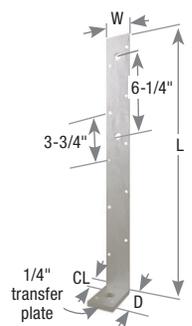
- Use all specified fasteners to attach the strap portion of the connector to the side of stud, post, joist, purlin, or beam. Secure the base to the concrete or masonry wall with specified anchor bolt. A design professional shall specify the type, length, and embedment of the anchor bolt. No washers required.
- Washers are not required on transfer plates that fit over the anchor bolt.
- LTTI31 and LTS connectors must be mounted flush to the surface of the mudsill.
- Factored resistances are based on either nail or bolt fastening; nail and bolt values cannot be combined.
- Tighten anchor bolt nuts finger tight, snug, to base plus, 1/3 to 1/2 additional turns with a wrench.
- Bolts must be ordered separately.



**Typical LTS installation**



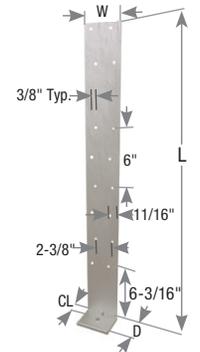
**LTS19-TZ**



**LTS20B**



**Typical LTTI31 installation**



**LTTI31**

USP Stock No.	Ref. No.	Steel Gauge		Dimensions (in)				Nail Spacing (in)	Fastener Schedule		DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish		
		Strap	Plate	W	L	D	CL		Qty	Dia. (in)	Qty	Type	Tensile 115% <sup>1</sup>			Tensile 115% <sup>1</sup>	
													Lbs	kN		Lbs	kN
LTTI31 <sup>4</sup>	LTTI31	18	3	3-3/4	31	2-5/8	1-3/8	3	1	5/8	18	10d x 1-1/2	2905	12.92	2440	10.85	
LTS19-TZ <sup>4</sup>	LTT19	16	3	1-3/4	22-1/4	3	1-1/2	2-1/2	1	3/4	8	10d	1245	5.54	1045	4.65	
LTS20B	LTT20B	12	3	2	20	3	1-1/2	3-3/4	1	3/4	10	10d x 1-1/2	1140	5.07	960	4.27	
											10	16d	1145	5.09	960	4.27	
											2	1/2	1215	5.40	1020	4.54	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) 16d sinkers may be substituted for the specified 10d common nails with no load reduction.  
 3) The designer must specify anchor bolt type, length and embedment depth.  
 4) LTTI and LTS holdowns shall be installed tight to the sill plate.  
 5) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.  
 New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

Secures multi-ply studs or posts to mudsills or foundation. Nail fastening makes for a convenient connection to studs or posts in cramped retrofit installations.

**Materials:** 10 gauge

**Finish:** G90 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners to attach the strap portion of the connector to the side of stud, post, joist, purlin, or beam. Secure the base to the concrete or masonry wall with specified anchor bolt. A design professional shall specify the type, length, and embedment of the anchor bolt.
- HTT45 Max – Fill all round and diamond nail holes.
- Washers are not required on transfer plates that fit over the anchor bolt.
- Tighten anchor bolt nuts finger tight snug to base plus, 1/3 to 1/2 additional turns with a wrench.



**Typical HTT16 installation**



**Typical HTT45 Max installation**



**HTT16**



**HTT45**

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)				Nail Spacing (in)	Fastener Schedule				DF		S-P-F	
			W	L	D	CL		Anchor Bolt <sup>3</sup>		Strap <sup>2,5</sup>		Factored Resistance		Factored Resistance	
								Qty	Dia. (in)	Qty	Type	Tensile 115% <sup>1</sup>	Tensile 115% <sup>1</sup>	Tensile 115% <sup>1</sup>	Tensile 115% <sup>1</sup>
HTT16	---	10	2-1/2	16	2	1-3/8	1-3/4	1	5/8	18	10d	<b>5355</b>	<b>23.82</b>	<b>3800</b>	<b>16.90</b>
<b>HTT45 (Min)</b>	HTT4, HTT5	10	2-1/2	16	2	1-3/8	1-3/4	1	5/8	18	10d	<b>5590</b>	<b>24.87</b>	4905	21.82
16d x 2-1/2											<b>6600</b>	<b>29.36</b>	5780	25.71	
10d											7280	32.38	<b>6390</b>	<b>28.42</b>	
<b>HTT45 (Max)</b>										26	16d x 2-1/2	<b>8255</b>	<b>36.72</b>	<b>7230</b>	<b>32.16</b>

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) 16d sinkers may be substituted for the specified 10d common nails with no load reduction.  
 3) The designer must specify anchor bolt type, length and embedment depth.  
 4) **NAILS:** 10d nails are 0.148" dia. x 3" long, 16d x 2-1/2" nails are 0.162" dia. x 2-1/2" long.  
 New products or updated product information are designated in **blue font**.

**TD** – Different welded configurations and sizes achieve a great deal of versatility within the TD series.

**TDX** – The TDX2 and TDX5 feature formed designs, all others are welded. All are self-jigging.

**All models, except TD2, TD5, and TD7, feature a self-jigging design with code required end distances built in.**

**Materials:** See chart

**Finish:** TDX2-TZ – G-185 galvanizing; All others – USP primer

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

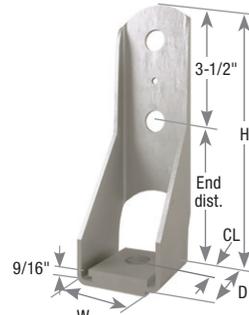
- Use all specified fasteners. See Product Notes, page 15.
- Do not use lag bolts. Washers are not required for anchor bolts or between holdown and bolt hex head, but standard washers should be used against stud or post under the nut. See page 34 for BP/LBP Bearing Plates.
- Bolt holes should be a minimum of 1/32" to a maximum of 1/16" larger than the bolt diameter.
- See pages 32-33 for STB Anchor Bolt section for anchorage options. A design professional may specify alternate anchorage with conventional anchor bolts.
- A design professional shall determine the adequacy of the stud to resist published loads. When installing to multi-ply 2x studs, the designer must specify the fasteners required to bind the plies together and resist splitting.
- Tighten anchor bolt nuts to finger tight, plus 1/3 to 1/2 additional turns with a wrench. Wood members may shrink over time; if possible, nut tightness should be checked periodically.
- If used to anchor a built-up post, such as a double 2 x 4, the post component shall be designed to act as a single unit. Holddown fasteners specified shall not be considered to attach multiple plies together.
- Bolts must be ordered separately.



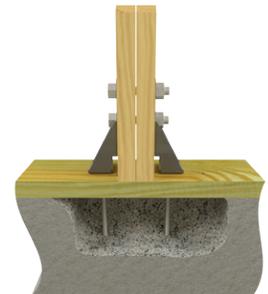
**Typical TDX6 installation**



**Typical TDX2-TZ installation**



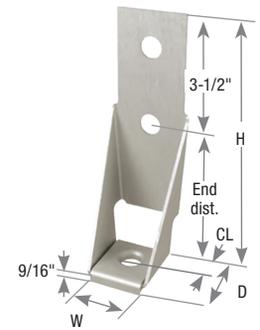
**TDX6**



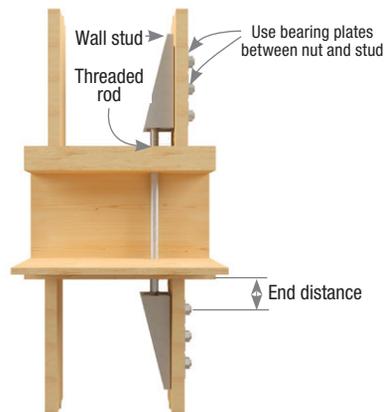
**Typical TDX2-TZ back-to-back installation**



**Typical TD15 installation**



**TDX2-TZ**



**Holdown installation between floors**

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)				Fastener Schedule <sup>4</sup>			Min. Required Bolt End Distance <sup>5</sup> (in)	Length of Bolt in Vertical Member (in)	DF Factored Tensile Resistance (115%) <sup>1,2,3</sup>		S-P-F Factored Tensile Resistance (115%) <sup>1,2,3</sup>		Corrosion Finish
			W	H	D	CL	Anchor Bolt Dia. (in)	Bolts				Lbs	kN	Lbs	kN	
								Qty	Dia. (in)							
TD5	---	7	3	6-3/8	3-3/4	2-1/8	3/4	2	3/4	5-1/4	1-1/2	1560	6.94	1230	5.47	
											3	3115	13.86	2460	10.94	
											3-1/2	3635	16.17	2870	12.77	
											5-1/2	5710	25.40	4510	20.06	
TD7	---	7	3-3/8	11-7/8	3-5/8	2-1/8	1-1/8	3	7/8	6-1/8	1-1/2	2725	12.12	2150	9.56	
											3	5450	24.24	4300	19.13	
											3-1/2	6360	28.29	5020	22.33	
											5-1/2	9995	44.46	7890	35.10	
TD9	---	7	3-3/8	16-1/2	4-1/4	2-1/8	1-1/8	3	1	7	3	6225	27.69	4915	21.86	
											3-1/2	7270	32.34	5740	25.53	
											4-1/2	9345	41.57	7375	32.81	
											5-1/2	11420	50.80	9015	40.10	
TD12	HD12	3	3-1/2	20-1/2	4-1/4	2-1/8	1-1/8	4	1	7	3	8310	36.96	6555	29.16	
											3-1/2	9690	43.10	7645	34.01	
											4-1/2	12460	55.42	9835	43.75	
											5-1/2	15225	67.72	12025	53.49	
TD15	---	3	3-1/2	25	4-3/8	2-1/8	1-1/4	5	1	7	3	10385	46.19	8195	36.45	
											3-1/2	12110	53.87	9560	42.52	
											4-1/2	15570	69.26	12295	54.69	
											5-1/2	19035	84.67	15025	66.83	
TDX2-TZ	HD3B	12	2-1/16	8-1/8	2-3/4	1-1/2	5/8	2	5/8	4-1/2	1-1/2	1300	5.78	1025	4.56	
											3	2525	11.23	1795	7.98	
											3-1/2	2525	11.23	1795	7.98	
											5-1/2	2525	11.23	1795	7.98	
TDX5	---	10	2-1/2	9-3/8	3-7/8	2	3/4	2	3/4	5-1/4	1-1/2	1560	6.94	1230	5.47	
											3	3115	13.86	2460	10.94	
											3-1/2	3635	16.17	2870	12.77	
											5-1/2	5695	25.33	4510	20.06	
TDX6	HD5B	7	3-1/2	11-1/8	3-3/4	2	7/8	2	7/8	6-1/8	1-1/2	1815	8.07	1440	6.41	
											3	3635	16.17	2870	12.77	
											3-1/2	4240	18.86	3345	14.88	
											5-1/2	6665	29.65	5260	23.40	
TDX8	---	7	3-1/2	14-5/8	3-3/4	2	7/8	3	7/8	6-1/8	1-1/2	2725	12.12	2150	9.56	
											3	5450	24.24	4300	19.13	
											3-1/2	6360	28.29	5020	22.33	
											5-1/2	9995	44.46	7890	35.10	
TDX10	HD7B	7	3-1/2	18-1/8	3-3/4	2	7/8	4	7/8	6-1/8	1-1/2	3635	16.17	2870	12.77	
											3	7270	32.34	5740	25.53	
											3-1/2	8480	37.72	6695	29.78	
											5-1/2	13325	59.27	10515	46.77	
TDX14	HD9B	3	3-1/2	20-1/2	3-5/8	2-1/8	1	4	1	7	1-1/2	4150	18.46	3275	14.57	
											3	8310	36.96	6555	29.16	
											3-1/2	9690	43.10	7645	34.01	
											5-1/2	15225	67.72	12025	53.49	

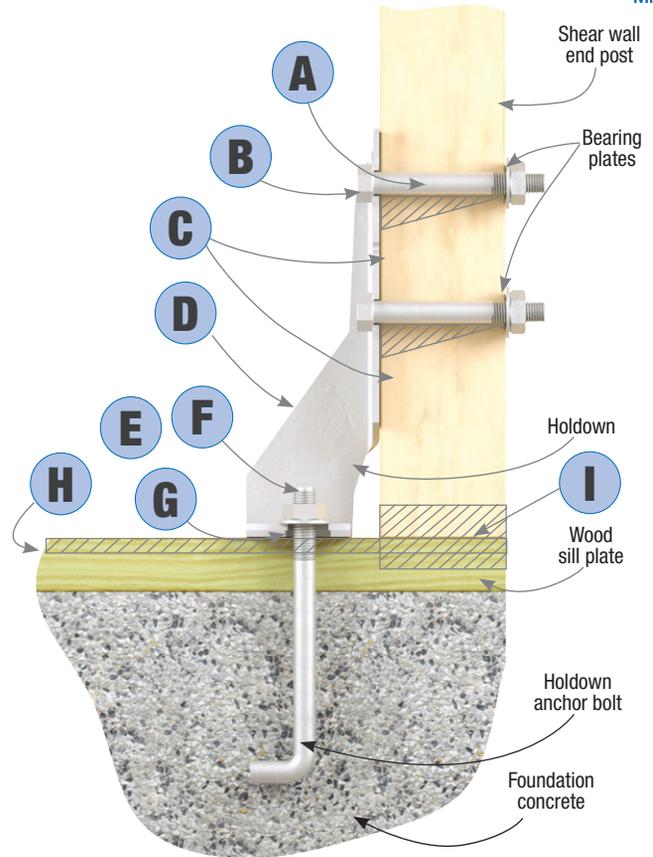
- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 2) The designer must specify stud or post to resist published factored resistance.
- 3) The designer must specify anchor bolt type, length, and embedment.
- 4) All models may be installed with greater than the required anchor end distance with no chart load reduction.
- 5) The designer shall consider the effect of compression, bearing, tension, and combined bending due to device eccentricity when applicable.
- 6) Holdowns raised off of the sill plate may have higher deflection values.

Corrosion Finish ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

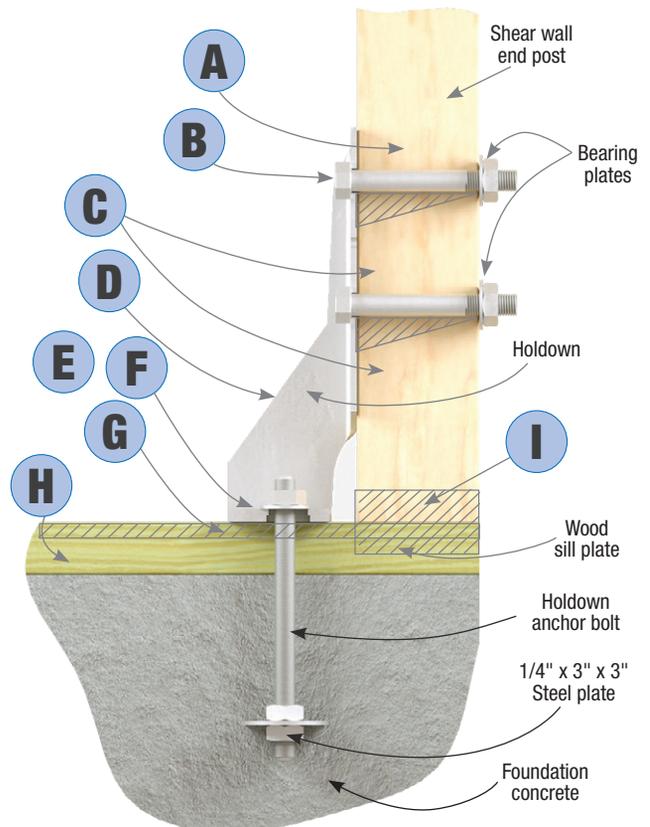
# Sources of Deflection at the Shear Wall Holddown Connections

The following are some of the sources of deflection that should be evaluated by the designer. See the illustration, which applies to other holddown configurations.

- A. Improperly-sized stud/post bolt holes** – increased bolt slip can occur if stud/post bolt holes are oversized and exceed the NDS® recommended bolt hole diameter.
- B. Stud/Post bolt holes** – bolt slip can occur.
- C. Wood crushing at stud/post bolt hole perimeters** –the use of larger washers/bearing plates can reduce stress-induced wood crushing at bolt bearing locations.
- D. Eccentricity in stud/post caused by holddown** – holdowns installed on only one side of a stud or post result in an eccentricity which causes increased stresses and movement in a shear wall system.
- E. Nut spin** – anchor bolt nuts that are not restrained can spin loose during cyclic loading, allowing movement; the use of steel nylon locking nuts or thread adhesive may prevent nut spin.
- F. Loose nuts** – increased movement can occur when nuts are not sufficiently tightened.
- G. Holddown deflection** – holddown deflection can occur when the shear wall system is subjected to cyclic stress from earthquakes or high wind.
- H. Wood Shrinkage** – due to drying, wood may shrink and cause bolted connections to become loose; periodic retightening may be required.
- I. Localized crushing at wood-bearing surfaces** – excessive crushing at wood-bearing surfaces may result from compressive forces due to overturning during high wind or earthquake loading.



Standard Installation



Alternative Installation

Engineered for high capacity with minimum deflection and low eccentricity.

**Materials:** See chart

**Finish:** USP primer

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Place holdown over anchor bolt and drive screws into post.
- Tighten anchor bolt nuts finger tight snug to base, plus 1/3 to 1/2 additional turns with a wrench.
- Holdown may be installed off of the plate with no load reduction.
- Post may be shimmed provided the shim acts as a single unit with the post. Holdown fasteners specified shall not be considered to attach shim to post. Shim shall be a structural material equal or better than the post material. Consult a designer or an engineer of record for appropriate fastening of shim.

**Alternate installations:**

- Drill hole in concrete or masonry and insert retrofit anchor (i.e. epoxy anchor) capable of resisting uplift and lateral loading.
- Place holdown over anchor bolt and drive screws into post.
- Tighten anchor bolt nuts finger tight snug to base, plus 2-3 additional turns with a wrench.
- Post may be shimmed provided the shim acts as a single unit with the post. Holdown fasteners specified shall not be considered to attach shim to post. Shim shall be a structural material equal or better than the post material. Consult a designer or an engineer of record for appropriate fastening of shim.



**Typical UPHD installation**



**UPHD**



**Typical UPHD concrete wall installation**

Holdowns

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)				Fastener Schedule				Minimum Wood Thickness (in) <sup>3</sup>	Minimum Wood Width (in) <sup>4</sup>	DF Factored Resistance		S-P-F Factored Resistance	
			W	H	D	CL	Anchor Bolts <sup>5</sup>		Wood Screws <sup>6</sup>				Uplift 115% <sup>1</sup>		Uplift 115% <sup>1</sup>	
							Qty	Dia. (in)	Qty	Type			Lbs	kN	Lbs	kN
UPHD8	HDQ8-SDS3	10	3-1/4	17-1/2	3	1-3/8	1	7/8	24	WS3	3	3-1/2	13545	60.25	12100	53.82
UPHD9	HDU11-SDS2.5	10	3-1/4	17-1/4	3-1/2	1-1/2	1	1	24	WS3	3	5-1/2	16600	73.84	16510	73.44
UPHD11	HHQ11-SDS2.5	7	3	15-1/8	3-1/2	1-1/2	1	1	24	WS3	4-1/2	5-1/2	21390	95.15	20130	89.54
UPHD14	HDU14-SDS2.5, HHQ14-SDS2.5	7	3	18-3/4	3-1/2	1-1/2	1	1	30	WS3	4-1/2	5-1/2	24590	109.38	23570	104.84

1) Short-term load duration factor  $K_D = 1.15$  has been taken into consideration; no further increase allowed.

2) The UPHD may be installed elevated off the sill.

3) Where post is consisted of multiple 2x members, members must be fastened securely together to act as one member.

4) UPHD hold-down shall be installed centered along the width of the post.

5) The designer must specify anchor bolt type, length, and embedment.

6) WS3 wood screws are 1/4" x 3" and are included with UPHD models.

New products or updated product information are designated in blue font.

Designed to anchor wood framing to poured concrete foundations.

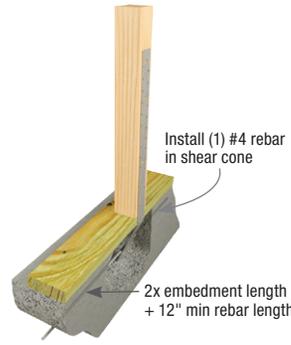
**Materials:** See chart

**Finish:** G90 galvanizing

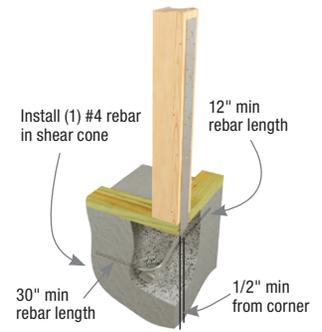
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

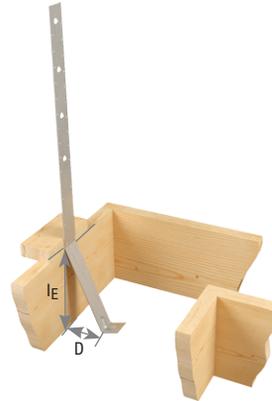
- Use all specified fasteners. See Product Notes, page 15.
- Bending the strap horizontally 90° to facilitate wall placement may cause concrete behind the embedded strap to break away at the top edge (spalling). If the spall is 1" or less from the top edge of the concrete, no load reduction is necessary. If the spall is between 1" and 4", the factored resistance is 0.90 of the published chart load.
- When installing on lumber less than 3-1/2" wide, wood splitting may occur. To reduce splitting, use 10d x 1-1/2" nails or fill every other hole with 16d common nails. Reduce factored resistance in accordance with code requirements.
- Straps are to be installed at the edge of concrete. Install prior to pour by nailing to form. Drive temporary nails through lowest two nail holes into form. Concrete level should reach embedment line; minimum embedment depths are listed in chart.
- Do not rely on these straps to secure concrete sections together between cold joints; take other measures to transfer the load. If there is a cold joint between slab and foundation, the minimum embedment must be made into the foundation. Fastening opportunities may be reduced because the slab pour level may be higher than some nail holes. Using fewer fasteners will reduce factored resistance. Reduce factored resistance by the code capacity for each fastener not installed.
- Factored resistances based on a minimum concrete compressive strength of 2,500 psi at 28 days, with one #4 horizontal rebar in the shear cone. Rebar should be a minimum length of 2x embedment depth plus 12" (see chart for exceptions in corner installations).
- Where fewer fasteners are used in the structural wood member, reduce loads according to the code.
- There may be an increase in the amount of deflection if the strap is installed on the outside of the sheathing, versus directly to the framing members.
- Strap may be bent one complete cycle to aid installation.



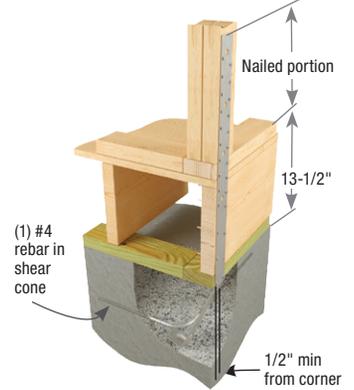
**Typical HPAHD22 single pour edge installation**



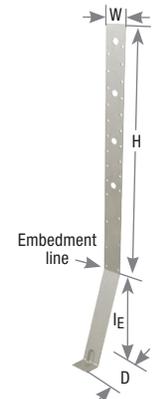
**Typical HPAHD22 single pour corner and endwall installation**



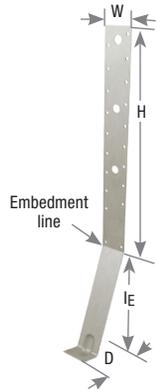
**HPAHD22 form board installation**



**Typical HPAHD22 single pour rim joist installation**



**HPAHD**



**PAHD42**

USP Stock No	Ref. No.	Steel Ga.	Fastener Schedule <sup>1,2</sup>		Dimensions (in.)				Min Stemwall Thickness (in.)	Edge Distance <sup>3,4</sup> (in)	Concrete <sup>8,9</sup>	DF Factored Tensile Resistance (115%)		S-P-F Factored Tensile Resistance (115%)	
			Qty	Type	W	L	I <sub>E</sub>	D				Lbs	kN	Lbs	kN
HPAHD22	---	10	23	16d	2-1/16	24-3/4	9-1/2	4-1/8	6	1/2	Uncracked	4780	21.26	4330	19.26
											Cracked	3345	14.88	3345	14.88
											Uncracked	5345	23.78	4330	19.26
											Cracked	3745	16.66	3745	16.66
PAHD42	---	12	15	16d	2-1/16	16-5/8	8	5-3/4	6	1/2	Uncracked	2555	11.37	2555	11.37
											Cracked	1785	7.94	1785	7.94
											Uncracked	4675	20.80	3495	15.55
											Cracked	3275	14.57	3275	14.57

1) A 16d Common nail has a diameter of 0.162 inch and a length of 3-1/2 inches.  
 2) Predrilled holes are not required.  
 3) An edge distance of 1/2" implies that the distance from the corner of the wall to the edge of the strap is no less than 1/2".  
 4) An edge distance of 1.5 x I<sub>E</sub> implies that the minimum distance from the corner of the wall to the centerline of the strap is no less than 1.5 times the embedment depth.  
 5) For edge distances between 1/2" and 1.5 x I<sub>E</sub> calculate loads using straight line interpolation.  
 6) Minimum anchor spacing for full capacity is 2 x I<sub>E</sub>. For spacing less than that reduce capacity proportionally.  
 7) Factored resistances are based on lumber with a specific gravity of 0.49 for DF and 0.42 for S-P-F with a moisture content of 19% or less.  
 8) Minimum concrete strength f'c = 2500 psi  
 9) Minimum 1-#4 rebar shall be installed in the shear cone

The coined dimples below the embedment line allow for increased concrete bonding. These holdowns retain high uplift capacity even when installed at corners of foundation stemwalls. Ideal for use with built up 2x end posts.

RJ after the model indicates LSTAD or STAD for rim joist applications as in STAD8RJ. Rim joist models provide for a 17" clear span without the loss of strap nailing.

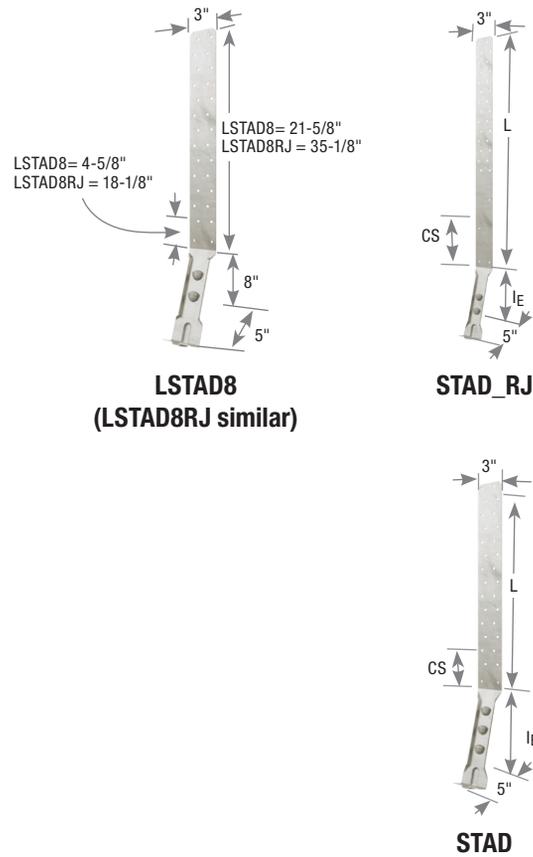
**Materials:** LSTAD - 14 gauge; STAD - 12 gauge

**Finish:** G90 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15. The bottom (2) nails are for form board attachment only and do not contribute to fastener schedule requirements.
- Embed holdown in concrete to the embedment line (bend line).
- See illustrations for requirements on rebar, edge distances, and clear spans.
- Bending the strap horizontally 90° to facilitate wall placement may cause concrete behind the embedded strap to break away at the top edge (spalling). If the spall is 1" or less from the top edge of the concrete, no load reduction is necessary. If the spall is between 1" and 4" the factored resistance is 0.90 of the published chart load.
- When installing on lumber less than 3-1/2" wide, wood splitting may occur. To reduce splitting, use 10d x 1-1/2" nails or fill every other hole with 16d common nails. Reduce factored resistance per code requirements accordingly.
- These straps do not secure concrete sections together at cold joints; take other measures to transfer the load. If there is a cold joint between slab and foundation, the minimum embedment must be made into the foundation. Fastening opportunities may be reduced because the slab pour level may be higher than some nail holes. Using fewer fasteners will reduce factored resistance. Reduce factored resistance by the code capacity for each fastener not installed.
- To achieve full table loads the minimum center-to-center spacing is twice the embedment depth (IE) when resisting tension loads at the same time.
- Where fewer fasteners are used in the structural wood member, reduce loads according to the code.
- There may be an increase in the amount of deflection if the strap is installed on the outside of the sheathing, versus directly to the framing members.
- Strap may be bent one complete cycle to aid installation.

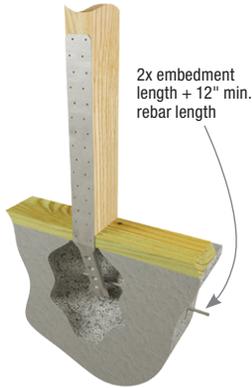


Holdowns

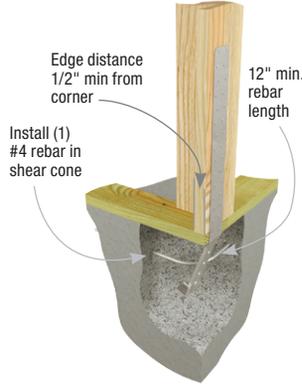
USP Stock No. <sup>5</sup>	Ref. No.	Fastener Schedule <sup>2,3,8</sup>		Min. Stem Wall (in)	Unit	DF Factored Resistance Uplift (115%) <sup>4</sup>									S-P-F Factored Resistance Uplift (115%) <sup>4</sup>												
		Qty	Type			Edge Distance - Concrete									Edge Distance - Concrete												
						2000 psi			2500 psi			3000 psi			2000 psi			2500 psi			3000 psi						
						1/2"	1-1/2"	8"	1/2"	1-1/2"	8"	1/2"	1-1/2"	8"	1/2"	1-1/2"	8"	1/2"	1-1/2"	8"	1/2"	1-1/2"	8"				
LSTAD8	LSTHD8	24	16d Sinker	8	6	Lbs	2765	2765	4000	2765	2765	4000	2765	2765	4000	2320	2320	3360	2320	2320	3360	2320	2320	3360			
						kN	12.30	12.30	17.79	12.30	12.30	17.79	12.30	12.30	17.79	10.32	10.32	14.95	10.32	10.32	14.95	10.32	10.32	14.95			
					8	Lbs	2765	2765	4000	2765	2765	4000	2765	2765	4000	2320	2320	3360	2320	2320	3360	2320	2320	3360	2320	2320	3360
						kN	12.30	12.30	17.79	12.30	12.30	17.79	12.30	12.30	17.79	10.32	10.32	14.95	10.32	10.32	14.95	10.32	10.32	14.95			
LSTAD8RJ	LSTHD8RJ	24	16d Sinker	8	6	Lbs	2765	2765	4000	2765	2765	4000	2765	2765	4000	2320	2320	3360	2320	2320	3360	2320	2320	3360			
						kN	12.30	12.30	17.79	12.30	12.30	17.79	12.30	12.30	17.79	10.32	10.32	14.95	10.32	10.32	14.95	10.32	10.32	14.95			
					8	Lbs	2765	2765	4000	2765	2765	4000	2765	2765	4000	2320	2320	3360	2320	2320	3360	2320	2320	3360	2320	2320	3360
						kN	12.30	12.30	17.79	12.30	12.30	17.79	12.30	12.30	17.79	10.32	10.32	14.95	10.32	10.32	14.95	10.32	10.32	14.95			

1) Factored resistances have been increased 15% for short-term load duration; no further increased is allowed.  
 2) 10d common (0.148" x 3" long) nails may be substituted with no load reduction.  
 3) Wood thickness shall be no less than 2".  
 4) The 115% values are short-term loads such as wind and earthquake.  
 5) RJ after the model indicates LSTADs for rim joist applications as in LSTAD8RJ.  
 6) Interpolate allowable loads for edge distances between those listed. Nail quantities may be reduced for less than IE corner distance design loads- use the code allowable loads for fasteners in shear.  
 7) Where fewer fasteners are used in the structural wood member, reduce loads according to the code.  
 8) **NAILS:** 16d Sinker nails are 0.148" dia. x 3-1/4" long.

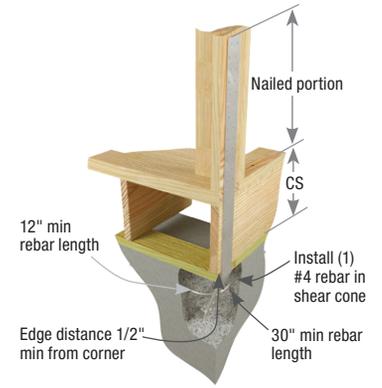
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**Typical STAD10 edge installation**



**Typical STAD10 corner installation**



**Typical STAD14RJ corner rim joist installation**

USP Stock No	Ref. No.	Fastener Schedule <sup>1,2,12</sup>		Dimensions (in.)			Strap Location <sup>6,7,8</sup>	Concrete <sup>10,11</sup>	Unit	D Fir-L Factored Tensile Resistance (115%)			S-P-F Factored Tensile Resistance (115%)						
		Qty	Type	L	I <sub>E</sub>	CS				Wind and Seismic I <sub>E</sub> F <sub>a</sub> S <sub>s</sub> (0.2) < 0.35	Seismic I <sub>E</sub> F <sub>a</sub> S <sub>s</sub> (0.2) ≥ 0.35	Wood Connection Strength	Wind and Seismic I <sub>E</sub> F <sub>a</sub> S <sub>s</sub> (0.2) < 0.35	Seismic I <sub>E</sub> F <sub>a</sub> S <sub>s</sub> (0.2) ≥ 0.35	Wood Connection Strength				
																Lbs	kN	Lbs	kN
STAD8	---	24	16d Sinker	21-5/8	8	4-5/8	Corner	Uncracked	Lbs	3955	2965	7560	3955	2965	6350				
										kN	17.59		13.19	kN		17.59	13.19		
										Cracked	Lbs		3320	2490		Lbs	3320	2490	
										kN	14.77		11.08	kN		14.77	11.08		
										Middle	Uncracked		Lbs	6460		4405	Lbs	6460	4405
											kN		28.74	19.60		kN	28.74	19.60	
STAD8RJ	---	24	16d Sinker	35-1/8	8	18-1/8	Corner	Uncracked	Lbs	3955	2965	7560	3955	2965	6350				
										kN	17.59		13.19	kN		17.59	13.19		
										Cracked	Lbs		3320	2490		Lbs	3320	2490	
										kN	14.77		11.08	kN		14.77	11.08		
										Middle	Uncracked		Lbs	6460		4405	Lbs	6460	4405
											kN		28.74	19.60		kN	28.74	19.60	
STAD10	STHD10	28	16d Sinker	21-5/8	10	1-5/8	Corner	Uncracked	Lbs	5220	3915	7560	5220	3915	6350				
										kN	23.22		17.42	kN		23.22	17.42		
										Cracked	Lbs		4230	3170		Lbs	4230	3170	
										kN	18.82		14.10	kN		18.82	14.10		
										Middle	Uncracked		Lbs	7560		6105	Lbs	7560	6105
											kN		33.63	27.16		kN	33.63	27.16	
STAD10RJ	STHD10RJ	28	16d Sinker	36	10	16-1/8	Corner	Uncracked	Lbs	5220	3915	7560	5220	3915	6350				
										kN	23.22		17.42	kN		23.22	17.42		
										Cracked	Lbs		4230	3170		Lbs	4230	3170	
										kN	18.82		14.10	kN		18.82	14.10		
										Middle	Uncracked		Lbs	7560		6105	Lbs	7560	6105
											kN		33.63	27.16		kN	33.63	27.16	
STAD14	STHD14	38	16d Sinker	32-1/8	14	4-5/8	Corner	Uncracked	Lbs	7535	5540	7535	7535	5540	6330				
										kN	33.52		24.64	kN		33.52	24.64		
										Cracked	Lbs		7910	5540		Lbs	7910	5540	
										kN	35.19		24.64	kN		35.19	24.64		
										Middle	Uncracked		Lbs	7535		5975	Lbs	7535	5975
											kN		33.52	26.58		kN	33.52	26.58	
STAD14RJ	STHD14RJ	38	16d Sinker	39-5/8	14	12-1/8	Corner	Uncracked	Lbs	7535	5540	7535	7535	5540	6330				
										kN	33.52		24.64	kN		33.52	24.64		
										Cracked	Lbs		7910	5540		Lbs	7910	5540	
										kN	35.19		24.64	kN		35.19	24.64		
										Middle	Uncracked		Lbs	7535		5975	Lbs	7535	5975
											kN		33.52	26.58		kN	33.52	26.58	

- 1) Predrilled holes are not required.
  - 2) When 16d Sinker nails are specified, 10d common (0.148" diameter x 3" long) nails may be substituted with no load reduction.
  - 3) Short-term load duration factor 115% for wind and earthquake has been taken into consideration; no further increase is allowed.
  - 4) Wood thickness shall be no less than 3 inches (2 - 2x members).
  - 5) Factored resistances are based on a minimum stemwall thickness of 6-inches.
  - 6) Corner strap location implies that the distance from the corner of the wall to the edge of the strap is no less than 1/2".
  - 7) Middle strap location implies that the minimum distance from the corner of the wall to the centerline of the strap is no less than 1.5 times the embedment depth (I<sub>E</sub>).
  - 8) For edge distances between 1/2" and 1.5 x I<sub>E</sub> calculate loads using straight line interpolation.
  - 9) Minimum anchor spacing for full capacity is 2 x I<sub>E</sub>. For spacing less than that reduce capacity proportionally.
  - 10) Minimum concrete strength f'c = 2500 psi
  - 11) Minimum 1-#4 rebar shall be installed in the shear cone
  - 12) NAILS: 16d Sinker nails are 0.148" dia. x 3-1/4" long.
- New products or updated product information are designated in **blue font**.

# TA Foundation Straps

Foundation Straps offer an economical, one-piece method of achieving a continuous load path from a 2 x 8, 2 x 10, 2 x 12, or 2 x 14 rim joist through concrete block to foundation. All models require a 6" embedment into concrete footings.

**Materials:** 12 gauge

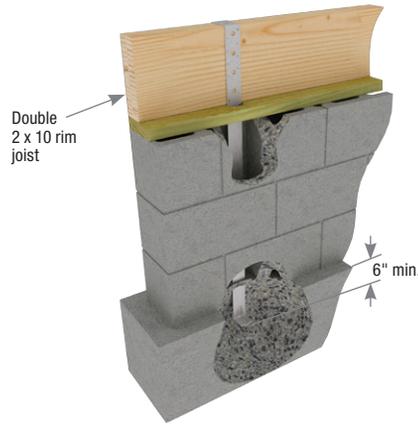
**Finish:** G90 galvanizing

**Options:** See Chart for Corrosion Finish Options

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Factored resistances are based on either nail fastening or bolt fastening; nail and bolt values cannot be combined.
- Install by inserting product into footing's wet concrete. All models require a 6" embedment into concrete foundations. Courses of concrete block must be laid over connector. Notch mudsill at connector locations. Wrap strap over rim joist and fasten.
- Do not rely on these straps to secure concrete sections together between cold joints; take other measures to transfer the load. If there is a cold joint between block and foundation, the minimum embedment must be made into the foundation.
- Based on product embedment the exposed number of fastener holes may be reduced. Using fewer fasteners will reduce factored resistance. Reduce factored resistances by the code prescribed factored resistance per fastener, for each fastener not installed.
- Factored resistances are based on a minimum concrete compressive strength of 2,500 psi at 28 days.
- Bolts must be ordered separately.



Typical TA installation



TA

Holdowns

USP Stock No.	Ref. No.	Dimensions (in)			Fastener Schedule <sup>4</sup>		Installation Type	DF Factored Resistance <sup>1</sup>		S-P-F Factored Resistance <sup>1</sup>		Corrosion Finish
		W	L	L1	Qty	Type		Uplift 115% <sup>2,3</sup>		Uplift 115% <sup>2,3</sup>		
								Lbs	kN	Lbs	kN	
TA51	PA51	2-1/16	48-1/4	17-5/8	2	1/2	2 x 8	3335	14.84	2615	11.63	Green
					8	16d x 2-1/2		2770	12.32	1965	8.74	
					3	1/2	2 x 10	3680	16.37	2615	11.63	
					10	16d x 2-1/2		2770	12.32	1965	8.74	
					4	1/2	2 x 12	3680	16.37	2615	11.63	
					14	16d x 2-1/2		3635	16.17	2580	11.48	
					5	1/2	2 x 14	3680	16.37	2615	11.63	
					16	16d x 2-1/2		3635	16.17	2580	11.48	
TA71	PA68	2-1/16	68-1/4	22-1/8	2	1/2	2 x 8	3335	14.84	2615	11.63	Green
					8	16d x 2-1/2		2770	12.32	1965	8.74	
					3	1/2	2 x 10	3680	16.37	2615	11.63	
					10	16d x 2-1/2		2770	12.32	1965	8.74	
					4	1/2	2 x 12	3680	16.37	2615	11.63	
					14	16d x 2-1/2		3635	16.17	2580	11.48	
					5	1/2	2 x 14	3680	16.37	2615	11.63	
					16	16d x 2-1/2		3635	16.17	2580	11.48	

1) Bolt values are for 3" thick rim joist loaded perpendicular to grain.  
 2) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase is allowed.  
 3) Factored uplift resistance for bolted connections based on upper most fastener 1-1/2" from top of rim board.  
 4) **Nails:** 16d x 2-1/2 nails are 0.162" diameter by 2-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

**PA series** – For installation into poured concrete or concrete block walls and foundations.

**PAI series** – For wood I-Joist applications. An expanded 3" on-center nail spacing reduces splitting along I-Joist flange.

**Materials:** 12 gauge

**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

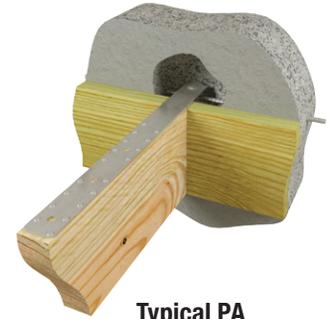
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

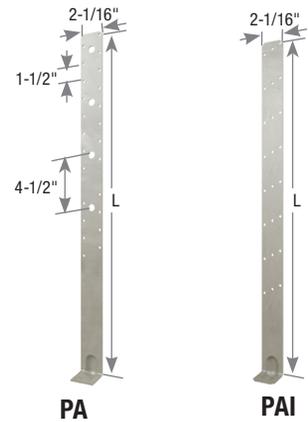
- Use all specified fasteners. See Product Notes, page 15.
- Minimum concrete strength is 2,500 psi.
- The factored resistance for bolts are based on parallel to grain loading with a 3" minimum member thickness. Reduce load per code requirements when minimum member thickness is not achieved.
- Minimum concrete edge distance is 4" for PA & PAI series.
- Minimum concrete block edge distance is 20".
- Designer may specify alternate fastening schedules. Refer to Nail Specification Table on page 18 for nail shear values. Load values shall not exceed published factored resistances.
- No anchor bolts are needed for achieving efficient stress transfer from framing to concrete walls or foundations.
- Bolts must be ordered separately.



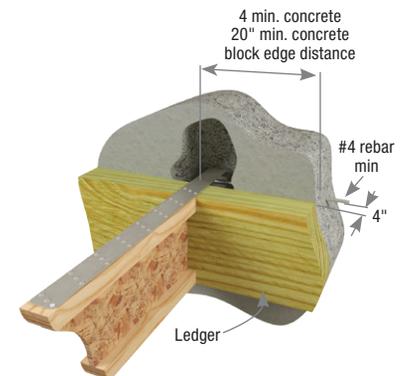
**Typical PA holdown installation**



**Typical PA purlin installation**



USP Stock No.	Ref. No.	L (in)	Minimum Embedment		Fastener Schedule <sup>4,5,6</sup>		DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish
			Concrete	Masonry	Min Qty <sup>7</sup>	Type	Tensile (115%) <sup>1,2,3</sup>								
							Concrete	Masonry	Concrete	Masonry	Concrete	Masonry	Concrete	Masonry	
			Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN	
<b>Maximum Capacity</b>															
PA18	PA18	18-1/2	4	6	12	16d	3200	14.23	3200	14.23	2685	11.94	2685	11.94	
					2	1/2	2340	10.41	2340	10.41	1965	8.74	1965	8.74	
PA23	PA23	23-3/4	4	6	15	16d	4175	18.57	3770	16.77	3505	15.59	3165	14.08	
					3	1/2	3380	15.04	3380	15.04	2840	12.63	2840	12.63	
PA28	PA28	29	4	6	15	16d	4175	18.57	3770	16.77	3505	15.59	3165	14.08	
					4	1/2	4185	18.62	3770	16.77	3515	15.64	3165	14.08	
PA35	PA35	35	4	6	15	16d	4175	18.57	3770	16.77	3505	15.59	3165	14.08	
					4	1/2	4185	18.62	3770	16.77	3515	15.64	3165	14.08	
PAI18	PAI18	18-1/2	4	6	12	10d x 1-1/2	2565	11.41	2565	11.41	2155	9.59	2155	9.59	
PAI23	PAI23	23-1/2	4	6	18	10d x 1-1/2	3845	17.10	3770	16.77	3230	14.37	3165	14.08	
PAI28	PAI28	28-1/2	4	6	24	10d x 1-1/2	4595	20.44	3770	16.77	3860	17.17	3165	14.08	
PAI35	PAI35	35-1/2	4	6	26	10d x 1-1/2	4595	20.44	3770	16.77	3860	17.17	3165	14.08	
<b>2x &amp; 3x Ledger</b>															
PA18	PA18	18-1/2	4	6	12	16d	3200	14.23	3200	14.23	2685	11.94	2685	11.94	
					2	1/2	2340	10.41	2340	10.41	1965	8.74	1965	8.74	
PA23	PA23	23-3/4	4	6	15	16d	4175	18.57	3770	16.77	3505	15.59	3165	14.08	
					3	1/2	3380	15.04	3380	15.04	2840	12.63	2840	12.63	
PA28	PA28	29	4	6	15	16d	4175	18.57	3770	16.77	3505	15.59	3165	14.08	
					4	1/2	4185	18.62	3770	16.77	3515	15.64	3165	14.08	
PA35	PA35	35	4	6	15	16d	4175	18.57	3770	16.77	3505	15.59	3165	14.08	
					4	1/2	4185	18.62	3770	16.77	3515	15.64	3165	14.08	
PAI18	PAI18	18-1/2	4	6	12	10d x 1-1/2	2565	11.41	1925	8.56	2155	9.59	1615	7.18	
PAI23	PAI23	23-1/2	4	6	18	10d x 1-1/2	3635	16.17	3635	16.17	3050	13.57	3050	13.57	
PAI28	PAI28	28-1/2	4	6	24	10d x 1-1/2	4595	20.44	3770	16.77	3860	17.17	3165	14.08	
PAI35	PAI35	35-1/2	4	6	26	10d x 1-1/2	4595	20.44	3770	16.77	3860	17.17	3165	14.08	
<b>4x Ledger</b>															
PA18	PA18	18-1/2	4	6	12	16d	3200	14.23	3200	14.23	2685	11.94	2685	11.94	
					2	1/2	2340	10.41	2340	10.41	1965	8.74	1965	8.74	
PA23	PA23	23-3/4	4	6	15	16d	4175	18.57	3770	16.77	3505	15.59	3165	14.08	
					3	1/2	3380	15.04	3380	15.04	2840	12.63	2840	12.63	
PA28	PA28	29	4	6	15	16d	4175	18.57	3770	16.77	3505	15.59	3165	14.08	
					4	1/2	4185	18.62	3770	16.77	3515	15.64	3165	14.08	
PA35	PA35	35	4	6	15	16d	4175	18.57	3770	16.77	3505	15.59	3165	14.08	
					4	1/2	4185	18.62	3770	16.77	3515	15.64	3165	14.08	
PAI18	PAI18	18-1/2	4	6	12	10d x 1-1/2	2355	10.48	1925	8.56	1975	8.79	1615	7.18	
PAI23	PAI23	23-1/2	4	6	18	10d x 1-1/2	3205	14.26	3205	14.26	2690	11.97	2690	11.97	
PAI28	PAI28	28-1/2	4	6	24	10d x 1-1/2	4595	20.44	3770	16.77	3860	17.17	3165	14.08	
PAI35	PAI35	35-1/2	4	6	26	10d x 1-1/2	4595	20.44	3770	16.77	3860	17.17	3165	14.08	



**Typical PAI I-Joist purlin face installation**

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 2) Values for bolts are based on parallel-to-grain loading with 3" minimum member thickness.
- 3) Values are based on the use of either nails or bolts; nail and bolt values cannot be combined.
- 4) 16d sinkers or 10d common nails may be substituted for the specified 16d common nails at 0.85 of the table loads.
- 5) For alternate nail schedule and load values consult USP.
- 6) Minimum quantity of fasteners to be installed. Product may have additional fastener holes not needed to meet published factored resistance of product.
- 7) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Corrosion Finish**  
■ Stainless Steel ■ Gold Coat  
■ HDG ■ Triple Zinc

# TDL Concrete Angles

These angles secure wood posts to concrete or wood floors in light-duty applications.

**Materials:** 12 gauge

**Finish:** G90 galvanizing

**Options:** See Chart for Corrosion Finish Options.

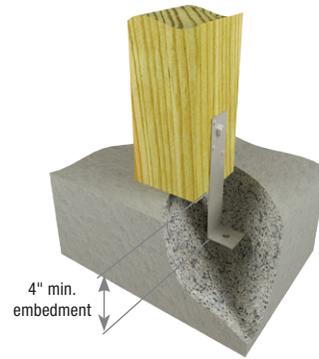
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

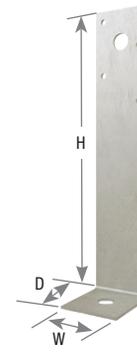
- Use all specified fasteners. See Product Notes, page 15.
- The TDL10 can be embedded into concrete. Minimum embedment depth is 4" to achieve factored resistances.
- **Moisture barrier may be required.**
- Bolts must be ordered separately.



**Typical TDL5 interior installation**



**Typical TDL10 embedded interior installation**



**TDL10**

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>4,5</sup>				DF Factored Resistance <sup>1,2,3</sup>		S-P-F Factored Resistance <sup>1,2,3</sup>		Corrosion Finish
			W	H	D	Anchor Bolts		Strap		Uplift 115%		Uplift 115%		
						Qty	Dia. (in)	Qty	Type	Lbs	kN	Lbs	kN	
			TDL5	A24	12	2	5-3/16	2-1/4	1	1/2	4	16d	975	
1	1/2	1140									5.07	980	4.36	
TDL10	A311	12	2	9-3/4	2-1/4	1	1/2	4	16d	975	4.34	840	3.74	Green
								1	1/2	1140	5.07	980	4.36	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) Values given are based on the use of either nails or bolts; nail and bolt values cannot be combined.  
 3) The bolt values are based on single shear with a minimum member thickness of 3-1/2".  
 4) Designer must specify anchor bolt type, length, and embedment.  
 5) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

Post Anchors are used to secure wood posts to concrete footings. These post anchors also provide moisture damage protection and feature a 1" stand-off plate to elevate wood posts above concrete surfaces.

**Materials:** See chart

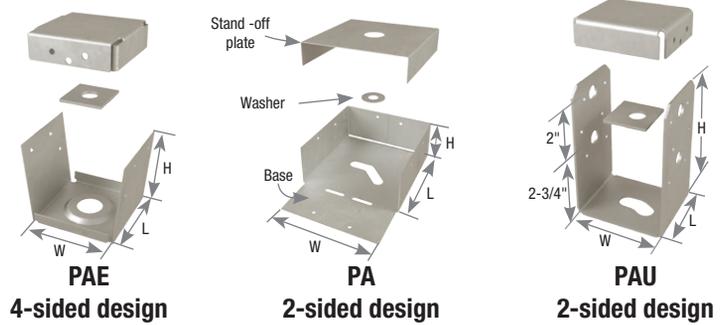
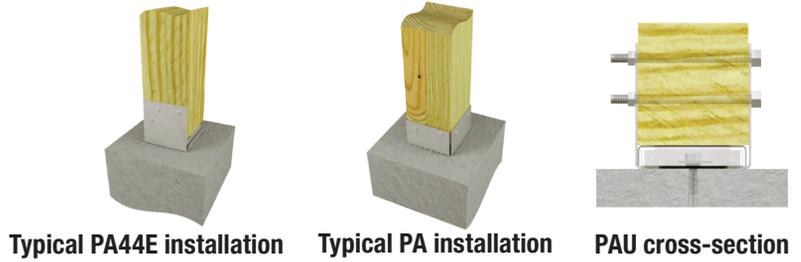
**Finish:** G90 galvanizing, PA66ER-TZ - G-185 galvanizing

**Options:** See chart for Corrosion Finish Options

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. Install with supplied washer.
- Anchor bolts and nails are not furnished.
- **Not recommended for fence posts or other unrestrained (not fixed or fastened at top) applications. These anchors are not designed to resist overturning (moment) loads.**
- **Anchor bolt installation** – position specified diameter anchor bolt at desired location with minimum 4" embedment into minimum 2,500 psi concrete. A minimum 2" edge distance is required to achieve factored resistance.
- **For hardened concrete or retrofit installations** – use specified diameter threaded rod with USP's CIA-EA or CIA-GEL 7000-C adhesive epoxy, following installation instructions. Contact USP Engineering for further information on selecting the proper epoxy.
- Bolts must be ordered separately.



AVAILABLE IN  
**GOLD COAT**



Post/ Column Size	USP Stock No.	Ref. No.	Steel Gauge		Dimensions (in)			Fastener Schedule <sup>3</sup>					Unit	DF Factored Resistance <sup>2</sup>			S-P-F Factored Resistance <sup>2</sup>			Corrosion Finish		
			Base	Stand-off Plate	W	H	L	Anchor Bolt		Post				Bearing 100%	Uplift <sup>1</sup>		Bearing 100%	Uplift <sup>1</sup>				
								Qty	Dia. (in)	Qty	Type	Qty			Dia. (in)	Nails 115%		Bolts 115%	Nails 115%		Bolts 115%	
4 x 4	PA44	-- --	18	12	3-9/16	2-1/8	3-1/2	1	1/2	8	16d	---	Lbs 8410	720	---	5970	510	---	---	---	---	---
	PA44E	-- --	18	16	3-9/16	3-1/2	3-1/2	1	1/2	6	16d	---	Lbs 11095	1655	---	7875	1175	---	---	---	---	---
	PAU44	ABU44	12	16	3-9/16	5-7/16	3	1	5/8	12	16d	2	1/2	Lbs 11095	4770	3790	7875	3385	2690	---	---	---
4 x 4 Rough	PA44R	-- --	18	12	4-1/16	3-1/2	4	1	1/2	12	16d	---	Lbs 8410	720	---	5970	510	---	---	---	---	---
4 x 6	PA46	-- --	18	12	3-9/16	3-1/2	5-1/2	1	1/2	14	16d	---	Lbs 10290	955	---	7305	680	---	---	---	---	---
	PA46E	ABA46	18	12	3-9/16	3-1/2	5-1/2	1	5/8	8	16d	---	Lbs 19895	1025	---	17110	880	---	---	---	---	---
	PAU46	ABU46	10	12	3-9/16	6	5	1	5/8	12	16d	2	1/2	Lbs 22625	4770	3790	16065	3385	2690	---	---	---
4 x 6 Rough	PA46R	-- --	18	10	4-1/16	3-1/2	6	1	1/2	14	16d	---	Lbs 10290	955	---	7305	680	---	---	---	---	---
6 x 6	PA66	-- --	18	12	5-1/2	2-7/8	5-1/2	1	1/2	16	16d	---	Lbs 11385	785	---	8085	555	---	---	---	---	---
	PA66E	ABA66	14	12	5-1/2	3-1/2	5-1/2	1	5/8	8	16d	---	Lbs 26215	1770	---	18615	1255	---	---	---	---	---
	PAU66	ABU66	10	12	5-1/2	6	5	1	5/8	12	16d	2	1/2	Lbs 26215	3975	3790	18615	2820	2690	---	---	---
6 x 6 Rough	PA66R	-- --	18	12	6-1/16	3-1/4	6-1/16	1	1/2	16	16d	---	Lbs 11385	785	---	8085	555	---	---	---	---	---
	PA66ER-TZ	ABA66R	14	12	6	3-1/4	5-1/2	1	5/8	8	16d	---	Lbs 26215	1770	---	18615	1255	---	---	---	---	---
8 x 8	PAU88	ABU88	12	12	7-1/2	7-3/16	7-1/16	2	5/8	14	16d	---	Lbs 13595	5320	---	9650	3775	---	---	---	---	---
	PAU88R	ABU88R	12	12	8-1/16	6-15/16	7-1/16	2	5/8	14	16d	---	Lbs 60.48	23.67	---	42.93	16.79	---	---	---	---	---
8 x 8 Rough	PAU88R	ABU88R	12	12	8-1/16	6-15/16	7-1/16	2	5/8	14	16d	---	Lbs 13595	5320	---	9650	3775	---	---	---	---	---
													kN 60.48	23.67	---	42.93	16.79	---	---	---	---	---

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) Factored resistances are based on the use of either nails or bolts; nail and bolt values cannot be combined.

3) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

New products or updated product information are designated in **blue font**.

**Corrosion Finish**

- Stainless Steel
- Gold Coat
- HDG
- Triple Zinc

**WAS** – A formed base providing a 1" stand-off with high bearing capacity.

**WE** – A formed, one-piece design. Includes embossing for additional lateral strength.

**Materials:** See chart

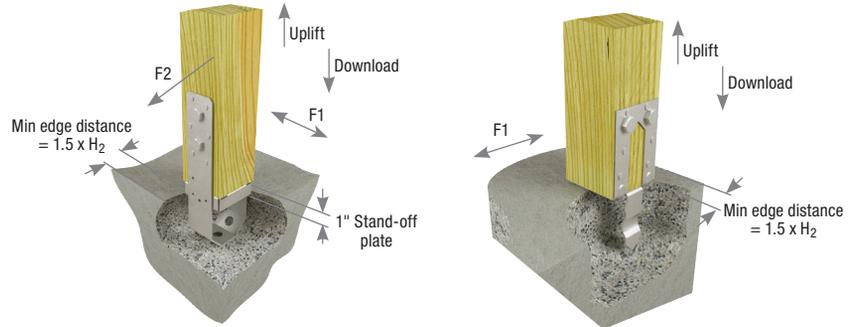
**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

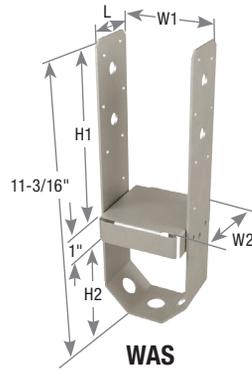
**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Insert into wet concrete after the pour. For the **WE**, embed the anchor so that the base plate is flush with the surface of the concrete. For the **WAS**, embed the anchor until the concrete surface meets the bottom edge of the stand off base legs. This will provide a 1" stand-off where required. A 2" minimum edge distance is required to achieve factored resistance.
- **Not recommended for fence posts or other unrestrained (not fixed or fastened at top) applications. These anchors are not designed to resist overturning (moment) loads.**
- Bolts must be ordered separately.

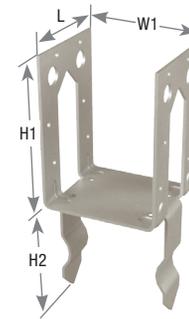


**Typical WAS installation**

**Typical WE installation**



**WAS**



**WE**

Post Size	USP Stock No.	Ref. No.	Steel Gauge		Dimensions (in)					Fastener Schedule <sup>5</sup>		DF Factored Resistance <sup>3,4</sup>				S-P-F Factored Resistance <sup>3,4</sup>				Corrosion Finish	
			Base	Strap	W1	W2	H1	H2 <sup>2</sup>	L	Qty	Type	Unit	Download 100%	Uplift 115% <sup>1</sup>	F1 115% <sup>1</sup>	F2 115% <sup>1</sup>	Download 100%	Uplift 115% <sup>1</sup>	F1 115% <sup>1</sup>		F2 115% <sup>1</sup>
4 x 4	WE44	PB44	12	12	3-1/2	---	4-3/4	3-3/8	3-1/4	12	16d	Lbs	---	1750	1415	1470	---	1505	1215	1265	
												kN	---	7.78	6.29	6.54	---	6.69	5.40	5.63	
	WAS44	PBS44A	16	14	3-9/16	3-1/2	6-3/4	3-1/2	2-1/4	14	16d	Lbs	9755	3235	1750	1620	8390	2780	1505	1395	
												kN	43.39	14.39	7.78	7.21	37.32	12.37	6.69	6.21	
4 x 4 Rough	WE44R	PB44R	12	12	4	---	5	3-5/8	3-3/8	12	16d	Lbs	---	1750	1470	1415	---	1505	1265	1215	
												kN	---	7.78	6.54	6.29	---	6.69	5.63	5.40	
4 x 6	WE46	PB46	12	12	5-1/2	---	4-3/4	3-3/8	3-1/4	12	16d	Lbs	---	1750	1415	1470	---	1505	1215	1265	
												kN	---	7.78	6.29	6.54	---	6.69	5.40	5.63	
	WAS46	PBS46	12	14	3-9/16	5-1/2	6-3/4	3-1/2	2-1/4	14	16d	Lbs	19895	3235	1750	1620	17110	2780	1505	1395	
												kN	88.50	14.39	7.78	7.21	76.11	12.37	6.69	6.21	
4 x 6 Rough	WE46R	---	12	12	6	---	5	3-5/8	3-3/8	12	16d	Lbs	---	1750	1470	1415	---	1505	1265	1215	
												kN	---	7.78	6.54	6.29	---	6.69	5.63	5.40	
6 x 6	WE66	PB66	12	12	5-1/2	---	5	3-5/8	5-3/8	12	16d	Lbs	---	2615	---	2790	---	2250	---	2400	
												kN	---	11.63	---	12.41	---	10.01	---	10.68	
	WAS66	PBS66	12	12	5-1/2	5-1/2	6-3/4	5	2-1/4	14	16d	Lbs	23045	3420	2615	1915	19820	2940	2250	1645	
												kN	102.51	15.21	11.63	8.52	88.17	13.08	10.01	7.32	
6 x 6 Rough	WE66R	PB66R	12	12	6	---	5	3-5/8	5-3/8	12	16d	Lbs	---	2615	---	2790	---	2250	---	2400	
												kN	---	11.63	---	12.41	---	10.01	---	10.68	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) H2 is minimum embedment length of anchor into concrete.  
 3) Minimum concrete compressive strength shall be 2,500 psi at 28 days.  
 4) Factored resistances are based on the use of either nails or bolts; nail and bolt values cannot be combined.  
 5) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

These post bases allow installers to pre-align posts and preset post heights above concrete floors or footings. By eliminating post-to-concrete contact, moisture damage is reduced. Elevated post bases are ideal for building carports, decks or porches. All series feature convenient nail fastening to post.

**Materials:** EPB – 14 gauge tube; 12 gauge steel U-bracket  
 EBG44 – 16 gauge tube; 16 gauge steel U-bracket  
 EPBH – 12 gauge steel U-bracket Stem – 15 mm rebar

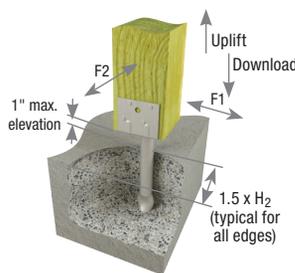
**Finish:** EPB – USP primer; EBG44-TZ – G-185 galvanizing, EPBH–Hot-dip galvanized

**Options:** See chart for Corrosion Finish Options

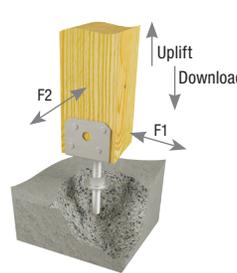
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

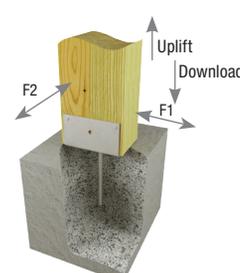
- Use all specified fasteners. See Product Notes, page 15.
- **Not recommended for fence post or other fixed post applications. These anchors are not designed to resist overturning (moment) loads.**
- Maintain 3" minimum edge distance between embedded tube and edge of concrete.



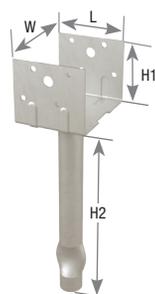
Typical EBG44-TZ installation



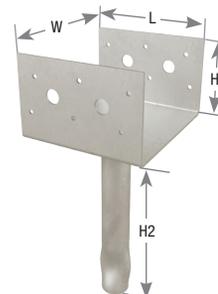
Typical EPB installation



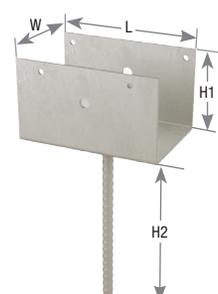
Typical EPBH installation



EBG44-TZ



EPB



EPBH

Post Size	USP Stock No.	Ref. No.	Dimensions (in)				Fastener Schedule <sup>3</sup>		Unit	D Fir-L Wood Connection Factored Resistance				S-P-F Wood Connection Factored Resistance				Corrosion Finish
			W	L	H1	H2	Qty	Type		100%	115% <sup>2</sup>	115% <sup>1,2</sup>	115% <sup>1,2</sup>	100%	115% <sup>2</sup>	115% <sup>1,2</sup>	115% <sup>1,2</sup>	
4 x 4	EBG44-TZ	EPB44A	3-9/16	2-3/4	2-3/8	7-1/2	8	16d HDG	Lbs	3985	1740	3685	3785	3415	1490	3160	3245	
									kN	17.73	7.74	16.39	16.84	15.19	6.63	14.06	14.43	
	EPBH44	EPB44PHDG, RCPS3.5HDG	3-1/2	3-3/8	2-3/4	7	4	16d HDG	Lbs	7025	1830	1720	1485	6020	1570	1475	1275	
									kN	31.25	8.14	7.65	6.61	26.78	6.98	6.56	5.67	
4 x 6	EPB4608	EPB46, EPB46-12	3-9/16	3	3	8	8	16d	Lbs	4890	1830	3575	3455	4190	1570	3065	2965	
									kN	21.75	8.14	15.90	15.37	18.64	6.98	13.63	13.19	
4 x 6 Rough	EPBH46R	RCPS46HDG	4-1/8	5-3/8	3	7	4	16d HDG	Lbs	7025	1830	1720	1485	6020	1570	1475	1275	
									kN	31.25	8.14	7.65	6.61	26.78	6.98	6.56	5.67	
6 x 6	EPB6608	EPB66, EPB66-12	5-9/16	5	3-3/16	8	12	16d	Lbs	7490	2455	3575	3455	6420	2105	3065	2965	
									kN	33.32	10.92	15.90	15.37	28.56	9.36	13.63	13.19	
	EPBH66	RCPS5.5HDG	5-1/2	5-3/8	3	7	4	16d HDG	Lbs	7025	1830	1720	1485	6020	1570	1475	1275	
									kN	31.25	8.14	7.65	6.61	26.78	6.98	6.56	5.67	
6 x 6 Rough	EPBH66R	RCPS6HDG	6-1/8	5-3/8	3	7	4	16d HDG	Lbs	7025	1830	1720	1485	6020	1570	1475	1275	
									kN	31.25	8.14	7.65	6.61	26.78	6.98	6.56	5.67	

1) Factored lateral resistances (F1 and F2) are for conditions where pipe extends no more than 1" above the concrete surface.  
 2) Factored uplift and lateral resistances have taken short-term load duration factor 115% into consideration, no further increase is allowed.  
 3) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.  
 New products or updated product information are designated in blue font.

**Corrosion Finish**

- Stainless Steel
- Gold Coat
- HDG
- Triple Zinc

Allows height adjustments of post after installation. A maximum height adjustment of 4" can be achieved with this product. Adjustments may be required if original installation is not exact, if there is a greater slope on a deck than estimated, or if there is heaving or sinking of the post beyond the initial installation. Embed in concrete a minimum of 6". Useful for reducing moisture damage.

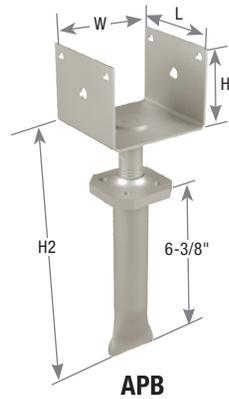
**Materials:** 16 gauge tube; 12 gauge steel U-bracket  
**Finish:** Hot-dip galvanized

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- **Not recommended for fence posts or other unrestrained (not fixed or fastened at top) applications. These anchors are not designed to resist overturning (moment) loads**



Typical APB installation



Post Size	USP Stock No.	Ref. No.	Ga.	Dimensions (in)				Fastener Schedule				DF Factored Resistance <sup>1,2</sup>				S-P-F Factored Resistance <sup>1,2</sup>				Corrosion Finish	
				W	L	H1	H2	Anchor Bolt		Post		Bearing	Uplift	F1	F2	Bearing	Uplift	F1	F2		
								Qty	Dia. (in)	Qty	Type <sup>3</sup>										Unit
4 x 4	APB44	---	16	3-1/2	3-3/8	2-5/8	6-3/4	1	7/8	4	16d HDG	Lbs	7465	1490	975	1495	6400	1280	835	1285	
												kN	33.21	6.63	4.34	6.65	28.47	5.69	3.71	5.72	
6 x 6	APB66	---	16	5-1/2	5-3/8	2-7/8	6-3/4	1	7/8	4	16d HDG	Lbs	7465	1490	975	1495	6400	1280	835	1285	
												kN	33.21	6.63	4.34	6.65	28.47	5.69	3.71	5.72	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) Concrete compressive strength shall be 2,500 psi or greater at 28 days.  
 3) **NAILS:** 16d HDG nails are 0.162" dia. x 3-1/2" long and hot-dip galvanized per ASTM A 153.  
 New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

High capacity column base fastens to column with WS wood screws.

**Materials:** See chart

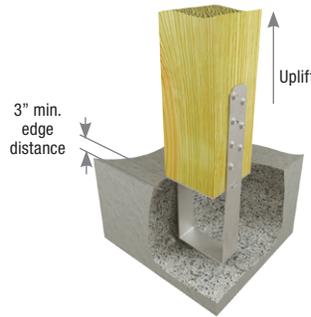
**Finish:** G90 galvanizing

**Options:** KCBQ models available in rough/full sizes  
See chart for Corrosion Finish Options

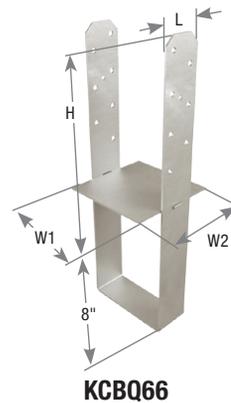
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- WS2 Wood Screws, 1/4" dia. x 2" long, are supplied with KCBQ Column Bases.
- **Not recommended for fence posts or other unrestrained (not fixed or fastened at top) applications. These bases are not designed to resist overturning (moment) loads.**
- All models require a minimum edge distance of 3".
- Embed column base with bottom of base plate flush to concrete.



Typical KCBQ66 installation



KCBQ66

Column Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)				Fastener Schedule <sup>3</sup>		DF Factored Resistance <sup>2</sup>		S-P-F Factored Resistance <sup>2</sup>		Corrosion Finish
				W1	W2 <sup>4</sup>	H	L	Qty	Type	Uplift (115%) <sup>1</sup>		Uplift (115%) <sup>1</sup>		
										Lbs	kN	Lbs	kN	
4 x 4	KCBQ44	CB44, CBQ44-SDS2	10	3-9/16	3-1/2	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
4 x 6	KCBQ46	CB46, CBQ46-SDS2	10	3-9/16	5-1/2	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
4 x 8	KCBQ48	CB48	10	3-9/16	7-1/2	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
6 x 4	KCBQ64	---	10	5-1/2	3-1/2	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
6 x 6	KCBQ66	CB66, CBQ66-SDS2	10	5-1/2	5-1/2	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
6 x 8	KCBQ68	CB68	10	5-1/2	7-1/2	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
7-1/8 x 3-1/2	KCBQ71-4	CB71/8-4	10	7-1/8	3-1/2	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
7-1/8 x 5-1/2	KCBQ71-6	CB71/8-6	10	7-1/8	5-1/2	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
7-1/8 x 7-1/8	KCBQ71-7	CB71/8-7	10	7-1/8	7-1/8	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
8 x 6	KCBQ86	CB86	10	7-1/2	5-1/2	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
8 x 8	KCBQ88	CB88	10	7-1/2	7-1/2	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
10 x 10	KCBQ1010	CB1010	10	9-1/2	9-1/2	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
10 x 12	KCBQ1012	CB1012	10	9-1/2	11-1/2	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
12 x 12	KCBQ1212	CB1212	10	11-1/2	11-1/2	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
<b>Glulam Sizes</b>														
5-1/8 glulam	KCBQ5	CB5-4.5, CB5-6	10	5-1/4	Specify	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
6-3/4 glulam	KCBQ7	CB7-6, CB7-7.5, CB7-9, CB7-10.5	10	6-7/8	Specify	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	
8-3/4 glulam	KCBQ9	CB9-6, CB9-7.5, CB9-9, CB9-10.5	10	8-7/8	Specify	8-3/4	2-1/4	14	WS2	14345	63.81	10605	47.17	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) Concrete compressive strength shall be 2,500 psi or greater at 28 days.

3) WS2 Wood Screws are 1/4" x 2" long and are included with KCBQ Column Bases.

4) "Specify" denotes the required width that must be specified at the time of ordering.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

These column bases install using USP's WS2-HDG Wood Screws, reducing installation time and cost. Designed for high uplift in high wind or seismic applications. Includes a stand-off plate to protect the wood from ground contact moisture.

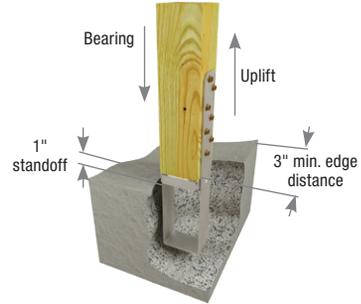
**Materials:** See chart

**Finish:** G-185 galvanizing

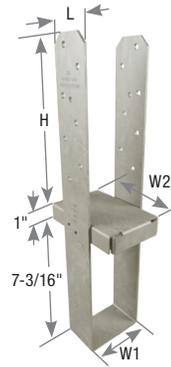
**Options:** See chart for Corrosion Finish Options

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- WS2-HDG Wood Screws, 1/4" dia. x 2" long, are supplied with CBSQ Bases.
- Maintain 3" minimum edge distance between embedded tube and edge of concrete.
- Embed the column base until the concrete surface meets the bottom edge of the stand-off plate.
- **Not recommended for fence posts or other unrestrained (not fixed or fastened at top) applications. These bases are not designed to resist overturning (moment) loads.**



**Typical CBSQ44-TZ installation**



**CBSQ46-TZ**

Column Size	USP Stock No.	Ref. No.	Steel Gauge		Dimensions (in)				Fastener Schedule <sup>2</sup>		Unit	DF Factored Resistance <sup>3</sup>		S-P-F Factored Resistance <sup>3</sup>		Corrosion Finish
			Strap	Base	W1	W2	H	L	Qty	Type		Bearing 100%	Uplift 115% <sup>1</sup>	Bearing 100%	Uplift 115% <sup>1</sup>	
4 x 4	CBSQ44-TZ	CBSQ44-SDS2	10	16	3-9/16	3-1/2	8-3/4	2-1/4	14	WS2-HDG	Lbs	9725	9895	8365	8510	
												kN	43.26	44.02	37.21	
4 x 6	CBSQ46-TZ	CBSQ46-SDS2	10	12	3-9/16	5-7/16	8-3/4	2-1/4	14	WS2-HDG	Lbs	19895	9895	17110	8510	
												kN	88.50	44.02	76.11	
6 x 6	CBSQ66-TZ	CBSQ66-SDS2	10	12	5-1/2	5-7/16	8-3/4	3	14	WS2-HDG	Lbs	23045	9895	19820	8510	
												kN	102.51	44.02	88.17	

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) WS2-HDG Wood Screws are 1/4" x 2" and are included with CBSQ Column Bases.

3) Concrete compressive strength shall be 2,500 psi or greater at 28 days.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

12 gauge base for carports, patios, or other residential framing.

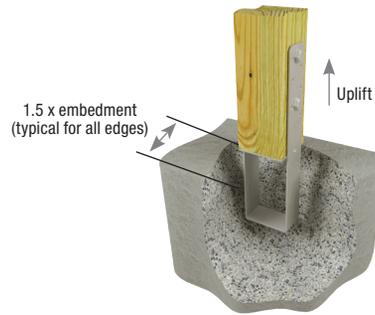
**Materials:** 12 gauge

**Finish:** G90 galvanizing

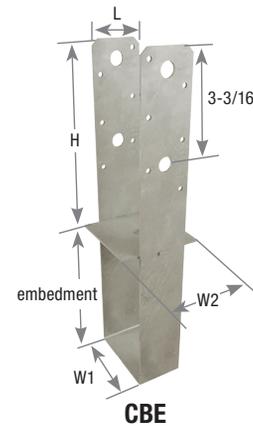
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- **Not recommended for fence posts or other unrestrained (not fixed or fastened at top) applications. These bases are not designed to resist overturning (moment) loads.**
- All models require a minimum edge distance of 3".
- Bolted models feature diamond holes for temporary nail fastening to facilitate drilling and bolting.
- Embed column base with bottom of base plate flush to concrete.
- Bolts must be ordered separately.



**Typical CBE installation**



Column Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)					Fastener Schedule <sup>2,6</sup>		DF Factored Resistance		S-P-F Factored Resistance	
				W1	W2	H	L	Embedment <sup>5</sup>	Qty	Type	Uplift (115%) <sup>1,3,4</sup>		Uplift (115%) <sup>1,3,4</sup>	
											Lbs	kN	Lbs	kN
4 x 4	CBE44	LCB44	12	3-9/16	3-1/2	7-1/2	2	6-1/2	2	1/2	6305	28.05	5420	24.11
									12	16d	4060	18.06	3490	15.52
4 x 6	CBE46	LCB46	12	3-9/16	5-1/2	7-1/2	2	6-1/2	2	1/2	6295	28.00	5415	24.09
									12	16d	4060	18.06	3490	15.52
6 x 6	CBE66	LCB66	12	5-1/2	5-1/2	7-1/2	2	6-1/2	2	1/2	6280	27.93	5400	24.02
									12	16d	4060	18.06	3490	15.52

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) All bolts shall meet or exceed the specifications of ASTM A 307.  
 3) Concrete compressive strength shall be 2,500 psi or greater at 28 days.  
 4) Factored resistances are based on the use of either nails or bolts; nail and bolt values cannot be combined.  
 5) CBE column base shall be embedded into concrete up to this depth.  
 6) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.  
 New products or updated product information are designated in **blue font**.

Secures nominal sized posts to wood surfaces for light-duty applications.

**Materials:** See chart

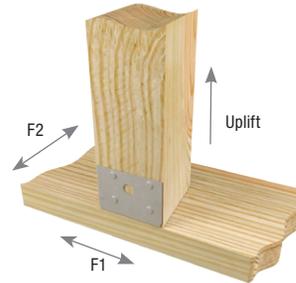
**Finish:** G90 galvanizing; D44-TZ & D46R-TZ - G-185 galvanizing; RSCH – Hot-dip galvanized

**Options:** See chart for Corrosion Finish Options

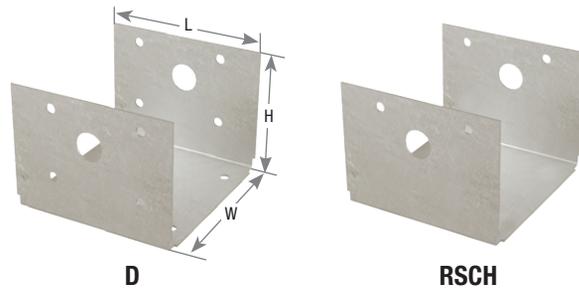
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- **Not recommended for fence posts or other unrestrained (not fixed or fastened at top) applications. These anchors are not designed to resist overturning (moment) loads.**
- While D series post anchors offer some lateral and uplift resistance, they are not recommended as a primary means of anchorage for posts in railings. They may be used only for intermediate posts between fully anchored corner / end posts in rail systems.



Typical D installation



Post Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2</sup>				Unit	DF Factored Resistance <sup>1</sup>			S-P-F Factored Resistance <sup>1</sup>			Corrosion Finish
				W	H	L	Post		Beam			Uplift	F1	F2	Uplift	F1	F2	
							Qty	Nails	Qty	Nails								
4 x 4	D44-TZ	BC40, BC40Z	18	3-9/16	2-1/2	3-3/8	8	16d HDG	4	16d HDG	Lbs	1345	1920	2065	955	1365	1465	Green
	RSCH44	---	12	3-9/16	2-5/8	3-3/8	4	16d HDG	1	---	kN	5.98	8.54	9.19	4.25	6.07	6.52	
4 x 4 Rough	D44R	BC40R	18	4	3	3-3/4	8	16d	4	16d	Lbs	1345	1920	2065	955	1365	1465	Green
											kN	5.98	8.54	9.19	4.25	6.07	6.52	
4 x 6	D46	BC460	18	3-9/16	3	5-3/8	10	16d	5	16d	Lbs	1345	1920	2065	955	1365	1465	Green
											kN	5.98	8.54	9.19	4.25	6.07	6.52	
4 x 6 Rough	D46R-TZ	---	18	4	3	5-3/8	10	16d HDG	5	16d HDG	Lbs	1345	1920	2065	955	1365	1465	Green
											kN	5.98	8.54	9.19	4.25	6.07	6.52	
6 x 6	D66	BC60	18	5-1/2	3	5-3/8	10	16d	5	16d	Lbs	1345	1920	2065	955	1365	1465	Green
	RSCH66	---	12	5-9/16	2-7/8	5-3/8	4	16d HDG	1	---	kN	5.98	8.54	9.19	4.25	6.07	6.52	
6 x 6 Rough	D66R	BC60R	18	6	3	5-3/8	10	16d	5	16d	Lbs	1345	1920	2065	955	1365	1465	Green
											kN	5.98	8.54	9.19	4.25	6.07	6.52	
8 x 8	D88	BC80	18	7-1/2	3	7-3/8	12	16d	5	16d	Lbs	1345	1920	2065	955	1365	1465	Green
											kN	5.98	8.54	9.19	4.25	6.07	6.52	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

**PCM** – Provides a positive connection for medium-duty, post-to-beam applications.

**EPCM** – End column caps.

**Materials:** See chart

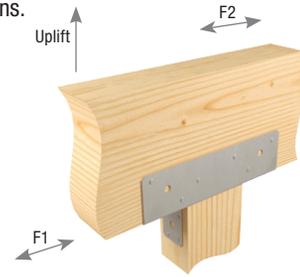
**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

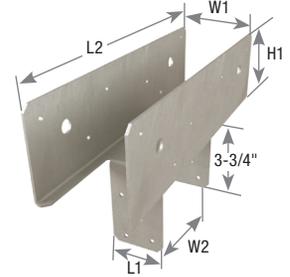
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- PCM 16 gauge post caps should not be substituted for PCM 12 gauge post caps unless approved by the Engineer of Record.



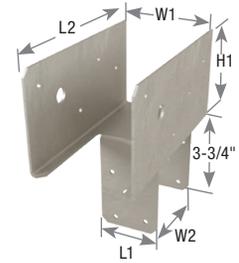
Typical PCM46 center cap installation



PCM



Typical EPCM end cap installation



EPCM

USP Series	Ref. Series	Steel Gauge	Fastener Schedule <sup>1</sup>			
			Post		Beam	
			Qty	Type	Qty	Type
PCM_16	PC_16	16	8	16d	12	16d
PCM	PC	12	8	16d	12	16d
EPCM_16	EPC_16	16	8	16d	8	16d
EPCM	EPC	12	8	16d	8	16d

1) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

USP Stock No.	Ref. No.	Beam	Post	Dimensions (in)					DF Factored Resistance (115%) <sup>1</sup>						S-P-F Factored Resistance (115%) <sup>1</sup>						Corrosion Finish
				W1	W2	H1	L1	L2	Lbs			kN			Lbs			kN			
									Uplift	F1	F2	Uplift	F1	F2	Uplift	F1	F2	Uplift	F1	F2	
<b>Centre Column Caps</b>																					
PCM4416	PC44-16	4x	4x	3-9/16	3-9/16	3-9/16	2-7/16	11	1140	1345	1530	5.07	5.98	6.81	960	1130	1285	4.27	5.03	5.72	
PCM44	PC44	4x	4x	3-9/16	3-9/16	3-9/16	2-7/16	11	1965	1600	1915	8.74	7.12	8.52	1650	1345	1610	7.34	5.98	7.16	
PCM46	PC46	4x	6x	3-9/16	5-9/16	3-9/16	2-7/16	13	1965	1600	1915	8.74	7.12	8.52	1650	1345	1610	7.34	5.98	7.16	
PCM4616	PC46-16	4x	6x	3-9/16	5-9/16	3-9/16	2-7/16	13	1140	1345	1530	5.07	5.98	6.81	960	1130	1285	4.27	5.03	5.72	
PCM4816	PC48-16	4x	8x	3-9/16	7-9/16	3-9/16	2-7/16	15	1140	1345	1530	5.07	5.98	6.81	960	1130	1285	4.27	5.03	5.72	
PCM48	PC48	4x	8x	3-9/16	7-9/16	3-9/16	2-7/16	15	1965	1600	1915	8.74	7.12	8.52	1650	1345	1610	7.34	5.98	7.16	
PCM6416	PC64-16	6x	4x	5-1/2	3-9/16	3-1/2	3-13/16	11	1160	1825	1825	5.16	8.12	8.12	975	1535	1535	4.34	6.83	6.83	
PCM64	PC64	6x	4x	5-1/2	3-9/16	3-1/2	3-13/16	11	1860	2190	1970	8.27	9.74	8.76	1560	1840	1655	6.94	8.19	7.36	
PCM6616	PC66-16	6x	6x	5-1/2	5-9/16	3-1/2	3-13/16	13	1160	1825	1825	5.16	8.12	8.12	975	1535	1535	4.34	6.83	6.83	
PCM66	PC66	6x	6x	5-1/2	5-9/16	3-1/2	3-13/16	13	1860	2190	1970	8.27	9.74	8.76	1560	1840	1655	6.94	8.19	7.36	
PCM6816	---	6x	8x	5-1/2	7-9/16	3-1/2	3-13/16	15	1160	1825	1825	5.16	8.12	8.12	975	1535	1535	4.34	6.83	6.83	
PCM68	PC68	6x	8x	5-1/2	7-9/16	3-1/2	3-13/16	15	1860	2190	1970	8.27	9.74	8.76	1560	1840	1655	6.94	8.19	7.36	
PCM77	---	7-1/8	7-1/8	7-1/8	7-1/8	3-11/16	5-5/8	14-9/16	1860	2190	1970	8.27	9.74	8.76	1560	1840	1655	6.94	8.19	7.36	
PCM8416	---	8x	4x	7-1/2	3-9/16	3-1/2	5-5/8	11	1160	1825	1825	5.16	8.12	8.12	975	1535	1535	4.34	6.83	6.83	
PCM84	PC84	8x	4x	7-1/2	3-9/16	3-1/2	5-5/8	11	1860	2190	1970	8.27	9.74	8.76	1560	1840	1655	6.94	8.19	7.36	
PCM8616	---	8x	6x	7-1/2	5-9/16	3-3/8	5-5/8	13	1160	1825	1825	5.16	8.12	8.12	975	1535	1535	4.34	6.83	6.83	
PCM86	PC86	8x	6x	7-1/2	5-9/16	3-1/2	5-5/8	13	1860	2190	1970	8.27	9.74	8.76	1560	1840	1655	6.94	8.19	7.36	
PCM8816	---	8x	8x	7-1/2	7-9/16	3-1/2	5-5/8	15	1160	1825	1825	5.16	8.12	8.12	975	1535	1535	4.34	6.83	6.83	
PCM88	PC88	8x	8x	7-1/2	7-9/16	3-1/2	5-5/8	15	1860	2190	1970	8.27	9.74	8.76	1560	1840	1655	6.94	8.19	7.36	
<b>End Column Caps</b>																					
EPCM4416	EPC44-16	4x	4x	3-9/16	3-9/16	3-9/16	2-7/16	7-1/4	1140	1345	1530	5.07	5.98	6.81	960	1130	1285	4.27	5.03	5.72	
EPCM44	EPC44	4x	4x	3-9/16	3-9/16	3-9/16	2-7/16	7-1/4	1965	1600	1915	8.74	7.12	8.52	1650	1345	1610	7.34	5.98	7.16	
EPCM46	EPC46	4x	6x	3-9/16	5-9/16	3-9/16	2-7/16	9-1/4	1965	1600	1915	8.74	7.12	8.52	1650	1345	1610	7.34	5.98	7.16	
EPCM4616	EPC46-16	4x	6x	3-9/16	5-9/16	3-9/16	2-7/16	9-1/4	1140	1345	1530	5.07	5.98	6.81	960	1130	1285	4.27	5.03	5.72	
EPCM4816	EPC48-16	4x	8x	3-9/16	7-9/16	3-9/16	2-7/16	11-1/4	1140	1345	1530	5.07	5.98	6.81	960	1130	1285	4.27	5.03	5.72	
EPCM48	EPC48	4x	8x	3-9/16	7-9/16	3-9/16	2-7/16	11-1/4	1965	1600	1915	8.74	7.12	8.52	1650	1345	1610	7.34	5.98	7.16	
EPCM6416	EPC64-16	6x	4x	5-1/2	3-9/16	3-1/2	3-13/16	7-1/4	1160	1825	1825	5.16	8.12	8.12	975	1535	1535	4.34	6.83	6.83	
EPCM64	EPC64	6x	4x	5-1/2	3-9/16	3-1/2	3-13/16	7-1/4	1860	1970	1970	8.27	8.76	8.76	1560	1655	1655	6.94	7.36	7.36	
EPCM6616	EPC66-16	6x	6x	5-1/2	5-9/16	3-1/2	3-13/16	9-1/4	1160	1825	1825	5.16	8.12	8.12	975	1535	1535	4.34	6.83	6.83	
EPCM66	EPC66	6x	6x	5-1/2	5-9/16	3-1/2	3-13/16	9-1/4	1860	1970	1970	8.27	8.76	8.76	1560	1655	1655	6.94	7.36	7.36	
EPCM6816	---	6x	8x	5-1/2	7-9/16	3-1/2	3-13/16	11-1/4	1160	1825	1825	5.16	8.12	8.12	975	1535	1535	4.34	6.83	6.83	
EPCM68	EPC68	6x	8x	5-1/2	7-9/16	3-1/2	3-13/16	11-1/4	1860	1970	1970	8.27	8.76	8.76	1560	1655	1655	6.94	7.36	7.36	
EPCM77	---	7-1/8	7-1/8	7-1/8	7-1/8	3-11/16	5-5/8	10-13/16	1860	1970	1970	8.27	8.76	8.76	1560	1655	1655	6.94	7.36	7.36	
EPCM8416	---	8x	4x	7-1/2	3-9/16	3-1/2	5-5/8	7-1/4	1160	1825	1825	5.16	8.12	8.12	975	1535	1535	4.34	6.83	6.83	
EPCM84	EPC84	8x	4x	7-1/2	3-9/16	3-1/2	5-5/8	7-1/4	1860	1970	1970	8.27	8.76	8.76	1560	1655	1655	6.94	7.36	7.36	
EPCM8616	---	8x	6x	7-1/2	5-9/16	3-3/8	5-5/8	9-1/4	1160	1825	1825	5.16	8.12	8.12	975	1535	1535	4.34	6.83	6.83	
EPCM86	EPC86	8x	6x	7-1/2	5-9/16	3-1/2	5-5/8	9-1/4	1860	1970	1970	8.27	8.76	8.76	1560	1655	1655	6.94	7.36	7.36	
EPCM8816	---	8x	8x	7-1/2	7-9/16	3-1/2	5-5/8	11-1/4	1160	1825	1825	5.16	8.12	8.12	975	1535	1535	4.34	6.83	6.83	
EPCM88	EPC88	8x	8x	7-1/2	7-9/16	3-1/2	5-5/8	11-1/4	1860	1970	1970	8.27	8.76	8.76	1560	1655	1655	6.94	7.36	7.36	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

**BC** – One-piece design for double 2x's to a 4x post.

**BCS** – One-piece design connects 2-ply or 3-ply beams to the tops of 4x4 or 6x6 post. Slant nailing reduces the amount of nails required.

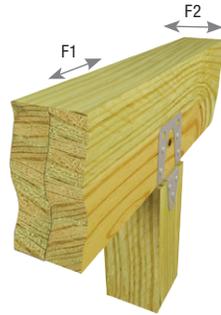
**C** – One-piece design.

**Materials:** 18 gauge

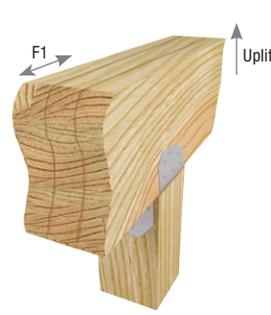
**Finish:** G90 galvanizing;  
BC400-TZ – G-185 galvanizing

**Options:** See chart for Corrosion Finish Options

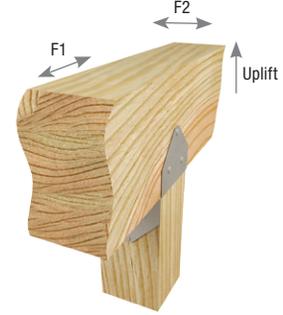
**Codes:** Load values are derived from data submitted to various North American building code evaluators.



**Typical BC400-TZ installation**



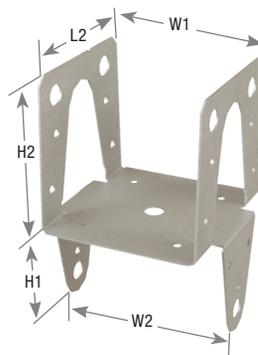
**Typical BCS23-6 installation**



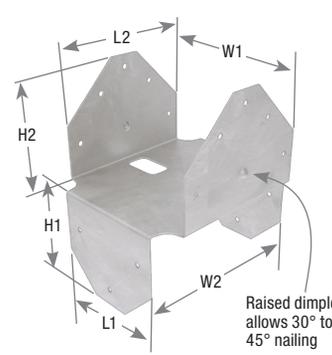
**Typical C44 installation**

**Installation:**

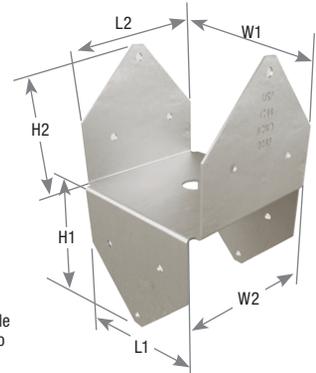
- Place post cap on top of post and fasten cap to post using specified nails.
- Place beam between top flanges of the cap and install all specified nails into beam.
- **BCS** - Slant nails must be installed through dimple holes at a 30° to 45° angle through the beam into the post to achieve listed loads. **Standard length "common" nails must be used to achieve listed load values.**



**BC400-TZ**



**BCS23-6**



**C44**

Post Size	USP Stock No.	Ref. No.	Dimensions (in)						Fastener Schedule <sup>2</sup>			Unit	DF Factored Resistance <sup>1</sup>			S-P-F Factored Resistance <sup>1</sup>			Corrosion Finish
			W1	W2	H1	H2	L1	L2	Post Qty	Beam Qty	Type		Uplift	F1	F2	Uplift	F1	F2	
4 x 4	BCS22-4	BCS2-2/4	3-1/8	3-9/16	2-15/16	2-15/16	2-7/8	2-7/8	6	8	10d	Lbs	1265	1555	--	1150	1485	--	
	BC400-TZ	-- --	3-1/8	3-9/16	2-3/8	3	--	3-5/16	10	8	10d x 1-1/2 HDG	Lbs	935	1185	840	800	1015	720	
	C44	BC4	3-9/16	3-9/16	2-7/8	2-7/8	3-1/4	3-1/4	6	6	16d	Lbs	1885	2220	2220	1340	1575	1575	
4 x 4 Rough	C44R	BC4R	4	4	2-5/8	2-5/8	3-1/4	3-1/4	8	8	16d	kN	8.39	9.88	9.88	5.96	7.01	7.01	
4 x 6	C46	BC46	3-9/16	5-1/2	2-9/16	2-5/8	3-3/8	5-1/4	6	10	16d	Lbs	1885	2220	2220	1340	1575	1575	
4 x 6 Rough	C46R	-- --	4	6	2-3/4	2-3/4	3-1/4	5-1/4	8	10	16d	kN	8.39	9.88	9.88	5.96	7.01	7.01	
6 x 6	BCS23-6	BCS2-3/6	4-5/8	5-5/8	3	3-3/8	3-1/2	4-3/8	6	12	16d	Lbs	1460	2385	--	1315	2295	--	
	C66	BC6	5-1/2	5-1/2	2-7/8	2-7/8	5-1/4	5-1/4	12	12	16d	kN	6.49	10.61	--	5.85	10.21	--	
6 x 6 Rough	C66R	BC6R	6	6	2-13/16	2-13/16	5-1/4	5-1/4	10	10	16d	Lbs	2055	4360	4360	1455	3095	3095	
8 x 8	C88	BC8	7-1/2	7-1/2	5	5	7-3/8	7-3/8	16	16	16d	Lbs	2120	4360	4360	1505	3095	3095	
												kN	9.43	19.40	19.40	6.69	13.77	13.77	

1) Short-term load duration factor  $K_D = 1.15$  has been taken into consideration; no further increase allowed.

2) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long. New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

**PB** – Two-piece design.

**PBES / PBS** – Two-piece design with extended side plates and wrap around post design. Easy retrofit installations.

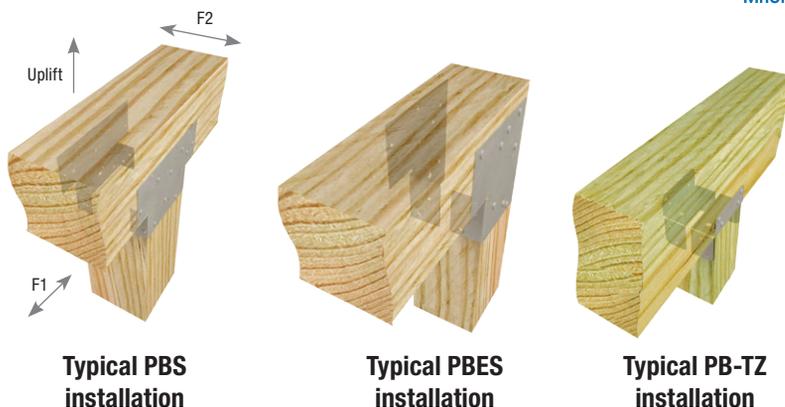
**Materials:** 18 gauge

**Finish:** G90 galvanizing; PB44-6TZ &

PB66-6TZ – G-185 galvanizing

**Options:** See chart for Corrosion Finish Options

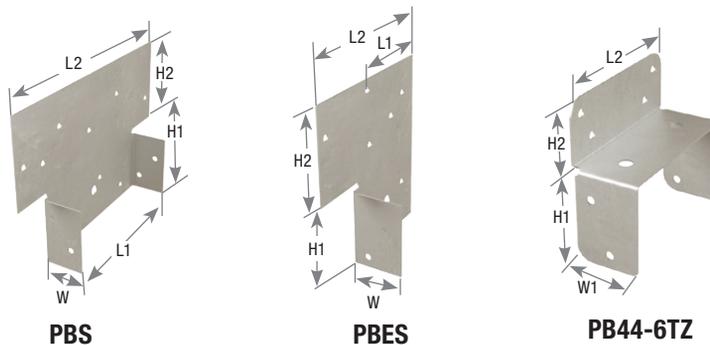
**Codes:** Load values are derived from data submitted to various North American building code evaluators.



**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- These products are designed for single, solid-sawn beams with matching post width. Multi-ply beams must have same width as post. Use shims as required.
- **PB, PBES, PBS post caps are to be installed in pairs.**

AVAILABLE IN  
**GOLD COAT**



Post Size	USP Stock No.	Ref. No.	Dimensions (in)					Fastener Schedule <sup>2,3</sup>				Unit	DF Factored Resistance <sup>1,2</sup>			S-P-F Factored Resistance <sup>1,2</sup>			Corrosion Finish
			W	H1	H2	L1	L2	Post		Beam			Uplift	F1	F2	Uplift	F1	F2	
								Qty	Type	Qty	Type								
4 x 4	PB44-6TZ	LPC4Z	1-1/2	2-1/8	1-1/2	--	3-5/8	8	16d HDG	8	16d HDG	Lbs	1210	1885	665	855	1340	470	Gold Coat
	PBS44	AC4	1-7/16	2-5/16	2-13/16	3-9/16	6-1/2	12	16d	12	16d	Lbs	5850	3800	2250	4150	2695	1600	
	PBES44	ACE4, LCE4	1-1/2	2-3/8	2-3/4	3-1/4	4-3/4	8	16d	8	16d	kN	26.02	16.90	10.01	18.46	11.99	7.12	
4 x 4 Rough	PBS44R	AC4R	1-1/2	2-5/16	2-3/16	4	7	8	16d	8	16d	Lbs	4150	1915	1050	2950	1355	745	Gold Coat
												kN	18.46	8.52	4.67	13.12	6.03	3.31	
6 x 6	PB66-6TZ	LPC6Z	1-1/2	2-1/2	3	--	5-9/16	8	16d HDG	8	16d HDG	Lbs	1210	1885	665	855	1340	470	Gold Coat
	PBES66	ACE6	1-1/2	2-3/8	2-1/8	5-1/2	7	8	16d	8	16d	Lbs	3480	2400	1685	2475	1700	1195	
	PBS66	AC6	1-1/4	2-5/16	2-7/8	5-1/2	8	14	16d	12	16d	kN	15.48	10.68	7.50	11.01	7.56	5.32	
6 x 6 Rough	PBS66R	AC6R	1-1/4	2-5/16	2-3/16	6	8-1/2	10	16d	10	16d	Lbs	4295	3785	2190	3045	2685	1560	Gold Coat
												kN	19.11	16.84	9.74	13.55	11.94	6.94	
6 x 6 Rough	PBS66R	AC6R	1-1/4	2-5/16	2-3/16	6	8-1/2	10	16d	10	16d	Lbs	3480	2400	1685	2475	1700	1195	Gold Coat
												kN	15.48	10.68	7.50	11.01	7.56	5.32	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) Factored resistances and nail schedules for two-piece models are per pair of post caps.  
 3) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

# PBC Post Beam Corner Connectors

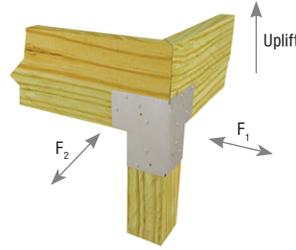
The PBC series is a one-piece connector designed to secure two mitered beams on a corner post while providing uplift capacity.

**Materials:** 18 gauge

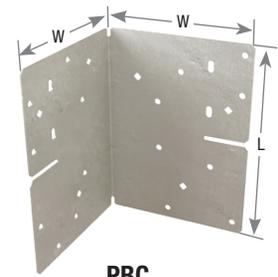
**Finish:** G-185 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Install PBC on outside corner of post forming tabs to inner side of post.
- Assumes beam members are bevel cut at corner.



Typical PBC installation



PBC

Post Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule <sup>2</sup>				Unit	DF Factored Resistance <sup>1</sup>			S-P-F Factored Resistance <sup>1</sup>			Corrosion Finish
				W	L	Post		Beam			Uplift	F1	F2	Uplift	F1	F2	
						Qty	Type	Qty	Type								
4 x 4	PBC44-TZ	---	18	4-15/16	6-1/2	8	16d HDG	8	16d HDG	Lbs	1800	900	900	1555	775	775	Green
										kN	8.01	4.00	4.00	6.92	3.45	3.45	
6 x 6	PBC66-TZ	---	18	6-15/16	6-1/2	8	16d HDG	8	16d HDG	Lbs	1800	900	900	1555	775	775	Green
										kN	8.01	4.00	4.00	6.92	3.45	3.45	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

# CPB Composite Post Bases

The CPB is made of corrosion resistant composite material compatible with preservative treated lumber. Provides code required 1" stand-off and can be used with rough lumber sizes.

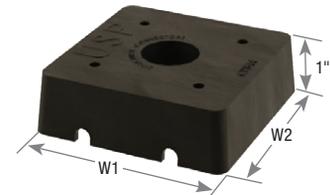
**Materials:** High Strength composite

**Installation:**

- Attach base to post with (4) 10d HDG nails.
- Attach post to concrete using 1/2" diameter rod into concrete and extend into wood member.
- **Not recommended for fence posts or other unrestrained (not fixed or fastened at top) applications. These anchors are not designed to resist overturning (moment) loads.**



Typical CPB installation



CPB

Post Size	USP Stock No.	Ref. No.	Dimensions (in)		Bottom Surface Bearing Area	Fastener Schedule <sup>5</sup>		Factored Resistance <sup>1,2</sup>		Concrete Bearing Strength <sup>3,4</sup>	
			W1	W2		Qty	Type	Lbs	kN	Lbs	kN
4 x 4	CPB44	CPS4	3-1/4	3-1/4	2.2	4	10d HDG	5235	23.29	6545	29.11
4 x 6	CPB46	CPS46	3-5/16	5-5/16	3.3	4	10d HDG	6810	30.29	9820	43.68
5 x 5	CPB55	CPS5	4-1/8	4-1/8	3.0	4	10d HDG	6295	28.00	8925	39.70
6 x 6	CPB66	CPS6	5-5/16	5-5/16	3.9	4	10d HDG	8570	38.12	11600	51.60
8 x 8	CPB88	CPS7	7-1/4	7-1/4	6.4	4	10d HDG	12490	55.56	19040	84.70

1) Loads shall not be increased for short-term loading.  
 2) Loads require a minimum 650 psi wood compressive strength.  
 3) Concrete Design Bearing Strength =  $\phi (0.85 f'_c A_1)$  with  $f'_c = 2,500$  psi. ACI 318-02, Section 10.17.1.  
 4) Design Bearing Strength has been increased assuming  $(A_2/A_1)^{0.3}$  per ACI 318-02, Section 10.17.1.  
 5) **NAILS:** 10d nails are 0.148" dia. x 3" long.

Designed to be installed without the need to drill bolt holes, simplifying installation and maintaining the wood cross section. Installs with WS Wood Screws offering high uplift capacity.

**KCCQ** — Standard column cap.

**KECCQ** — End column cap.

**Materials:** See chart

**Finish:** USP primer

**Options:** See chart for Corrosion Finish Options and Specialty Options on page 73.

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- WS3 Wood Screws, 1/4" dia. x 3" long, are supplied with Column Caps.
- Beams shall be designed to support the required loads. Beam shear may limit loads to less than listed loads for device. A design professional shall determine the adequacy of the stud to resist published loads.

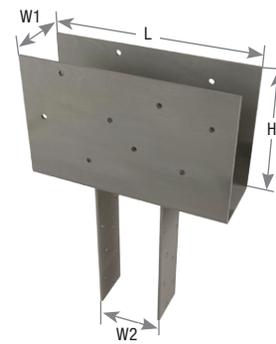


**Typical KECCQ44 end cap installation**

**Typical KCCQ44 center cap installation**



**KECCQ44**



**KCCQ44**

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)				Fastener Schedule <sup>4</sup>				DF Factored Resistance <sup>3</sup>				S-P-F Factored Resistance <sup>3</sup>				Corrosion Finish
			W1	W2	H	L	Beam		Column or Post		Bearing 100% <sup>2</sup>		Uplift 115% <sup>1,8</sup>		Bearing 100% <sup>2</sup>		Uplift 115% <sup>1,8</sup>		
							Qty	Type	Qty	Type	Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN	
			Centre Column Caps																
KCCQ325-4	CCQ3-4SDS2.5	7	3-1/4	3-5/8	6-1/2	11	16	WS3	14	WS3	30940	137.63	12920	57.47	21040	93.59	9170	40.79	
KCCQ325-6	CCQ3-6SDS2.5	7	3-1/4	5-1/2	6-1/2	11	16	WS3	14	WS3	30940	137.63	12920	57.47	21040	93.59	9170	40.79	
KCCQ44	CCQ44SDS2.5	7	3-5/8	3-5/8	6-1/2	11	16	WS3	14	WS3	34655	154.16	12575	55.94	23565	104.83	8930	40.79	
KCCQ45	-- --	7	3-5/8	5-3/8	6-1/2	11	16	WS3	14	WS3	34655	154.16	12575	55.94	23565	104.83	8930	40.79	
KCCQ46	CCQ46SDS2.5	7	3-5/8	5-1/2	6-1/2	11	16	WS3	14	WS3	34655	154.16	12920	57.47	23565	104.83	9170	40.79	
KCCQ47	-- --	7	3-5/8	7-1/8	6-1/2	11	16	WS3	14	WS3	34655	154.16	12575	55.94	23565	104.83	8930	40.79	
KCCQ47X	-- --	7	3-5/8	7-1/8	6-1/2	13	16	WS3	14	WS3	40955	182.18	12575	55.94	27850	123.89	8930	40.79	
KCCQ48	CCQ48SDS2.5	7	3-5/8	7-1/2	6-1/2	11	16	WS3	14	WS3	34655	154.16	12920	57.47	23565	104.83	9170	40.79	
KCCQ525-4	CCQ5-4SDS2.5	3	5-1/4	3-5/8	8	13	16	WS3	14	WS3	59960	266.73	12920	57.47	40775	181.38	9170	40.79	
KCCQ525-6	CCQ5-6SDS2.5	3	5-1/4	5-1/2	8	13	16	WS3	14	WS3	59960	266.73	12920	57.47	40775	181.38	9170	40.79	
KCCQ525-8	CCQ5-8SDS2.5	3	5-1/4	7-1/2	8	13	16	WS3	14	WS3	59960	266.73	12920	57.47	40775	181.38	9170	40.79	
KCCQ57	-- --	7	5-3/8	7-1/8	6-1/2	11	16	WS3	14	WS3	51975	231.21	12920	57.47	35345	157.23	9170	40.79	
KCCQ64	CCQ64SDS2.5	7	5-1/2	3-5/8	6-1/2	11	16	WS3	14	WS3	54455	242.24	12920	57.47	37030	164.72	9170	40.79	
KCCQ66	CCQ66SDS2.5	7	5-1/2	5-1/2	6-1/2	11	16	WS3	14	WS3	<b>49125</b>	<b>218.52</b>	12920	57.47	<b>37205</b>	<b>165.50</b>	<b>10850</b>	<b>48.26</b>	
KCCQ67X	CCQ6-7.13SDS2.5	7	5-1/2	7-1/8	6-1/2	11	16	WS3	14	WS3	54455	242.24	12920	57.47	37030	164.72	9170	40.79	
KCCQ68	CCQ68SDS2.5	7	5-1/2	7-1/2	6-1/2	11	16	WS3	14	WS3	54455	242.24	12920	57.47	37030	164.72	9170	40.79	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) Bearing loads are based on compression perpendicular to grain values published in the 2001 NDS and soft converted to Limit States Design.  
 3) Factored resistances are based on lumber with a specific gravity of DF = 0.49 and S-P-F = 0.42 and a moisture content of 19% or less.  
 4) WS3 Wood Screws are 1/4" x 3" long and are included with KCCQ and KECCQ column caps.  
 5) Beams shall be designed to support the required loads. Beam shear may limit loads to less than listed loads for device.  
 6) The designer shall check post for required loads.  
 7) Spliced conditions must be detailed by the specifier to transfer tension loads between spliced members by means other than the column cap.  
 8) Uplift loads do not apply to splice conditions.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)				Fastener Schedule <sup>4</sup>				DF				S-P-F				Corrosion Finish
			W1	W2	H	L	Beam		Column or Post		Factored Resistance <sup>3</sup>		Factored Resistance <sup>3</sup>		Factored Resistance <sup>3</sup>				
							Qty	Type	Qty	Type	Bearing 100% <sup>2</sup>	Uplift 115% <sup>1,8</sup>	Bearing 100% <sup>2</sup>	Uplift 115% <sup>1,8</sup>	Bearing 100% <sup>2</sup>	Uplift 115% <sup>1,8</sup>			
			Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN									
<b>Centre Column Caps</b>																			
KCCQ74	CCQ74SDS2.5	3	6-7/8	3-5/8	6-1/2	11	16	WS3	14	WS3	66825	297.26	12920	57.47	45440	202.14	9170	40.79	
KCCQ76	CCQ76SDS2.5	3	6-7/8	5-1/2	6-1/2	11	16	WS3	14	WS3	66825	297.26	12920	57.47	45440	202.14	9170	40.79	
KCCQ77	CCQ77SDS2.5	3	6-7/8	6-7/8	6-1/2	11	16	WS3	14	WS3	66825	297.26	12920	57.47	45440	202.14	9170	40.79	
KCCQ78	CCQ78SDS2.5	3	6-7/8	7-1/2	6-1/2	11	16	WS3	14	WS3	66825	297.26	12920	57.47	45440	202.14	9170	40.79	
KCCQ71-4	CCQ7.1-4SDS2.5	3	7-1/8	3-5/8	6-1/2	11	16	WS3	14	WS3	69300	308.27	12920	57.47	47125	209.63	9170	40.79	
KCCQ71-6	CCQ7.1-6SDS2.5	3	7-1/8	5-1/2	6-1/2	11	16	WS3	14	WS3	69300	308.27	12920	57.47	47125	209.63	9170	40.79	
KCCQ71-71	CCQ7.1-7.1SDS2.5	3	7-1/8	7-1/8	6-1/2	11	16	WS3	14	WS3	69300	308.27	12920	57.47	47125	209.63	9170	40.79	
KCCQ71-8	CCQ7.1-8SDS2.5	3	7-1/8	7-1/2	6-1/2	11	16	WS3	14	WS3	69300	308.27	12920	57.47	47125	209.63	9170	40.79	
KCCQ84	-- --	7	7-1/2	3-5/8	6-1/2	11	16	WS3	14	WS3	74255	330.32	12920	57.47	50495	224.62	9170	40.79	
KCCQ86	CCQ86SDS2.5	7	7-1/2	5-1/2	6-1/2	11	16	WS3	14	WS3	<b>66990</b>	<b>297.98</b>	12920	57.47	<b>50735</b>	<b>225.68</b>	<b>10850</b>	<b>48.26</b>	
KCCQ88	CCQ88SDS2.5	7	7-1/2	7-1/2	6-1/2	11	16	WS3	14	WS3	74255	330.32	12920	57.47	50495	224.62	9170	40.79	
KCCQ94	-- --	7	8-7/8	3-5/8	6-1/2	11	16	WS3	14	WS3	86625	385.34	12920	57.47	58905	262.03	9170	40.79	
KCCQ96	CCQ96SDS2.5	7	8-7/8	5-1/2	6-1/2	11	16	WS3	14	WS3	86625	385.34	12920	57.47	58905	262.03	9170	40.79	
KCCQ98	CCQ98SDS2.5	7	8-7/8	7-1/2	6-1/2	11	16	WS3	14	WS3	86625	385.34	12920	57.47	58905	262.03	9170	40.79	
KCCQ106	CCQ106SDS2.5	7	9-1/2	5-1/2	6-1/2	11	16	WS3	14	WS3	94055	418.39	12920	57.47	63960	284.52	9170	40.79	
<b>End Column Caps</b>																			
KECCQ325-4	ECCQ3-4SDS2.5	7	3-1/4	3-5/8	6-1/2	7-1/2	16	WS3	14	WS3	21095	93.84	11785	52.42	14340	63.79	8370	40.79	
KECCQ325-6	ECCQ3-6SDS2.5	7	3-1/4	5-1/2	6-1/2	7-1/2	16	WS3	14	WS3	21095	93.84	11785	52.42	14340	63.79	8370	40.79	
KECCQ44	ECCQ44SDS2.5	7	3-5/8	3-5/8	6-1/2	8-1/2	16	WS3	14	WS3	24430	108.67	13385	59.54	18210	81.01	9505	40.79	
KECCQ45	-- --	7	3-5/8	5-3/8	6-1/2	7-1/2	16	WS3	14	WS3	23625	105.09	13385	59.54	16065	71.46	9505	40.79	
KECCQ46	ECCQ46SDS2.5	7	3-5/8	5-1/2	6-1/2	8-1/2	16	WS3	14	WS3	26775	119.11	11785	52.42	18210	81.01	8370	40.79	
KECCQ47	-- --	7	3-5/8	7-1/8	6-1/2	9-1/2	16	WS3	14	WS3	29925	133.12	13385	59.54	20345	90.50	9505	40.79	
KECCQ47X	-- --	7	3-5/8	7-1/8	6-1/2	9-1/2	16	WS3	14	WS3	29925	133.12	13385	59.54	20345	90.50	9505	40.79	
KECCQ48	ECCQ48SDS2.5	7	3-5/8	7-1/2	6-1/2	8-1/2	16	WS3	14	WS3	26775	119.11	11785	52.42	18210	81.01	8370	40.79	
KECCQ525-4	ECCQ5-4SDS2.5	3	5-1/4	3-5/8	8	9-1/2	16	WS3	14	WS3	32155	143.04	11785	52.42	24350	108.32	8370	40.79	
KECCQ525-6	ECCQ5-6SDS2.5	3	5-1/4	5-1/2	8	9-1/2	16	WS3	14	WS3	39310	174.87	11785	52.42	28985	128.94	8370	40.79	
KECCQ525-8	ECCQ5-8SDS2.5	3	5-1/4	7-1/2	8	9-1/2	16	WS3	14	WS3	43820	194.93	11785	52.42	29795	132.54	8370	40.79	
KECCQ57	-- --	7	5-3/8	7-1/8	6-1/2	9-1/2	16	WS3	14	WS3	40160	178.65	11785	52.42	27310	121.49	8370	40.79	
KECCQ64	ECCQ64SDS2.5	7	5-1/2	3-5/8	6-1/2	8-1/2	16	WS3	14	WS3	33890	150.76	11785	52.42	25605	113.90	8370	40.79	
KECCQ66	ECCQ66SDS2.5	7	5-1/2	5-1/2	6-1/2	8-1/2	16	WS3	14	WS3	41630	185.19	11785	52.42	28615	127.29	8370	40.79	
KECCQ67X	ECCQ6-7.13SDS2.5	7	5-1/2	7-1/8	6-1/2	8-1/2	16	WS3	14	WS3	42075	187.17	11785	52.42	28615	127.29	8370	40.79	
KECCQ68	ECCQ68SDS2.5	7	5-1/2	7-1/2	6-1/2	8-1/2	16	WS3	14	WS3	42075	187.17	11785	52.42	28615	127.29	8370	40.79	
KECCQ74	ECCQ74SDS2.5	3	6-7/8	3-5/8	6-1/2	8-1/2	16	WS3	14	WS3	39550	175.93	11785	52.42	29665	131.96	8370	40.79	
KECCQ76	ECCQ76SDS2.5	3	6-7/8	5-1/2	6-1/2	8-1/2	16	WS3	14	WS3	51640	229.72	11785	52.42	35115	156.21	8370	40.79	
KECCQ77	ECCQ77SDS2.5	3	6-7/8	6-7/8	6-1/2	8-1/2	16	WS3	14	WS3	51640	229.72	11785	52.42	35115	156.21	8370	40.79	
KECCQ78	ECCQ78SDS2.5	3	6-7/8	7-1/2	6-1/2	8-1/2	16	WS3	14	WS3	51640	229.72	11785	52.42	35115	156.21	8370	40.79	
KECCQ71-4	ECCQ7.1-4SDS2.5	3	7-1/8	3-5/8	6-1/2	8-1/2	16	WS3	14	WS3	40665	180.89	11785	52.42	30455	135.48	8370	40.79	
KECCQ71-6	ECCQ7.1-6SDS2.5	3	7-1/8	5-1/2	6-1/2	8-1/2	16	WS3	14	WS3	50810	226.02	11785	52.42	36420	162.01	8370	40.79	
KECCQ71-71	ECCQ7.1-7.1SDS2.5	3	7-1/8	7-1/8	6-1/2	8-1/2	16	WS3	14	WS3	53555	238.23	11785	52.42	36420	162.01	8370	40.79	
KECCQ71-8	ECCQ7.1-8SDS2.5	3	7-1/8	7-1/2	6-1/2	8-1/2	16	WS3	14	WS3	53555	238.23	11785	52.42	36420	162.01	8370	40.79	
KECCQ84	-- --	7	7-1/2	3-5/8	6-1/2	8-1/2	16	WS3	14	WS3	42890	190.79	11785	52.42	39015	173.55	8370	40.79	
KECCQ86	ECCQ86SDS2.5	7	7-1/2	5-1/2	6-1/2	8-1/2	16	WS3	14	WS3	53840	239.50	11785	52.42	39015	173.55	8370	40.79	
KECCQ88	ECCQ88SDS2.5	7	7-1/2	7-1/2	6-1/2	8-1/2	16	WS3	14	WS3	57375	255.23	11785	52.42	39015	173.55	8370	40.79	
KECCQ94	-- --	7	8-7/8	3-5/8	6-1/2	8-1/2	16	WS3	14	WS3	48375	215.19	11785	52.42	35940	159.88	8370	40.79	
KECCQ96	ECCQ96SDS2.5	7	8-7/8	5-1/2	6-1/2	8-1/2	16	WS3	14	WS3	61385	273.06	11785	52.42	44395	197.49	8370	40.79	
KECCQ98	ECCQ98SDS2.5	7	8-7/8	7-1/2	6-1/2	8-1/2	16	WS3	14	WS3	66940	297.78	11785	52.42	45520	202.49	8370	40.79	
KECCQ106	ECCQ106SDS2.5	7	9-1/2	5-1/2	6-1/2	8-1/2	16	WS3	14	WS3	65895	293.13	11785	52.42	47520	211.39	8370	40.79	

Caps & Bases

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- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 2) Bearing loads are based on compression perpendicular to grain values published in the 2001 NDS and soft converted to Limit States Design.
- 3) Factored resistances are based on lumber with a specific gravity of DF= 0.49 and S-P-F = 0.42 and a moisture content of 19% or less.
- 4) WS3 Wood Screws are 1/4" x 3" long and are included with KCCQ and KECCQ column caps.
- 5) Beams shall be designed to support the required loads. Beam shear may limit loads to less than listed loads for device.
- 6) The designer shall check post for required loads.
- 7) Spliced conditions must be detailed by the specifier to transfer tension loads between spliced members by means other than the column cap.
- 8) Uplift loads do not apply to splice conditions.

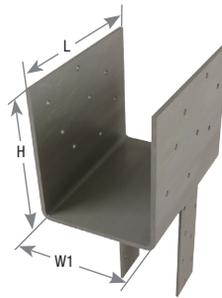
New products or updated product information are designated in **blue font**.  
**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

**Specialty Options:**

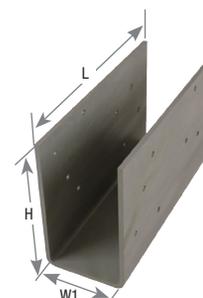
- **KECCQ** – Straps may be rotated 90° on special order where the W2 dimension is less than or equal to the W1 dimension.
- **KCCQO/KECCQO** – Cap only, no strap design for field welding to pipe or other columns.
- **KCCQOB** – For cross beam connections. Any two buckets can be welded together for a wide variety of applications. Factored resistance shall be the lesser of the two components.
- **KCCQT** – For T beam intersections, consult USP. Specify beam/column conditions, dimensions, and loading requirements.
- **KCCQC** – For X beam intersections, consult USP. Specify beam/column conditions, dimensions, and loading requirements.
- **KECCQLL/R** – For L beam intersections, consult USP. Specify left (L) or right (R) beam/column conditions, dimensions, and loading requirements.

**Dimension call-outs not shown in the table must be specified at time of ordering for specialty options, non-catalog, or rough/full size lumber sizes.**

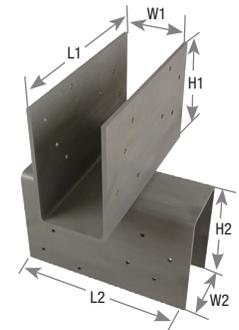
Refer to Options for Multiple-Beam Bolted Column Caps Special Order Worksheet for ordering instructions at [www.uspconnectors.com/resources/technical-bulletins](http://www.uspconnectors.com/resources/technical-bulletins).



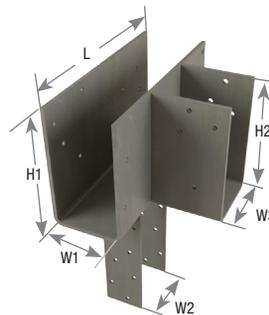
**Optional KECCQ rotated straps 90°**



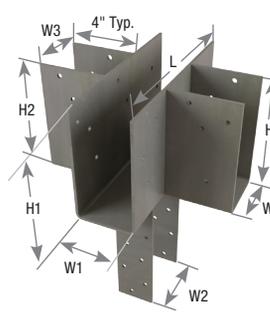
**KCCQO**



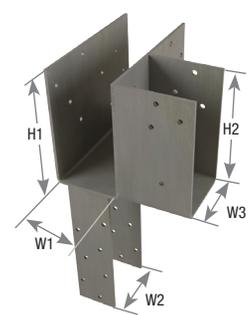
**KCCQOB**



**KCCQT**



**KCCQC**

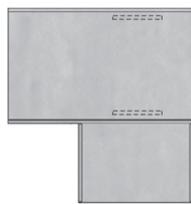


**KECCQLL left shown**

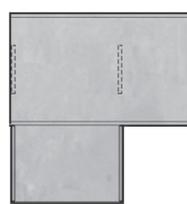
**Top View of Specialty Options Column Cap Configurations**



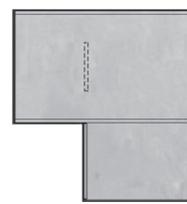
**KECCQLL rotated 90° left**



**KECCQLR rotated 90° right**



**KECCQ left**



**KECCQ right**



**KECCQ offset left**



**KECCQ offset right**



**KCCQ offset left**



**KCCQ offset right**



**KECCQ rotated 45° left**



**KECCQ rotated 45° right**

**MP** – 18 gauge. Field adjustable from 45° to 180° (flat).

**A3** – 18 gauge. Eliminates toenailing and increases strength.

**AC** – 16 gauge. Features staggered nail patterns which reduces wood splitting and allows installation on both sides of the supported member.

**JA** – 14 or 16 gauge. Heavier capacity framing angle for joist support.

**Materials:** See chart

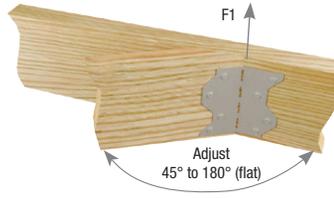
**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- MP Framing Angles are fabricated at 100° and may be field adjusted by hand from 45° to 180° (flat). Bend angle only once.

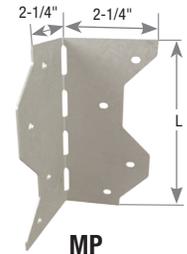


Typical MP installation



Typical MP rafter support installation

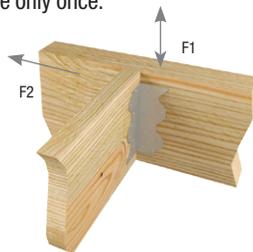
AVAILABLE IN  
**GOLD COAT**



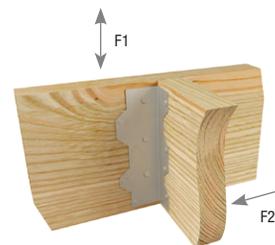
MP



Typical JA1 installation



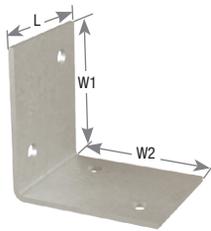
Typical JA7 installation



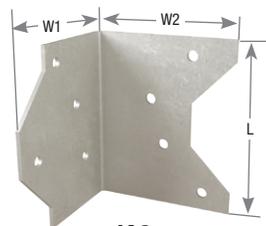
Typical AC installation



Typical A3 installation



JA1



JA3



AC



A3

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2,3</sup>				Direction of Load	DF Factored Resistance <sup>1</sup>				S-P-F Factored Resistance <sup>1</sup>				Corrosion Finish
			W1	W2	L	Header		Joist			Lbs		kN		Lbs		kN		
						Qty	Type	Qty	Type		100%	115%	100%	115%	100%	115%	100%	115%	
A3	A23, GA1, GA2, L30	18	1-7/16	1-7/16	2-3/4	4	10d x 1-1/2	4	10d x 1-1/2	F1	970	1115	4.31	4.96	690	792	3.07	3.52	
										F2	985	1130	4.38	5.03	700	802	3.11	3.57	
MP3	LS30	18	2-1/4	2-1/4	3-3/8	3	10d	3	10d	F1	715	715	3.18	3.18	610	610	2.71	2.71	
MP5	LS50	18	2-1/4	2-1/4	4-5/8	4	10d	4	10d	F1	1010	1010	4.49	4.49	865	865	3.85	3.85	
MP7	LS70	18	2-1/4	2-1/4	5-7/8	5	10d	5	10d	F1	1315	1315	5.85	5.85	1125	1125	5.00	5.00	
MP9	LS90	18	2-1/4	2-1/4	6-7/8	6	10d	6	10d	F1	1410	1410	6.27	6.27	1210	1210	5.38	5.38	
AC5	L50	16	1-5/16	2-3/8	4-7/8	3	10d	3	10d	F1	995	1145	4.43	5.09	705	815	3.14	3.63	
										F2	930	1070	4.14	4.76	660	760	2.94	3.38	
AC7	L70	16	1-5/16	2-3/8	6-15/16	4	10d	4	10d	F1	1120	1285	4.98	5.72	795	910	3.54	4.05	
										F2	1335	1535	5.94	6.83	950	1090	4.23	4.85	
AC9	L90	16	1-5/16	2-3/8	8-7/8	5	10d	5	10d	F1	1860	2135	8.27	9.50	1320	1515	5.87	6.74	
										F2	1335	1535	5.94	6.83	950	1090	4.23	4.85	
JA1	A21	16	1-1/2	1-1/2	1-1/4	2	10d x 1-1/2	2	10d x 1-1/2	F1	421	484	1.87	2.15	299	344	1.33	1.53	
										F2	562	647	2.50	2.88	399	459	1.78	2.04	
JA3	---	14	2-1/2	2-1/2	3	4	16d	4	10d x 1-1/2	F1	963	1108	4.28	4.93	684	786	3.04	3.50	
										F2	874	1005	3.89	4.47	620	713	2.76	3.17	
JA5	---	14	2-1/2	2-1/2	5	6	16d	6	10d x 1-1/2	F1	1556	1790	6.92	7.96	1105	1271	4.91	5.65	
										F2	1665	1915	7.41	8.52	1182	1360	5.26	6.05	
JA7	---	14	2-1/2	2-1/2	7	8	16d	8	10d x 1-1/2	F1	3058	3517	13.60	15.64	2171	2497	9.66	11.11	
										F2	2664	3064	11.85	13.63	1892	2176	8.42	9.68	
JA9	---	14	2-1/2	2-1/2	9	10	16d	10	10d x 1-1/2	F1	3767	4333	16.76	19.27	2675	3076	11.90	13.68	
										F2	2697	3102	12.00	13.80	1915	2202	8.52	9.80	

1) Factored resistances are shown per angle, and may be doubled if installed in pairs. When using a single angle, joist must be constrained from rotation.

2) For 1-1/2" lumber where 10d nails are specified, use 10d x 1-1/2" nails and apply 0.90 adjustment factor to the table value.

3) NAILS: 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

New products or updated product information are designated in blue font.

**Corrosion Finish**

- Stainless Steel
- Gold Coat
- HDG
- Triple Zinc

ML angles are multi-purpose angles that install easily with USP's WS15 wood screws. The staggered fastener pattern allows for back-to-back installations.

**Materials:** 12 gauge  
**Finish:** G-185 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- USP WS15 (1/4" x 1-1/2") are not supplied with ML angles.



**Typical ML26-TZ installation**  
(ML24-TZ similar)



**ML26-TZ**  
(ML24-TZ similar)

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule <sup>2,3</sup>				Unit	DF Factored Resistance <sup>1</sup>		S-P-F Factored Resistance <sup>1</sup>		Corrosion Finish
			W	H	Header		Joist			100%	115%	100%	115%	
					Qty	Type	Qty	Type						
ML24-TZ	ML24Z	12	2	4	3	WS15	3	WS15	Lbs	1100	1265	780	900	Green
									kN	4.89	5.63	3.47	4.00	
ML26-TZ	ML26Z	12	2	6	4	WS15	4	WS15	Lbs	1890	2175	1340	1545	Green
									kN	8.41	9.68	5.96	6.87	

1) Factored resistances have been increased 15% for short-term, duration loading; no further increase allowed.  
 2) USP's WS15 Wood Screws are 1/4" diameter x 1-1/2" long and are not included with angles.  
 3) For exterior applications use WS15-HDG screws with the hot-dip galvanized finish.

**Corrosion Finish**  
 ■ Stainless Steel ■ Gold Coat  
 ■ HDG ■ Triple Zinc

**RBC** Roof Boundary Clip

Framing plate designed to connect roof blocking to a wall top plate.

**Materials:** 20 gauge  
**Finish:** G90 galvanizing

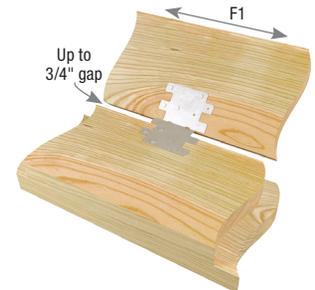
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

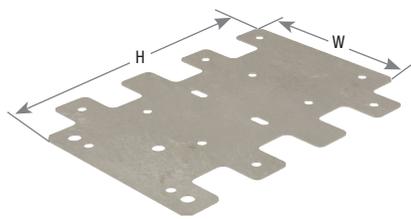
- Use all specified fasteners. See Product Notes, page 15.
- Field adjustable from 0° to 90°.
- **Bend angle only once.**



**Typical RBC top-plate to outside of blocking installation**



**Typical RBC top-plate to inside of blocking installation**



**RBC**



**Typical RBC concrete block wall to blocking installation**



**Typical RBC 1" foamboard installation**

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Installation Type	Fastener Schedule <sup>2,3</sup>				DF Factored Resistance <sup>1</sup>		S-P-F Factored Resistance <sup>1</sup>	
			W	H		Top Plate		Blocking		F1 115%		F1 115%	
						Qty	Type <sup>2</sup>	Qty	Type <sup>2</sup>	Lbs	kN	Lbs	kN
RBC	RBC	20	4-1/4	6	Wood to Wood	6	10d x 1-1/2	6	10d x 1-1/2	990	4.40	615	2.74
					Wood to CMU	3	1/4" Tapcon	6	10d x 1-1/2	735	3.27	525	2.34

1) Loads shown are for a single roof boundary clip.  
 2) Use ITW Buildex 1/4" x 1-1/2" Tapcon fasteners; or equal, installed in accordance with manufacturer's specification.  
 3) **NAILS:** 10d x 1-1/2 nails are 0.148" diameter by 1-1/2" long.

**MP34** – Framing angle without tabs.

**MPA1** – Tabs enable two and three-way connections.

**MP4F** – Connects 2x framing with floor sheathing up to 5/8".

**MP6F** – Connects 3x framing with floor sheathing up to 3/4".  
Better choice for connections where floor sheathing is between sole plate and rim board.

**Materials:** See chart

**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options on page 77.

**Codes:** Load values are derived from data submitted to various North American building code evaluators.



**MPA1**

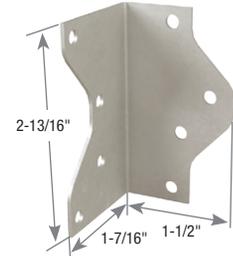


**Typical MP34 installation**

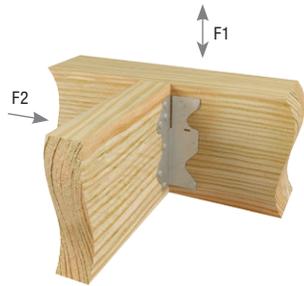
AVAILABLE IN  
**GOLD  
COAT**



**MPA1-GC**

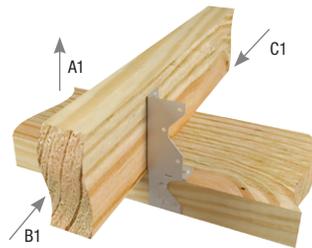


**MP34**



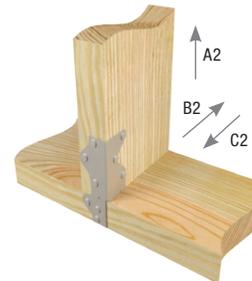
**Typical MPA1 joist / header installation**

**Figure 1**



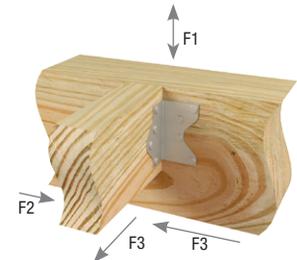
**Typical MPA1 rafter / plate installation**

**Figure 2**



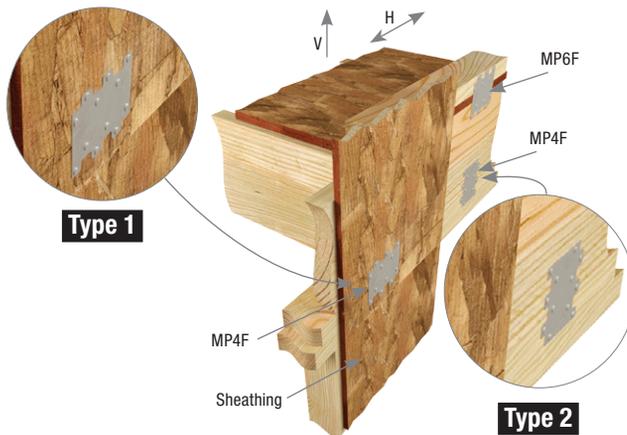
**Typical MPA1 stud / plate installation**

**Figure 3**

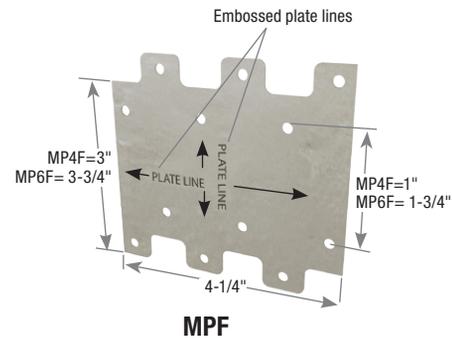


**Typical MP34 joist / header installation**

**Figure 4**



**Typical MPF installation**



**MPF**

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- **Bend tabs only once.**
- MP4F connects 2x framing with floor sheathing up to 5/8".
- MP6F connects 3x framing with floor sheathing up to 3/4".  
Better choice for connections where floor sheathing is between sole plate and rim board.

USP Stock No.	Ref. No.	Steel Gauge	Installation Type <sup>2</sup>	Fastener Schedule <sup>3,5</sup>				Direction of Load <sup>2</sup>	DF Factored Resistance <sup>3,4</sup>				S-P-F Factored Resistance <sup>3,4</sup>				Corrosion Finish
				Header or Stud		Joist or Plate			Lbs		kN		Lbs		kN		
				Qty	Type	Qty	Type		100%	115% <sup>1</sup>	100%	115% <sup>1</sup>	100%	115% <sup>1</sup>	100%	115% <sup>1</sup>	
MPA1	A35	18	Figure 1	6	8d x 1-1/2	6	8d x 1-1/2	F1	1115	1280	4.96	5.69	790	910	3.51	4.05	Stainless Steel
				6	8d x 1-1/2	6	8d x 1-1/2	F2	1300	1300	5.78	5.78	925	925	4.11	4.11	
			Figure 2	6	8d x 1-1/2	3	8d x 1-1/2	A1	685	785	3.05	3.49	485	555	2.16	2.47	
				6	8d x 1-1/2	3	8d x 1-1/2	B1	510	585	2.27	2.60	360	415	1.60	1.85	
			Figure 3	6	8d x 1-1/2	6	8d x 1-1/2	A2	830	955	3.69	4.25	590	675	2.62	3.00	
				6	8d x 1-1/2	6	8d x 1-1/2	B2	460	525	2.05	2.34	325	375	1.45	1.67	
				6	8d x 1-1/2	6	8d x 1-1/2	C2	610	705	2.71	3.14	435	500	1.94	2.22	
				6	8d x 1-1/2	6	8d x 1-1/2	C2	610	705	2.71	3.14	435	500	1.94	2.22	
MP34	A34	18	Figure 4	4	8d x 1-1/2	4	8d x 1-1/2	F1	855	985	3.80	4.38	675	775	3.00	3.45	Stainless Steel
				4	8d x 1-1/2	4	8d x 1-1/2	F2	1025	1175	4.56	5.23	805	925	3.58	4.11	
				4	8d x 1-1/2	4	8d x 1-1/2	F3	555	555	2.47	2.47	435	435	1.93	1.93	
MP4F	LTP4	20	Type 1	6	8d x 1-1/2	6	8d x 1-1/2	V	1380	1585	6.14	7.05	980	1125	4.36	5.00	Triple Zinc
				6	8d x 1-1/2	6	8d x 1-1/2	H	1380	1585	6.14	7.05	980	1125	4.36	5.00	
			Type 2	6	8d x 1-1/2	6	8d x 1-1/2	V	1380	1585	6.14	7.05	980	1125	4.36	5.00	
				6	8d x 1-1/2	6	8d x 1-1/2	H	1380	1585	6.14	7.05	980	1125	4.36	5.00	
			Type 1	6	8d	6	8d	V	1380	1585	6.14	7.05	980	1125	4.36	5.00	
				6	8d	6	8d	H	1380	1585	6.14	7.05	980	1125	4.36	5.00	
			Type 2	6	8d	6	8d	V	1380	1585	6.14	7.05	980	1125	4.36	5.00	
				6	8d	6	8d	H	1380	1585	6.14	7.05	980	1125	4.36	5.00	
MP6F	LTP5	20	Type 1	6	8d x 1-1/2	6	8d x 1-1/2	V	995	1145	4.43	5.09	705	815	3.14	3.63	Triple Zinc
				6	8d x 1-1/2	6	8d x 1-1/2	H	995	1145	4.43	5.09	705	815	3.14	3.63	
			Type 2	6	8d x 1-1/2	6	8d x 1-1/2	V	995	1145	4.43	5.09	705	815	3.14	3.63	
				6	8d x 1-1/2	6	8d x 1-1/2	H	995	1145	4.43	5.09	705	815	3.14	3.63	
			Type 1	6	8d	6	8d	V	995	1145	4.43	5.09	705	815	3.14	3.63	
				6	8d	6	8d	H	995	1145	4.43	5.09	705	815	3.14	3.63	
			Type 2	6	8d	6	8d	V	995	1145	4.43	5.09	705	815	3.14	3.63	
				6	8d	6	8d	H	995	1145	4.43	5.09	705	815	3.14	3.63	

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.
- 2) Refer to previous page for installation type and definition of the various load directions.
- 3) If installing MP4F or MP6F over plywood, use 8d common nails for 100% of table load.
- 4) Factored resistances shown are per angle. When using a single anchor, joist must be constrained from rotation.
- 5) **NAILS:** 8d x 1-1/2 nails are 0.131" dia. x 1-1/2" long, 8d nails are 0.131" x 2-1/2" long.  
New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

**RSPT** – 18 or 20 gauge. Connects stud to single or double plates.

**SPT** – 20 gauge. Ties single and double plates to studs.

**Materials:** See chart

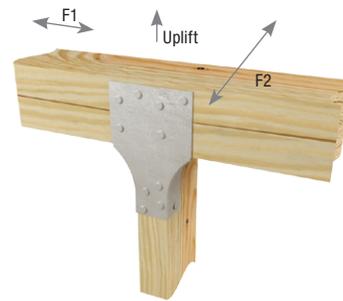
**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

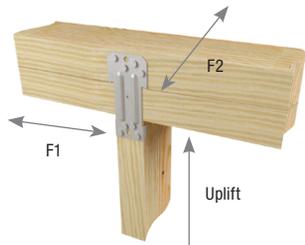
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

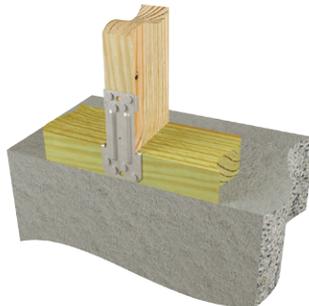
- Use all specified fasteners. See Product Notes, page 15.



**Typical SPT24 installation**



**Typical RSPT4 double plate installation**



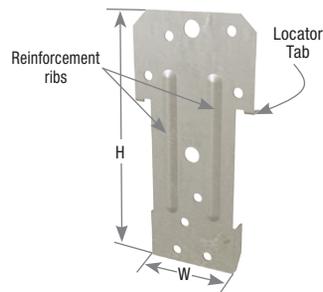
**Typical RSPT4 single plate installation**



**RSPT6-2 installation**



**SPT22**



**RSPT4**



**RSPT6**



**RSPT6-2**

Stud Size	USP Stock No. <sup>2</sup>	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>3</sup>				Unit	DF Factored Resistance <sup>1</sup>			S-P-F Factored Resistance <sup>1</sup>			Corrosion Finish	
				W	H	L	Stud		Plate			Uplift	F1	F2	Uplift	F1	F2		
							Qty	Type	Qty	Type									115%
2x	RSPT4	RSP4	20	1-1/2	4-1/8	---	4	8d x 1-1/2	4	8d x 1-1/2	Lbs	585	285	315	505	245	270	Green	
										kN	2.60	1.27	1.40	2.25	1.09	1.20			
	RSPT6	SSP	18	1-1/2	5-7/16	---	4	10d x 1-1/2	4	10d x 1-1/2	Lbs	740	---	---	635	---	---		
											kN	3.29	---	---	2.82	---	---		
2x	SPT22	SP1	20	1-9/16	4-3/8	3-1/2	4	10d	4	10d	Lbs	755	695	325	650	600	280	Green	
										kN	3.36	3.09	1.45	2.89	2.67	1.25			
	SPT24	SP2	20	1-9/16	5-5/8	3-1/2	6	10d	6	10d	Lbs	1125	695	325	970	600	280		
											kN	5.00	3.09	1.45	4.31	2.67	1.25		
(2) 2x	RSPT6-2	DSP	18	2-3/4	5-7/16	---	8	10d x 1-1/2	6	10d x 1-1/2	Lbs	1115	---	---	960	---	---	Green	
										kN	4.96	---	---	4.27	---	---			
4x	SPT44	---	20	3-9/16	6-3/4	6-1/2	6	16d	6	16d	Lbs	1355	845	310	1165	725	265	Green	
											kN	6.03	3.76	1.38	5.18	3.23	1.18		

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) SPT22, SPT24, and SPT44: the two nails fastened to the wide face of the stud must be driven 30° from the perpendicular on the horizontal plane.

3) **NAILS:** 8d x 1-1/2" nails are 0.131" dia. x 1-1/2" long, 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

**SPT** – 20 gauge. Ties single and double plates to studs.

**SPTH** – Heavier 18 gauge version of SPT.

**SPTHW** – 18 gauge. Attaches plate to studs over 1/2" sheathing.

**Materials:** See chart

**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

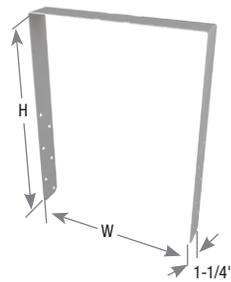
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

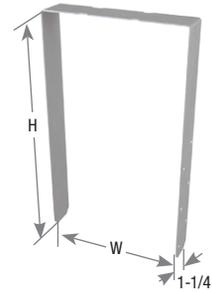
- Use all specified fasteners. See Product Notes, page 15.



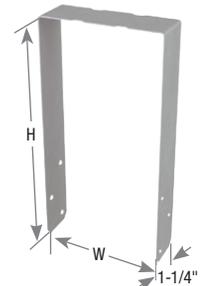
**Typical SPT4 installation**



**SPTHW**



**SPTH**



**SPT**

Stud Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule <sup>2</sup>		DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish
				W	H	Qty	Type	Uplift 115% <sup>1</sup>		Uplift 115% <sup>1</sup>		
								Lbs	kN	Lbs	kN	
4x	SPT4	SP4	20	3-9/16	6-7/8	6	10d x 1-1/2	960	4.27	825	3.67	HDG
	SPTH4	SPH4	18	3-9/16	8-5/8	12	10d x 1-1/2	1275	5.67	1095	4.87	HDG
	SPTHW4	SPH4R	18	4-1/16	8-3/8	12	10d x 1-1/2	1275	5.67	1095	4.87	HDG
6x	SPT6	SP6	20	5-9/16	7-5/8	6	10d x 1-1/2	960	4.27	825	3.67	HDG
	SPTH6	SPH6	18	5-9/16	9-3/8	12	10d x 1-1/2	1275	5.67	1095	4.87	HDG
	SPTHW6	SPH6R	18	6-1/16	9-1/8	12	10d x 1-1/2	1275	5.67	1095	4.87	HDG
8x	SPT8	SP8	20	7-5/16	8-1/2	6	10d x 1-1/2	960	4.27	825	3.67	HDG
	SPTH8	SPH8	18	7-5/16	8-1/2	12	10d x 1-1/2	1275	5.67	1095	4.87	HDG

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long.

**Corrosion Finish**

- Stainless Steel
- Gold Coat
- HDG
- Triple Zinc

Framing clips replace end cripples under window sills.

**Materials:** 16 gauge

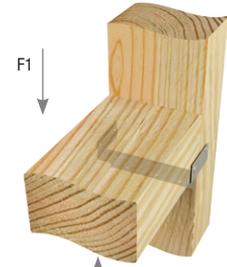
**Finish:** G90 galvanizing

**Installation:**

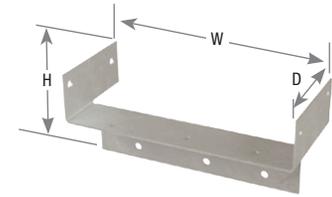
- Use all specified fasteners. See Product Notes, page 15.

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2</sup>				DF Factored Resistance <sup>1</sup>			S-P-F Factored Resistance <sup>1</sup>		
			W	H	D	Header		Joist		Uplift	F1		Uplift	F1	
						Qty	Type	Qty	Type		115%	100%		115%	115%
			W	H	D	Qty	Type	Qty	Type	115%	100%	115%	115%	100%	115%
SFC6	FC6	16	5-1/2	2-1/2	2-1/2	5	16d	5	16d	775	995	1145	650	835	960

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.



Uplift  
**Typical SFC6 installation**



**SFC6**

**HH Header Hangers**

Header Hangers support headers in door and window framing. Helps to eliminate cracks in drywall, plaster, or stucco over windows and doors. These products also provide anchorage and support for heavy fence rails, struts, or gate post cross brackets.

**Materials:** 16 gauge

**Finish:** G90 galvanizing

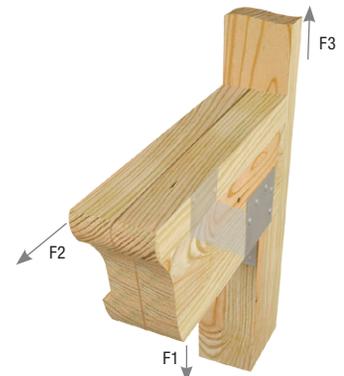
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

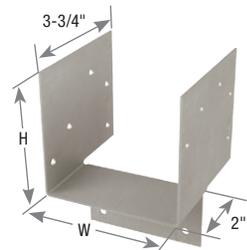
- Use all specified fasteners. See Product Notes, page 15.

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule <sup>2</sup>				Unit	DF Factored Resistance <sup>1</sup>			S-P-F Factored Resistance <sup>1</sup>		
			W	H	Header		Stud			F1	F2	F3	F1	F2	F3
					Qty	Type	Qty	Type							
			W	H	Qty	Type	Qty	Type		100%	115%	115%	100%	115%	115%
HH44	HH4	16	3-9/16	3-1/4	4	16d	9	16d	Lbs	1785	915	850	1500	590	715
									kN	7.94	4.07	3.78	6.67	2.62	3.18
HH66	HH6	16	5-1/2	5-1/4	6	16d	12	16d	Lbs	2385	1365	1365	2000	885	1150
									kN	10.61	6.07	6.07	8.90	3.94	5.12

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.



**Typical HH44 installation**



**HH44**

The LJC-TZ and LJQ-TZ Lateral Joist Connectors transfer lateral loads at the top foundation to the floor joists. The fastening patterns meet I-joist manufacturer recommendations.

**LJC-TZ** – fastens the top side of the sill plate to the underside of the floor joist preventing splitting of the bottom chord flanges, and can be installed after the floor system has been installed. The product is load rated for use with dimension lumber floor joists as well as I-joist. It can also be used with cantilevered floor joists.

**LJQ-TZ** – is a higher capacity connector designed for higher loads. It is similar in design to a joist hanger with a seat for the floor joist to bear against and utilizes wood screws to fasten to the sill plate. USP's WS15-HDG Wood Screws (included) provide quick installation without the need to predrill holes.

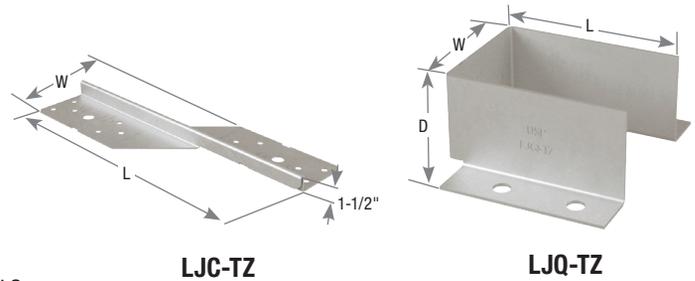
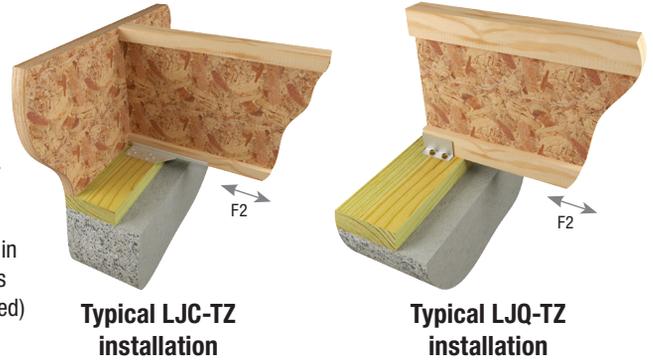
**Materials:** See chart

**Finish:** G-185 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- **LJC-TZ** – Installs after the floor joist has been placed with a minimum of (12) 8d x 1-1/2" HDG nails.
- **LJQ-TZ** – Installs with (4) USP WS15-HDG Wood Screws. WS15-HDG Wood Screws are 1/4" diameter x 1-1/2" long and are included with LJQ-TZ connectors.



USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)				Fastener Schedule <sup>1,2</sup>		DF Factored Resistance (100%)				S-P-F Factored Resistance (100%)				Corrosion Finish
			W	L	D	Qty	Type	2x		I-Joist		2x		I-Joist			
								Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN		
LJC-TZ	--	18	3-3/16	8	--	12	8d x 1-1/2 HDG	1310	5.83	1310	5.83	930	4.14	930	4.14		
LJQ15-TZ	--	16	1-9/16	3	1-1/2	4	WS15-HDG	1880	8.36	1880	8.36	1335	5.94	1335	5.94		
LJQ17-TZ	--	16	1-13/16	3	1-1/2	4	WS15-HDG	1880	8.36	1880	8.36	1335	5.94	1335	5.94		
LJQ20-TZ	--	16	2-1/8	3	1-1/2	4	WS15-HDG	1880	8.36	1880	8.36	1335	5.94	1335	5.94		
LJQ23-TZ	--	16	2-5/16	3	1-1/2	4	WS15-HDG	1880	8.36	1880	8.36	1335	5.94	1335	5.94		
LJQ25-TZ	--	16	2-9/16	3	1-1/2	4	WS15-HDG	1880	8.36	1880	8.36	1335	5.94	1335	5.94		
LJQ35-TZ	--	16	3-9/16	3	1-1/2	4	WS15-HDG	2205	9.81	2205	9.81	1565	6.96	1565	6.96		

1) WS15-HDG wood screws are 1/4" x 1-1/2" and are included with LJQ-TZ connector.  
 2) **NAILS:** 8d x 1-1/2 nails are 0.131" dia. x 1-1/2" long.

**Corrosion Finish**  
 ■ Stainless Steel ■ Gold Coat  
 ■ HDG ■ Triple Zinc

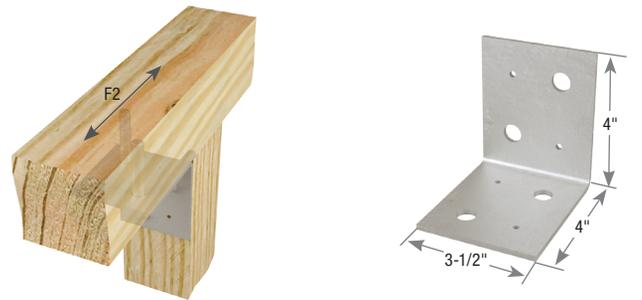
## ANJ Heavy Angle

**Materials:** 7 gauge

**Finish:** Hot-dip galvanized

**Installation:**

- Install with (2) 1/2" x 2-1/2" HDG lag screws into each leg.



Typical ANJ44S-HDG installation

ANJ44S-HDG

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>1</sup>				DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish
			W	H	L	Header		Joist		F2 (115%)		F2 (115%)		
						Qty	Lag Screw	Qty	Lag Screw	Lbs	kN	Lbs	kN	
ANJ44S-HDG	--	7	3-1/2	4	4	2	1/2" HDG	2	1/2" HDG	845	3.76	600	2.67	

1) Loads based on use of (2) 1/2" x 2-1/2" lag screws, loaded parallel to grain.

**Corrosion Finish**  
 ■ Stainless Steel  
 ■ Gold Coat  
 ■ HDG  
 ■ Triple Zinc

# KHL Heavy Angles

Designed for heavy-duty reinforcement of 90° framing intersections.

**Materials:** See chart

**Finish:** USP primer

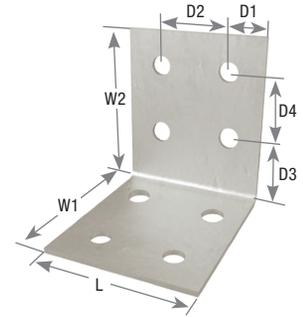
**Options:** See chart for Corrosion Finish Options

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- **Connectors are not load rated.**
- Bolts must be ordered separately.



Typical KHL35 installation

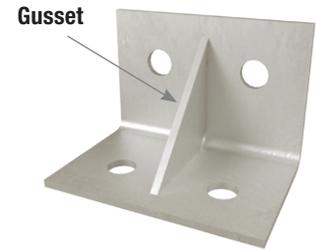


KHL55

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)								Fastener Schedule			Corrosion Finish
			W1	W2	L	D1	D2	D3	D4	Bolts <sup>1</sup>		Gussets		
										Qty	Dia.	Qty		
KHL33	HL33	7	3-1/4	3-1/4	2-1/2	1-1/4	---	2	---	2	5/8	---		
KHL35	HL35	7	3-1/4	3-1/4	5	1-1/4	2-1/2	2	---	4	5/8	---		
KHL35G	HL35G	7	3-1/4	3-1/4	5	1-1/4	2-1/2	2	---	4	5/8	1		
KHL37	HL37	7	3-1/4	3-1/4	7-1/2	1-1/4	2-1/2	2	---	6	5/8	---		
KHL335	SPECANGLE	3	3-1/2	5-1/4	3-1/2	---	---	---	---	4	1/2	---		
KHL43	HL43	3	4-1/4	4-1/4	3	1-1/2	---	2-3/4	---	2	3/4	---		
KHL46	HL46	3	4-1/4	4-1/4	6	1-1/2	3	2-3/4	---	4	3/4	---		
KHL49	HL49	3	4-1/4	4-1/4	9	1-1/2	3	2-3/4	---	6	3/4	---		
KHL53	HL53	7	5-3/4	5-3/4	2-1/2	1-1/4	---	2	2-1/2	4	5/8	---		
KHL55	HL55	7	5-3/4	5-3/4	5	1-1/4	2-1/2	2	2-1/2	8	5/8	---		
KHL57	HL57	7	5-3/4	5-3/4	7-1/2	1-1/4	2-1/2	2	2-1/2	12	5/8	---		
KHL73	HL73	3	7-1/4	7-1/4	3	1-1/2	---	2-3/4	3	4	3/4	---		
KHL76	HL76	3	7-1/4	7-1/4	6	1-1/2	3	2-3/4	3	8	3/4	---		
KHL79	HL79	3	7-1/4	7-1/4	9	1-1/2	3	2-3/4	3	12	3/4	---		



KHL335



KHL35G

1) All bolts shall meet or exceed the specifications of ASTM A 307.

**Corrosion Finish**  
■ Stainless Steel ■ Gold Coat  
■ HDG ■ Triple Zinc

## B / BL Corner Braces

These multi-purpose braces are designed to provide reinforcement for 90° wood-to-wood connections.

**Materials:** 12 gauge

**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners.
- Bolts must be ordered separately.

Some model designs may vary from illustration shown



Typical B66 installation



BL4



B66



B23

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule			
			W	L	Nails <sup>2</sup>		Bolts <sup>1</sup>	
					Qty	Type	Qty	Dia.
B23	---	12	2	2-5/8	6	16d	---	---
B24	---	12	2	3-5/8	8	16d	---	---
BL3	A33	12	1-1/4	3-1/16	8	16d	---	---
BL4	A44	12	1-1/4	4-13/16	10	16d	---	---
BL6	---	12	1-1/4	6-9/16	12	16d	---	---
BL8	---	12	1-1/4	8-5/16	14	16d	---	---
B66	A66	12	1-1/2	6	---	---	4	3/8
B88	A88	12	2	8	---	---	6	3/8

1) Bolts shall conform to ASTM A 307 or better.

2) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

**L / T** – 14 gauge medium-capacity straps fasten with either nails or bolts.

**LH / TH** – 7 gauge heavy-capacity bolt-on strap.

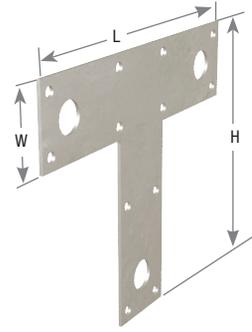
**Materials:** See chart

**Finish:** G90 galvanizing; LH / TH – USP primer; TH12-HDG – Hot-dip galvanized.

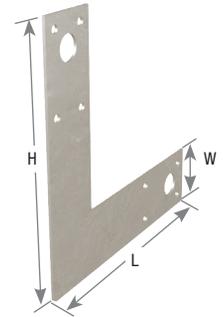
**Options:** See chart for Corrosion Finish Options. Available for special order in black primer coated finish.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- **Straps are not load rated.**
- Bolts must be ordered separately.



T6



L6



TH16



LH12

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule				Corrosion Finish
			W	H	L	Bolts <sup>1</sup>		Nails <sup>2</sup>		
						Qty	Dia.	Qty	Type	
T6	66T	14	1-1/2	5	6	3	1/2	12	16d	■
T8	---	14	2	8	8-1/2	3	1/2	12	16d	
T12	128T	14	2	8	12	3	1/2	12	16d	
T1212	1212T	14	2	12	12	3	1/2	12	16d	
L6	66L	14	1-1/2	6	6	2	1/2	8	16d	■
L8	88L	14	2	8	8	2	1/2	8	16d	
L12	1212L	14	2	12	12	4	1/2	12	16d	
TH12-HDG	1212HT, 1212HTHDG	7	2-1/2	12	12	6	5/8	---	---	■
TH16	1616HT	7	2-1/2	16	16-1/4	6	5/8	---	---	
LH12	1212HL	7	3	12	12	5	5/8	---	---	■
LH16	1616HL	7	2-1/2	16	16	7	5/8	---	---	

1) All bolts shall meet or exceed the specifications of ASTM A 307.  
 2) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

**Corrosion Finish**  
 ■ Stainless Steel ■ Gold Coat  
 ■ HDG ■ Triple Zinc

**Ornamental**

Ornamental notching provides architectural appearance for exposed applications.

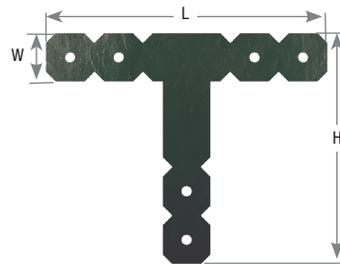
**Materials:** See chart

**Finish:** USP primer

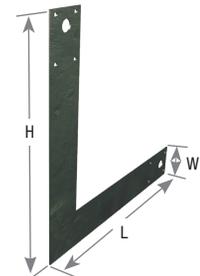
**Options:** Available for special order in black primer coated finish.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Connectors are not load rated.
- Bolts must be ordered separately.



T1212-0

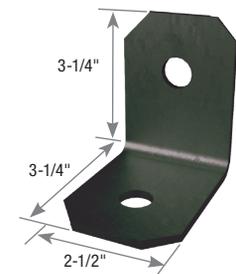


L12-0

Description	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Bolt Schedule <sup>1</sup>	
				W	H	L	Qty	Dia. (in)
Heavy Angle	KHL33-0	OHA33	7	3-1/4	---	2-1/2	2	5/8
	KHL36-0	OHA36	7	3-1/4	---	6	4	5/8
Strap Tie	KHST64-0	OHS135	7	6	---	13-1/2	4	3/4
	ST12-0	OS	12	2	---	12	4	1/2
'L' Strap	L12-0	OL	12	2-1/2	11-7/8	11-7/8	5	1/2
	LH12-0	OHL	7	2-1/2	11-7/8	11-7/8	5	5/8
'T' Strap	T1212-0	OT	12	2-1/2	11-7/8	14-1/2	6	1/2
	TH12-0	OHT	7	2-1/2	11-7/8	11-1/8	4	5/8
	TH16-0	---	7	2-1/2	11-7/8	16-1/8	6	5/8

1) All bolts shall meet or exceed the specifications of ASTM A 307.

Some model designs may vary from illustration shown



KHL33-0

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Angles & Straps

# CMST / CMSTC / RS Coiled Strapping

Coiled strapping enables cut-to-length convenience for a variety of immediate job site needs.

**CMST** – 3" wide strapping features diamond nail holes to provide nailing options and reduce wood splitting.

**CMSTC** – 3" wide strapping is designed for high load conditions. Engineered to reduce wood splitting.

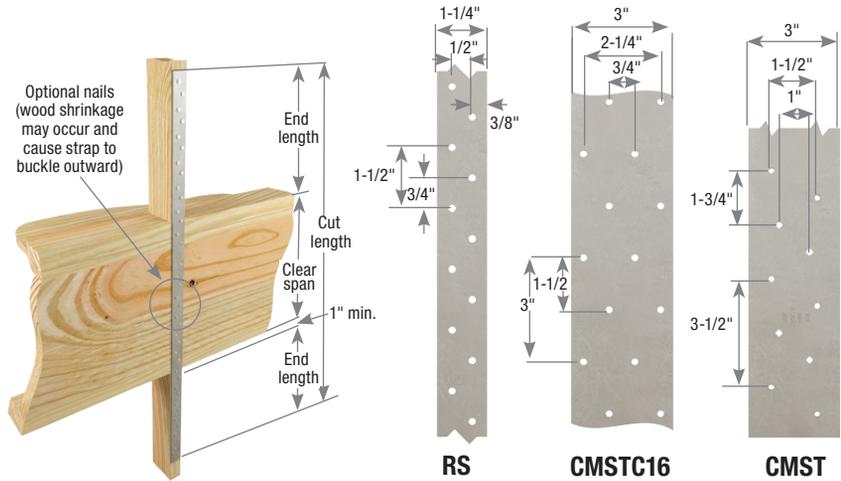
**RS** – 1-1/4" wide strapping packaged in cartons containing 25-foot or longer coils.

**Materials:** See chart

**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

**Codes:** Load values are derived from data submitted to various North American building code evaluators.



Typical RS rim joist installation  
CMST similar

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- For safety, always wear gloves when handling or cutting coiled strapping.
- **CMST** installations: Install to a minimum 2 ply 2x edge. Increase nail spacing if wood begins to split.
- Designer may specify alternate nailing schedules. Refer to **Nail Specification Table** on page 18 for nail shear values. Load values shall not exceed published factored resistance.

USP Stock No.	Ref. No.	Steel Gauge	Coil Length (ft)	Rim Joist Installation		Fastener Schedule <sup>2,3,4</sup>		Nail Spacing O.C. (in)	DF Factored Resistance <sup>1</sup>				S-P-F Factored Resistance <sup>1</sup>				Corrosion Finish	
				Cut Length (in)	End Length (in)	Qty	Type		Tensile (Lbs)		Tensile (kN)		Tensile (Lbs)		Tensile (kN)			
									100%	115%	100%	115%	100%	115%	100%	115%		
CMSTC16	CMSTC16	16	54	Clear Span + 42	21	56	10d	1-1/2	7070	7070	31.45	31.45	6655	7070	29.60	31.45		
				Clear Span + 84	42													3
CMST14	CMST14	14	52-1/2	Clear Span + 56	28	64	16d	1-3/4	9945	9945	44.24	44.24	8960	9945	39.86	44.24		
				Clear Span + 136	68													7
CMST12	CMST12	12	40	Clear Span + 268	134	76	10d	3-1/2	9945	9945	44.24	44.24	9030	9945	40.17	44.24		
				Clear Span + 80	40													7
				Clear Span + 184	92													
RS300	CS22	22	300	Clear Span + 368	184	104	10d	3-1/2	13975	13975	62.17	62.17	12320	13975	54.80	62.17		
				Clear Span + 12	6													7
				Clear Span + 14	7													
RS22-R	CS22-R	22	25	Clear Span + 12	6	16	10d	1-1/2	1415	1415	6.29	6.29	1390	1415	6.18	6.29		
				Clear Span + 14	7													7
RS250	CS20	20	250	Clear Span + 12	6	16	10d	1-1/2	1415	1415	6.29	6.29	1390	1415	6.18	6.29		
				Clear Span + 14	7													7
RS20-R	CS20-R	20	25	Clear Span + 16	8	20	8d	1-1/2	1595	1595	7.10	7.10	1595	1595	7.10	7.10		
				Clear Span + 14	7													7
RS200	CS18	18	200	Clear Span + 16	8	20	10d	1-1/2	2100	2100	9.34	9.34	2010	2100	8.94	9.34		
				Clear Span + 18	9													7
RS100	CS18S	18	100	Clear Span + 16	8	20	10d	1-1/2	2100	2100	9.34	9.34	2010	2100	8.94	9.34		
				Clear Span + 18	9													7
RS18-R	CS18-R	18	25	Clear Span + 16	8	20	10d	1-1/2	2100	2100	9.34	9.34	2010	2100	8.94	9.34		
				Clear Span + 18	9													7
RS150	CS16	16	150	Clear Span + 16	8	20	10d	1-1/2	2645	2645	11.77	11.77	2645	2645	11.77	11.77		
				Clear Span + 22	11													7
RS16-R	CS16-R	16	25	Clear Span + 18	9	24	10d	1-1/2	2645	2645	11.77	11.77	2645	2645	11.77	11.77		
				Clear Span + 22	11													7
RS14-100	CS14	14	100	Clear Span + 18	9	24	10d	1-1/2	3920	3920	17.44	17.44	3565	3920	15.86	17.44		
				Clear Span + 30	15													7
RS14-R	CS14-R	14	25	Clear Span + 24	12	30	10d	1-1/2	3920	3920	17.44	17.44	3565	3920	15.86	17.44		
				Clear Span + 30	15													7

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) Fasteners to be installed with equal fasteners at each end of the connection.  
 3) 16d sinker nails may be substituted for 10d nails with no load reduction.  
 4) **NAILS:** 8d nails are 0.131" dia. x 2-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Corrosion Finish**

- Stainless Steel
- Gold Coat
- HDG
- Triple Zinc

**HRS** – 12 gauge, 1-3/8" or 3-1/4" wide strapping.

**LSTA** – 20 or 18 gauge, light-capacity 1-1/4" wide strapping.

**LSTI** – 3-3/4" wide strap ties provide tension load path for truss top chords. The nail pattern accommodates open web trusses with double top chord.

**MSTA** – 18 or 16 gauge, medium-capacity 1-1/4" wide strapping.

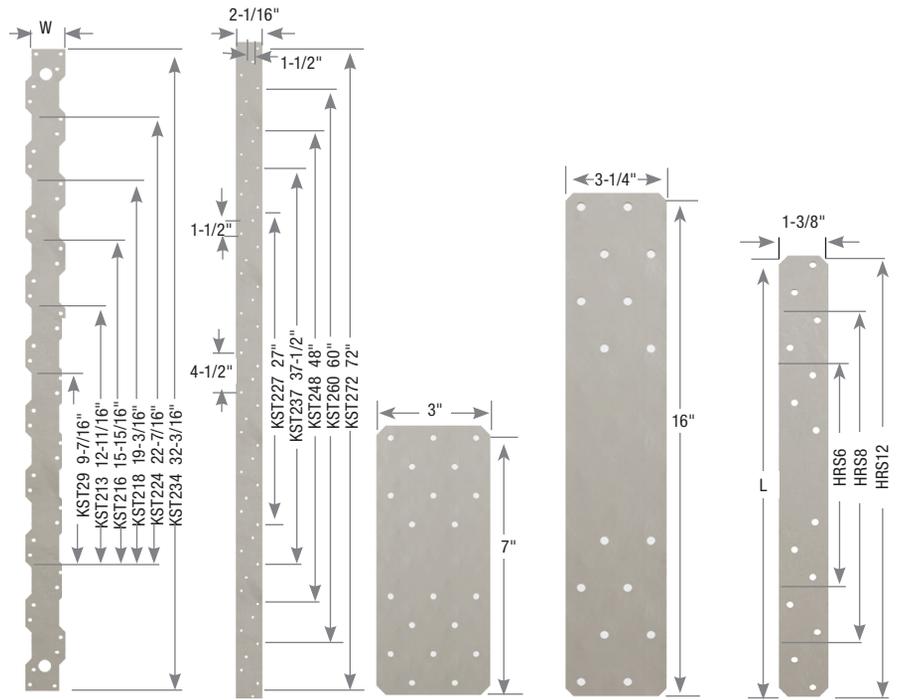
**HTP** – 16 gauge, medium-capacity 3" wide strapping.

**ST** – 16 gauge, medium-capacity 1-1/4" wide strapping.

**MSTC** – 3" wide strapping. Slotted hole design allows for higher load capacities and reduces splitting of lumber when attached to multiple 2x members.

**KST** – 3/4", 1-3/4", or 2-1/16" wide strapping. Straps can be fastened using either nails or bolts. Some KST straps install only with nails.

**KSTI** – 2-1/16" wide strapping. Straps are designed for installation to wood I-Joist flanges.



**KST scalloped design**

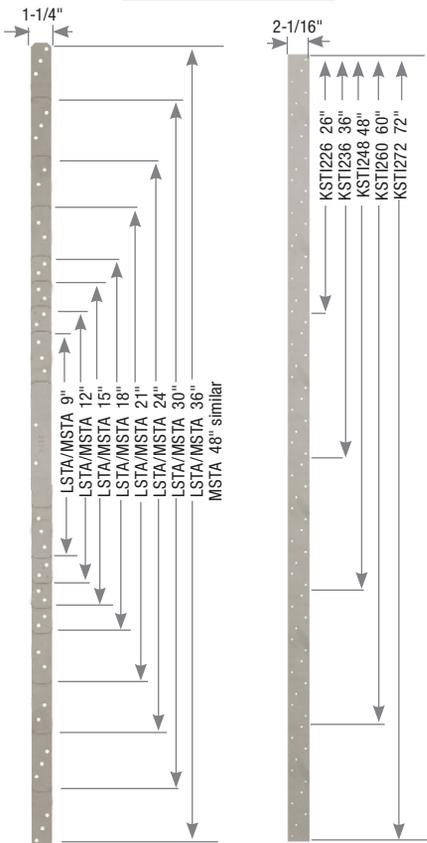
**KST straight edge design**

**HTP37-TZ**

**HRS416-TZ**

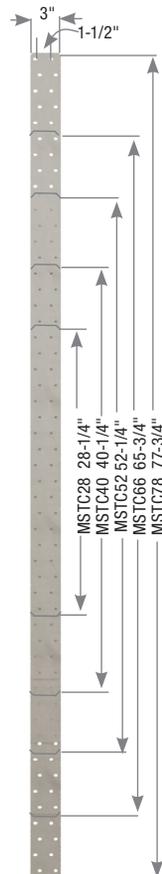
**HRS**

Some model designs may vary from illustration shown

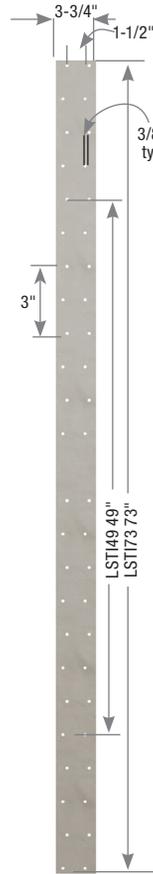


**LSTA/MSTA**

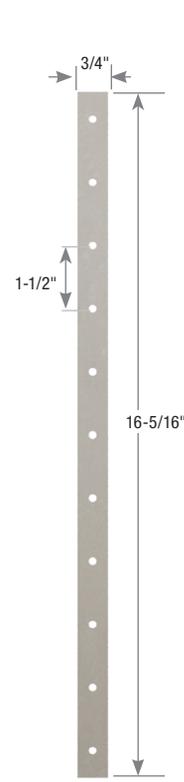
**KSTI**



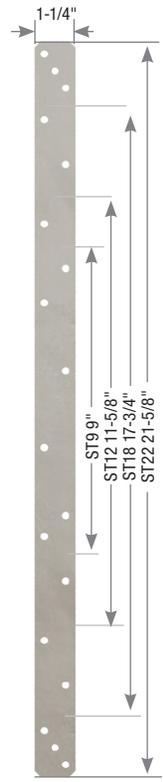
**MSTC**



**LSTI**



**KST116**



**ST**

**Materials:** See chart

**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Designer may specify alternate nailing schedules. Refer to **Nail Specification Table** on page 18 for nail shear values. Load values shall not exceed published factored resistance.
- The quantity of nails installed shall be equally distributed to both ends of the strap.
- Bolts must be ordered separately.



Typical LSTA/MSTA I-Joist on ridge beam installation



Typical LSTI open web truss installation

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule <sup>5</sup>			DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish
			W	L	Total Qty <sup>2</sup>	Min Qty <sup>3</sup>	Type	Tensile 115% <sup>1,4</sup>		Tensile 115% <sup>1,4</sup>		
								Lbs	kN	Lbs	kN	
KST116	ST2115	20	3/4	16-5/16	10	8	16d	995	4.43	940	4.18	
LSTA9	LSTA9	20	1-1/4	9	8	8	10d	1085	4.83	775	3.45	
LSTA12	LSTA12	20	1-1/4	12	10	10	10d	1355	6.03	970	4.31	
LSTA15	LSTA15	20	1-1/4	15	12	12	10d	1630	7.25	1165	5.18	
LSTA18	LSTA18	20	1-1/4	18	14	14	10d	1855	8.25	1360	6.05	
LSTA21	LSTA21	20	1-1/4	21	16	16	10d	1855	8.25	1555	6.92	
LSTA24	LSTA24	20	1-1/4	24	18	16	10d	1855	8.25	1555	6.92	
KST29	ST292	20	1-3/4	9-7/16	14	14	16d	1320	5.87	940	4.18	
KST213	ST2122	20	1-3/4	12-11/16	18	18	16d	2680	11.92	2110	9.39	
KST216	ST2215	20	1-3/4	15-15/16	22	18	16d	2680	11.92	2110	9.39	
LSTA30	LSTA30	18	1-1/4	30	22	22	10d	2460	10.94	2140	9.52	
LSTA36	LSTA36	18	1-1/4	36	26	22	10d	2460	10.94	1945	8.65	■
MSTA9	MSTA9	18	1-1/4	9	8	8	10d	1085	4.83	775	3.45	■
MSTA12	MSTA12	18	1-1/4	12	10	10	10d	1355	6.03	970	4.31	■
MSTA15	MSTA15	18	1-1/4	15	12	12	10d	1630	7.25	1165	5.18	■
MSTA18	MSTA18	18	1-1/4	18	14	14	10d	1900	8.45	1360	6.05	■
MSTA21	MSTA21	18	1-1/4	21	16	16	10d	2170	9.65	1555	6.92	■
MSTA24	MSTA24	18	1-1/4	24	18	18	10d	2445	10.88	1750	7.78	■
LSTI49	LSTI49	18	3-3/4	49	32	32	10d x 1-1/2	4340	19.31	3090	13.75	
LSTI73	LSTI73	18	3-3/4	73	48	48	10d x 1-1/2	6515	28.98	4635	20.62	
ST9	ST9	16	1-1/4	9	8	8	16d	1325	5.89	1100	4.89	
ST12	ST12	16	1-1/4	11-5/8	10	10	16d	1655	7.36	1375	6.12	
ST18	ST18	16	1-1/4	17-3/4	14	14	16d	2095	9.32	1925	8.56	
ST22	ST22	16	1-1/4	21-5/8	18	18	16d	2095	9.32	2095	9.32	
MSTA30	MSTA30	16	1-1/4	30	22	22	10d	2985	13.28	2140	9.52	■
MSTA36	MSTA36	16	1-1/4	36	26	26	10d	3100	13.79	2525	11.23	■
MSTA48	MSTA49	16	1-1/4	48	32	26	10d	3070	13.66	2525	11.23	
KST218	ST6215	16	1-3/4	19-3/16	26	26	16d	2640	11.74	1875	8.34	
KST224	ST6224	16	1-3/4	22-7/16	30	30	16d	4440	19.75	3520	15.66	
HTP37-TZ	HTP37Z	16	3	7	20	20	10d x 1-1/2	2330	10.36	2110	9.39	■
MSTC28	MSTC28	16	3	28-1/4	36	36	10d	4380	19.48	3110	13.83	
					36	34	16d	6295	28.00	4435	19.73	
MSTC40	MSTC40	16	3	40-1/4	52	52	10d	6570	29.23	4665	20.75	
					52	46	16d	7795	34.68	6305	28.05	
MSTC52	MSTC52	16	3	52-1/4	70	60	10d	7795	34.68	6220	27.67	
					70	52	16d	7795	34.68	7795	34.68	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) Total number of nail and/or bolt holes provided in the strap.  
 3) Minimum quantity of fasteners to be installed with equal fasteners at each end of the connection. Strap may have additional nail holes not needed to meet published factored resistance of strap.  
 4) Factored resistances are based on parallel-to-grain loading, minimum of 2-1/2" thick.  
 5) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Corrosion Finish**

■	Stainless Steel
■	Gold Coat
■	HDG
■	Triple Zinc

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule <sup>5,6</sup>			DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish
			W	L	Total Qty <sup>2</sup>	Min Qty <sup>3</sup>	Type	Tensile 115% <sup>1,4</sup>		Tensile 115% <sup>1,4</sup>		
								Lbs	kN	Lbs	kN	
KST234	ST6236	14	1-3/4	32-3/16	42	36	16d	5665	25.20	4225	18.79	
MSTC66	MSTC66	14	3	65-3/4	88	72	10d	9945	44.24	8165	36.32	
					88	62	16d	9945	44.24	9945	44.24	
MSTC78	MSTC78	14	3	77-3/4	104	76	10d	9945	44.24	8550	38.03	
					104	66	16d	9945	44.24	9945	44.24	
HRS6	HRS6	12	1-3/8	6	6	6	10d	815	3.63	580	2.58	
HRS8	HRS8	12	1-3/8	8	10	10	10d	1355	6.03	970	4.31	
HRS12	HRS12	12	1-3/8	12	14	14	10d	1900	8.45	1355	6.03	
KST227	MST27	12	2-1/16	27	34	26	16d	4290	19.08	3050	13.57	
KST237	MST37	12	2-1/16	37-1/2	48	38	16d	6270	27.89	4455	19.82	
KST248	MST48	12	2-1/16	48	62	50	16d	8110	36.08	5865	26.09	
KSTI226	MSTI26	12	2-1/16	26	26	<b>22</b>	10d x 1-1/2	<b>3415</b>	<b>15.19</b>	<b>3000</b>	<b>13.35</b>	
KSTI236	MSTI36	12	2-1/16	36	36	<b>32</b>	10d x 1-1/2	<b>4970</b>	<b>22.11</b>	<b>4360</b>	<b>19.40</b>	
KSTI248	MSTI48	12	2-1/16	48	48	<b>44</b>	10d x 1-1/2	<b>6830</b>	<b>30.38</b>	<b>5995</b>	<b>26.67</b>	
KSTI260	MSTI60	12	2-1/16	60	60	<b>56</b>	10d x 1-1/2	<b>7720</b>	<b>34.34</b>	<b>7630</b>	<b>33.94</b>	
KSTI272	MSTI72	12	2-1/16	72	72	<b>58</b>	10d x 1-1/2	<b>7720</b>	<b>34.34</b>	<b>7720</b>	<b>34.34</b>	
HRS416-TZ	HRS416Z	12	3-1/4	16	16	16	<b>WS15-HDG</b>	4057	18.05	3329	14.81	
KST260	MST60	10	2-1/16	60	72	64	16d	10560	46.98	7505	33.39	
KST272	MST72	10	2-1/16	72	72	64	16d	10605	47.18	8445	37.57	

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 2) Total number of nail and/or bolt holes provided in the strap.
- 3) Minimum quantity of fasteners to be installed with equal fasteners at each end of the connection. Strap may have additional nail holes not needed to meet published factored resistance of strap.
- 4) Factored resistances are based on parallel-to-grain loading, minimum of 2-1/2" thick.
- 5) WS15-HDG Wood Screws are 1/4" dia. x 1-1/2" long.
- 6) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long. New products or updated product information are designated in **blue font**.

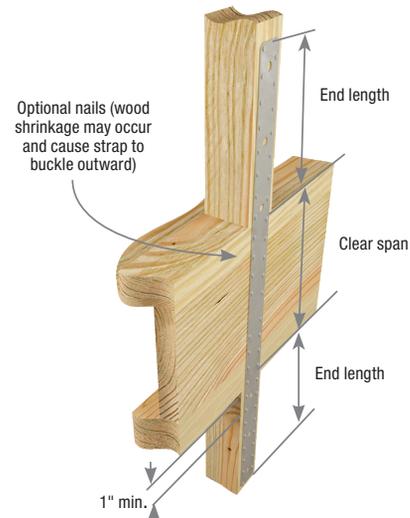
**Corrosion Finish**

- Stainless Steel
- Gold Coat
- HDG
- Triple Zinc

Clear Span Chart

USP Stock No.	Clear Span	Fasteners Total <sup>2</sup>		DF Factored Resistance		S-P-F Factored Resistance	
		Qty	Type	Uplift (115%) <sup>1</sup>		Uplift (115%) <sup>1</sup>	
				Lbs	kN	Lbs	kN
MSTC28	18	12	10d	1630	7.30	1155	5.10
	16	16	10d	2170	9.70	1540	6.90
MSTC40	18	28	10d	3800	16.90	2700	12.00
	16	32	10d	4345	19.30	3085	13.70
MSTC52	18	44	10d	5970	26.60	4240	18.90
	16	48	10d	6515	29.00	4625	20.60
MSTC66	18	62	10d	8415	37.40	5975	26.60
	16	64	10d	8685	38.60	6165	27.40
MSTC78	18	64	10d	8685	38.60	6165	27.40
	16	66	10d	8960	39.90	6360	28.30
KST237	18	20	16d	3295	14.70	2340	10.40
	16	22	16d	3625	16.10	2575	11.50
KST248	18	32	16d	5275	23.50	3745	16.70
	16	34	16d	5605	24.90	3980	17.70
KST260	18	46	16d	7580	33.70	5380	23.90
	16	48	16d	7910	35.20	5615	25.00
KST272	18	46	16d	7580	33.70	5380	23.90
	16	48	16d	7910	35.20	5615	25.00
KSTI236	18	14	10d x 1-1/2	<b>2175</b>	<b>9.68</b>	<b>1910</b>	<b>8.50</b>
	16	16	10d x 1-1/2	<b>2485</b>	<b>11.05</b>	<b>2180</b>	<b>9.70</b>
KSTI248	18	26	10d x 1-1/2	<b>4035</b>	<b>17.95</b>	<b>3545</b>	<b>15.77</b>
	16	28	10d x 1-1/2	<b>4345</b>	<b>19.33</b>	<b>3815</b>	<b>16.97</b>
KSTI260	18	38	10d x 1-1/2	<b>5900</b>	<b>26.25</b>	<b>5180</b>	<b>23.04</b>
	16	40	10d x 1-1/2	<b>6210</b>	<b>27.62</b>	<b>5450</b>	<b>24.24</b>
KSTI272	18	50	10d x 1-1/2	<b>7720</b>	<b>34.34</b>	<b>6815</b>	<b>30.32</b>
	16	52	10d x 1-1/2	<b>7720</b>	<b>34.34</b>	<b>7085</b>	<b>31.52</b>

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long. New products or updated product information are designated in **blue font**.



Typical KST237 floor-to-floor installation

# KRPS Strap Ties

Designed for notched plates where plumbing, heating, or other pipes are placed in partitions.

**Materials:** 16 gauge

**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Install one strap tie for each 2x plate.



Typical KRPS installation



KRPS

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Notch Width (in)	Fastener Schedule <sup>3</sup>		DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish
			W	L		Qty	Type	Tensile 115% <sup>1,2</sup>		Tensile 115% <sup>1,2</sup>		
								Lbs	kN	Lbs	kN	
KRPS18	RPS18	16	1-1/2	18-5/16	< 5-1/2	12	16d	1375	6.12	1185	5.27	
KRPS22	RPS22	16	1-1/2	22-5/16	< 5-1/2	16	16d	1785	7.94	1535	6.83	
KRPS28	RPS28	16	1-1/2	28-5/16	≤ 12	16	16d	1785	7.94	1535	6.83	

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.
- 2) Factored resistances are based on single shear, parallel to grain loading with a 3-1/2" minimum member thickness.
- 3) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

# MSTCB Pre-Bent Straps

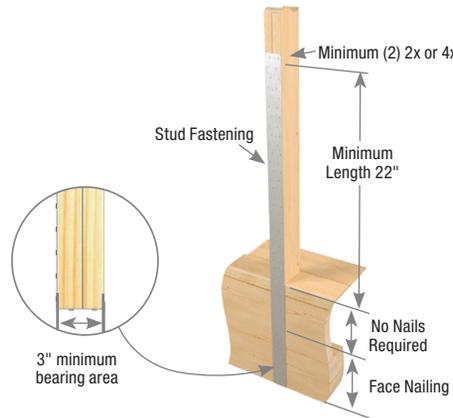
The MSTCB Pre-Bent Strap is designed to fasten vertical studs to a beam or ridge beam member below where the beam depth will not allow complete fastener attachments with a standard product.

**Materials:** 14 gauge

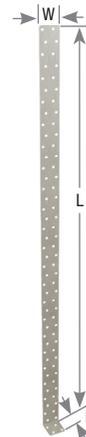
**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.



Sideview Typical MSTC66B3 installation



MSTCB

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Min. Beam Dimensions (in)		Fastener Schedule <sup>5</sup>						Unit	DF Factored Resistance	S-P-F Factored Resistance
			W	L	B	W	D	Beam				Stud/Post <sup>2,3,4</sup>				
								Face		Bottom		Qty	Type			
			Qty	Type	Qty	Type	Qty	Type	Tensile 115% <sup>1</sup>	Tensile 115% <sup>1</sup>						
MSTC48B3	MSTC48B3	14	3	44-7/8	2-7/8	3	9-1/4	12	10d	4	10d	24	10d	Lbs	7185	5100
														kN	31.96	22.69
MSTC66B3	MSTC66B3	14	3	62-7/8	2-7/8	3	11-1/4	14	10d	4	10d	24	10d	Lbs	7185	5100
														kN	31.96	22.69

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.
- 2) Minimum strap length on stud/post for quantity of nails is 19" for MSTC48B3 and 22" for MSTC66B3.
- 3) Fewer fasteners in the stud/post than listed will reduce the capacity of the connection.
- 4) Nails in the stud/post to be installed symmetrically in pairs starting a minimum of 1-1/2" from the end.
- 5) **NAILS:** 10d nails are 0.148" dia. x 3" long.

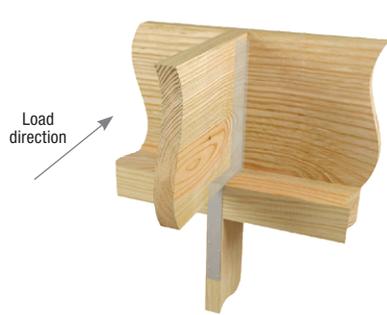
# PWFS Permanent Wood Foundation Strap

Connects permanent wood foundation studs to rim joist to resist lateral loads produced from ground pressure. The high load values and positive placement nail gun installation make the PWFS24 practical for manufactured homes as well as site built homes.

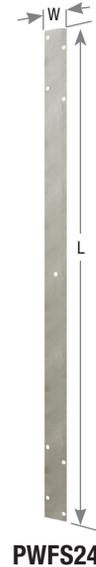
**Materials:** 20 gauge  
**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Center strap on top plate over the stud.
- Attach center nail and bend inside end of strap downward.
- Install nails on inside of wall.
- Install floor system or place manufactured home on foundation.
- Form outside end of strap up the outside of rim and install nails.



**Typical PWFS24 installation**



**PWFS24**

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule <sup>2</sup>		DF Factored Resistance		S-P-F Factored Resistance	
			W	L	Qty	Type	Tensile 100% <sup>1</sup>		Tensile 100% <sup>1</sup>	
							Lbs	kN	Lbs	kN
PWFS24	PWF24	20	1-1/2	24	9	8d	1115	4.96	930	4.14

1) For installations where the strap does not fall behind joist, the designer shall be responsible to determine suitability of rim to resist the load.  
 2) **NAILS:** 8d nails are 0.131" dia. x 2-1/2" long.

## HTW / KTS / LFTA / LTW / MTW Twist Straps

Twist straps tie framing members to resist tension forces.

- LFTA6** – 16 gauge.
- LTW** – 18 gauge, light-capacity.
- MTW** – 16 gauge, medium-capacity.
- KTS** – 16 gauge, medium-capacity with angled twist.
- HTW** – 14 gauge, heavy-capacity.

**Materials:** See chart  
**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options  
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Consult I-Joist manufacturer for web stiffener requirements, and uplift limitations on joist and application.



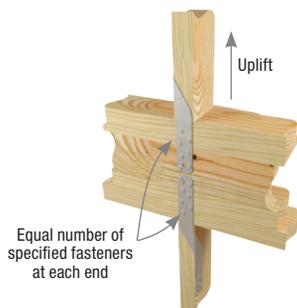
**Typical LTW12 / MTW12 truss-to-top plate installation**



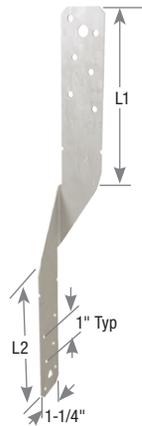
**Typical LFTA6 stud-to-top plate installation**



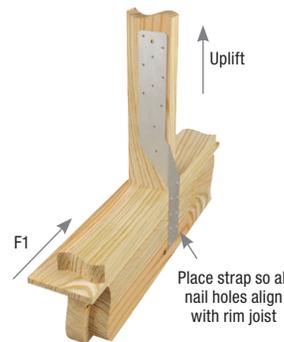
**Typical LFTA6 truss-to-top plate installation**



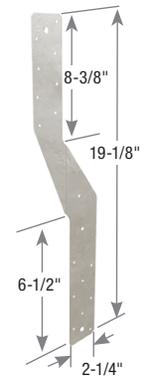
**Typical LTW12 / MTW12 stud-to-rim joist installation**



**LTW12/MTW12**



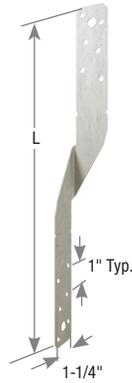
**Typical LFTA6 stud-to-rim joist installation**



**LFTA6**



Typical MTW20 I-Joist rafter installation



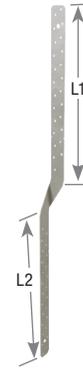
LTW18/MTW18 other models similar



Typical MTW30 installation



MTW30/HTW30



MTW30C



KTS

USP Stock No. <sup>5</sup>	Ref. No.	Steel Gauge	Dimensions (in)				Fastener Schedule <sup>2,3,4,7</sup>		DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish
			W	L	L1	L2	Qty	Type	Uplift (115%) <sup>1</sup>		Uplift (115%) <sup>1</sup>		
									Lbs	kN	Lbs	kN	
LTW12	LTS12	18	1-1/4	12	4-1/2	4-1/2	12	10d x 1-1/2	1465	6.52	1040	4.63	Blue
							12	10d	1465	6.52	1040	4.63	
LTW16	LTS16	18	1-1/4	16	6-1/2	6-1/2	12	10d x 1-1/2	1465	6.52	1040	4.63	Blue
							12	10d	1465	6.52	1040	4.63	
LTW18	LTS18	18	1-1/4	18	7-1/2	7-1/2	12	10d x 1-1/2	1465	6.52	1040	4.63	Blue
							12	10d	1465	6.52	1040	4.63	
LTW20	LTS20	18	1-1/4	20	8-1/2	8-1/2	12	10d x 1-1/2	1465	6.52	1040	4.63	Blue
							12	10d	1465	6.52	1040	4.63	
KTS9	TS9	16	1-1/4	9	---	---	8	16d	915	4.07	785	3.49	Blue
KTS12	TS12	16	1-1/4	11-1/2	---	---	10	16d	1145	5.09	985	4.38	Blue
MTW12	MTS12	16	1-1/4	12	4-1/2	4-1/2	14	10d x 1-1/2	2250	10.01	1595	7.10	Green
							14	10d	2250	10.01	1595	7.10	
MTW16	MTS16	16	1-1/4	16	6-1/2	6-1/2	14	10d x 1-1/2	2250	10.01	1595	7.10	Green
							14	10d	2250	10.01	1595	7.10	
KTS17	TS18	16	1-1/4	17-1/2	---	---	14	16d	1370	6.09	1175	5.23	Blue
MTW18	MTS18	16	1-1/4	18	7-1/2	7-1/2	14	10d x 1-1/2	2250	10.01	1595	7.10	Green
							14	10d	2250	10.01	1595	7.10	
LFTA6 <sup>6</sup>	H6	16	2-1/4	19-1/8	8-3/8	6-1/2	16	8d	1265	5.63	1075	4.78	Green
							16	8d x 1-1/2	1265	5.63	1075	4.78	
MTW20	MTS20	16	1-1/4	20	8-1/2	8-1/2	14	10d x 1-1/2	2250	10.01	1595	7.10	Green
							14	10d	2250	10.01	1595	7.10	
KTS24	TS22	16	1-1/4	21-3/4	---	---	18	16d	1580	7.03	1580	7.03	Blue
MTW24C	MTS24C	16	1-1/4	24	10-7/16	10-7/16	14	10d x 1-1/2	2250	10.01	1595	7.10	Green
							14	10d	2250	10.01	1595	7.10	
MTW28C	---	16	1-1/4	28	12-7/16	12-7/16	14	10d x 1-1/2	2250	10.01	1595	7.10	Green
							14	10d	2250	10.01	1595	7.10	
MTW30	MTS30	16	1-1/4	30	8-5/16	18-9/16	14	10d x 1-1/2	2250	10.01	1595	7.10	Green
							14	10d	2250	10.01	1595	7.10	
MTW30C	MTS30C	16	1-1/4	30	13-7/16	13-7/16	14	10d x 1-1/2	2250	10.01	1595	7.10	Green
							14	10d	2250	10.01	1595	7.10	
HTW16	HTS16	14	1-1/4	16	5-1/8	5-1/8	16	10d x 1-1/2	2340	10.41	1660	7.38	Green
							16	10d	2340	10.41	1660	7.38	
HTW20	HTS20	14	1-1/4	20	7-1/8	7-1/8	24	10d x 1-1/2	2880	12.81	2045	9.10	Green
							20	10d	2880	12.81	2045	9.10	
HTW24	HTS24	14	1-1/4	24	9-1/8	9-1/8	24	10d x 1-1/2	2880	12.81	2045	9.10	Green
							20	10d	2880	12.81	2045	9.10	
HTW28	HTS28	14	1-1/4	28	11-1/8	11-1/8	24	10d x 1-1/2	2880	12.81	2045	9.10	Green
							20	10d	2880	12.81	2045	9.10	
HTW30	HTS30	14	1-1/4	30	7	17-1/4	24	10d x 1-1/2	2880	12.81	2045	9.10	Green
							20	10d	2880	12.81	2045	9.10	
HTW30C	HTS30C	14	1-1/4	30	12-1/8	12-1/8	24	10d x 1-1/2	2880	12.81	2045	9.10	Green
							20	10d	2880	12.81	2045	9.10	

- Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 16d sinker nails may be substituted for 10d common nails with no reduction in load.
- For 1-1/2" lumber, where 16d nails are specified, use 10d x 1-1/2" nails and apply 0.78 adjustment factor to the table value.
- Fasteners shall be distributed equally on each end of the connection.
- C after the model number designates center twist as in MTW30C.
- LFTA6: F1 is 870 lbs DF-L and 775 lbs S-P-F. To achieve F1 lateral loads, three nails must be installed on each side on the strap located closest to the bend line. Lateral F1 load direction does not apply to roof truss-to-top plate installations.
- NAILS:** 8d x 1-1/2" nails are 0.131" dia. x 1-1/2" long, 8d nails are 0.131" dia. x 2-1/2" long, 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Corrosion Finish**

- Blue Stainless Steel
- Green Gold Coat
- Grey HDG
- Red Triple Zinc

The MSTAM and MSTCM Strap Ties are designed to connect a wood structure above to a masonry wall below.

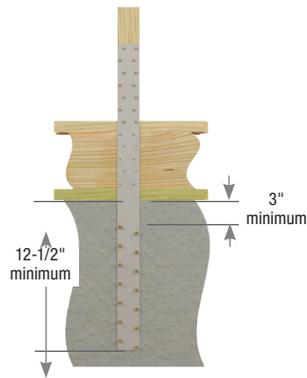
**Materials:** See chart

**Finish:** G90 galvanizing

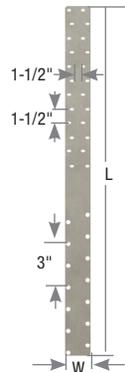
**Options:** See chart for Corrosion Finish Options

**Installation:**

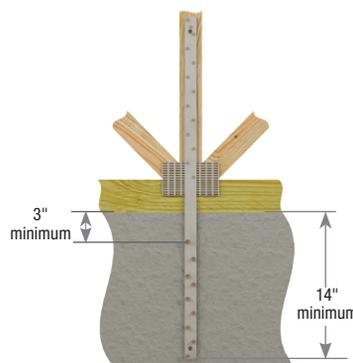
- Use all specified fasteners. See Product Notes, page 15.



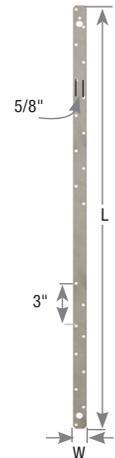
**Typical MSTCM40 installation**



**MSTCM40**



**Typical MSTAM36 installation**



**MSTAM36**

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule						DF		S-P-F		Corrosion Finish
					CMU <sup>2</sup>		Concrete <sup>2</sup>		Nails <sup>3</sup>		Factored Resistance <sup>1</sup>		Factored Resistance <sup>1</sup>		
			W	L	Qty	Type	Qty	Type	Qty	Type	Tensile 115%		Tensile 115%		
			Lbs	kN	Lbs	kN									
MSTAM24	MSTAM24	18	1-1/4	24	5	1/4" Tapcon	5	1/4" Tapcon	9	10d	2315	10.30	2315	10.30	
MSTAM36	MSTAM36	16	1-1/4	36	8	1/4" Tapcon	8	1/4" Tapcon	10	10d	2920	12.99	2820	12.54	
MSTCM40	MSTCM40	16	3	40-1/4	14	1/4" Tapcon	14	1/4" Tapcon	24	10d	6905	30.72	4905	21.82	
								22	16d						
MSTCM60	MSTCM60	16	3	60	14	1/4" Tapcon	14	1/4" Tapcon	24	10d	6905	30.72	4905	21.82	
								22	16d						

- 1) Factored Resistances are derived from tests performed using hollow C90 concrete block.
- 2) Use ITW Buildex 1/4" x 2-1/4" Tapcon fasteners; or equal, installed in accordance with manufacturer's specification.
- 3) **NAILS:** 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

**Clear Span Chart**

USP Stock No.	Clear Span	Fastener Schedule						DF		S-P-F	
		CMU <sup>1</sup>		Concrete <sup>1</sup>		Nails <sup>3</sup>		Factored Resistance <sup>2</sup>		Factored Resistance <sup>2</sup>	
		Qty	Type	Qty	Type	Qty	Type	Tensile 115%		Tensile 115%	
		Lbs	kN	Lbs	kN						
MSTAM36	16	5	1/4" Tapcon	5	1/4" Tapcon	8	10d	1825	8.12	1445	6.43
	18	5	1/4" Tapcon	5	1/4" Tapcon	7	10d	1825	8.12	1445	6.43
MSTCM40	16	14	1/4" Tapcon	14	1/4" Tapcon	14	16d	4700	20.91	4380	19.48
	18	14	1/4" Tapcon	14	1/4" Tapcon	14	16d	4700	20.91	4380	19.48
MSTCM60	16	14	1/4" Tapcon	14	1/4" Tapcon	22	16d	6905	30.72	4905	21.82
	18	14	1/4" Tapcon	14	1/4" Tapcon	22	16d	6905	30.72	4905	21.82

- 1) Use ITW Buildex 1/4" x 2-1/4" Tapcon fasteners; or equal, installed in accordance with the manufacturer's specification.
- 2) Factored resistances are derived from tests performed using hollow C90 concrete block.
- 3) **NAILS:** 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

# HTWM Masonry Twist Straps

The HTWM Twist Straps are designed for truss to concrete or masonry connections. Offer uplift resistance with variable heel height and positioning applications.

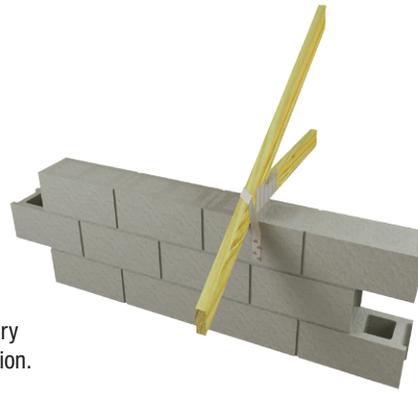
**Materials:** 14 gauge

**Finish:** G90 galvanizing

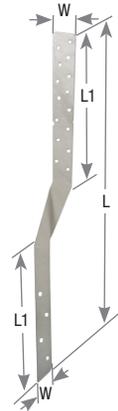
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, pages 15.
- Strap may be attached to either side of grouted masonry or concrete wall with a minimum of (1) 15M horizontal rebar.
- Drill hole in concrete or masonry with manufacturer's prescribed 1/4" masonry drill. Install fasteners into concrete or masonry per manufacturer's specification.
- Grout or concrete compressive strength shall be 2,500 psi at 28 days.
- Twist straps do not have to be wrapped over the truss to achieve the factored resistance.
- Moisture barrier may be required.



Typical HTWM installation



HTWM

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule					Unit	DF Factored Resistance <sup>1</sup>	S-P-F Factored Resistance <sup>1</sup>	
			W	L	L1	CMU <sup>2</sup>		Concrete <sup>2</sup>		Truss/Rafter <sup>3</sup>		Tensile 115%	Tensile 115%	
						Qty	Wedge Bolts	Qty	Wedge Bolts	Qty		Nail Type		
HTWM16	HTSM16, MTSM16	14	1-1/4	16	5-3/4	4	1/4" x 1-3/4"	4	1/4" x 1-3/4"	8	10d x 1-1/2	Lbs	1520	1335
												kN	6.76	5.94
HTWM20	HTSM20, MTSM20	14	1-1/4	20	7-3/4	4	1/4" x 1-3/4"	4	1/4" x 1-3/4"	8	10d x 1-1/2	Lbs	1520	1335
												kN	6.76	5.94

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) Use Powers Fasteners 1/4" x 1-3/4" Wedge-Bolt®; or equal, installed in accordance with manufacturer's specification.  
 3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long.

## JA Joist Anchors

The JA Joist Anchor is designed to laterally connect a joist to a concrete wall. The anchor is embedded into the wall at one end and nailed to the joist at the strap end, typically used where there is a fire separation wall such as in town houses.

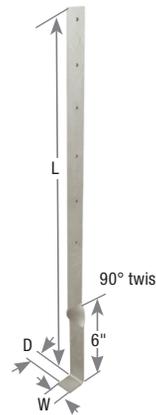
JA Joist Anchor is not designed to carry gravity load or to resist uplift force. Vertical loads (gravity and/or uplift) shall be accommodated by other means.

**Materials:** 7 gauge

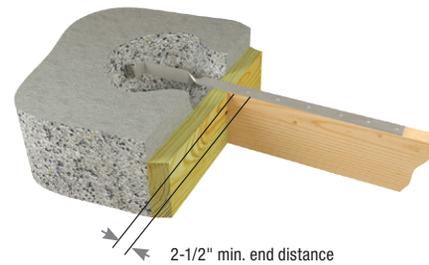
**Finish:** None

**Installation:**

- The "L" end of the anchor is to be embedded into a poured concrete wall.
- Minimum embedment is 6" which measures from the embedded end to the end of the twist.
- Deeper embedment may be required to allow for code required 2-1/2" end distance for the first joist fastener depending on joist anchor size and header thickness.
- Fasten the strap portion of the JA Joist Anchor to the horizontal joist using all specified nails.
- **Connectors are not load rated.**



JA1224



Typical JA1224 installation

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>1</sup>	
			W	L	D	Qty	Type
JA1212	--	7	1-1/4	12	1-1/4	2	10d
JA1218	--	7	1-1/4	18	1-1/4	3	10d
JA1224	--	7	1-1/4	24	1-1/4	5	10d
JA1236	--	7	1-1/4	36	1-1/4	8	10d

1) **NAILS:** 10d nails are 0.148" dia. x 3" long.  
 New products or updated product information are designated in **blue font**.

## Hanger Selector Guide

Hanger Type	USP Series	Steel Gauge	Style					Supported / Joist Member			Supporting / Header Member					100% Factored Resistance (Lbs.) Range				
			Face Mount	Top Mount	Sloped / Skewed	Formed	Welded	Dimensional Wood	EWP	Truss	Glulam	Dimensional Wood	EWP	Truss	Glulam	Masonry	Header Material			
																	SPF Masonry	SPF	DF Masonry	DF
Face Mount	ST	22	•													---	670 - 1,520	---	670 - 1,520	
	DT	22	•													---	1,380 - 1,640	---	1,380 - 1,640	
	JL	20	•			•							•			---	689 - 2,180	---	970 - 3,070	
	JUS	18	•			•							•			---	1,122 - 3,671	---	1,580 - 5,170	
	MUS	18	•			•							•			---	2,305 - 3,125	---	3,245 - 4,400	
	JLIF	18	•			•							•			---	475 - 1,305	---	670 - 1,835	
	SUH	16	•			•							•	•		---	985 - 4,070	---	1,390 - 5,730	
	HUS	16	•			•			•	•			•	•	•	---	3,891 - 6,408	---	5,480 - 9,025	
		14	•			•			•	•			•	•	•	---	1,512 - 4,505	---	2,130 - 6,345	
HD	14	•			•			•	•			•	•		---	1,090 - 5,194	---	1,535 - 7,315		
HDQIF	14	•			•			•	•			•	•		---	3,775 - 6,005	---	5,315 - 8,460		
Top Mount	KLB	14		•		•							•		---	<b>2,905</b>	---	<b>3,325</b>		
	<b>FWH</b>	14		•		•							•		---	1,910 - 2,155	---	2,435 - 2,750		
	KB	12		•		•							•		---	<b>5,690 - 5,825</b>	---	<b>6,640 - 6,795</b>		
	HDO	12		•		•							•		---	2,625 - 6,625	---	3,125 - 7,885		
	SW	12		•		•							•		---	2,265 - 2,470	---	3,335 - 3,630		
	SWH	7 - Top Flange 12 - Stirrup		•			•						•		---	<b>3,605</b>	---	4,760		
	KHW	3 - Top Flange 10 - Stirrup		•			•						•		---	5,185 - 5,225	---	7,625 - 7,680		
HL	18		•		•							•		---	1,245 - 1,925	---	1,830 - 2,290			
JH	18		•	•	•							•	•	---	2,745 - 3,375	---	3,565 - 4,750			
Slope and Skew	<b>RR</b>	18		•	•	•							•		---	425 - 500	---	600 - 705		
	LS	18		•	•	•							•		---	1,180 - 1,520	---	1,370 - 1,765		
	LSSH	18		•	•	•			•	•			•	•	•	---	950 - 1,970	---	1,340 - 2,775	
		16		•	•	•			•	•			•	•	•	---	2,120 - 3,715	---	2,985 - 5,230	
	SKH	16		•	•	•			•	•			•	•	•	---	585 - 3,595	---	825 - 5,065	
		14		•	•	•			•	•			•	•	•	---	1,830 - 5,260	---	2,575 - 7,405	
SKHH	14		•	•	•			•	•			•	•	•	---	1,880 - 4,530	---	<b>2,195 - 5,280</b>		
Panel and Purlin	JDS	18		•		•							•		---	560 - 1,940	---	785 - 2,735		
	FHD	18		•		•							•		---	1,120	---	1,575		
	JPF	20		•		•							•		---	1,245 - 1,420	---	1,755 - 1,995		
	DTUS	20				•							•		---	695	---	980		
	TUS	20				•							•		---	695	---	980		
Masonry	HWUH	1/4" - Top Flange, 7 - Stirrup		•			•	•					•	•		3,555 - 6,125	---	5,010 - 8,625	---	
	MPH	12		•			•	•					•			3,220 - 5,300	---	3,745 - 6,165	---	
	UMH <sup>1</sup>	1/4"		•			•	•					•			8,430	---	11,875	---	

1) UMH factored resistance values are based upon 2,500 psi.

• Represents common applications and product configurations. Consult USP for additional applications and/or optional product configurations.

New products or updated product information are designated in **blue font**.

USP offers a wide variety of light-gauge face mount joist hangers to accommodate application and installation preferences.

**ST series** – 22 gauge, 2x joist hangers.

**DT series** – 22 gauge, (2) 2x joist hangers.

**JL series** – 20 gauge, 2x joist hangers.

**JLIF series** – 18 gauge, 2x joist hangers.

**SUH series** – 16 gauge steel construction for more demanding applications and light truss support.

**Materials:** See chart

**Finish:** G90 galvanizing; JLIF – G-185 galvanizing

**Options:** See chart for Corrosion Finish Options. See SUH Specialty Options Chart.

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.



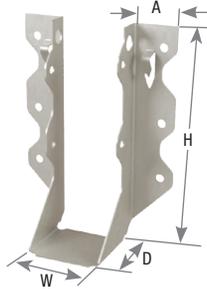
**Typical JL26 installation**



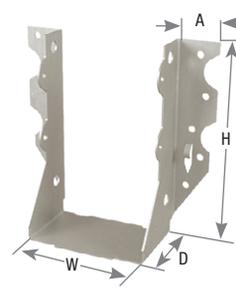
**Typical SUH26-2 installation**



**Typical JLIF installation**



**JL26**



**SUH26-2**



**JLIF**

**SUH Specialty Options Chart**

Refer to Specialty Options pages 220-221 for additional details.

Option <sup>4</sup>	Skewed <sup>1,3</sup>	Sloped Seat <sup>2,3</sup>	Sloped / Skewed <sup>1,2,3</sup>
<b>Range</b>	1° to 67-1/2° when width is 1-3/4" or less. 1° to 50° on all others.	1° to 45°	See Sloped Seat and Skewed
<b>Factored Resistance</b>	100% of table load. 75% of uplift load on skews greater than 15°.	100% of table load	80% of table load. 75% of uplift load on skews greater than 15°.
<b>Ordering</b>	Add <i>SK</i> angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and <b>square cut (<i>SQ</i>) or bevel cut (<i>BV</i>)</b> to product number. Ex. SUH210_SK45R_SQ	Add <i>SL</i> , slope required, and up ( <i>U</i> ) or down ( <i>D</i> ), to product number. Ex. SUH210_SL30D	See Sloped Seat and Skewed. Ex. SUH210_SK45R_SQ_SL30D

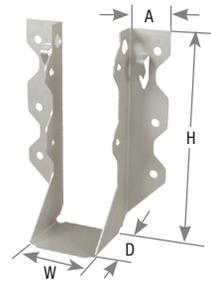
1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.  
 2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.  
 3) For skewed hangers, the required cut type (square or bevel) of joist member may vary based on skew angle and width of hanger. Some square cut hangers will require custom pricing due to welded back plate.  
 4) SUH option hangers may be manufactured as welded products to achieve listed loads. Welded products will have primer finish.  
 New products or updated product information are designated in **blue font**.



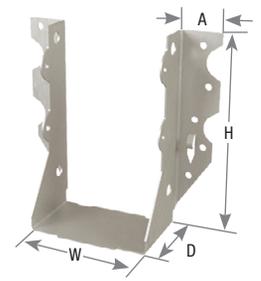
**Typical ST installation**



**Typical DT installation**



**ST**



**DT**

The HUS, JUS & MUS hanger series offers double shear nailing. USP's dimple allows for 30° to 45° nailing through the joist into the header resulting in higher loads and less nailing. Slant nailing also eliminates the need for shorter joist nails in 2x applications.

**Materials:** JUS - 18 gauge; MUS - 18 gauge; HUS - 14 or 16 gauge

**Finish:** G90 galvanizing

**Options:** See Chart for Corrosion Finish Options. See HUS Specialty Options Chart.

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

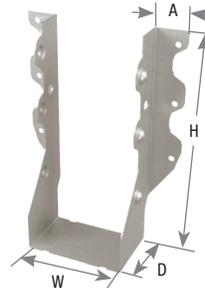
- Use all specified fasteners. See Product Notes, page 15.
- Joist nails must be driven at a 30° to 45° angle through the joist or truss into the header to achieve listed loads. **Standard length "double shear" nails must be used to achieve listed load values.**
- JUS & MUS - 16d sinkers (0.148" dia. x 3-1/4") may be used where 10d commons are specified with no load reduction.



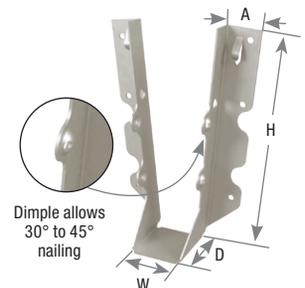
Typical HUS46 installation



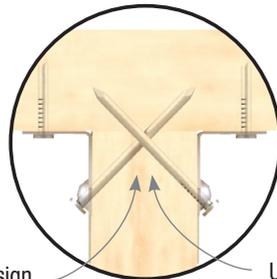
Typical JUS26 installation



HUS28-2



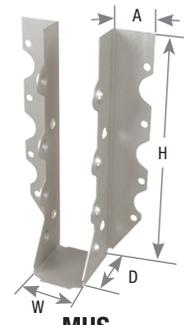
JUS28



Double shear nail design features fewer nails and faster installation

Uses standard length nails

AVAILABLE IN  
**GOLD  
COAT**



MUS



Typical HUS410IF inverted flange installation

**HUS Specialty Options Chart**

Refer to Specialty Options pages 220-221 for additional details.

Option	Inverted Flange
Range	Not available in widths less than 2-1/4".
Factored Resistance	100% of table load. 65% of table load when nailing into the support members end grain.
Ordering	Add <i>IF</i> to product number. Ex. HUS410_IF

# HD Heavy-Duty Face Mount Hangers

HD hangers are heavy-duty face mount hangers that can be used to support headers, joists, and trusses.

**Materials:** 14 gauge

**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options. All nominal lumber sizes are available rough/full size lumber. See Specialty Options Chart.

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Some HD models feature nail holes along bend line that must be filled to achieve factored resistance. Verify proper header width to accomplish this for inverted models.



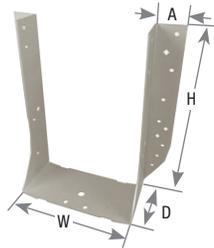
Typical HD610 installation



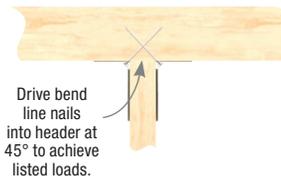
Typical HD210-2 installation



Typical HD3212 glulam installation

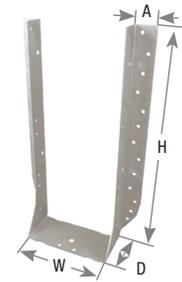


HD610



Drive bend line nails into header at 45° to achieve listed loads.

Typical HD bend line nail installation



HD51135

**Specialty Options Chart**

Refer to Specialty Options pages 220-221 for additional details.

Option	Skewed <sup>1,3</sup>	Sloped Seat <sup>2,3</sup>	Sloped / Skewed <sup>1,2,3</sup>	Inverted Flange
<b>Range</b>	1° to 67-1/2° when width is 1-3/4" or less. 1° to 50° on all others.	1° to 45°	See Sloped Seat and Skewed	Not available in widths less than 2-1/4"
<b>Factored Resistance</b>	100% of table load. 75% of uplift load on skews greater than 15°.	100% of table load	80% of table load. 75% of uplift load on skews greater than 15°.	100% of table load. 65% of table load when nailing into the support members end grain.
<b>Ordering</b>	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and <b>square cut (<i>SQ</i>) or bevel cut (<i>BV</i>)</b> to product number. Example: HD410_SK45R_SQ	Add <i>SL</i> , slope required, and up ( <i>U</i> ) or down ( <i>D</i> ), to product number. Example: HD410_SL30D	See Sloped Seat and Skewed Example: HD410_SK45R_SQ_SL30D	Add <i>IF</i> , to product number. Example: HD410_IF



Typical HD210-2IF inverted flange installation

1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.  
 2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.  
 3) For skewed hangers, the required cut type (square or bevel) of joist member may vary based on skew angle and width of hanger. Some square cut hangers will require custom pricing due to welded back plate.  
 4) HD option hangers may be manufactured as welded products to achieve listed loads. Welded products will have primer finish. New products or updated product information are designated in blue font.

# HDQIF Inverted Flange Face Mount Hangers

HDQIF inverted flange hangers install with wood screws eliminating the need to drill bolt holes simplifying installation.

**Materials:** 14 gauge

**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

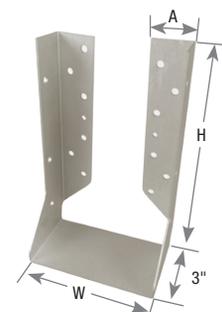
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- WS15 and WS3 Wood Screws are supplied with HDQIF hangers.



Typical HDQIF installation



HDQIF

# Face Mount Hanger Charts

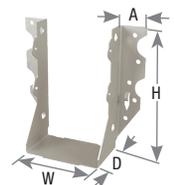
Joist Size	USP Stock No.	Ref. No.	Gauge	Dimensions (in)				Fastener Schedule <sup>2,3</sup>				DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish	
				W	H	D	A	Header		Joist		Lbs		kN		Lbs		kN			
								Qty	Type	Qty	Type	100%	115%	100%	115%	100%	115%	100%	115%		
2 x 4	JL24	LU24	20	1-9/16	3	1-1/2	15/16	4	10d	2	10d x 1-1/2	<b>940</b>	<b>560</b>	<b>4.18</b>	<b>2.49</b>	<b>740</b>	<b>460</b>	<b>3.29</b>	<b>2.05</b>		
	ST24	LU24L	22	1-9/16	3-1/4	1-7/8	1-1/4	4	10d x 1-1/2	3	8d x 1-1/2	670	<b>505</b>	2.98	<b>2.25</b>	670	<b>505</b>	2.98	<b>2.25</b>		
	JL24IF-TZ	--	18	1-9/16	3-1/8	1-1/2	--	4	10d HDG	2	10d x 1-1/2 HDG	<b>840</b>	<b>440</b>	<b>3.74</b>	<b>1.96</b>	<b>765</b>	<b>400</b>	<b>3.40</b>	<b>1.78</b>		
	JUS24	LUS24	18	1-9/16	3-1/8	1-3/4	1	4	10d	2	10d	1595	960	7.09	4.27	<b>1250</b>	<b>755</b>	<b>5.56</b>	<b>3.36</b>		
	SUH24	U24	16	1-9/16	3-1/4	2	1-3/16	4	10d	2	10d x 1-1/2	1390	795	6.18	3.54	<b>1090</b>	<b>625</b>	<b>4.85</b>	<b>2.78</b>		
	HD26	HU26	14	1-9/16	3-1/2	2	1-1/8	4	16d	2	10d x 1-1/2	1975	545	8.79	2.42	<b>1550</b>	<b>430</b>	<b>6.89</b>	<b>1.91</b>		
2 x 6	JL26	LU26	20	1-9/16	4-3/4	1-1/2	15/16	6	10d	4	10d x 1-1/2	<b>1385</b>	<b>1070</b>	<b>6.16</b>	<b>4.76</b>	<b>1085</b>	<b>930</b>	<b>4.83</b>	<b>4.14</b>		
	ST26	LU26L	22	1-9/16	5	1-7/8	1-1/4	6	10d x 1-1/2	5	8d x 1-1/2	<b>1005</b>	<b>845</b>	<b>4.47</b>	<b>3.76</b>	<b>1005</b>	<b>845</b>	<b>4.47</b>	<b>3.76</b>		
	JL26IF-TZ	LUC26Z	18	1-9/16	4-1/2	1-1/2	--	6	10d HDG	4	10d x 1-1/2 HDG	<b>1710</b>	<b>1385</b>	<b>7.61</b>	<b>6.16</b>	<b>1610</b>	<b>1305</b>	<b>7.16</b>	<b>5.80</b>		
	JUS26	LUS26	18	1-9/16	4-13/16	1-3/4	1	4	10d	4	10d	2855	2100	12.70	9.34	<b>2240</b>	<b>1650</b>	<b>9.96</b>	<b>7.34</b>		
	MUS26	MUS26	18	1-9/16	5-1/16	2	1	6	10d	6	10d	<b>2845</b>	<b>1425</b>	<b>12.66</b>	<b>6.34</b>	<b>2825</b>	<b>1415</b>	<b>12.57</b>	<b>6.29</b>		
	SUH26	U26	16	1-9/16	5-1/8	2	1-3/16	6	10d	4	10d x 1-1/2	2345	1505	10.43	6.69	<b>1840</b>	<b>1180</b>	<b>8.18</b>	<b>5.25</b>		
	HUS26	HUS26	16	1-5/8	5-7/16	3	2	14	16d	6	16d	5480	<b>3630</b>	24.38	<b>16.15</b>	<b>4305</b>	<b>2850</b>	<b>19.15</b>	<b>12.68</b>		
	HD26	HU26	14	1-9/16	3-1/2	2	1-1/8	4	16d	2	10d x 1-1/2	1975	545	8.79	2.42	<b>1550</b>	<b>430</b>	<b>6.89</b>	<b>1.91</b>		
	HD28	HU28	14	1-9/16	5-1/4	2	1-1/8	8	16d	4	10d x 1-1/2	2720	1555	12.10	6.92	<b>2135</b>	<b>1220</b>	<b>9.50</b>	<b>5.43</b>		
	2 x 8	JL26	LU26	20	1-9/16	4-3/4	1-1/2	15/16	6	10d	4	10d x 1-1/2	<b>1385</b>	<b>1070</b>	<b>6.16</b>	<b>4.76</b>	<b>1085</b>	<b>930</b>	<b>4.83</b>	<b>4.14</b>	
JL28		LU28	20	1-9/16	6-3/8	1-1/2	15/16	10	10d	6	10d x 1-1/2	<b>2050</b>	<b>1495</b>	<b>9.12</b>	<b>6.65</b>	<b>1610</b>	<b>1225</b>	<b>7.16</b>	<b>5.45</b>		
ST26		LU26L	22	1-9/16	5	1-7/8	1-1/4	6	10d x 1-1/2	5	8d x 1-1/2	<b>1005</b>	<b>845</b>	<b>4.47</b>	<b>3.76</b>	<b>1005</b>	<b>845</b>	<b>4.47</b>	<b>3.76</b>		
ST28		--	22	1-9/16	6-3/4	1-7/8	1-1/4	8	10d x 1-1/2	7	8d x 1-1/2	1340	<b>1185</b>	5.96	<b>5.27</b>	1340	<b>1185</b>	5.96	<b>5.27</b>		
JL28IF-TZ		LUC26Z	18	1-9/16	4-1/2	1-1/2	--	6	10d HDG	4	10d x 1-1/2 HDG	<b>1710</b>	<b>1385</b>	<b>7.61</b>	<b>6.16</b>	<b>1610</b>	<b>1305</b>	<b>7.16</b>	<b>5.80</b>		
JL28IF-TZ		--	18	1-9/16	6-1/8	1-1/2	--	8	10d HDG	4	10d x 1-1/2 HDG	<b>1710</b>	<b>1385</b>	<b>7.61</b>	<b>6.16</b>	<b>1610</b>	<b>1305</b>	<b>7.16</b>	<b>5.80</b>		
JUS26		LUS26	18	1-9/16	4-13/16	1-3/4	1	4	10d	4	10d	2855	2100	12.70	9.34	<b>2240</b>	<b>1650</b>	<b>9.96</b>	<b>7.34</b>		
JUS28		LUS28	18	1-9/16	6-5/8	1-3/4	1	6	10d	4	10d	2855	2100	12.70	9.34	<b>2240</b>	<b>1650</b>	<b>9.96</b>	<b>7.34</b>		
MUS26		MUS26	18	1-9/16	5-1/16	2	1	6	10d	6	10d	<b>2845</b>	<b>1425</b>	<b>12.66</b>	<b>6.34</b>	<b>2825</b>	<b>1415</b>	<b>12.57</b>	<b>6.29</b>		
MUS28		MUS28	18	1-9/16	7-1/16	2	1	8	10d	8	10d	<b>3855</b>	<b>2030</b>	<b>17.15</b>	<b>9.03</b>	<b>3830</b>	<b>2015</b>	<b>17.04</b>	<b>8.96</b>		
SUH26		U26	16	1-9/16	5-1/8	2	1-3/16	6	10d	4	10d x 1-1/2	2345	1505	10.43	6.69	<b>1840</b>	<b>1180</b>	<b>8.18</b>	<b>5.25</b>		
SUH28		--	16	1-9/16	6-5/8	2	1-3/16	8	10d	6	10d x 1-1/2	<b>3135</b>	1505	<b>13.95</b>	6.69	<b>2460</b>	<b>1180</b>	<b>10.94</b>	<b>5.25</b>		
HUS26		HUS26	16	1-5/8	5-7/16	3	2	14	16d	6	16d	5480	<b>3630</b>	24.38	<b>16.15</b>	<b>4305</b>	<b>2850</b>	<b>19.15</b>	<b>12.68</b>		
HUS28		HUS28	16	1-5/8	7-3/16	3	2	22	16d	8	16d	<b>7120</b>	4840	<b>31.67</b>	21.53	<b>5590</b>	<b>3800</b>	<b>24.87</b>	<b>16.90</b>		
HD28		HU28	14	1-9/16	5-1/4	2	1-1/8	8	16d	4	10d x 1-1/2	2720	1555	12.10	6.92	<b>2135</b>	<b>1220</b>	<b>9.50</b>	<b>5.43</b>		
HD210		HU210	14	1-9/16	7-3/16	2	1-1/8	12	16d	4	10d x 1-1/2	3820	1555	16.99	6.92	<b>3000</b>	<b>1220</b>	<b>13.34</b>	<b>5.43</b>		
2 x 10		JL28	LU28	20	1-9/16	6-3/8	1-1/2	15/16	10	10d	6	10d x 1-1/2	<b>2050</b>	<b>1495</b>	<b>9.12</b>	<b>6.65</b>	<b>1610</b>	<b>1225</b>	<b>7.16</b>	<b>5.45</b>	
		JL210	LU210	20	1-9/16	8-1/4	1-1/2	15/16	14	10d	8	10d x 1-1/2	<b>2975</b>	<b>1925</b>	<b>13.23</b>	<b>8.56</b>	<b>2335</b>	<b>1575</b>	<b>10.39</b>	<b>7.01</b>	
	ST28	--	22	1-9/16	6-3/4	1-7/8	1-1/4	8	10d x 1-1/2	7	8d x 1-1/2	1340	<b>1185</b>	5.96	<b>5.27</b>	1340	<b>1185</b>	5.96	<b>5.27</b>		
	ST210	--	22	1-9/16	8	1-7/8	1-1/4	10	10d x 1-1/2	8	8d x 1-1/2	1520	<b>1350</b>	6.76	<b>6.01</b>	1520	<b>1350</b>	6.76	<b>6.01</b>		
	JL28IF-TZ	--	18	1-9/16	6-1/8	1-1/2	--	8	10d HDG	4	10d x 1-1/2 HDG	<b>1710</b>	<b>1385</b>	<b>7.61</b>	<b>6.16</b>	<b>1610</b>	<b>1305</b>	<b>7.16</b>	<b>5.80</b>		
	JL210IF-TZ	LUC210Z	18	1-9/16	8-7/32	1-1/2	--	11	10d HDG	6	10d x 1-1/2 HDG	<b>3135</b>	<b>2175</b>	<b>13.95</b>	<b>9.67</b>	<b>2810</b>	<b>2050</b>	<b>12.50</b>	<b>9.12</b>		
	JUS28	LUS28	18	1-9/16	6-5/8	1-3/4	1	6	10d	4	10d	2855	2100	12.70	9.34	<b>2240</b>	<b>1650</b>	<b>9.96</b>	<b>7.34</b>		
	JUS210	LUS210	18	1-9/16	7-3/4	1-3/4	1	8	10d	4	10d	2855	2100	12.70	9.34	<b>2240</b>	<b>1650</b>	<b>9.96</b>	<b>7.34</b>		
	MUS28	MUS28	18	1-9/16	7-1/16	2	1	8	10d	8	10d	<b>3855</b>	<b>2030</b>	<b>17.15</b>	<b>9.03</b>	<b>3830</b>	<b>2015</b>	<b>17.04</b>	<b>8.96</b>		
	SUH28	--	16	1-9/16	6-5/8	2	1-3/16	8	10d	6	10d x 1-1/2	<b>3135</b>	1505	<b>13.95</b>	6.69	<b>2460</b>	<b>1180</b>	<b>10.94</b>	<b>5.25</b>		
	SUH210	U210	16	1-9/16	8	2	1-3/16	10	10d	6	10d x 1-1/2	4080	2505	18.15	11.14	<b>3205</b>	<b>1965</b>	<b>14.26</b>	<b>8.74</b>		
	HUS28	HUS28	16	1-5/8	7-3/16	3	2	22	16d	8	16d	<b>7120</b>	4840	<b>31.67</b>	21.53	<b>5590</b>	<b>3800</b>	<b>24.87</b>	<b>16.90</b>		
	HUS210	HUS210	16	1-5/8	9-3/16	3	2	30	16d	10	16d	<b>9030</b>	6035	<b>40.17</b>	26.85	<b>7085</b>	<b>4735</b>	<b>31.52</b>	<b>21.06</b>		
	HD210	HU210	14	1-9/16	7-3/16	2	1-1/8	12	16d	4	10d x 1-1/2	3820	1555	16.99	6.92	<b>3000</b>	<b>1220</b>	<b>13.34</b>	<b>5.43</b>		
2 x 12	JL210	LU210	20	1-9/16	8-1/4	1-1/2	15/16	14	10d	8	10d x 1-1/2	<b>2975</b>	<b>1925</b>	<b>13.23</b>	<b>8.56</b>	<b>2335</b>	<b>1575</b>	<b>10.39</b>	<b>7.01</b>		
	ST210	--	22	1-9/16	8	1-7/8	1-1/4	10	10d x 1-1/2	8	8d x 1-1/2	1520	<b>1350</b>	6.76	<b>6.01</b>	1520	<b>1350</b>	6.76	<b>6.01</b>		
	JL210IF-TZ	LUC210Z	18	1-9/16	8-7/32	1-1/2	--	11	10d HDG	6	10d x 1-1/2 HDG	<b>3135</b>	<b>2175</b>	<b>13.95</b>	<b>9.67</b>	<b>2810</b>	<b>2050</b>	<b>12.50</b>	<b>9.12</b>		
	JUS210	LUS210	18	1-9/16	7-3/4	1-3/4	1	8	10d	4	10d	2855	2100	12.70	9.34	<b>2240</b>	<b>1650</b>	<b>9.96</b>	<b>7.34</b>		
	SUH210	U210	16	1-9/16	8	2	1-3/16	10	10d	6	10d x 1-1/2	4080	2505	18.15	11.14	<b>3205</b>	<b>1965</b>	<b>14.26</b>	<b>8.74</b>		
	HUS210	HUS210	16	1-5/8	9-3/16	3	2	30	16d	10	16d	<b>9030</b>	6035	<b>40.17</b>	26.85	<b>7085</b>	<b>4735</b>	<b>31.52</b>	<b>21.06</b>		
	HD210	HU210	14	1-9/16	7-3/16	2	1-1/8	12	16d	4	10d x 1-1/2	3820	1555	16.99	6.92	<b>3000</b>	<b>1220</b>	<b>13.34</b>	<b>5.43</b>		
HD212	HU212	14	1-9/16	9-1/4	2	1-1/8	16	16d	6	10d x 1-1/2	4545	2005	20.22	8.92							

# Face Mount Hanger Charts

Joist Size	USP Stock No.	Ref. No.	Gauge	Dimensions (in)				Fastener Schedule <sup>2,3,4</sup>				DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish
				W	H	D	A	Header		Joist		Lbs		kN		Lbs		kN		
								Qty	Type	Qty	Type	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	
2 x 14	SUH214	U214	16	1-9/16	10	2	1-1/8	12	10d	8	10d x 1-1/2	4105	2505	18.26	11.14	3225	1965	14.35	8.74	
	HD212	HU212	14	1-9/16	9-1/4	2	1-1/8	16	16d	6	10d x 1-1/2	4545	2005	20.22	8.92	3565	1575	15.86	7.01	
	HD212IF	HUC212	14	1-9/16	9-1/4	2	--	16	16d	6	10d x 1-1/2	4545	2005	20.22	8.92	3565	1575	15.86	7.01	
	HD214	HU214	14	1-9/16	11-1/2	2	1-1/8	20	16d	6	10d x 1-1/2	5915	2005	26.31	8.92	4640	1575	20.64	7.01	
2 x 16	SUH214	U214	16	1-9/16	10	2	1-1/8	12	10d	8	10d x 1-1/2	4105	2505	18.26	11.14	3225	1965	14.35	8.74	
	HD212	HU212	14	1-9/16	9-1/4	2	1-1/8	16	16d	6	10d x 1-1/2	4545	2005	20.22	8.92	3565	1575	15.86	7.01	
	HD212IF	HUC212	14	1-9/16	9-1/4	2	--	16	16d	6	10d x 1-1/2	4545	2005	20.22	8.92	3565	1575	15.86	7.01	
	HD214	HU214	14	1-9/16	11-1/2	2	1-1/8	20	16d	6	10d x 1-1/2	5915	2005	26.31	8.92	4640	1575	20.64	7.01	
(2) 2 x 4	HD216	HU216	14	1-9/16	13-1/2	2	1-1/8	24	16d	8	10d x 1-1/2	5915	2185	26.31	9.72	4640	1715	20.64	7.63	
	JUS24-2	LUS24-2	18	3-1/8	3-7/16	2	1	4	16d	2	16d	1580	610	7.03	2.71	1240	480	5.52	2.14	
	SUH24-2	U24-2	16	3-1/8	3-1/8	2	1-1/8	6	10d	2	10d	1910	825	8.50	3.67	1500	650	6.67	2.89	
	HD24-2	HU24-2	14	3-1/8	3-1/2	2-1/2	1-1/8	4	16d	2	10d	1535	690	6.83	3.07	1205	545	5.36	2.42	
(2) 2 x 6	HUS24-2	--	14	3-1/8	3-7/16	2	1	4	16d	2	16d	2130	935	9.47	4.16	1670	735	7.43	3.27	
	HUS24-2IF	--	14	3-1/8	3-7/16	2	1	4	16d	2	16d	2130	935	9.47	4.16	1670	735	7.43	3.27	
	DT26	--	22	3-1/16	5	2	1-1/4	8	16d x 2-1/2	5	8d x 1-1/2	1385	845	6.16	3.76	1385	845	6.16	3.76	
	JUS26-2	LUS26-2	18	3-1/8	5-1/4	2	1	4	16d	4	16d	2000	2550	8.90	11.34	1570	2005	6.98	8.92	
	SUH26-2	U26-2	16	3-1/8	5-1/16	2	1-1/8	8	10d	4	10d	3135	1665	13.95	7.41	2460	1310	10.94	5.83	
	HD24-2	HU24-2	14	3-1/8	3-1/2	2-1/2	1-1/8	4	16d	2	10d	1535	690	6.83	3.07	1205	545	5.36	2.42	
	HUS26-2	HUS26-2	14	3-1/8	5-1/4	2	1	4	16d	4	16d	2130	1825	9.47	8.12	1670	1560	7.43	6.94	
	HUS26-2IF	HUSC26-2	14	3-1/8	5-1/4	2	--	4	16d	4	16d	2130	1825	9.47	8.12	1670	1560	7.43	6.94	
(2) 2 x 8	HD26-2	HU26-2	14	3-1/8	5-1/8	2-1/2	1-1/8	12	16d	6	10d	3430	2685	15.26	11.94	2690	2105	11.97	9.36	
	HD26-2IF	HUC26-2	14	3-1/8	5-1/8	2-1/2	1-1/8	12	16d	6	10d	3430	2685	15.26	11.94	2690	2105	11.97	9.36	
	DT28	--	22	3-1/16	6-3/4	2	1-1/4	10	16d x 2-1/2	7	8d x 1-1/2	1510	1185	6.72	5.27	1510	1185	6.72	5.27	
	JUS28-2	LUS28-2	18	3-1/8	7-1/8	2	1	6	16d	4	16d	3240	2550	14.41	11.34	2545	2005	11.32	8.92	
	SUH28-2	U28-2	16	3-1/8	5-1/16	2	1-1/8	8	10d	4	10d	3135	1665	13.95	7.41	2460	1310	10.94	5.83	
	SUH28-2	--	16	3-1/8	6-1/4	2	1-1/8	10	10d	4	10d	3135	1665	13.95	7.41	2460	1310	10.94	5.83	
	HUS28-2	HUS28-2	14	3-1/8	5-1/4	2	1	4	16d	4	16d	2130	1825	9.47	8.12	1670	1560	7.43	6.94	
	HUS28-2IF	HUSC28-2	14	3-1/8	5-1/4	2	--	4	16d	4	16d	2130	1825	9.47	8.12	1670	1560	7.43	6.94	
	HUS28-2	HUS28-2	14	3-1/8	7-1/8	2	1	6	16d	6	16d	3795	3405	16.88	15.15	2980	2675	13.26	11.90	
	HUS28-2IF	HUSC28-2	14	3-1/8	7-1/8	2	--	6	16d	6	16d	3795	3405	16.88	15.15	2980	2675	13.26	11.90	
	HD28-2	HU28-2	14	3-1/8	7-1/8	2-1/2	1-1/8	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36	
	HD28-2IF	HUC28-2	14	3-1/8	7-1/8	2-1/2	1-1/8	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36	
(2) 2 x 10	DT28	--	22	3-1/16	6-3/4	2	1-1/4	10	16d x 2-1/2	7	8d x 1-1/2	1510	1185	6.72	5.27	1510	1185	6.72	5.27	
	DT210	--	22	3-1/16	7-7/8	2	1-1/4	12	16d x 2-1/2	8	8d x 1-1/2	1640	1350	7.30	6.01	1640	1350	7.30	6.01	
	JUS28-2	LUS28-2	18	3-1/8	7-1/8	2	1	6	16d	4	16d	3240	2550	14.41	11.34	2545	2005	11.32	8.92	
	JUS210-2	LUS210-2	18	3-1/8	9-1/8	2	1	8	16d	6	16d	5170	3735	23.00	16.61	4055	2930	18.04	13.03	
	SUH28-2	--	16	3-1/8	6-1/4	2	1-1/8	10	10d	4	10d	3135	1665	13.95	7.41	2460	1310	10.94	5.83	
	SUH210-2	U210-2	16	3-1/8	8-9/16	2	1-1/8	16	10d	6	10d	6435	2920	28.62	12.99	5055	2290	22.49	10.19	
	HUS28-2	HUS28-2	14	3-1/8	7-1/8	2	1	6	16d	6	16d	3795	3405	16.88	15.15	2980	2675	13.26	11.90	
	HUS28-2IF	HUSC28-2	14	3-1/8	7-1/8	2	--	6	16d	6	16d	3795	3405	16.88	15.15	2980	2675	13.26	11.90	
	HD28-2	HU28-2	14	3-1/8	7-1/8	2-1/2	1-1/8	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36	
	HD28-2IF	HUC28-2	14	3-1/8	7-1/8	2-1/2	1-1/8	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36	
	HUS210-2	HUS210-2	14	3-1/8	9-1/8	2	1	8	16d	8	16d	5185	4165	23.06	18.53	4070	3270	18.10	14.55	
	HUS210-2IF	HUSC210-2	14	3-1/8	9-1/8	2	--	8	16d	8	16d	5185	4165	23.06	18.53	4070	3270	18.10	14.55	
HD210-2	HU210-2	14	3-1/8	9	2-1/2	1-1/8	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50		
HD210-2IF	HUC210-2	14	3-1/8	9	2-1/2	--	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50		
HDQ210-2IF	HUCQ210-2-SDS	14	3-1/4	9	3	1-1/2	12	WS3	6	WS3	8460	4970	37.63	22.11	7385	4335	32.85	19.28		

- 1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.
- 2) 16d sinkers (0.148 dia. x 3-1/4" long) may be used at 0.86 of the table load where 16d commons are specified. This does not apply to JUS, HUS, MUS slant nail hangers.
- 3) WS3 Wood Screws are 1/4" x 3" long and are included with HDQ hangers.
- 4) **NAILS:** 8d x 1-1/2" nails are 0.131" dia. x 1-1/2" long, 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long. New products or updated product information are designated in **blue font**.

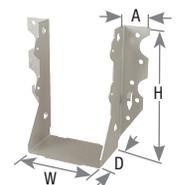
**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc



Joist Size	USP Stock No.	Ref. No.	Gauge	Dimensions (in)				Fastener Schedule <sup>2,3,4</sup>				DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish
				W	H	D	A	Header		Joist		Lbs		kN		Lbs		kN		
								Qty	Type	Qty	Type	100%	Uplift <sup>1</sup>	100%	Uplift <sup>1</sup>	100%	Uplift <sup>1</sup>	100%	Uplift <sup>1</sup>	
(2) 2 x 12	DT210	--	22	3-1/16	7-7/8	2	1-1/4	12	16d x 2-1/2	8	8d x 1-1/2	1640	1350	7.30	6.01	1640	1350	7.30	6.01	
	JUS210-2	LUS210-2	18	3-1/8	9-1/8	2	1	8	16d	6	16d	5170	3735	23.00	16.61	4055	2930	18.04	13.03	■
	SUH210-2	U210-2	16	3-1/8	8-9/16	2	1-1/8	16	10d	6	10d	6435	2920	28.62	12.99	5055	2290	22.49	10.19	
	HUS210-2	HUS210-2	14	3-1/8	9-1/8	2	1	8	16d	8	16d	5185	4165	23.06	18.53	4070	3270	18.10	14.55	
	HUS210-2IF	HUC210-2	14	3-1/8	9-1/8	2	--	8	16d	8	16d	5185	4165	23.06	18.53	4070	3270	18.10	14.55	■
	HD210-2	HU210-2	14	3-1/8	9	2-1/2	1-1/8	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	
	HD210-2IF	HUC210-2	14	3-1/8	9	2-1/2	--	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	■
	HUS212-2	HUS212-2	14	3-1/8	11-1/8	2	1	10	16d	10	16d	6345	5765	28.22	25.64	4985	4525	22.17	20.13	
	HUS212-2IF	HUC212-2	14	3-1/8	11-1/8	2	--	10	16d	10	16d	6345	5765	28.22	25.64	4985	4525	22.17	20.13	■
	HD212-2	HU212-2	14	3-1/8	11	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
HD212-2IF	HUC212-2	14	3-1/8	11	2-1/2	--	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	■	
HDQ210-2IF	HUCQ210-2-SDS	14	3-1/4	9	3	1-1/2	12	WS3	6	WS3	8460	4970	37.63	22.11	7385	4335	32.85	19.28		
(2) 2 x 14	JUS210-2	LUS210-2	18	3-1/8	9-1/8	2	1	8	16d	6	16d	5170	3735	23.00	16.61	4055	2930	18.04	13.03	■
	JUS214-2	LUS214-2	18	3-1/8	13-1/8	2	1	12	16d	6	16d	5120	3735	22.77	16.61	4020	2930	17.88	13.03	
	SUH210-2	U210-2	16	3-1/8	8-9/16	2	1-1/8	16	10d	6	10d	6435	2920	28.62	12.99	5055	2290	22.49	10.19	
	HUS210-2	HUS210-2	14	3-1/8	9-1/8	2	1	8	16d	8	16d	5185	4165	23.06	18.53	4070	3270	18.10	14.55	
	HUS210-2IF	HUC210-2	14	3-1/8	9-1/8	2	--	8	16d	8	16d	5185	4165	23.06	18.53	4070	3270	18.10	14.55	■
	HD210-2	HU210-2	14	3-1/8	9	2-1/2	1-1/8	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	
	HD210-2IF	HUC210-2	14	3-1/8	9	2-1/2	--	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	■
	HUS212-2	HUS212-2	14	3-1/8	11-1/8	2	1	10	16d	10	16d	6345	5765	28.22	25.64	4985	4525	22.17	20.13	
	HUS212-2IF	HUC212-2	14	3-1/8	11-1/8	2	--	10	16d	10	16d	6345	5765	28.22	25.64	4985	4525	22.17	20.13	■
	HD212-2	HU212-2	14	3-1/8	11	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
HD212-2IF	HUC212-2	14	3-1/8	11	2-1/2	--	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	■	
HD214-2	HU214-2	14	3-1/8	13	2-1/2	1-1/8	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97		
HDQ210-2IF	HUCQ210-2-SDS	14	3-1/4	9	3	1-1/2	12	WS3	6	WS3	8460	4970	37.63	22.11	7385	4335	32.85	19.28		
(2) 2 x 16	JUS214-2	LUS214-2	18	3-1/8	13-1/8	2	1	12	16d	6	16d	5120	3735	22.77	16.61	4020	2930	17.88	13.03	
	HD212-2	HU212-2	14	3-1/8	11	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
	HD212-2IF	HUC212-2	14	3-1/8	11	2-1/2	--	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	■
	HD214-2	HU214-2	14	3-1/8	13	2-1/2	1-1/8	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97	
	HD216-2	HU216-2	14	3-1/8	15	2-1/2	1-1/8	26	16d	12	10d	8190	4290	36.43	19.08	6430	3365	28.60	14.97	
3 x 4	SUH34	U34	16	2-9/16	3-3/8	2	1-1/8	6	10d	2	10d x 1-1/2	1910	795	8.50	3.54	1500	625	6.67	2.78	
	HD34	HU34	14	2-9/16	3	2	1-1/4	4	16d	2	10d x 1-1/2	1975	545	8.79	2.42	1550	430	6.89	1.91	
	HD34IF	HUC34	14	2-9/16	3	2	--	4	16d	2	10d x 1-1/2	1975	545	8.79	2.42	1550	430	6.89	1.91	■
3 x 6	JUS36	LUS36	18	2-9/16	5-5/16	2	1	4	16d	4	16d	2000	2550	8.90	11.34	1570	2005	6.98	8.92	■
	SUH34	U34	16	2-9/16	3-3/8	2	1-1/8	6	10d	2	10d x 1-1/2	1910	795	8.50	3.54	1500	625	6.67	2.78	
	SUH36	U36	16	2-9/16	5-5/16	2	1-1/8	8	10d	4	10d x 1-1/2	3135	1505	13.95	6.69	2460	1180	10.94	5.25	
	HD36	HU36	14	2-9/16	4-3/4	2	1-1/8	8	16d	4	10d x 1-1/2	2720	1555	12.10	6.92	2135	1220	9.50	5.43	
	HD36IF	HUC36	14	2-9/16	4-3/4	2	--	8	16d	4	10d x 1-1/2	2720	1555	12.10	6.92	2135	1220	9.50	5.43	■
3 x 8	JUS36	LUS36	18	2-9/16	5-5/16	2	1	4	16d	4	16d	2000	2550	8.90	11.34	1570	2005	6.98	8.92	■
	JUS38	--	18	2-9/16	6-3/4	2	1	6	16d	4	16d	3240	2550	14.41	11.34	2545	2005	11.32	8.92	
	SUH36	U36	16	2-9/16	5-5/16	2	1-1/8	8	10d	4	10d x 1-1/2	2345	1505	10.43	6.69	2460	1180	10.94	5.25	
	HD36	HU36	14	2-9/16	4-3/4	2	1-1/8	8	16d	4	10d x 1-1/2	2720	1555	12.10	6.92	2135	1220	9.50	5.43	
	HD36IF	HUC36	14	2-9/16	4-3/4	2	--	8	16d	4	10d x 1-1/2	2720	1555	12.10	6.92	2135	1220	9.50	5.43	■
	HD38	HU38	14	2-9/16	6-3/4	2	1-1/8	12	16d	4	10d x 1-1/2	3820	1555	16.99	6.92	3000	1220	13.34	5.43	
3 x 10	HD38IF	HUC38	14	2-9/16	6-3/4	2	--	12	16d	4	10d x 1-1/2	3820	1555	16.99	6.92	3000	1220	13.34	5.43	■
	JUS38	--	18	2-9/16	6-3/4	2	1	6	16d	4	16d	3240	2550	14.41	11.34	2545	2005	11.32	8.92	
	JUS310	LUS310	18	2-9/16	9-1/8	2	1	8	16d	6	16d	5170	3735	23.00	16.61	4055	2930	18.04	13.03	
	SUH310	U310	16	2-9/16	8-7/8	2	1-1/8	14	10d	6	10d x 1-1/2	6435	2505	28.62	11.14	5055	1965	22.49	8.74	
	HD38	HU38	14	2-9/16	6-3/4	2	1-1/8	12	16d	4	10d x 1-1/2	3820	1555	16.99	6.92	3000	1220	13.34	5.43	
	HD38IF	HUC38	14	2-9/16	6-3/4	2	--	12	16d	4	10d x 1-1/2	3820	1555	16.99	6.92	3000	1220	13.34	5.43	■
3 x 10	HD310	HU310	14	2-9/16	7-7/16	2-1/2	1-1/8	14	16d	6	10d x 1-1/2	3820	2185	16.99	9.72	3000	1715	13.34	7.63	
	HD310IF	HUC310	14	2-9/16	7-7/16	2-1/2	--	14	16d	6	10d x 1-1/2	3820	2185	16.99	9.72	3000	1715	13.34	7.63	■
	HDQ310IF	HUCQ310-SDS	14	2-9/16	9	3	1-3/16	8	WS3	4	WS15	4975	1765	22.13	7.85	4460	1765	19.84	7.85	

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) 16d sinkers (0.148 dia. x 3-1/4" long) may be used at 0.86 of the table load where 16d commons are specified. This does not apply to JUS, HUS, MUS slant nail hangers.  
 3) WS15 are 1/4" x 1-1/2" long, WS3 Wood Screws are 1/4" x 3" long and are included with HDQ hangers.  
 4) NAILS: 8d x 1-1/2" nails are 0.131" dia. x 1-1/2" long, 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.  
 New products or updated product information are designated in blue font.

Corrosion Finish ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

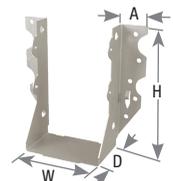


# Face Mount Hanger Charts

Joist Size	USP Stock No.	Ref. No.	Gauge	Dimensions (in)				Fastener Schedule <sup>2,3,4</sup>				DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish	
				W	H	D	A	Header		Joist		Lbs		kN		Lbs		kN			
								Qty	Type	Qty	Type	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>		
3 x 12	JUS310	LUS310	18	2-9/16	9-1/8	2	1	8	16d	6	16d	5170	3735	23.00	16.61	4055	2930	18.04	13.03		
	SUH310	U310	16	2-9/16	8-7/8	2	1-1/8	14	10d	6	10d x 1-1/2	6435	2505	28.62	11.14	5055	1965	22.49	8.74		
	HD38	HU38	14	2-9/16	6-3/4	2	1-1/8	12	16d	4	10d x 1-1/2	3820	1555	16.99	6.92	3000	1220	13.34	5.43		
	HD38IF	HUC38	14	2-9/16	6-3/4	2	--	--	12	16d	4	10d x 1-1/2	3820	1555	16.99	6.92	3000	1220	13.34	5.43	
	HD310	HU310	14	2-9/16	7-7/16	2-1/2	1-1/8	14	16d	6	10d x 1-1/2	3820	2185	16.99	9.72	3000	1715	13.34	7.63		
	HD310IF	HUC310	14	2-9/16	7-7/16	2-1/2	--	--	14	16d	6	10d x 1-1/2	3820	2185	16.99	9.72	3000	1715	13.34	7.63	
	HDQ310IF	HUCQ310-SDS	14	2-9/16	9	3	1-3/16	8	WS3	4	WS15	4975	1765	22.13	7.85	4460	1765	19.84	7.85		
3 x 14	HD312	HU312	14	2-9/16	9-5/16	2-1/2	1-1/8	16	16d	10	10d x 1-1/2	4545	3190	20.22	14.19	3565	2505	15.86	11.14		
	SUH314	U314	16	2-9/16	10-9/16	2	1-1/8	16	10d	6	10d x 1-1/2	4320	2145	19.22	9.54	3720	1845	16.55	8.21		
	HD310	HU310	14	2-9/16	7-7/16	2-1/2	1-1/8	14	16d	6	10d x 1-1/2	3820	2185	16.99	9.72	3000	1715	13.34	7.63		
	HD310IF	HUC310	14	2-9/16	7-7/16	2-1/2	--	--	14	16d	6	10d x 1-1/2	3820	2185	16.99	9.72	3000	1715	13.34	7.63	
	HDQ310IF	HUCQ310-SDS	14	2-9/16	9	3	1-3/16	8	WS3	4	WS15	4975	1765	22.13	7.85	4460	1765	19.84	7.85		
	HD312	HU312	14	2-9/16	9-5/16	2-1/2	1-1/8	16	16d	10	10d x 1-1/2	4545	3190	20.22	14.19	3565	2505	15.86	11.14		
	HD312IF	HUC312	14	2-9/16	9-5/16	2-1/2	--	--	16	16d	10	10d x 1-1/2	4545	3190	20.22	14.19	3565	2505	15.86	11.14	
3 x 16	HD314	HU314	14	2-9/16	11-5/16	2-1/2	1-1/8	20	16d	10	10d x 1-1/2	5915	3190	26.31	14.19	4640	2505	20.64	11.14		
	HD314IF	HUC314	14	2-9/16	11-5/16	2-1/2	--	--	20	16d	10	10d x 1-1/2	5915	3190	26.31	14.19	4640	2505	20.64	11.14	
	HD316	HU316	14	2-9/16	13-5/16	2-1/2	1-1/8	24	16d	10	10d x 1-1/2	6435	4015	28.62	17.86	5055	3150	22.49	14.01		
	HD316IF	HUC316	14	2-9/16	13-5/16	2-1/2	--	--	24	16d	10	10d x 1-1/2	6435	4015	28.62	17.86	5055	3150	22.49	14.01	
	SUH314	U314	16	2-9/16	10-9/16	2	1-1/8	16	10d	6	10d x 1-1/2	4320	2145	19.22	9.54	3720	1845	16.55	8.21		
	HD312	HU312	14	2-9/16	9-5/16	2-1/2	1-1/8	16	16d	10	10d x 1-1/2	4545	3190	20.22	14.19	3565	2505	15.86	11.14		
	HD312IF	HUC312	14	2-9/16	9-5/16	2-1/2	--	--	16	16d	10	10d x 1-1/2	4545	3190	20.22	14.19	3565	2505	15.86	11.14	
(2) 3 x 8	HD38-2	HU38-2	14	5-1/8	6-1/8	2-1/2	1-1/8	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36		
	HD38-2	HU38-2	14	5-1/8	6-1/8	2-1/2	1-1/8	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36		
(2) 3 x 10	HD310-2	HU310-2	14	5-1/8	8	2-1/2	1-1/8	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50		
	HD310-2	HU310-2	14	5-1/8	8	2-1/2	1-1/8	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50		
(2) 3 x 12	HD312-2	HU312-2	14	5-1/8	10	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50		
	HD312-2	HU312-2	14	5-1/8	10	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50		
(3) 2 x 6	JUS26-3	LUS26-3	18	4-5/8	4-1/2	2	1	4	16d	4	16d	2000	2550	8.90	11.34	1570	2005	6.98	8.92		
	SUH26-3	U26-3	16	4-5/8	5-1/4	2	1	8	10d	2	10d	1910	825	8.50	3.67	1500	650	6.67	2.89		
	HD26-3	HU26-3	14	4-5/8	4-3/8	2-1/2	1-1/8	12	16d	6	10d	3430	2685	15.26	11.94	2690	2105	11.97	9.36		
	HD26-3IF	HUC26-3	14	4-5/8	4-3/8	2-1/2	--	--	12	16d	6	10d	3430	2685	15.26	11.94	2690	2105	11.97	9.36	
(3) 2 x 8	JUS28-3	LUS28-3	18	4-5/8	4-1/2	2	1	4	16d	4	16d	2000	2550	8.90	11.34	1570	2005	6.98	8.92		
	JUS28-3	LUS28-3	18	4-5/8	6-3/8	2	1	6	16d	4	16d	3240	2550	14.41	11.34	2545	2005	11.32	8.92		
	SUH26-3	U26-3	16	4-5/8	5-1/4	2	1	8	10d	2	10d	1910	825	8.50	3.67	1500	650	6.67	2.89		
	HD26-3	HU26-3	14	4-5/8	4-3/8	2-1/2	1-1/8	12	16d	6	10d	3430	2685	15.26	11.94	2690	2105	11.97	9.36		
	HD26-3IF	HUC26-3	14	4-5/8	4-3/8	2-1/2	--	--	12	16d	6	10d	3430	2685	15.26	11.94	2690	2105	11.97	9.36	
	HD28-3	--	14	4-5/8	6-3/8	2-1/2	1-1/8	12	16d	6	10d	3430	2685	15.26	11.94	2690	2105	11.97	9.36		
(3) 2 x 10	HD28-3IF	--	14	4-5/8	6-3/8	2-1/2	--	--	12	16d	6	10d	3430	2685	15.26	11.94	2690	2105	11.97	9.36	
	JUS28-3	LUS28-3	18	4-5/8	6-3/8	2	1	6	16d	4	16d	3240	2550	14.41	11.34	2545	2005	11.32	8.92		
	JUS210-3	LUS210-3	18	4-5/8	8-3/8	2	1	8	16d	6	16d	5170	3735	23.00	16.61	4055	2930	18.04	13.03		
	SUH210-3	U210-3	16	4-5/8	8-3/8	2	1	14	10d	6	10d	6435	2920	28.62	12.99	5055	2290	22.49	10.19		
	HD28-3	--	14	4-5/8	6-3/8	2-1/2	1-1/8	12	16d	6	10d	3430	2685	15.26	11.94	2690	2105	11.97	9.36		
	HD28-3IF	--	14	4-5/8	6-3/8	2-1/2	--	--	12	16d	6	10d	3430	2685	15.26	11.94	2690	2105	11.97	9.36	
	HD210-3	HU210-3	14	4-5/8	8-1/4	2-1/2	1-1/8	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50		
HD210-3IF	HUC210-3	14	4-5/8	8-1/4	2-1/2	--	--	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50		
(3) 2 x 12	HDQ210-3IF	HUCQ210-3-SDS	14	4-5/8	9	3	1-1/2	12	WS3	6	WS3	8460	4970	37.63	22.11	7385	4335	32.85	19.28		
	JUS210-3	LUS210-3	18	4-5/8	8-3/8	2	1	8	16d	6	16d	5170	3735	23.00	16.61	4055	2930	18.04	13.03		
	SUH210-3	U210-3	16	4-5/8	8-3/8	2	1	14	10d	6	10d	6435	2920	28.62	12.99	5055	2290	22.49	10.19		
	HD210-3	HU210-3	14	4-5/8	8-1/4	2-1/2	1-1/8	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50		
	HD210-3IF	HUC210-3	14	4-5/8	8-1/4	2-1/2	--	--	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	
	HDQ210-3IF	HUCQ210-3-SDS	14	4-5/8	9	3	1-1/2	12	WS3	6	WS3	8460	4970	37.63	22.11	7385	4335	32.85	19.28		
	HD212-3	HU212-3	14	4-5/8	10-1/4	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50		
HD212-3IF	HUC212-3	14	4-5/8	10-1/4	2-1/2	--	--	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50		

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) 16d sinkers (0.148 dia. x 3-1/4" long) may be used at 0.86 of the table load where 16d commons are specified. This does not apply to JUS, HUS, MUS slant nail hangers.  
 3) WS3 Wood Screws are 1/4" x 3" long and are included with HDQ hangers.  
 4) **NAILS:** 8d x 1-1/2" nails are 0.131" dia. x 1-1/2" long, 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.  
 New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc



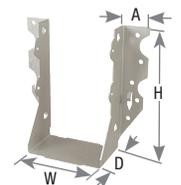
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Joist Size	USP Stock No.	Ref. No.	Gauge	Dimensions (in)				Fastener Schedule <sup>2,3,4</sup>				DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish
				W	H	D	A	Header		Joist		Lbs		kN		Lbs		kN		
								Qty	Type	Qty	Type	100%	115%	100%	115%	100%	115%	100%	115%	
(3) 2 x 14	JUS210-3	LUS210-3	18	4-5/8	8-3/8	2	1	8	16d	6	16d	5170	3735	23.00	16.61	4055	2930	18.04	13.03	Blue
	SUH210-3	U210-3	16	4-5/8	8-3/8	2	1	14	10d	6	10d	6435	2920	28.62	12.99	5055	2290	22.49	10.19	Blue
	HD210-3	HU210-3	14	4-5/8	8-1/4	2-1/2	1-1/8	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	Blue
	HD210-3IF	HUC210-3	14	4-5/8	8-1/4	2-1/2	--	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	Green
	HDQ210-3IF	HUCQ210-3-SDS	14	4-5/8	9	3	1-1/2	12	WS3	6	WS3	8460	4970	37.63	22.11	7385	4335	32.85	19.28	Blue
	HD212-3	HU212-3	14	4-5/8	10-1/4	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	Blue
	HD212-3IF	HUC212-3	14	4-5/8	10-1/4	2-1/2	--	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	Green
(3) 2 x 16	HD214-3	HU214-3	14	4-5/8	12-1/4	2-1/2	1-1/8	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97	Blue
	HD212-3	HU212-3	14	4-5/8	10-1/4	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	Blue
	HD212-3IF	HUC212-3	14	4-5/8	10-1/4	2-1/2	--	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	Green
(4) 2 x 8	HD214-3	HU214-3	14	4-5/8	12-1/4	2-1/2	1-1/8	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97	Blue
	HD216-3	HU216-3	14	4-5/8	14-1/4	2-1/2	1-1/8	26	16d	12	10d	8190	4290	36.43	19.08	6430	3365	28.60	14.97	Blue
	HD28-4	HU28-4	14	6-1/8	7-1/8	2-1/2	1-3/4	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36	Blue
(4) 2 x 10	HD210-4	HU210-4	14	6-1/8	9	3-1/4	2	24	16d	6	10d	7485	2685	33.29	11.94	5875	2105	26.13	9.36	Blue
(4) 2 x 12	HD210-4	HU210-4	14	6-1/8	9	3-1/4	2	24	16d	6	10d	7485	2685	33.29	11.94	5875	2105	26.13	9.36	Blue
(4) 2 x 14	HD210-4	HU210-4	14	6-1/8	9	3-1/4	2	24	16d	6	10d	7485	2685	33.29	11.94	5875	2105	26.13	9.36	Blue
4 x 4	JUS44	LUS44	18	3-5/8	3-1/4	2	1	4	16d	2	16d	1580	610	7.03	2.71	1240	480	5.52	2.14	Blue
	SUH44	U44	16	3-9/16	2-7/8	2	1-1/8	6	10d	2	10d	1910	825	8.50	3.67	1500	650	6.67	2.89	Blue
	HD44	HU44	14	3-9/16	3-5/16	2-1/2	1-1/8	4	16d	2	10d	1535	945	6.83	4.20	1205	740	5.36	3.29	Blue
	HD44IF	HUC44	14	3-9/16	3-5/16	2-1/2	--	4	16d	2	10d	1535	945	6.83	4.20	1205	740	5.36	3.29	Green
4 x 6	JUS46	LUS46	18	3-5/8	5	2	1	4	16d	4	16d	2000	2550	8.90	11.34	1570	2005	6.98	8.92	Blue
	SUH44	U44	16	3-9/16	2-7/8	2	1-1/8	6	10d	2	10d	1910	825	8.50	3.67	1500	650	6.67	2.89	Blue
	SUH46	U46	16	3-9/16	4-13/16	2	1-1/8	8	10d	4	10d	4080	1665	18.15	7.41	3205	1310	14.26	5.83	Blue
	HUS46	HUS46	14	3-5/8	5	2	1	4	16d	4	16d	2130	1825	9.47	8.12	1670	1560	7.43	6.94	Blue
	HUS46IF	HUSC46	14	3-5/8	5	2	--	4	16d	4	16d	2130	1825	9.47	8.12	1670	1560	7.43	6.94	Green
	HD46	HU46	14	3-9/16	4-15/16	2-1/2	1-1/8	12	16d	6	10d	3430	2685	15.26	11.94	2690	2105	11.97	9.36	Blue
4 x 8	HD46IF	HUC46	14	3-9/16	4-15/16	2-1/2	--	12	16d	6	10d	3430	2685	15.26	11.94	2690	2105	11.97	9.36	Green
	JUS46	LUS46	18	3-5/8	5	2	1	4	16d	4	16d	2000	2550	8.90	11.34	1570	2005	6.98	8.92	Blue
	JUS48	LUS48	18	3-5/8	6-7/8	2	1	6	16d	4	16d	3240	2550	14.41	11.34	2545	2005	11.32	8.92	Blue
	SUH46	U46	16	3-9/16	4-13/16	2	1-1/8	8	10d	4	10d	4080	1665	18.15	7.41	3205	1310	14.26	5.83	Blue
	HUS46	HUS46	14	3-5/8	5	2	1	4	16d	4	16d	2130	1825	9.47	8.12	1670	1560	7.43	6.94	Blue
	HUS46IF	HUSC46	14	3-5/8	5	2	--	4	16d	4	16d	2130	1825	9.47	8.12	1670	1560	7.43	6.94	Green
	HUS48	HUS48	14	3-5/8	7	2	1	6	16d	6	16d	3795	3405	16.88	15.15	2980	2675	13.26	11.90	Blue
	HUS48IF	HUSC48	14	3-5/8	7	2	1	6	16d	6	16d	3795	3405	16.88	15.15	2980	2675	13.26	11.90	Green
	HD46	HU46	14	3-9/16	4-15/16	2-1/2	1-1/8	12	16d	6	10d	3430	2685	15.26	11.94	2690	2105	11.97	9.36	Blue
	HD46IF	HUC46	14	3-9/16	4-15/16	2-1/2	--	12	16d	6	10d	3430	2685	15.26	11.94	2690	2105	11.97	9.36	Green
4 x 10	HD48	HU48	14	3-9/16	6-7/8	2-1/2	1-1/8	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36	Blue
	HD48IF	HUC48	14	3-9/16	6-7/8	2-1/2	--	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36	Green
	JUS48	LUS48	18	3-5/8	6-7/8	2	1	6	16d	4	16d	3240	2550	14.41	11.34	2545	2005	11.32	8.92	Blue
	JUS410	LUS410	18	3-5/8	8-7/8	2	1	8	16d	6	16d	5170	3735	23.00	16.61	4055	2930	18.04	13.03	Blue
	SUH410	U410	16	3-9/16	8-3/8	2	1-1/8	14	10d	6	10d	6330	2920	28.16	12.99	4970	2290	22.11	10.19	Blue
	HUS48	HUS48	14	3-5/8	7	2	1	6	16d	6	16d	3795	3405	16.88	15.15	2980	2675	13.26	11.90	Blue
	HUS48IF	HUSC48	14	3-5/8	7	2	1	6	16d	6	16d	3795	3405	16.88	15.15	2980	2675	13.26	11.90	Green
	HD48	HU48	14	3-9/16	6-7/8	2-1/2	1-1/8	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36	Blue
	HD48IF	HUC48	14	3-9/16	6-7/8	2-1/2	--	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36	Green
	HUS410	HUS410	14	3-5/8	8-7/8	2	1	8	16d	8	16d	5185	4165	23.06	18.53	4070	3270	18.10	14.55	Blue
	HUS410IF	HUSC410	14	3-5/8	8-7/8	2	--	8	16d	8	16d	5185	4165	23.06	18.53	4070	3270	18.10	14.55	Green
	HD410	HU410	14	3-9/16	8-13/16	2-1/2	1-1/8	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	Blue
HD410IF	HUC410	14	3-9/16	8-13/16	2-1/2	--	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	Green	
HDQ410IF	HUCQ410-SDS	14	3-9/16	9	3	1-1/2	12	WS3	6	WS3	8460	4970	37.63	22.11	7385	4335	32.85	19.28	Blue	

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- 1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.
- 2) 16d sinkers (0.148 dia. x 3-1/4" long) may be used at 0.86 of the table load where 16d commons are specified. This does not apply to JUS, HUS, MUS slant nail hangers.
- 3) WS3 Wood Screws are 1/4" x 3" long and are included with HDQ hangers.
- 4) **NAILS:** 8d x 1-1/2" nails are 0.131" dia. x 1-1/2" long, 10d x 1-1/2" nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long. New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc



# Face Mount Hanger Charts

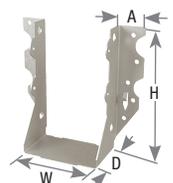
Joist Size	USP Stock No.	Ref. No.	Gauge	Dimensions (in)				Fastener Schedule <sup>2,3,4</sup>				DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish
				W	H	D	A	Header		Joist		Lbs		kN		Lbs		kN		
								Qty	Type	Qty	Type	100%	115%	100%	115%	100%	115%	100%	115%	
4 x 12	JUS410	LUS410	18	3-5/8	8-7/8	2	1	8	16d	6	16d	5170	3735	23.00	16.61	4055	2930	18.04	13.03	
	SUH410	U410	16	3-9/16	8-3/8	2	1-1/8	14	10d	6	10d	6330	2920	28.16	12.99	4970	2290	22.11	10.19	
	HUS410	HUS410	14	3-5/8	8-7/8	2	1	8	16d	8	16d	5185	4165	23.06	18.53	4070	3270	18.10	14.55	
	HUS410IF	HUSC410	14	3-5/8	8-7/8	2	--	8	16d	8	16d	5185	4165	23.06	18.53	4070	3270	18.10	14.55	
	HD410	HU410	14	3-9/16	8-13/16	2-1/2	1-1/8	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	
	HD410IF	HUC410	14	3-9/16	8-13/16	2-1/2	--	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	
	HDQ410IF	HUCQ410-SDS	14	3-9/16	9	3	1-1/2	12	WS3	6	WS3	8460	4970	37.63	22.11	7385	4335	32.85	19.28	
	HUS412	HUS412	14	3-5/8	10-7/8	2	1	10	16d	10	16d	6345	5765	28.22	25.64	4985	4525	22.17	20.13	
	HUS412IF	HUSC412	14	3-5/8	10-7/8	2	--	10	16d	10	16d	6345	5765	28.22	25.64	4985	4525	22.17	20.13	
	HD412	HU412	14	3-9/16	10-13/16	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
HD412IF	HUC412	14	3-9/16	10-13/16	2-1/2	--	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50		
HDQ412IF	HUCQ412-SDS	14	3-9/16	11	3	1-1/2	14	WS3	6	WS3	8135	5220	36.19	23.22	6545	4965	29.11	22.09		
4 x 14	JUS414	LUS414	18	3-5/8	12-7/8	2	1	12	16d	6	16d	5120	3735	22.77	16.61	4020	2930	17.88	13.03	
	SUH414	U414	16	3-9/16	10-1/16	2	1-1/8	16	10d	6	10d	6330	2920	28.16	12.99	4970	2290	22.11	10.19	
	HD410	HU410	14	3-9/16	8-13/16	2-1/2	1-1/8	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	
	HD410IF	HUC410	14	3-9/16	8-13/16	2-1/2	--	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	
	HDQ410IF	HUCQ410-SDS	14	3-9/16	9	3	1-1/2	12	WS3	6	WS3	8460	4970	37.63	22.11	7385	4335	32.85	19.28	
	HUS412	HUS412	14	3-5/8	10-7/8	2	1	10	16d	10	16d	6345	5765	28.22	25.64	4985	4525	22.17	20.13	
	HUS412IF	HUSC412	14	3-5/8	10-7/8	2	--	10	16d	10	16d	6345	5765	28.22	25.64	4985	4525	22.17	20.13	
	HD412	HU412	14	3-9/16	10-13/16	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
	HD412IF	HUC412	14	3-9/16	10-13/16	2-1/2	--	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
	HD414	HU414	14	3-9/16	12-13/16	2-1/2	1-1/8	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97	
HD414IF	HUC414	14	3-9/16	12-13/16	2-1/2	--	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97		
HDQ412IF	HUCQ412-SDS	14	3-9/16	11	3	1-1/2	14	WS3	6	WS3	8135	5220	36.19	23.22	6545	4965	29.11	22.09		
4 x 16	JUS414	LUS414	18	3-5/8	12-7/8	2	1	12	16d	6	16d	5120	3735	22.77	16.61	4020	2930	17.88	13.03	
	SUH414	U414	16	3-9/16	10-1/16	2	1-1/8	16	10d	6	10d	6330	2920	28.16	12.99	4970	2290	22.11	10.19	
	HD412	HU412	14	3-9/16	10-13/16	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
	HD412IF	HUC412	14	3-9/16	10-13/16	2-1/2	--	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
	HDQ412IF	HUCQ412-SDS	14	3-9/16	11	3	1-1/2	14	WS3	6	WS3	8135	5220	36.19	23.22	6545	4965	29.11	22.09	
	HD414	HU414	14	3-9/16	12-13/16	2-1/2	1-1/8	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97	
	HD414IF	HUC414	14	3-9/16	12-13/16	2-1/2	--	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97	
	HD416	HU416	14	3-9/16	14-13/16	2-1/2	1-1/8	26	16d	12	10d	8190	4290	36.43	19.08	6430	3365	28.60	14.97	
	HD416IF	HUC416	14	3-9/16	14-13/16	2-1/2	--	26	16d	12	10d	8190	4290	36.43	19.08	6430	3365	28.60	14.97	
	HD414	HU414	14	3-9/16	12-13/16	2-1/2	1-1/8	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97	
HD414IF	HUC414	14	3-9/16	12-13/16	2-1/2	--	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97		
HD416IF	HUC416	14	3-9/16	14-13/16	2-1/2	--	26	16d	12	10d	8190	4290	36.43	19.08	6430	3365	28.60	14.97		
HD418	--	14	3-9/16	16-1/2	2-1/2	1-1/4	28	16d	8	10d	8250	2685	36.70	11.94	6475	2105	28.80	9.36		
6 x 6	SUH66	U66	16	5-1/2	5	2	1	8	10d	4	10d	3135	1665	13.95	7.41	2460	1310	10.94	5.83	
	HD66	HU66	14	5-1/2	3-15/16	2-1/2	1-1/8	12	16d	6	10d	4920	2685	21.89	11.94	3865	2105	17.19	9.36	
	HD66IF	HUC66	14	5-1/2	3-15/16	2-1/2	--	12	16d	6	10d	4920	2685	21.89	11.94	3865	2105	17.19	9.36	
6 x 8	SUH66	U66	16	5-1/2	5	2	1	8	10d	4	10d	3135	1665	13.95	7.41	2460	1310	10.94	5.83	
	HD66	HU66	14	5-1/2	3-15/16	2-1/2	1-1/8	12	16d	6	10d	4920	2685	21.89	11.94	3865	2105	17.19	9.36	
	HD66IF	HUC66	14	5-1/2	3-15/16	2-1/2	--	12	16d	6	10d	4920	2685	21.89	11.94	3865	2105	17.19	9.36	
	HD68	HU68	14	5-1/2	5-15/16	2-1/2	1-1/8	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36	
	HD68IF	HUC68	14	5-1/2	5-15/16	2-1/2	--	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36	
6 x 10	SUH610	U610	16	5-1/2	9	2	1	14	10d	6	10d	6435	2920	28.62	12.99	5055	2290	22.49	10.19	
	HD68	HU68	14	5-1/2	5-15/16	2-1/2	1-1/8	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36	
	HD68IF	HUC68	14	5-1/2	5-15/16	2-1/2	--	14	16d	6	10d	4675	2685	20.80	11.94	3670	2105	16.32	9.36	
	HD610	HU610	14	5-1/2	7-13/16	2-1/2	1-1/8	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	
	HD610IF	HUC610	14	5-1/2	7-13/16	2-1/2	--	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	
	HDQ610IF	HUCQ610-SDS	14	5-1/2	9	3	1-1/2	12	WS3	6	WS3	8460	4970	37.63	22.11	7385	4335	32.85	19.28	
6 x 12	SUH610	U610	16	5-1/2	9	2	1	14	10d	6	10d	6435	2920	28.62	12.99	5055	2290	22.49	10.19	
	HD610	HU610	14	5-1/2	7-13/16	2-1/2	1-1/8	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	
	HD610IF	HUC610	14	5-1/2	7-13/16	2-1/2	--	18	16d	10	10d	7485	4435	33.29	19.73	5875	3485	26.13	15.50	
	HDQ610IF	HUCQ610-SDS	14	5-1/2	9	3	1-1/2	12	WS3	6	WS3	8460	4970	37.63	22.11	7385	4335	32.85	19.28	
	HD612	HU612	14	5-1/2	9-13/16	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
	HD612IF	HUC612	14	5-1/2	9-13/16	2-1/2	--	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
HDQ612IF	HUCQ612-SDS	14	5-1/2	11	3	1-1/2	14	WS3	6	WS3	8135	5220	36.19	23.22	6545	4965	29.11	22.09		

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) 16d sinkers (0.148 dia. x 3-1/4" long) may be used at 0.86 of the table load where 16d commons are specified.  
 This does not apply to JUS, HUS, MUS slant nail hangers.  
 3) WS3 Wood Screws are 1/4" x 3" long and are included with HDQ hangers.  
 4) **NAILS:** 8d x 1-1/2" nails are 0.131" dia. x 1-1/2" long, 10

Joist Size	USP Stock No.	Ref. No.	Gauge	Dimensions (in)				Fastener Schedule <sup>2,3,4</sup>				DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish
				W	H	D	A	Header		Joist		Lbs		kN		Lbs		kN		
								Qty	Type	Qty	Type	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	
6 x 14	HDQ610IF	HUCQ610-SDS	14	5-1/2	9	3	1-1/2	12	WS3	6	WS3	8460	4970	37.63	22.11	7385	4335	32.85	19.28	
	HD612	HU612	14	5-1/2	9-13/16	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
	HD612IF	HUC612	14	5-1/2	9-13/16	2-1/2	--	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
	HDQ612IF	HUCQ612-SDS	14	5-1/2	11	3	1-1/2	14	WS3	6	WS3	8135	5220	36.19	23.22	6545	4965	29.11	22.09	
	HD614	HU614	14	5-1/2	11-13/16	2-1/2	1-1/8	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97	
	HD614IF	HUC614	14	5-1/2	11-13/16	2-1/2	--	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97	
6 x 16	HD612	HU612	14	5-1/2	9-13/16	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
	HD612IF	HUC612	14	5-1/2	9-13/16	2-1/2	--	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
	HDQ612IF	HUCQ612-SDS	14	5-1/2	11	3	1-1/2	14	WS3	6	WS3	8135	5220	36.19	23.22	6545	4965	29.11	22.09	
	HD614	HU614	14	5-1/2	11-13/16	2-1/2	1-1/8	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97	
	HD614IF	HUC614	14	5-1/2	11-13/16	2-1/2	--	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97	
	HD616	HU616	14	5-1/2	13-13/16	2-1/2	1-1/8	26	16d	12	10d	8190	4290	36.43	19.08	6430	3365	28.60	14.97	
6 x 18	HD616IF	HUC616	14	5-1/2	13-13/16	2-1/2	--	26	16d	12	10d	8190	4290	36.43	19.08	6430	3365	28.60	14.97	
	HD614	HU614	14	5-1/2	11-13/16	2-1/2	1-1/8	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97	
	HD614IF	HUC614	14	5-1/2	11-13/16	2-1/2	1-1/8	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97	
	HD616	HU616	14	5-1/2	13-13/16	2-1/2	1-1/8	26	16d	12	10d	8190	4290	36.43	19.08	6430	3365	28.60	14.97	
	HD616IF	HUC616	14	5-1/2	13-13/16	2-1/2	--	26	16d	12	10d	8190	4290	36.43	19.08	6430	3365	28.60	14.97	
	HD86	--	14	7-1/2	5-1/8	2-1/2	1-1/2	10	16d	4	16d	3410	1505	15.17	6.69	2680	1180	11.92	5.25	
8 x 6	HD86IF	--	14	7-1/2	5-1/8	2-1/2	1-1/2	10	16d	4	16d	3410	1505	15.17	6.69	2680	1180	11.92	5.25	
	HD88	HU88	14	7-1/2	6-5/8	2-1/2	1-1/2	14	16d	6	16d	5100	2685	22.69	11.94	4005	2105	17.82	9.36	
8 x 8	HD88IF	HUC88	14	7-1/2	6-5/8	2-1/2	1-1/2	14	16d	6	16d	5100	2685	22.69	11.94	4005	2105	17.82	9.36	
	HD810	HU810	14	7-1/2	8-3/8	2-1/2	1-1/2	18	16d	8	16d	4930	2685	21.93	11.94	3870	2105	17.21	9.36	
8 x 10	HD810IF	HUC810	14	7-1/2	8-3/8	2-1/2	--	18	16d	8	16d	4930	2685	21.93	11.94	3870	2105	17.21	9.36	
	HD812	HU812	14	7-1/2	10-1/8	2-1/2	1-1/2	22	16d	8	16d	4930	2685	21.93	11.94	3870	2105	17.21	9.36	
8 x 12	HD812IF	HUC812	14	7-1/2	10-1/8	2-1/2	--	22	16d	8	16d	4930	2685	21.93	11.94	3870	2105	17.21	9.36	
	HD814	HU814	14	7-1/2	11-7/8	2-1/2	1-1/2	24	16d	12	16d	4930	5260	21.93	23.40	3870	4130	17.21	18.37	
8 x 14	HD814IF	HUC814	14	7-1/2	11-7/8	2-1/2	--	24	16d	12	16d	4930	5260	21.93	23.40	3870	4130	17.21	18.37	
	HD816	HU816	14	7-1/2	13-5/8	2-1/2	1-1/2	26	16d	12	16d	4930	5260	21.93	23.40	3870	4130	17.21	18.37	
8 x 16	HD816IF	HUC816	14	7-1/2	13-5/8	2-1/2	--	26	16d	12	16d	4930	5260	21.93	23.40	3870	4130	17.21	18.37	
	HD816IF	HUC816	14	7-1/2	13-5/8	2-1/2	--	26	16d	12	16d	4930	5260	21.93	23.40	3870	4130	17.21	18.37	
<b>Rough Lumber Sizes</b>																				
2 x 4	SUH24R	LU24R-18, U24R	16	2	3-1/16	2	1-1/8	4	10d	2	10d x 1-1/2	1390	795	6.18	3.54	1090	625	4.85	2.78	
2 x 6 - 8	SUH26R	LU26R-18, U26R	16	2	4-15/16	2	1-3/16	6	10d	4	10d x 1-1/2	2345	1505	10.43	6.69	1840	1180	8.18	5.25	
2 x 8 - 10	SUH28R	LU28R-18	16	2	6-7/16	2	1-1/8	8	10d	6	10d x 1-1/2	3135	1505	13.95	6.69	2460	1180	10.94	5.25	
2 x 10 - 14	SUH210R	LU210R-18, U210R	16	2	7-13/16	2	1-1/8	10	10d	6	10d x 1-1/2	4080	2505	18.15	11.14	3205	1965	14.26	8.74	
2 x 14 - 16	SUH214R	--	16	2	9-13/16	2	1-1/8	12	10d	6	10d x 1-1/2	4105	2505	18.26	11.14	3225	1965	14.35	8.74	
4 x 6	SUH44R	U44R	16	4	2-11/16	2	1-1/8	6	10d	2	16d	1910	825	8.50	3.67	1500	650	6.67	2.89	
4 x 8	SUH46R	U46R	16	4	4-11/16	2	1-1/8	8	10d	4	16d	4080	1665	18.15	7.41	3205	1310	14.26	5.83	
4 x 10	SUH410R	U410R	16	4	8-3/16	2	2	14	10d	6	16d	6330	2920	28.16	12.99	4970	2290	22.11	10.19	
6 x 8	SUH66R	U66R	16	6	5	2	1	8	10d	4	16d	3135	1665	13.95	7.41	2460	1310	10.94	5.83	
6 x 10	SUH610R	U610R	16	6	9	2	1	14	10d	6	16d	6435	2920	28.62	12.99	5055	2290	22.49	10.19	
<b>Glulam Sizes</b>																				
3-1/8 x 10-1/2 - 19-1/2	HD32105	HU3.25/10.5	14	3-1/4	9-15/16	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
3-1/8 x 12 - 21	HD3212	HU3.25/12	14	3-1/4	11-7/8	2-1/2	1-1/8	24	16d	10	10d	8250	4290	36.70	19.08	6475	3365	28.80	14.97	
5-1/8 x 10-1/2 - 19-1/2	HD5112	HU5.125/12	14	5-1/4	9-15/16	2-1/2	1-1/8	22	16d	10	10d	8250	4435	36.70	19.73	6475	3485	28.80	15.50	
5-1/8 x 14-1/2 - 21	HD51135	HU5.125/13.5	14	5-1/4	12-15/16	2-1/2	1-1/8	26	16d	12	10d	8190	4290	36.43	19.08	6430	3365	28.60	14.97	

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) 16d sinkers (0.148 dia. x 3-1/4" long) may be used at 0.86 of the table load where 16d commons are specified. This does not apply to JUS, HUS, MUS slant nail hangers.  
 3) WS3 Wood Screws are 1/4" x 3" long and are included with HDQ hangers.  
 4) **NAILS:** 8d x 1-1/2" nails are 0.131" dia. x 1-1/2" long, 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.  
 New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc



With a top mount design and heavy steel fabrication the KB and KLB hangers can cover medium-to-heavy beam and purlin applications. The top mount design offers high loads with less nailing than comparable face mount hangers.

**KLB** – 14 gauge

**KB** – 12 gauge

**Materials:** See chart

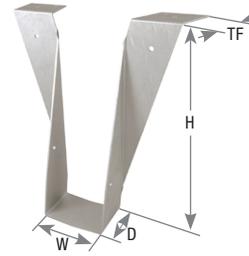
**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- NA20D nails are included with hangers where applicable.
- For welded installations, see page 224.
- **KB models are not recommended for use with LVL, PSL, or LSL members.**



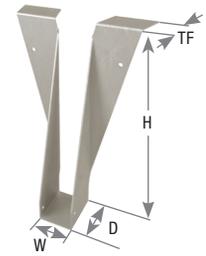
**Typical KB installation**



**KB**



**Typical KLB installation**



**KLB**

**HDO** Heavy-Duty Top Mount Hangers

Primarily used to hang joists or headers in medium load conditions. These hangers provide higher load values with less nailing.

**Materials:** 12 gauge

**Finish:** G90 galvanizing

**Options:** All nominal lumber sizes are available for rough/full size lumber. See Specialty Options Chart.

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Check top flange dimensions to ensure compatibility with header widths.
- **Do not use for welded or nailer applications. Reference Specialty Options chart below for hanger options.**

**Specialty Options Chart**

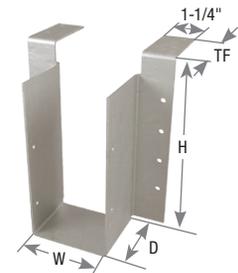
Refer to Specialty Options pages 220 and 222 for additional details.

Option	Skewed <sup>1,3</sup>	Sloped Seat <sup>2</sup>	Sloped / Skewed <sup>1,2,3</sup>	Inverted Flange
<b>Range</b>	1° to 67-1/2° when width is 1-3/4" or less. 1° to 50° on all others.	1° to 45°	See Sloped Seat and Skewed	Not available in widths less than 3-1/8"
<b>Factored Resistance</b>	100% of table load. 75% of uplift load on skews greater than 15°.	100% of table load	80% of table load. 75% of uplift load on skews greater than 15°.	100% of table load. 65% of table load when nailing into the support members end grain.
<b>Ordering</b>	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and <b>square cut (<i>SQ</i>) or bevel cut (<i>BV</i>)</b> to product number. Ex. HDO210_SK45R_SQ	Add <i>SL</i> , slope required, and up ( <i>U</i> ) or down ( <i>D</i> ), to product number. Ex. HDO210_SL30D	See Sloped Seat and Skewed. Ex. HDO210_SK45R_SQ_SL30D	Add <i>IF</i> to product number. Ex. HDO610_IF

1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.  
 2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.  
 3) **For skewed hangers, the required cut type (square or bevel) of joist member may vary based on skew angle and width of hanger. Some square cut hangers will require custom pricing due to welded back plate.**  
 New products or updated product information are designated in blue font.



**HDO standard installation**



**HDO28-2**



**Typical HDO410IF inverted flange installation**



**Typical HDO skewed option installation**

**SW** – Light-duty hanger.

**SWH** – Medium-duty hanger.

**KHW** – Heavy-duty hanger installs with NA20D nails for higher load capacities.

**Materials:** SW top flange - 12 gauge; stirrup - 12 gauge;  
 SWH top flange - 7 gauge; stirrup - 12 gauge;  
 KHW top flange - 3 gauge; stirrup - 10 gauge

**Finish:** USP primer

**Options:** All nominal lumber sizes are available for rough/full size lumber.  
 See Specialty Options below.

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- NA20D nails are supplied with KHW hangers.
- For welded installations see page 224.
- **KHW models are not recommended for use with LVL, PSL, or LSL members.**

**Nailer Installation Chart**

Chart represents maximum factored resistance for hangers used on wood nailers. Reference page 127.

USP Stock No.	Nailer Size	Fastener Schedule <sup>2</sup>				DF Factored Resistance		S-P-F Factored Resistance	
		Header		Joist		Vertical (100%) <sup>1</sup>		Vertical (100%) <sup>1</sup>	
		Qty	Type	Qty	Type	Lbs	kN	Lbs	kN
SW	2X	2	10d x 1-1/2	2	10d x 1-1/2	1635	7.27	<b>1240</b>	<b>5.52</b>
SWH	2X	2	10d x 1-1/2	2	10d	2600	11.57	<b>1970</b>	<b>8.76</b>
	3X	2	16d x 2-1/2	2	10d	3350	14.90	<b>2535</b>	<b>11.28</b>
KHW	3X	4	16d x 2-1/2	2	10d	5180	23.04	<b>3925</b>	<b>17.46</b>

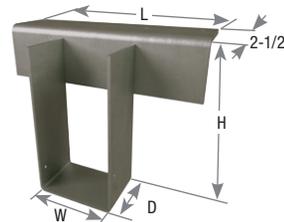
- 1) Listed loads shall not be increased.
- 2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d x 2-1/2 nails are 0.162" dia. x 2-1/2" long. New products or updated product information are designated in **blue font**.



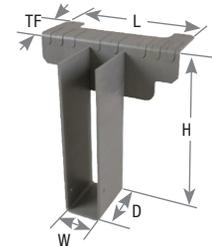
Typical KHW46 installation



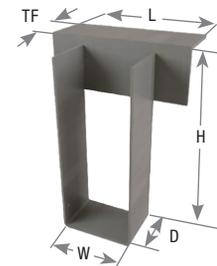
Typical SW210 installation



KHW46



SW210



SWH410

**Specialty Options Chart** – Refer to Specialty Options pages 220, 222-223 for additional details.

Option	Skewed <sup>1,3</sup>	Sloped Seat <sup>2</sup>	Sloped / Skewed <sup>1,2,3</sup>	Sloped Top Flange <sup>4</sup>	Top Flange Offset	Saddle	Ridge	
Range	1° to 84°	1° to 45°	See Sloped Seat and Skewed	0° to 35°	---	---	0° to 45°	
Factored Resistance	100% of table load	100% of table load	100% of table load	Reduce allowable table loads using straight-line interpolation	Hanger Width 3-1/2" or less 3-9/16" to 5-1/2" 5-9/16" to 7-1/2"	% of table load: 60% 75% 85%	100% of table load per side	100% of table load
Ordering	Add SK, angle required, right (R) or left (L), and square cut (SQ) or bevel cut (BV) to product number. Ex. SW212_SK45R_SQ	Add SL, slope required, and up (U) or down (D), to product number. Ex. SW212_SL30D	See Sloped Seat and Skewed. Ex. SW212_SK45R_SQ_SL30D	Add SF, angle required, and right (R) or left (L), to product number. Ex. SW212_SF30L	Add OS, and right (R) or left (L), to product number. Ex. SW212_OSL	Add SA, and saddle width required to product number. Ex. SW212_SA=5-1/2"	Add DA, angle required to product number. Ex. SW212_DA30	

- 1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.
- 2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.
- 3) For skewed hangers, the required cut type (square or bevel) of joist member may vary

based on skew angle and width of hanger. Some square cut hangers will require custom pricing due to welded back plate.

- 4) Sloped top flanges with greater than 15° may have additional header nails. New products or updated product information are designated in **blue font**.

## HL Light Gauge Purlin Hangers

These top mount hangers are designed for supporting floor joists or 2x purlins. The top mount style allows builders to drop in joists or purlins quickly.

**Materials:** 18 gauge

**Finish:** G90 galvanizing

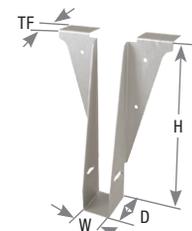
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.



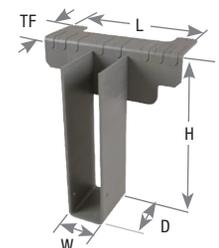
Typical HL210 installation



HL210

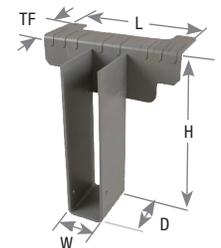
Beam/ Joist Size	USP Stock No.	Ref. No.	Ga.	Dimensions (in)					Fastener Schedule <sup>4</sup>					DF Factored Resistance (Lbs.) <sup>3</sup>				S-P-F Factored Resistance (Lbs.) <sup>3</sup>			
				W	H	D	L	TF	Header		Joist			Lbs		kN		Lbs		kN	
									Qty		Type	Qty	Type	Floor	Uplift <sup>1,2</sup>	Floor	Uplift <sup>1,2</sup>	Floor	Uplift <sup>1,2</sup>	Floor	Uplift <sup>1,2</sup>
				Top	Face				100%	115%	100%	115%	100%	115%	100%	115%	100%	115%			
				2 x 4	HDO24	HU24TF	12	1-9/16	3-7/16	2-1/4	--	2-1/2	4	2	16d	2	10d x 1-1/2	3150	595	14.01	2.65
2 x 6	HL26	JB26	18	1-9/16	5-3/8	1-1/2	--	1-5/16	2	4	16d	2	prongs	2085	--	9.27	--	1635	--	7.27	--
	KLB26	LB26	14	1-9/16	5-3/8	1-1/2	--	1-3/8	2	4	16d	2	10d x 1-1/2	3895	665	17.33	2.96	3120	610	13.88	2.71
	SW26	W26	12	1-9/16	5-3/8	2-1/2	6-1/2	2-1/2	2	--	10d	2	10d x 1-1/2	3590	270	15.97	1.20	2980	225	13.26	1.00
	HDO26	HU26TF	12	1-9/16	5-3/8	2-1/4	--	2-1/2	4	6	16d	4	10d x 1-1/2	4195	1580	18.66	7.03	3295	1240	14.66	5.52
2 x 8	HL28	JB28	18	1-9/16	7-5/16	1-3/4	--	1-5/16	2	4	16d	2	prongs	2395	--	10.65	--	1880	--	8.36	--
	KLB28	LB28	14	1-9/16	7-1/4	1-3/4	--	1-3/8	2	4	16d	2	10d x 1-1/2	3895	665	17.33	2.96	3120	610	13.88	2.71
	SW28	W28	12	1-9/16	7-1/8	2-1/2	6-1/2	2-1/2	2	--	10d	2	10d x 1-1/2	3590	270	15.97	1.20	2980	225	13.26	1.00
	HDO28	HU28TF	12	1-9/16	7-1/8	2-1/4	--	2-1/2	4	6	16d	4	10d x 1-1/2	4590	1420	20.42	6.32	3600	1115	16.01	4.96
2 x 10	HL210	JB210A	18	1-9/16	9-5/16	2	--	1-5/16	2	4	16d	2	prongs	2395	--	10.65	--	1880	--	8.36	--
	KLB210	LB210A	14	1-9/16	9-1/4	2	--	1-3/8	2	4	16d	2	10d x 1-1/2	3895	665	17.33	2.96	3120	610	13.88	2.71
	SW210	W210	12	1-9/16	9-1/8	2-1/2	6-1/2	2-1/2	2	--	10d	2	10d x 1-1/2	3590	270	15.97	1.20	2980	225	13.26	1.00
	HDO210	HU210TF	12	1-9/16	9-1/8	2-1/4	--	2-1/2	4	8	16d	4	10d x 1-1/2	4790	1365	21.31	6.07	3760	1070	16.73	4.76
2 x 12	HL212	JB212A	18	1-9/16	11-1/4	2-1/8	--	1-5/16	2	4	16d	2	prongs	2600	--	11.57	--	2040	--	9.07	--
	KLB212	LB212A	14	1-9/16	11-1/8	2	--	1-3/8	2	4	16d	2	10d x 1-1/2	3300	665	14.68	2.96	3030	610	13.48	2.71
	SW212	W212	12	1-9/16	11-1/8	2-1/2	6-1/2	2-1/2	2	--	10d	2	10d x 1-1/2	3590	270	15.97	1.20	2980	225	13.26	1.00
	HDO212	HU212TF	12	1-9/16	11	2-1/4	--	2-1/2	4	10	16d	6	10d x 1-1/2	3855	2495	17.15	11.10	3025	1955	13.46	8.70
2 x 14	HL214	JB214A, LB214A	18	1-9/16	13-1/8	2	--	2-1/2	2	6	16d	2	10d x 1-1/2	2600	585	11.57	2.60	2040	460	9.07	2.05
	SW214	W214	12	1-9/16	13-1/8	2-1/2	6-1/2	2-1/2	2	--	10d	2	10d x 1-1/2	3590	270	15.97	1.20	2980	225	13.26	1.00
	HDO214	HU214TF	12	1-9/16	13	2-1/4	--	2-1/2	4	12	16d	6	10d x 1-1/2	6345	1980	28.22	8.81	4980	1555	22.15	6.92
2 x 16	SW216	W216	12	1-9/16	15-1/8	2-1/2	6-1/2	2-1/2	2	--	10d	2	10d x 1-1/2	3590	270	15.97	1.20	2980	225	13.26	1.00
	HDO216	HU216TF, LB216	12	1-9/16	15	2-1/4	--	2-1/2	4	14	16d	8	10d x 1-1/2	6555	3160	29.16	14.06	5145	2480	22.89	11.03
3 x 4	HDO34	HU34TF	12	2-9/16	3-7/16	2-1/2	--	2-1/2	4	4	16d	2	10d x 1-1/2	3870	595	17.21	2.65	3040	465	13.52	2.07
3 x 6	SW36	W36	12	2-9/16	5-3/8	2-1/2	6-1/2	2-1/2	2	--	10d	2	10d x 1-1/2	3900	270	17.35	1.20	3240	225	14.41	1.00
	HDO36	HU36TF	12	2-9/16	5-3/8	2-1/2	--	2-1/2	4	6	16d	4	10d x 1-1/2	4850	1580	21.57	7.03	3805	1240	16.93	5.52
	SW38	W38	12	2-9/16	7-1/8	2-1/2	6-1/2	2-1/2	2	--	10d	2	10d x 1-1/2	3900	270	17.35	1.20	3240	225	14.41	1.00
3 x 8	HDO38	B38, HU38TF	12	2-9/16	7-1/8	2-1/2	--	2-1/2	4	8	16d	4	10d x 1-1/2	5235	1420	23.29	6.32	4110	1115	18.28	4.96
	SW310	W310	12	2-9/16	9-1/8	2-1/2	6-1/2	2-1/2	2	--	10d	2	10d x 1-1/2	3900	270	17.35	1.20	3240	225	14.41	1.00
3 x 10	HDO310	B310, HU310TF	12	2-9/16	9-1/8	2-1/2	--	2-1/2	4	10	16d	6	10d x 1-1/2	6820	2340	30.34	10.41	5355	1840	23.82	8.18
	SWH312	WNP312	7/12	2-9/16	11-1/8	2-1/2	7	2-1/2	2	--	16d	2	10d x 1-1/2	5120	270	22.77	1.20	4250	225	18.90	1.00
3 x 12	HDO312	B312, HU312TF	12	2-9/16	11	2-1/2	--	2-1/2	4	12	16d	6	10d x 1-1/2	7165	2480	31.87	11.03	5625	1945	25.02	8.65
	SWH314	WNP314	7/12	2-9/16	13-1/8	2-1/2	7	2-1/2	2	--	16d	2	10d x 1-1/2	5120	270	22.77	1.20	4250	225	18.90	1.00
3 x 14	HDO314	B314, HU314TF	12	2-9/16	13	2-1/2	--	2-1/2	4	14	16d	8	10d x 1-1/2	7165	2480	31.87	11.03	5625	1945	25.02	8.65
	SWH316	WNP316	7/12	2-9/16	15-1/8	2-1/2	7	2-1/2	2	--	16d	2	10d x 1-1/2	5120	270	22.77	1.20	4250	225	18.90	1.00
3 x 16	HDO316	B316, HU316TF	12	2-9/16	15	2-1/2	--	2-1/2	4	16	16d	8	10d x 1-1/2	9430	3160	41.95	14.06	7405	2480	32.94	11.03
	(2) 2 x 4	HDO24-2	HU24-2TF	12	3-1/8	3-7/16	2-1/4	--	2-1/2	4	4	16d	2	10d	4005	880	17.82	3.91	3145	690	13.99
(2) 2 x 6	SWH26-2	WNP26-2	7/12	3-1/8	5-3/8	2-1/2	7	2-1/2	2	--	16d	2	10d	5120	270	22.77	1.20	4250	225	18.90	1.00
	HDO26-2	HU26-2TF, HUS26-2TF	12	3-1/8	5-3/8	2-1/4	--	2-1/2	4	6	16d	4	10d	4995	1975	22.22	8.79	3920	1550	17.44	6.89

- 1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 2) HL and SW products do not provide uplift resistance, except for the HL214.
- 3) Refer to the respective Nailer Options chart on page 105 for hangers installed on wood nailers.
- 4) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long. New products or updated product information are designated in **blue font**.



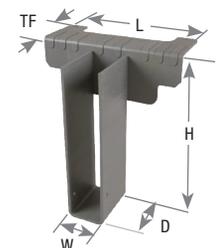
Beam/ Joist Size	USP Stock No.	Ref. No.	Ga.	Dimensions (in)					Fastener Schedule <sup>3,5</sup>					DF Factored Resistance (Lbs.) <sup>3</sup>				S-P-F Factored Resistance (Lbs.) <sup>3</sup>			
				W	H	D	L	TF	Header		Joist			Lbs		kN		Lbs		kN	
									Qty	Type	Qty	Type	Floor	Uplift <sup>1,2</sup>	Floor	Uplift <sup>1,2</sup>	Floor	Uplift <sup>1,2</sup>	Floor	Uplift <sup>1,2</sup>	
				Top	Face	Type	Qty	Type	100%	115%	100%	115%	100%	115%	100%	115%	100%	115%			
(2) 2 x 8	SWH28-2	WNP28-2	7/12	3-1/8	7-1/8	2-1/2	7	2-1/2	2	--	16d	2	10d	5120	270	22.77	1.20	4250	225	18.90	1.00
	HDO28-2	HU28-2TF, HUS28-2TF	12	3-1/8	7-1/8	2-1/4	--	2-1/2	4	8	16d	4	10d	5555	1860	24.71	8.27	4360	1460	19.39	6.49
(2) 2 x 10	SWH210-2	WNP210-2	7/12	3-1/8	9-1/8	2-1/2	7	2-1/2	2	--	16d	2	10d	5120	270	22.77	1.20	4250	225	18.90	1.00
	HDO210-2	HU210-2TF, HUS210-2TF	12	3-1/8	9-1/8	2-1/2	--	2-1/2	4	10	16d	6	10d	7480	3180	33.27	14.15	5870	2495	26.11	11.10
	HDO210-2IF	HUC210-2TF, HUSC210-2TF	12	3-1/8	9-1/8	2-1/2	--	2-1/2	4	10	16d	6	10d	7480	3180	33.27	14.15	5870	2495	26.11	11.10
(2) 2 x 12	SWH212-2	WNP212-2	7/12	3-1/8	11-1/8	2-1/2	7	2-1/2	2	--	16d	2	10d	5120	270	22.77	1.20	4250	225	18.90	1.00
	HDO212-2	HU212-2TF, HUS212-2TF	12	3-1/8	11	2-1/2	--	2-1/2	4	12	16d	6	10d	9010	2950	40.08	13.12	7070	2315	31.45	10.30
(2) 2 x 14	SWH214-2	WNP214-2	7/12	3-1/8	13-1/8	2-1/2	7	2-1/2	2	--	16d	2	10d	5120	270	22.77	1.20	4250	225	18.90	1.00
	HDO214-2	HU214-2TF, HUS214-2TF	12	3-1/8	13	2-1/2	--	2-1/2	4	14	16d	8	10d	8865	3220	39.43	14.32	6960	2530	30.96	11.25
(2) 2 x 16	SWH216-2	WNP216-2	7/12	3-1/8	15-1/8	2-1/2	7	2-1/2	--	--	16d	2	10d	5120	270	22.77	1.20	4250	225	18.90	1.00
	HDO216-2	HU216-2TF	12	3-1/8	15	2-1/2	--	2-1/2	4	16	16d	8	10d	10220	3685	45.46	16.39	8025	2890	35.70	12.86
4 x 4	HDO44	HU44TF	12	3-9/16	3-7/16	2-1/4	--	2-1/2	4	4	16d	2	10d	4005	880	17.82	3.91	3145	690	13.99	3.07
4 x 6	SW46	W46	12	3-9/16	5-3/8	2-1/2	6-1/2	2-1/2	2	--	10d	2	10d	3900	270	17.35	1.20	3240	225	14.41	1.00
	HDO46	HU46TF, HUS46TF	12	3-9/16	5-3/8	2-1/4	--	2-1/2	4	6	16d	4	10d	4995	1975	22.22	8.79	3920	1550	17.44	6.89
	KHW46	HW46	3/10	3-9/16	5-3/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
4 x 8	SW48	W48	12	3-9/16	7-1/8	2-1/2	6-1/2	2-1/2	2	--	10d	2	10d	3900	270	17.35	1.20	3240	225	14.41	1.00
	HDO48	B48, BA48, HU48TF, HUS48TF	12	3-9/16	7-1/8	2-1/4	--	2-1/2	4	8	16d	4	10d	5555	1860	24.71	8.27	4360	1460	19.39	6.49
	KHW48	HW48	3/10	3-9/16	7-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
4 x 10	SW410	W410	12	3-9/16	9-1/8	2-1/2	6-1/2	2-1/2	2	--	10d	2	10d	3900	270	17.35	1.20	3240	225	14.41	1.00
	HDO410	B410, HU410TF, HU49.5TF, HUS410TF	12	3-9/16	9-1/8	2-1/4	--	2-1/2	4	10	16d	6	10d	7480	3180	33.27	14.15	5870	2495	26.11	11.10
	SWH410	--	7/12	3-9/16	9-1/8	2-1/2	7	2-1/2	2	--	16d	2	10d	5120	270	22.77	1.20	4250	225	18.90	1.00
	KHW410	HW410	3/10	3-9/16	9-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
4 x 12	KB412	B412	12	3-9/16	11-1/8	2-3/8	--	2-1/2	4	2	NA20D	2	NA20D	6535	1225	29.07	5.45	5180	1085	23.04	4.83
	HDO412	HU412TF, HUS412TF	12	3-9/16	11	2-1/4	--	2-1/2	4	12	16d	6	10d	9010	2950	40.08	13.12	7070	2315	31.45	10.30
	SWH412	WNP412	7/12	3-9/16	11-1/8	2-1/2	7	2-1/2	2	--	16d	2	10d	5120	270	22.77	1.20	4250	225	18.90	1.00
	KHW412	HW412	3/10	3-9/16	11-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
4 x 14	HDO414	B414, HHB414, HU414TF, HU414TF, HUS414TF	12	3-9/16	13	2-1/2	--	2-1/2	4	14	16d	8	10d	8865	3220	39.43	14.32	6960	2530	30.96	11.25
	SWH414	WNP414	7/12	3-9/16	13-1/8	2-1/2	7	2-1/2	2	--	16d	2	10d	5120	270	22.77	1.20	4250	225	18.90	1.00
	KHW414	HW414	3/10	3-9/16	13-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00

- 1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 2) KHW products do not provide uplift resistance.
- 3) Refer to the respective Nailer Options chart on page 105 for hangers installed on wood nailers.
- 4) KHW Glulam load values are based on 560 psi perpendicular to grain loading.
- 5) **NAILS:** 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long, NA20D nails are 0.192" dia. x 2-1/2" long and are included with KHW hangers. New products or updated product information are designated in **blue font**.



Beam/ Joist Size	USP Stock No.	Ref. No.	Ga.	Dimensions (in)					Fastener Schedule <sup>3,5</sup>					DF Factored Resistance (Lbs.) <sup>3</sup>				S-P-F Factored Resistance (Lbs.) <sup>3</sup>			
				W	H	D	L	TF	Header		Joist			Lbs		kN		Lbs		kN	
									Qty	Face	Type	Qty	Type	Floor	Uplift <sup>1,2</sup>	Floor	Uplift <sup>1,2</sup>	Floor	Uplift <sup>1,2</sup>	Floor	Uplift <sup>1,2</sup>
				Top	Face	Type	Qty	Type	100%	115%	100%	115%	100%	115%	100%	115%	100%	115%			
4 x 16	HDO416	B416, HHB416, HU416TF	12	3-9/16	15	2-1/2	--	2-1/2	4	16	16d	8	10d	10220	3685	45.46	16.39	8025	2890	35.70	12.86
	SWH416	WNP416	7/12	3-9/16	15-1/8	2-1/2	7	2-1/2	2	--	16d	2	10d	5120	270	22.77	1.20	4250	225	18.90	1.00
	KHW416	HW416	3/10	3-9/16	15-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
(3) 2 x 10	HDO210-3	HU210-3TF	12	4-11/16	9-1/8	2-1/2	--	2-1/2	4	10	16d	6	16d	7480	3180	33.27	14.15	5870	2495	26.11	11.10
(3) 2 x 12	HDO212-3	HU212-3TF	12	4-11/16	11	2-1/2	--	2-1/2	4	12	16d	6	16d	9010	2950	40.08	13.12	7070	2315	31.45	10.30
(3) 2 x 14	HDO214-3	HU214-3TF	12	4-11/16	13	2-1/2	--	2-1/2	4	14	16d	8	16d	8865	3220	39.43	14.32	6960	2530	30.96	11.25
(3) 2 x 16	HDO216-3	HU216-3TF	12	4-11/16	15	2-1/2	--	2-1/2	4	16	16d	8	16d	10220	3685	45.46	16.39	8025	2890	35.70	12.86
	HDO66	HU66TF	12	5-1/2	5-3/8	2-1/2	--	2-1/2	4	6	16d	4	16d	4995	1975	22.22	8.79	3920	1550	17.44	6.89
	SWH66	WNP66	7/12	5-1/2	5-3/8	2-1/2	7	2-1/2	2	--	16d	2	10d	5120	270	22.77	1.20	4250	225	18.90	1.00
6 x 6	KHW66	HW66	3/10	5-1/2	5-3/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
	HDO68	HHB68, HU68TF	12	5-1/2	7-1/8	2-1/2	--	2-1/2	4	8	16d	4	16d	5555	1860	24.71	8.27	4360	1460	19.39	6.49
	SWH68	WNP68	7/12	5-1/2	7-1/8	2-1/2	7	2-1/2	2	--	16d	2	10d	5120	270	22.77	1.20	4250	225	18.90	1.00
6 x 8	KHW68	HW68	3/10	5-1/2	7-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
	KB610	B610	12	5-1/2	9-1/4	2-3/8	--	2-1/2	4	6	NA20D	2	NA20D	6510	1225	28.96	5.45	5110	1085	22.73	4.83
	HDO610	HHB610, HU610TF	12	5-1/2	9-1/8	2-1/2	--	2-1/2	4	10	16d	6	16d	7480	3180	33.27	14.15	5870	2495	26.11	11.10
6 x 10	SWH610	WNP610	7/12	5-1/2	9-1/8	2-1/2	7	2-1/2	2	--	16d	2	10d	5120	270	22.77	1.20	4250	225	18.90	1.00
	KHW610	HW610	3/10	5-1/2	9-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
	KB612	B612	12	5-1/2	11-1/8	2-3/8	--	2-1/2	4	6	NA20D	2	NA20D	6510	1225	28.96	5.45	5110	1085	22.73	4.83
6 x 12	HDO612	HHB612, HU612TF	12	5-1/2	11	2-1/2	--	2-1/2	4	12	16d	6	16d	9010	2950	40.08	13.12	7070	2315	31.45	10.30
	KHW612	HW612	3/10	5-1/2	11-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
6 x 14	HDO614	B614, HHB614, HU614TF	12	5-1/2	13	2-1/2	--	2-1/2	4	14	16d	8	16d	8865	3220	39.43	14.32	6960	2530	30.96	11.25
	KHW614	HW614	3/10	5-1/2	13-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
6 x 16	HDO616	B616, HHB616, HU616TF	12	5-1/2	15	2-1/2	--	2-1/2	4	16	16d	8	16d	10220	3685	45.46	16.39	8025	2890	35.70	12.86
	KHW616	HW616	3/10	5-1/2	15-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
8 x 6	KHW86	HW86	3/10	7-1/2	5-3/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
8 x 8	KHW88	HW88	3/10	7-1/2	7-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
8 x 10	KHW810	HW810	3/10	7-1/2	9-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
8 x 12	KHW812	HHB812, HW812	3/10	7-1/2	11-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
8 x 14	KHW814	HHB814, HW814	3/10	7-1/2	13-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
8 x 16	KHW816	HHB816, HW816	3/10	7-1/2	15-1/8	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
<b>Glulam Sizes<sup>5</sup></b>																					
2-1/2 glulam	KHW26	--	3/10	2-11/16	specify	4	10	2-1/2	4	--	NA20D	2	10d x 1-1/2	8200	270	36.48	1.20	6810	225	30.29	1.00
3-1/8 glulam	KHW3	HW3.25	3/10	3-1/4	specify	3	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00
5-1/8 glulam	KHW5	HW5.25	3/10	5-1/4	specify	2-1/2	10	2-1/2	4	--	NA20D	2	10d	8575	270	38.14	1.20	6785	225	30.18	1.00

- 1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 2) KHW products do not provide uplift resistance.
- 3) Refer to the respective Nailer Options chart on page 105 for hangers installed on wood nailers.
- 4) KHW Glulam load values are based on 560 psi perpendicular to grain loading.
- 5) Consult USP for additional Glulam sizes.
- 6) **NAILS:** 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long, NA20D nails are 0.192" dia. x 2-1/2" long and are included with KHW hangers. New products or updated product information are designated in **blue font**.



The Fire Wall Hanger is designed for attaching truss, I-joist, solid sawn lumber, or engineered wood floor framing members to double wall top plates or minimum 2-ply 2x solid sawn header fire rated wood frame walls. The advanced design allows the installation of the FWH **before** the 5/8" gypsum wallboard (drywall) is attached and permits the building project to be completely framed-up, and weather-tight before the gypsum wallboard sheathing work starts.

**Materials:** 14 gauge

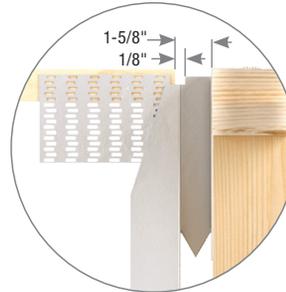
**Finish:** G90 galvanizing

**Codes:** Factored resistances are derived from data submitted to various North American building code evaluators

**Options:** See Specialty Options chart on page 110.

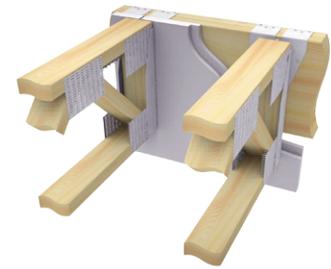
**Installation:**

- Install the face of hanger flanges tight to stud wall framing.
- For wall framing, hangers do NOT need to be installed at stud locations for full design values.
- The end of the truss/joist should measure 1-5/8" from the face of the supporting wall. See Figure 1.
- The truss/joist should bear fully on the FWH seat with a gap no greater than 1/8" between the end of the supported member and the hanger. See Figure 1.
- **Gypsum Wallboard Installation** - Use the FWH-T template to slot cut the gypsum wallboard. See FWH-T Template Installation Sequence on page 110. Slide the gypsum wallboard into position and fasten to the framing members meeting minimum requirements specified by code.



**Figure 1**

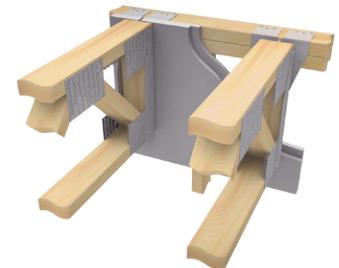
Typical FWH Side View



Typical FWH solid sawn header installation



Typical FWH stud wall installation



Typical FWH stud wall with (2) layers of 5/8-in gypsum wallboard installation

Installation Type	Fastener Schedule <sup>2</sup>					Unit	DF Factored Resistance				SPF Factored Resistance			
	Header			Joist			Solid Sawn Header		2-Ply, 2x Wall Top Plate		Solid Sawn Header		2-Ply, 2x Wall Top Plate	
	Top Qty	Face Qty	Type	Qty	Type		Download 100%	Uplift 115% <sup>1</sup>	Download 100%	Uplift 115% <sup>1</sup>	Download 100%	Uplift 115% <sup>1</sup>	Download 100%	Uplift 115% <sup>1</sup>
Without 5/8-in gypsum wallboard or structural sheathing	6	--	10d	6	10d x 1-1/2	Lbs	3250	330	2890	280	2555	270	2550	260
						kN	14.46	1.47	12.86	1.25	11.37	1.20	11.34	1.16
After (1) layer of 5/8-in gypsum wallboard is installed	6	2	10d	6	10d x 1-1/2	Lbs	3810	685	2890	590	2990	560	2550	545
						kN	16.95	3.05	12.86	2.62	13.30	2.49	11.34	2.42
After (2) layers of 5/8-in gypsum wallboard are installed	6	--	10d	6	10d x 1-1/2	Lbs	3250	330	2890	280	2555	270	2550	260
						kN	14.46	1.47	12.86	1.25	11.37	1.20	11.34	1.16
Two-sided after (2) layers of 5/8-in gypsum wallboard are installed (min. 2x6 wall)	6	2	10d	6	10d x 1-1/2	Lbs	3810	685	2890	590	2990	560	2550	545
						kN	16.95	3.05	12.86	2.62	13.30	2.49	11.34	2.42
After (1) layer of structural sheathing & (1) layer of 5/8-in gypsum wallboard is installed	6	--	10d	6	10d x 1-1/2	Lbs	3250	330	2890	280	2555	270	2550	260
						kN	14.46	1.47	12.86	1.25	11.37	1.20	11.34	1.16
	6	2	10d	6	10d x 1-1/2	Lbs	3810	685	2890	590	2990	560	2550	545
						kN	16.95	3.05	12.86	2.62	13.30	2.49	11.34	2.42

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

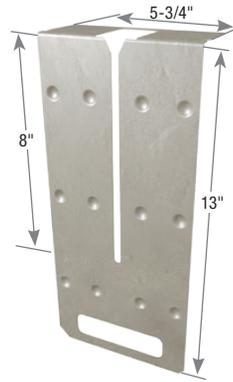
2) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

New products are designated in blue font.

Joist Size	USP Stock No.	Ref. No.	Dimensions (in)	
			W	H
2 x 8	FWH28	--	1-9/16	7-1/8
2 x 10	FWH210	--	1-9/16	9-1/8
2 x 12	FWH212	--	1-9/16	11-1/8
1-3/4 x 9-1/2	FWH1795	DGH1.81/9.5	1-13/16	9-7/16
1-3/4 x 11-7/8	FWH17118	DGH1.81/11.88	1-13/16	11-13/16
1-3/4 x 14	FWH1714	DGH1.81/14	1-13/16	13-15/16
1-3/4 x 16	FWH1716	DGH1.81/16	1-13/16	15-15/16
2 - 2-1/8 x 9-1/2	FWH2095	DGH2.1/9.5	2-1/8	9-7/16
2 - 2-1/8 x 11-7/8	FWH20118	DGH2.1/11.88	2-1/8	11-13/16
2 - 2-1/8 x 14	FWH2014	DGH2.1/14	2-1/8	13-15/16
2 - 2-1/8 x 16	FWH2016	DGH2.1/16	2-1/8	15-15/16
2-5/16 x 9-1/2	FWH2395	DGH2.37/9.5	2-3/8	9-7/16
2-5/16 x 11-7/8	FWH23118	DGH2.37/11.88	2-3/8	11-13/16
2-5/16 x 14	FWH2314	DGH2.37/14	2-3/8	13-15/16
2-5/16 x 16	FWH2316	DGH2.37/16	2-3/8	15-15/16
2-5/16 x 18	FWH2318	DGH2.37/18	2-3/8	17-15/16
2-5/16 x 20	FWH2320	DGH2.37/20	2-3/8	19-15/16
2-1/2 x 9-1/2	FWH2595	DGH2.56/9.5	2-9/16	9-7/16
2-1/2 x 11-7/8	FWH25118	DGH2.56/11.88	2-9/16	11-13/16
2-1/2 x 14	FWH2514	DGH2.56/14	2-9/16	13-15/16
2-1/2 x 16	FWH2516	DGH2.56/16	2-9/16	15-15/16
2-1/2 x 18	FWH2518	DGH2.56/18	2-9/16	17-15/16
2-1/2 x 20	FWH2520	DGH2.56/20	2-9/16	19-15/16
3-1/2 x 9-1/2	FWH3595	DGH3.62/9.5, DGB3.62/9.5	3-9/16	9-7/16
3-1/2 x 11-7/8	FWH35118	DGH3.62/11.88, DGB3.62/11.88	3-9/16	11-13/16
3-1/2 x 14	FWH3514	DGH3.62/14, DGB3.62/14	3-9/16	13-15/16
3-1/2 x 16	FWH3516	DGH3.62/16, DGB3.62/16	3-9/16	15-15/16
3-1/2 x 18	FWH3518	DGH3.62/18, DGB3.62/18	3-9/16	17-15/16
3-1/2 x 20	FWH3520	DGH3.62/20, DGB3.62/20	3-9/16	19-15/16
3-1/2 x 22	FWH3522	DGH3.62/22, DGB3.62/22	3-9/16	21-15/16
3-1/2 x 24	FWH3524	DGH3.62/24, DGB3.62/24	3-9/16	23-15/16
--	FWH-T	--	5-3/4	13



**FWH**



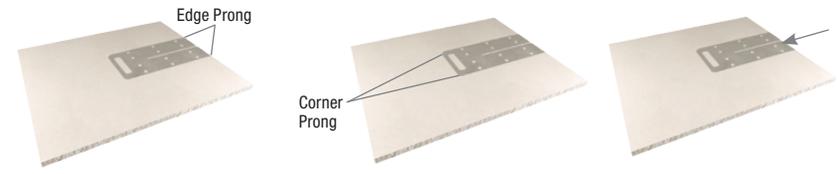
**FWH-T Template**

**2 Hour Fire-Rating**  
 FWH hangers are tested per ASTM E814 standards. When installed on one side of a maximum 2 hour fire-rated wall assembly, the penetration of the USP FWH Fire Wall Hanger through the gypsum wallboard will not reduce the fire resistive rating of the 2 hour fire resistive assembly.

**Specialty Options Chart** – Refer to Specialty Options pages 220 and 222 for additional details.

Option	Skewed <sup>1</sup>
Range	1° to 45°
Factored Resistance	80% of table load
Ordering	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and square cut ( <i>SQ</i> ) to product number. Ex. FWH3514_SK45R_SQ

1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.



- 1) Align the FWH-Template slot with the mark in the gypsum wallboard and engage the prongs into edge of gypsum wallboard
- 2) Rotate the template and press down on the end to engage the corner prongs
- 3) Run the gypsum wallboard cutter down the template to cut the slot

**FWH-T template installation sequence**

# JH Multi-Purpose Joist Hanger

These strap-style hangers are designed to support trusses, joists, or purlins. JH models may be bent along the flange allowing builders to use the hangers in top mount, face mount, or combination applications.

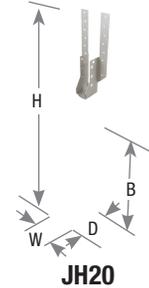
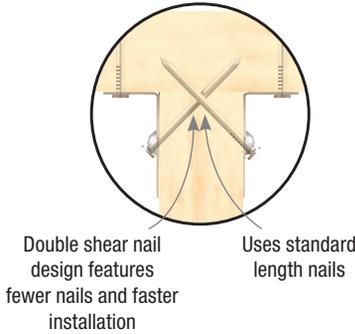
**Materials:** 18 gauge

**Finish:** G90 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Joist nails must be driven at a 30° to 45° angle through the joist or truss into the header to achieve listed loads. **Standard length “double shear” nails must be used to achieve listed load values.**
- If installing in top mount configuration, field bend top flange over header.
- 16d sinkers (0.148" dia x 3-1/4") may be used where 10d common are specified with no load reduction.



USP Stock No.	Ref. No.	Ga.	Dimensions (in)					Header Size	Fastener Schedule <sup>2,3</sup>					Unit	DF Factored Resistance		S-P-F Factored Resistance	
			W	H	D	B	TF		Header		Joist				100%	115%	100%	115%
									Top Qty	Face Qty	Type	Qty	Type					
			Lbs	kN	Lbs	kN	Lbs		kN	Lbs	kN	Lbs	kN		Lbs	kN	Lbs	kN
JH20	--	18	1-9/16	10-1/16	2-1/4	5-1/8	1-3/16	2 x 6	2	4	10d	6	10d	Lbs	4750	2415	3730	1900
														kN	21.13	10.74	16.59	8.45
							1-7/16	2 x 8	2	8	10d	6	10d	Lbs	4750	2415	3730	1900
														kN	21.13	10.74	16.59	8.45
							7/16	2 x 10	2	12	10d	6	10d	Lbs	4750	2415	3730	1900
														kN	21.13	10.74	16.59	8.45
							--	2 x 12	--	14	10d	6	10d	Lbs	4750	2415	3730	1900
														kN	21.13	10.74	16.59	8.45

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) Nails must be driven at a 30° to 45° angle through the joist or truss into header to achieve the table loads.  
 3) **NAILS:** 10d nails are 0.148" dia. x 3" long. 16d sinkers (0.148" dia. x 3-1/4" long) may be used where 10d commons are specified with no reduction in load. New products or updated product information are designated in **blue font**.

# LS Light Slope Rafter Hangers

A field-adjustable seat gives the LS hanger application flexibility. The LS hanger slopes from 0° to 30° down (0 to 7:12 pitch down).

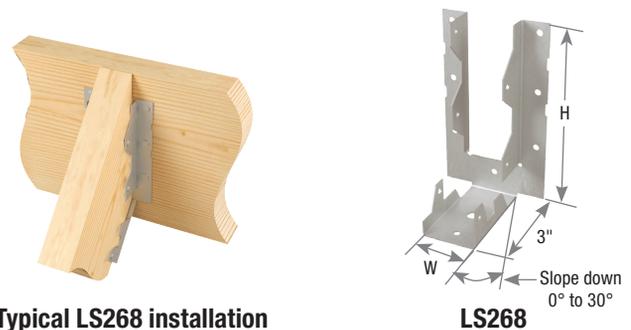
**Materials:** 18 gauge

**Finish:** G90 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- The LS can be field adjusted to slopes from 0° to 30° down.



USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule <sup>2</sup>				DF Factored Resistance				S-P-F Factored Resistance			
			W	H	Header		Joist		Lbs		kN		Lbs		kN	
					Qty	Type	Qty	Type	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
			Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%						
LS268	-- --	18	1-9/16	5-1/2	7	16d	7	10d x 1-1/2	1860	1270	8.27	5.65	1460	1000	6.49	4.45
LS210	-- --	18	1-9/16	7-7/8	9	16d	9	10d x 1-1/2	2245	1950	9.99	8.67	1760	1530	7.83	6.81

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 16d nails are 0.162" dia. x 3-1/2" long. New products or updated product information are designated in **blue font**.

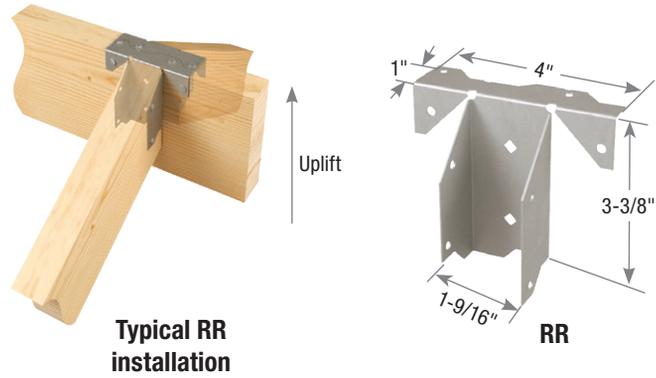
# RR Ridge Rafter Hanger

The RR Ridge Rafter supports rafter pitches up to 7:12 (30°). Nesting top flange for installation on 2x support beams.

**Materials:** 18 gauge  
**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- The rafter end at the ridge must be plumb cut to achieve published loads.
- Optional diamond nail holes can be used to fasten RR to end of rafter before setting rafter into place.



USP Stock No.	Ref. No.	Steel Gauge	Min Rafter Size	Fastener Schedule <sup>2</sup>				Unit	DF		S-P-F	
				Header		Rafter			Factored Resistance <sup>1</sup>		Factored Resistance <sup>1</sup>	
				Qty	Type	Qty	Type		Download 100%	Uplift 115%	Download 100%	Uplift 115%
RR	RR	18	2 x 6	4	10d x 1-1/2	4	10d x 1-1/2	Lbs	590	380	465	300
								kN	2.67	1.80	1.89	1.29
				4	LL915	4	LL915	Lbs	705	345	500	245
								kN	3.14	1.53	2.22	1.09

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) Nails: 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, LL915 denotes a USP LumberLok Screw, #9 x 1-3/8" long. New products or updated product information are designated in blue font.

# LSSH Slope/Skew Hangers

The LSSH series connects rafters to ridge beams in vaulted roof structures. This series is field adjustable to meet a variety of skew and/or slope applications. Slopes and skews 0° to 45°.

**Materials:** See chart  
**Finish:** G90 galvanizing; LSSH15-TZ – G-185 Galvanizing  
**Options:** See Chart for Corrosion Finish Options  
**Codes:** Factored resistances are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.

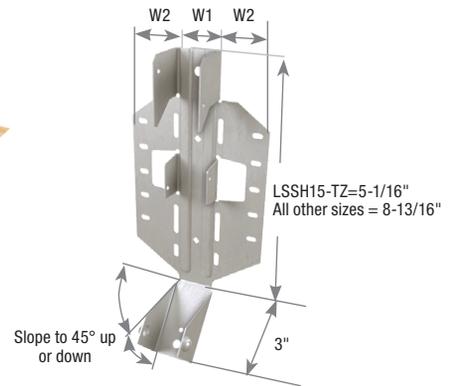
**Steps:**

1. Position LSSH connector against plumb-cut end of joist. Fasten joist side flanges on both sides with 10d (0.148") x 1-1/2" nails. Bend seat up to fit against joist bottom and drive (1) 10d (0.148") x 1-1/2" nail through bottom seat into rafter bottom. Drive (2) 10d (0.148") x 1-1/2" nails at downward angle through dimpled nailing guides.
2. Lean connector and rafter end against ridge beam at desired position. Install specified 10d (0.148" x 3") or 16d (0.162" x 3-1/2") nails through nail holes into ridge beam at right 90° angle. If skewing the rafter, only drive nails into ridge beam on inside flange.
3. Bend flange to desired angle.
4. Hammer outside flange until edge touches header. Fasten outside flange to ridge by driving specified 10d (0.148" x 3") or 16d (0.162" x 3-1/2") nails through nail holes.

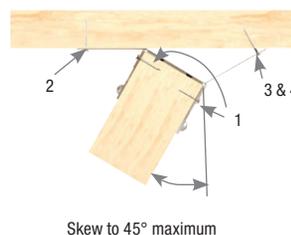
- Web stiffeners are required for all wood I-Joist installations.
- Designer may consider adding a tension restraint for the supported member for roof slopes exceeding 6/12. Refer to pages 86-87.



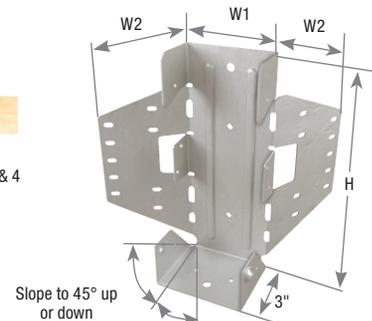
Typical LSSH179 installation



LSSH210



LSSH35



Rafter Width (in)	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2</sup>				DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish
				W1	W2	H	Header		Rafter		Lbs		kN		Lbs		kN		
							Qty	Type	Qty	Type	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	
<b>SLOPED ONLY HANGERS</b>																			
1-1/2	LSSH15-TZ	LSU26, LSU26Z, LSSU28, LSSU28Z	18	1-9/16	1-3/4	5-1/16	6	10d HDG	7	10d x 1-1/2 HDG	1590	1175	7.07	5.23	1250	925	5.56	4.11	Blue
1-1/2	LSSH210	LSSU210	18	1-9/16	1-3/4	8-13/16	10	10d	7	10d x 1-1/2	2685	1695	11.94	7.54	2110	1330	9.39	5.92	Blue
1-3/4	LSSH179	LSSU125	18	1-13/16	1-5/8	8-13/16	10	10d	7	10d x 1-1/2	2685	1695	11.94	7.54	2110	1330	9.39	5.92	Blue
2 - 2-1/8	LSSH20	LSSU12.06, LSSU2.1	18	2-1/8	2-1/2	8-13/16	10	10d	7	10d x 1-1/2	2535	1555	11.28	6.92	1990	1220	8.85	5.43	Blue
2-1/4 - 2-5/16	LSSH23	LSSU135	18	2-5/16	2-3/8	8-13/16	10	10d	7	10d x 1-1/2	2535	1555	11.28	6.92	1990	1220	8.85	5.43	Blue
2-1/2	LSSH25	LSSUH310	16	2-9/16	2-3/4	8-13/16	18	16d	12	10d x 1-1/2	4125	1895	18.35	8.43	3240	1490	14.41	6.63	Blue
2-5/8	LSSH26	--	16	2-11/16	2-5/8	8-13/16	18	16d	12	10d x 1-1/2	4125	1895	18.35	8.43	3240	1490	14.41	6.63	Blue
3	LSSH31	LSSU210-2	16	3-1/8	3-3/4	8-13/16	18	16d	12	10d x 1-1/2	5065	2515	22.53	11.19	3980	1975	17.70	8.79	Blue
3-1/2	LSSH35	LSSU410	16	3-9/16	3-1/2	8-13/16	18	16d	12	10d x 1-1/2	5065	2515	22.53	11.19	3980	1975	17.70	8.79	Blue
<b>SKEWED HANGERS or SLOPED &amp; SKEWED HANGERS</b>																			
1-1/2	LSSH15-TZ	LSU26, LSU26Z, LSSU28, LSSU28Z	18	1-9/16	1-3/4	5-1/16	6	10d HDG	7	10d x 1-1/2 HDG	1295	1175	5.76	5.23	1015	925	4.51	4.11	Blue
1-1/2	LSSH210	LSSU210	18	1-9/16	1-3/4	8-13/16	10	10d	7	10d x 1-1/2	2685	1695	11.94	7.54	2110	1330	9.39	5.92	Blue
1-3/4	LSSH179	LSSU125	18	1-13/16	1-5/8	8-13/16	10	10d	7	10d x 1-1/2	2685	1695	11.94	7.54	2110	1330	9.39	5.92	Blue
2 - 2-1/8	LSSH20	LSSU12.06, LSSU2.1	18	2-1/8	2-1/2	8-13/16	10	10d	7	10d x 1-1/2	2535	1555	11.28	6.92	1990	1220	8.85	5.43	Blue
2-1/4 - 2-5/16	LSSH23	LSSU135	18	2-5/16	2-3/8	8-13/16	10	10d	7	10d x 1-1/2	2535	1555	11.28	6.92	1990	1220	8.85	5.43	Blue
2-1/2	LSSH25	LSSUH310	16	2-9/16	2-3/4	8-13/16	14	16d	12	10d x 1-1/2	2895	1895	12.88	8.43	2270	1490	10.10	6.63	Blue
2-5/8	LSSH26	--	16	2-11/16	2-5/8	8-13/16	14	16d	12	10d x 1-1/2	2895	1895	12.88	8.43	2270	1490	10.10	6.63	Blue
3	LSSH31	LSSU210-2	16	3-1/8	3-3/4	8-13/16	14	16d	12	10d x 1-1/2	3045	2515	13.55	11.19	2390	1975	10.63	8.79	Blue
3-1/2	LSSH35	LSSU410	16	3-9/16	3-1/2	8-13/16	14	16d	12	10d x 1-1/2	3045	2515	13.55	11.19	2390	1975	10.63	8.79	Blue

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.  
New products or updated product information are designated in **blue font**.

**Corrosion Finish**  
■ Stainless Steel ■ Gold Coat  
■ HDG ■ Triple Zinc

## SKH / SKHH Skewed 45° Hangers

**SKH** – Standard 45° skew hanger allows for a 40° to 50° skew range, without hanger modification.

**SKHH** – For heavier applications.

**Materials:** 14 or 16 gauge

**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

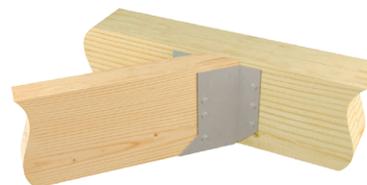
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- The hangers listed are for standard sizes and will accommodate a 40° to 50° skew range.
- Most sizes do not require a bevel cut for installation. Refer to chart footnote identified with an asterisk.
- Illustrations show left and right skews. (SKH\_L = skewed left; SKH\_R = skewed right)
- For I-Joist installations, web stiffeners are required.
- Refer to illustration for staggered I-Joist application for double 2", 2-5/16", and 2-1/2" models.
- For double I-Joist installations, web stiffeners between I-Joists are required.



**SKH26R**  
right skew

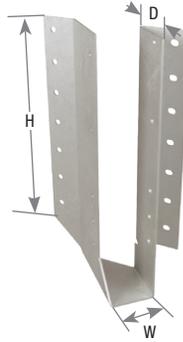


**SKH26L**  
left skew

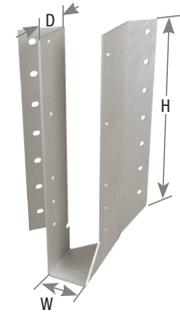


Typical SKH26L installation  
left skew

AVAILABLE IN  
**GOLD COAT**



SKH210R



SKH210L



Right skew

Left skew

Beam / Joist Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2</sup>				DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish
				W	H	D	Header		Joist		Lbs		kN		Lbs		kN		
							Qty	Type	Qty	Type	100%	Uplift <sup>1</sup>	100%	Uplift <sup>1</sup>	100%	Uplift <sup>1</sup>	100%	Uplift <sup>1</sup>	
2 x 4	SKH24L/R	SUR/L24	16	1-9/16	3-1/4	1-7/8	4	16d	4	10d x 1-1/2	805	1030	3.58	4.58	635	810	2.82	3.60	
2 x 6-8	SKH26L/R	SUR/L26	16	1-9/16	5-1/4	1-7/8	6	16d	6	10d x 1-1/2	1415	2480	6.29	11.03	1110	1945	4.94	8.65	
	SKHH26L/R	--	14	1-5/8	5-1/8	3-1/4	18	16d	12	10d x 1-1/2	3040	1615	13.52	7.18	2495	1285	11.10	5.72	
2 x 8-12	SKH28L/R	--	16	1-9/16	7-1/4	1-7/8	10	16d	8	10d x 1-1/2	2325	2480	10.34	11.03	1825	1945	8.12	8.65	
	SKHH28L/R	--	14	1-5/8	7	3-1/4	26	16d	16	10d x 1-1/2	4280	2225	19.04	9.90	3365	1745	14.97	7.76	
2 x 10-14	SKH210L/R	SUR/L210, SUR/L214	16	1-9/16	9-1/4	1-7/8	14	16d	10	10d x 1-1/2	2845	2855	12.66	12.70	2230	2240	9.92	9.96	
	SKHH210L/R	--	14	1-5/8	9	4-1/4	34	16d	20	10d x 1-1/2	4505	2780	20.04	12.37	3655	2180	16.26	9.70	
1-3/4 x 9-1/4 - 14	SKH1720L/R	SUR/L1.81/9	16	1-13/16	9-1/8	1-7/8	14	10d	10	10d x 1-1/2	3440	2855	15.30	12.70	2700	2240	12.01	9.96	
1-3/4 x 11-1/4 - 18	SKH1724L/R	SUR/L1.81/11, SUR/L1.81/14	16	1-13/16	11-1/8	1-7/8	16	10d	10	10d x 1-1/2	4640	2855	20.64	12.70	3645	2240	16.21	9.96	
2 - 2-1/8 x 9-1/4 - 14	SKH2020L/R	SUR/L2.06/9, SUR/L2.1/9	16	2-1/8	9	1-7/8	14	10d	10	10d x 1-1/2	3440	2855	15.30	12.70	2700	2240	12.01	9.96	
2 - 2-1/8 x 11-1/4 - 18	SKH2024L/R	SUR/L2.06/11, SUR/L2.1/11	16	2-1/8	11	1-7/8	16	10d	10	10d x 1-1/2	4640	2855	20.64	12.70	3645	2240	16.21	9.96	
2-1/4 - 2-5/16 x 9-1/4 - 14	SKH2320L/R	SUR/L2.37/9	16	2-3/8	8-7/8	1-7/8	14	10d	10	10d x 1-1/2	3440	2855	15.30	12.70	2700	2240	12.01	9.96	
2-1/4 - 2-5/16 x 11-1/4 - 18	SKH2324L/R	SUR/L2.37/11, SUR/L2.37/14	16	2-3/8	10-7/8	1-7/8	16	10d	10	10d x 1-1/2	4640	2855	20.64	12.70	3645	2240	16.21	9.96	
3 x 6-8	SKH36L/R	--	16	2-9/16	4-3/4	1-3/8	6	16d	6	10d x 1-1/2	1590	2855	7.07	12.70	1250	2240	5.56	9.96	
3 x 8-12	SKH38L/R	--	16	2-9/16	6-3/4	1-3/8	10	16d	8	10d x 1-1/2	2515	2855	11.19	12.70	1970	2240	8.76	9.96	
3 x 10-14	SKH310L/R	--	16	2-9/16	8-3/4	1-3/8	14	16d	10	10d x 1-1/2	3465	2855	15.41	12.70	2720	2240	12.10	9.96	
3 x 12 - 14 - 16	SKH312L/R	--	16	2-9/16	10-3/4	1-3/8	16	16d	10	10d x 1-1/2	3890	2855	17.30	12.70	3055	2240	13.59	9.96	
2-1/2 x 9-1/4 - 14	SKH2520L/R	SUR/L2.56/9	16	2-9/16	8-5/8	1-7/8	14	10d	10	10d x 1-1/2	3440	2855	15.30	12.70	2700	2240	12.01	9.96	
2-1/2 x 11-1/4 - 16	SKH2524L/R	SUR/L2.56/11, SUR/L2.56/14	16	2-9/16	10-3/4	1-7/8	16	10d	10	10d x 1-1/2	4640	2855	20.64	12.70	3645	2240	16.21	9.96	
2-5/8 x 9-1/4 - 14	SKH2620L/R	--	16	2-11/16	8-11/16	1-7/8	14	10d	10	10d x 1-1/2	3440	2855	15.30	12.70	2700	2240	12.01	9.96	
2-5/8 x 11-1/4 - 16	SKH2624L/R	--	16	2-11/16	10-11/16	1-7/8	16	10d	10	10d x 1-1/2	4640	2855	20.64	12.70	3645	2240	16.21	9.96	
(2) 2 x 6-8	SKH26L/R-2 *	SUR/L26-2	16	3-1/16	4-1/2	1-3/8	6	16d	6	10d	1760	2480	7.83	11.03	1380	1945	6.14	8.65	
	SKHH26L/R-2	HSUR/L26-2	14	3-1/16	5-1/4	2	12	16d	4	16d x 2-1/2	2895	1615	12.88	7.18	2270	1285	10.10	5.72	
	SKHH26L/R-2IF	HSUR/LC26-2	14	3-1/16	5-1/4	2	12	16d	4	16d x 2-1/2	2895	1615	12.88	7.18	2270	1285	10.10	5.72	
(2) 2 x 8-12	SKH28L/R-2 *	--	16	3-1/16	6-1/2	1-3/8	10	16d	8	10d	3900	2480	17.35	11.03	3060	1945	13.61	8.65	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.  
 \* Bevel cut required on end of joist to achieve design loads.  
 New products or updated product information are designated in **blue font**.

**Corrosion Finish**  
 ■ Stainless Steel ■ Gold Coat  
 ■ HDG ■ Triple Zinc

Beam / Joist Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2</sup>				DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish
				W	H	D	Header		Joist		Lbs		kN		Lbs		kN		
							Qty	Type	Qty	Type	100%	Uplift <sup>1</sup>	100%	Uplift <sup>1</sup>	100%	Uplift <sup>1</sup>	100%	Uplift <sup>1</sup>	
(2) 2 x 10-14	SKH210L/R-2 *	SUR/L210-2	16	3-1/16	8-1/2	1-3/8	14	16d	10	10d	4960	2855	22.06	12.70	3895	2240	17.33	9.96	Green
	SKHH210L/R-2	HSUR/L210-2, HSUR/L214-2	14	3-1/16	8-1/2	2	20	16d	6	16d x 2-1/2	5350	3800	23.80	16.90	4200	2985	18.68	13.28	Green
(2) 2 x 12-16	SKH212L/R-2 *	SUR/L214-2	16	3-1/16	10-1/2	1-3/8	16	16d	10	10d	4825	2855	21.46	12.70	3790	2240	16.86	9.96	Green
3-1/2 x 8-14	SKH410L/R *	SUR/L410	14	3-9/16	8-1/2	2-1/2	16	16d	10	16d	4130	2855	18.37	12.70	3240	2240	14.41	9.96	Green
3-1/2 x 12-18	SKH414L/R *	SUR/L414	14	3-9/16	12-1/2	2-1/2	22	16d	10	16d	8720	2855	38.79	12.70	6845	2240	30.45	9.96	Green
	SKH46L/R *	SUR/L46	14	3-9/16	4-3/4	2-1/2	10	16d	6	16d	2520	2480	11.21	11.03	1980	1945	8.81	8.65	Green
4 x 6-8	SKHH46L/R	HSUR/L46	14	3-9/16	5-1/4	2-1/2	12	16d	6	16d	2895	1615	12.88	7.18	2270	1285	10.10	5.72	Green
	SKHH46L/RIF	HSUR/LC46	14	3-9/16	5-1/4	2-1/2	12	16d	6	16d	2895	1615	12.88	7.18	2270	1285	10.10	5.72	Green
4 x 10-14	SKH410L/R *	SUR/L410	14	3-9/16	8-1/2	2-1/2	16	16d	10	16d	4130	2855	18.37	12.70	3240	2240	14.41	9.96	Green
	SKHH410L/R	HSUR/L410	14	3-9/16	8-1/2	2-1/2	20	16d	10	16d	5350	3800	23.80	16.90	4200	2985	18.68	13.28	Green
4 x 14-18	SKHH410L/RIF	HSUR/LC410	14	3-9/16	8-1/2	2-1/2	20	16d	10	16d	5350	3800	23.80	16.90	4200	2985	18.68	13.28	Green
	SKH414L/R *	SUR/L414	14	3-9/16	12-1/2	2-1/2	22	16d	10	16d	8720	2855	38.79	12.70	6845	2240	30.45	9.96	Green
4 x 14-18	SKHH414L/R	HSUR/L414	14	3-9/16	12-1/2	2-1/2	26	16d	10	16d	7380	3800	32.83	16.90	5790	2985	25.76	13.28	Green
	SKHH414L/RIF	HSUR/LC414	14	3-9/16	12-1/2	2-1/2	26	16d	10	16d	7380	3800	32.83	16.90	5790	2985	25.76	13.28	Green
(2) 2 - 2-1/8 x 9-1/4 - 14	SKH2020L/R-2 *	HSUR/L4.12/9, HSUR/L4.28/9	14	4-3/16	9-1/4	3-1/2	14	10d	10	10d	5320	3490	23.66	15.52	4175	2740	18.57	12.19	Blue
(2) 2 - 2-1/8 x 11-1/4 - 18	SKH2024L/R-2 *	HSUR/L4.12/11, HSUR/L4.12/14, HSUR/L4.12/16, HSUR/L4.28/11	14	4-3/16	11-1/4	3-1/2	16	10d	10	10d	4950	3485	22.02	15.50	3885	2735	17.28	12.17	Blue
(2) 2-5/16 x 9-1/4 - 14	SKH2320L/R-2 *	HSUR/L4.75/9	14	4-7/8	9-1/4	3-1/2	14	10d	10	10d	5320	3490	23.66	15.52	4175	2740	18.57	12.19	Blue
(2) 2-5/16 x 11-1/4 - 18	SKH2324L/R-2 *	HSUR/L4.75/11, HSUR/L4.75/14, HSUR/L4.75/16	14	4-7/8	11-1/4	3-1/2	16	10d	10	10d	4950	3485	22.02	15.50	3885	2735	17.28	12.17	Blue
(2) 2-1/2 x 9-1/4 - 14	SKH2520L/R-2 *	HSUR/L5.12/9	14	5-1/8	9-1/4	3-1/2	14	10d	10	10d	5320	3490	23.66	15.52	4175	2740	18.57	12.19	Blue
(2) 2-1/2 x 11-1/4 - 16	SKH2524L/R-2 *	HSUR/L5.12/11, HSUR/L5.12/14, HSUR/L5.12/16	14	5-1/8	11-1/4	3-1/2	16	10d	10	10d	4950	3485	22.02	15.50	3885	2735	17.28	12.17	Blue

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) **NAILS:** 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long, 16d x 2-1/2 nails 0.162" dia. x 2-1/2" long.  
 \* Bevel cut required on end of joist to achieve design loads.  
 New products or updated product information are designated in **blue font**.

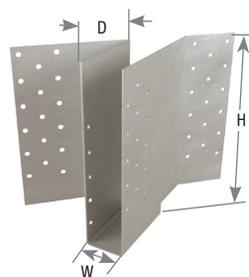
**Corrosion Finish**

- Stainless Steel
- Gold Coat
- HDG
- Triple Zinc

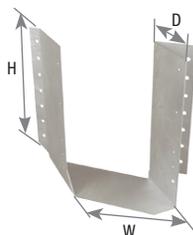
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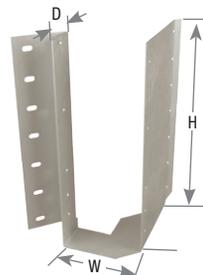
**Typical SKH2520R-2 staggered I-joist installation right skew**



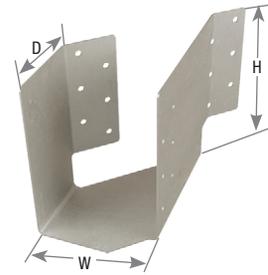
**SKHH210L**



**SKH2520R-2**



**SKHH210L-2**



**SKHH46LIF**

Hangers

**Materials:** 20 gauge

**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

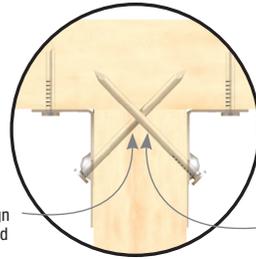
- Use all specified fasteners. See Product Notes, page 15.
- Diamond holes allow optional header nailing.
- Joist nails must be driven at a 30° to 45° angle through the purlin into the header to achieve listed loads. **Standard length “double shear” nails must be used to achieve listed load values.**
- 16d sinkers (0.148" dia. x 3-1/4") may be used where 10d commons are specified with no load reduction.



**Typical JPF24 installation**

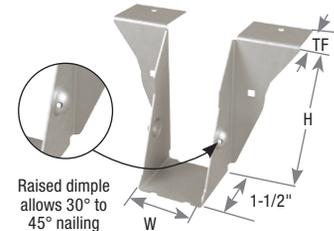


**Typical JPF24 back-to-back installation**



Double shear nail design features fewer nails and faster installation

Uses standard length nails



Raised dimple allows 30° to 45° nailing

**JPF24**

Purlin Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>3</sup>						Unit	DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish
							Header <sup>2</sup>			Joist				Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	
				Min/Max	Top Qty	Face Qty	Type	Qty	Type									
2 x 4	JPF24	PF24	20	1-9/16	3-3/8	1-1/16	Min	2	--	10d	2	10d	Lbs	1755	675	<b>1380</b>	<b>530</b>	Green
							Max	2	2	10d	2	10d	kN	7.81	3.00	<b>6.14</b>	<b>2.36</b>	
							Min	2	--	10d	2	10d	Lbs	1995	890	<b>1565</b>	<b>695</b>	
							Max	2	2	10d	2	10d	kN	8.87	3.96	<b>6.96</b>	<b>3.09</b>	
2 x 6	JPF26	PF26	20	1-9/16	5-3/8	1-1/16	Min	2	--	10d	2	10d	Lbs	1755	675	<b>1380</b>	<b>530</b>	Green
							Max	2	2	10d	2	10d	kN	7.81	3.00	<b>6.14</b>	<b>2.36</b>	
							Min	2	--	10d	2	10d	Lbs	1995	890	<b>1565</b>	<b>695</b>	
							Max	2	2	10d	2	10d	kN	8.87	3.96	<b>6.96</b>	<b>3.09</b>	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) JPF cannot be used back to back on a single ply header when optional nailing is used.

3) **NAILS:** 10d nails are 0.148" dia. x 3" long.

New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

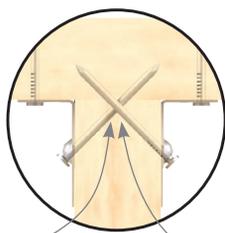
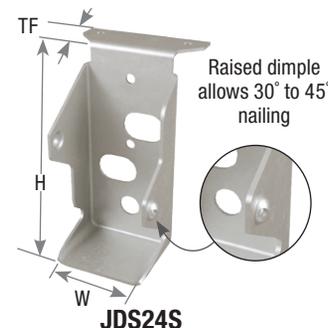
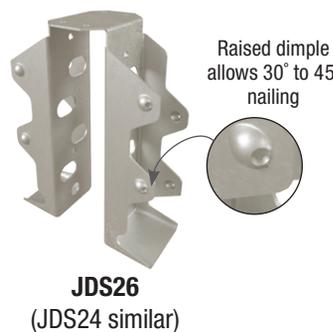
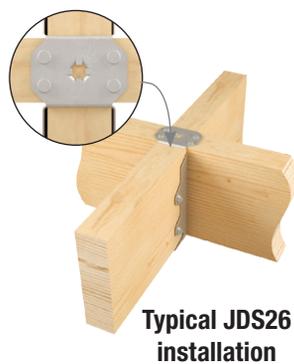
**Materials:** 18 gauge

**Finish:** G90 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

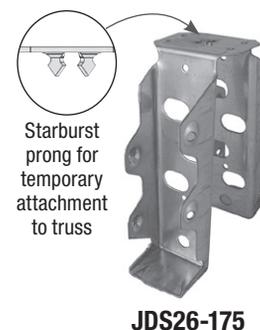
**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Joist nails must be driven at a 30° to 45° angle through the purlin into the header to achieve listed loads. **Standard length “double shear” nails must be used to achieve listed load values.**



Double shear nail design features fewer nails and faster installation

Uses standard length nails



Purlin Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2</sup>						DF		S-P-F		
				W	H	TF	Min/Max	Header		Each Purlin		Unit	Factored Resistance		Factored Resistance		
								Top Qty	Face Qty	Type	Qty		Type	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
2 x 4 single	JDS24S	PF24A	18	1-9/16	3-1/2	3/4	Min	1	2	10d x 1-1/2	2	10d x 1-1/2	Lbs	655	285	655	285
							kN	2.91	1.27	2.91	1.27	Lbs	960	655	760	535	
2 x 4 saddle	JDS24	PFD24	18	1-9/16	3-1/2	1-9/16	Min	2	4	10d x 1-1/2	2	10d x 1-1/2	Lbs	1310	570	1310	570
							kN	5.83	2.54	5.83	2.54	Lbs	1925	1305	1520	1070	
2 x 6 single	JDS26S	PF26A	18	1-9/16	5-1/2	3/4	Min	1	2	10d x 1-1/2	4	10d x 1-1/2	Lbs	785	580	785	580
							kN	3.49	2.58	3.49	2.58	Lbs	1455	780	1325	710	
2 x 6 saddle	JDS26-175	--	18	1-9/16	5-7/16	1-3/4	Min	2	4	10d x 1-1/2	4	10d x 1-1/2	Lbs	1805	1330	1750	1290
							kN	8.03	5.92	7.78	5.74	Lbs	3335	1785	2645	1415	
	Max	4	--	10d x 1-1/2	4	10d	kN	14.83	7.94	11.77	6.29						
	Min	2	4	10d x 1-1/2	4	10d x 1-1/2	Lbs	1570	1160	1570	1160						
JDS26	PFD26	18	1-9/16	5-1/2	1-9/16	Min	2	4	10d x 1-1/2	4	10d x 1-1/2	Lbs	1570	1160	1570	1160	
						kN	6.98	5.16	6.98	5.16	Lbs	2910	1555	2645	1415		
Max	4	--	10d x 1-1/2	4	10d	kN	12.94	6.92	11.77	6.29							

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.

2) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

New products or updated product information are designated in **blue font**.

**TUS** – For a single ply purlin.

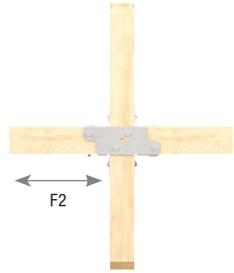
**DTUS** – For a single ply purlin with a 2-ply saddle dimension.

**Materials:** 20 gauge

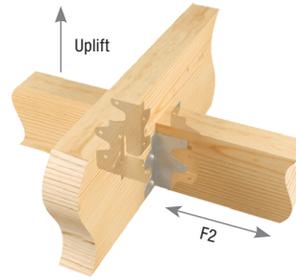
**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Attaches with standard 1-1/2" joist hanger nails that can be installed with a positive placement nail gun or be hand driven.
- Other 1-1/2" fasteners with a shear value equal or greater than a 10d nail may be used.



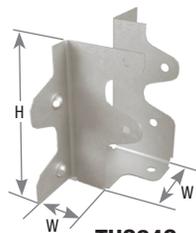
**Bottom View**



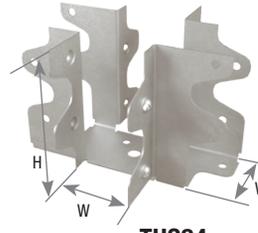
**Typical TUS24 installation**



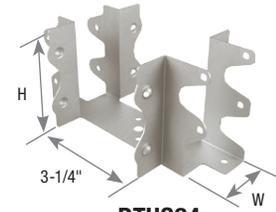
**Typical DTUS24 installation**



**TUS24S**



**TUS24**



**DTUS24**

Joist Size	USP Stock No.	Ref. No.	Ga.	Dimensions (in)		Fastener Schedule <sup>2</sup>						Unit	DF Factored Resistance			S-P-F Factored Resistance		
						Header			Joist				Download	Uplift <sup>1</sup>	F <sub>2</sub> <sup>1</sup>	Download	Uplift <sup>1</sup>	F <sub>2</sub> <sup>1</sup>
				W	H	Qty		Type	Qty		Type		100%	115%	115%	100%	115%	115%
						Face	Bottom		Face	Bottom			100%	115%	115%	100%	115%	115%
2 x 4 - 6 single	TUS24S	--	20	1-9/16	3	4	1	8d x 1-1/2	4	1	8d x 1-1/2	Lbs	980	955	385	<b>770</b>	<b>750</b>	275
											kN	4.36	4.25	1.71	<b>3.43</b>	<b>3.34</b>	1.22	
								10d x 1-1/2			Lbs	980	955	385	<b>770</b>	<b>750</b>	275	
											kN	4.36	4.25	1.71	<b>3.43</b>	<b>3.34</b>	1.22	
2 x 4 - 6 saddle	TUS24	--	20	1-9/16	3	4	1	8d x 1-1/2	4	1	8d x 1-1/2	Lbs	980	955	1120	<b>770</b>	<b>750</b>	795
											kN	4.36	4.25	4.98	<b>3.43</b>	<b>3.34</b>	3.54	
								10d x 1-1/2			Lbs	980	955	1120	<b>770</b>	<b>750</b>	795	
											kN	4.36	4.25	4.98	<b>3.43</b>	<b>3.34</b>	3.54	
2 x 4 - 6 saddle	DTUS24	--	20	1-9/16	3	4	1	8d x 1-1/2	4	1	8d x 1-1/2	Lbs	980	955	1120	<b>770</b>	<b>750</b>	795
											kN	4.36	4.25	4.98	<b>3.43</b>	<b>3.34</b>	3.54	
								10d x 1-1/2			Lbs	980	955	1120	<b>770</b>	<b>750</b>	795	
											kN	4.36	4.25	4.98	<b>3.43</b>	<b>3.34</b>	3.54	
2 x 4 - 6 saddle	DTUS24	--	20	1-9/16	3	4	1	LL915	4	1	LL915	Lbs	980	955	1120	<b>770</b>	<b>750</b>	795
											kN	4.36	4.25	4.98	<b>3.43</b>	<b>3.34</b>	3.54	

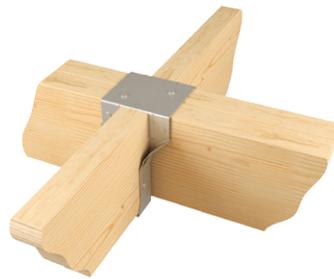
1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) **NAILS:** 8d x 1-1/2" nails are 0.131" dia. x 1-1/2" long, 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, LL915 screws are #9 (0.131" dia.) x 1-1/2" long.  
 New products or updated product information are designated in **blue font**.

The FHD26 hanger straddles the header and receives a joist from both sides.

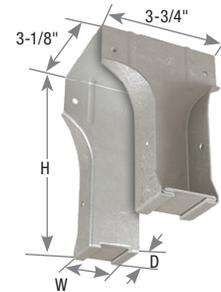
**Materials:** 18 gauge  
**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- In panelized construction, installers are allowed to nail through both the sheathing and the hanger top flange with (1) 10d nail. The nail should be centered in the top flange and be no closer than 1/4" from the back or front edge of the top flange.



**Typical FHD26 installation**



**FHD26**

Joist Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>3</sup>					Unit	DF Factored Resistance <sup>1</sup>		S-P-F Factored Resistance <sup>1</sup>	
				W	H	D	Header		Joist				Vertical 100%	Uplift 115% <sup>2</sup>	Vertical 100%	Uplift 115% <sup>2</sup>
							Top Qty	Face Qty	Type	Qty	Type					
2 x 6	FHD26	PFDS24	18	1-9/16	5-3/8	1-1/2	2	2	16d	2	10d x 1-1/2	Lbs	1575	335	<b>1235</b>	<b>260</b>
												kN	7.01	1.49	<b>5.49</b>	<b>1.16</b>

1) Loads listed are per side.  
 2) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 16d nails are 0.162" dia. x 3-1/2" long.  
 10d x 1-1/2 nails may be substituted for 16d header nails with a maximum load of 960 lbs.  
 New products or updated product information are designated in **blue font**.

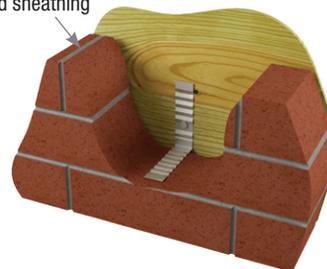
**WT** Wall Ties

**Materials:** 22 gauge  
**Finish:** G90 galvanizing; WT22B-HDG – Hot-dip galvanized  
**Options:** See chart for Corrosion Finish options

**Installation:**

- Use nails appropriate for intended use. See Product Notes, page 15.
- The opposite end must be bonded in the mortar joint of brick facade.
- Check local codes for spacing requirements.
- Meets prescriptive requirements of CSA A370 for corrugated strip ties.

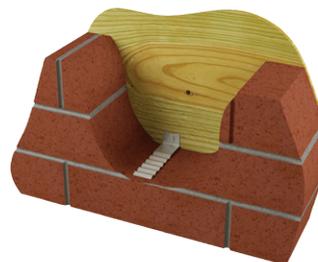
1" space between brick and sheathing



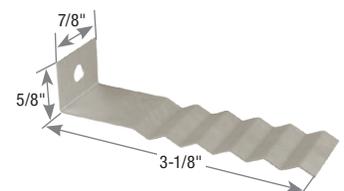
**Typical WT17HD/WT22 installation**



**WT17HD/WT22**



**Typical WT22B-HDG installation**



**WT22B-HDG**

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>2</sup>		Corrosion Finish
			Qty	Type	
WT17HD	-- --	22	2	10d	
WT22 <sup>1</sup>	BTB	22	2	10d	
<b>WT22B-HDG</b>	-- --	22	1	#10 HDG wood screw	

1) WT22 is bulk packed in 500 pieces.  
 2) **NAILS:** 10d nails are 0.148" dia. x 3" long.  
 New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

# HWUH Heavy-Duty Welded Universal Hangers

Versatile heavy-duty top flange hanger attaches to both wood and masonry. Unique design allows builders to use one style hanger on the job when the structure has a variety of support materials.

**Materials:** Top Flange – 1/4" steel; Stirrup – 7 gauge

**Finish:** USP primer

**Installation:**

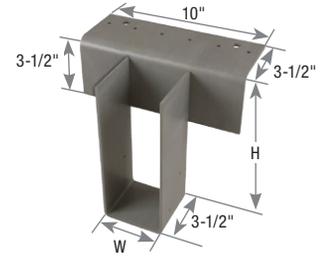
- Use all specified fasteners. See Product Notes, page 15.
- NA21 nails are included with hangers where specified.
- **NA21 nails are not recommended for use with LVL, PSL, or LSL headers.**
- Masonry design load values apply to both solid concrete tie beams and grout-filled CMU walls.
- Alternate installation – Use (2) 1/2" x 4" Powers Fasteners Wedge-Bolts® or equal for loads up to 3455 lbs. when attaching to CMU. Loads shall not exceed table loads.



**Typical HWUH410 wood-to-wood installation**



**Typical HWUH410 wood-to-masonry installation**



**HWUH**

Beam/Joist Size	USP Stock No.	Ref. No.	Dimensions (in)		Install Type	Fastener Schedule <sup>2</sup>				DF Factored Resistance				S-P-F Factored Resistance			
			W	H		Header		Joist		Lbs		kN		Lbs		kN	
						Qty	Type	Qty	Type	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
2 x 4 - 6	HWUH26	--	1-5/8	5-3/8	Wood	6	10d	4	10d x 1-1/2	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d x 1-1/2	5010	2035	22.29	9.05	3930	1595	17.48	7.09
2 x 8	HWUH28	--	1-5/8	7-1/8	Wood	6	10d	4	10d x 1-1/2	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d x 1-1/2	5010	2035	22.29	9.05	3930	1595	17.48	7.09
2 x 10	HWUH210	--	1-5/8	9-1/8	Wood	6	10d	4	10d x 1-1/2	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d x 1-1/2	5010	2035	22.29	9.05	3930	1595	17.48	7.09
2 x 12	HWUH212	--	1-5/8	11	Wood	6	10d	4	10d x 1-1/2	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d x 1-1/2	5010	2035	22.29	9.05	3930	1595	17.48	7.09
2 x 14	HWUH214	--	1-5/8	13	Wood	6	10d	4	10d x 1-1/2	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d x 1-1/2	5010	2035	22.29	9.05	3930	1595	17.48	7.09
2 x 16	HWUH216	--	1-5/8	16	Wood	6	10d	4	10d x 1-1/2	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d x 1-1/2	5010	2035	22.29	9.05	3930	1595	17.48	7.09
3 x 6	HWUH36	--	2-5/8	5-3/8	Wood	6	10d	4	10d	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	3930	1595	17.48	7.09
3 x 8	HWUH38	--	2-5/8	7-1/8	Wood	6	10d	4	10d	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	3930	1595	17.48	7.09
3 x 10	HWUH310	--	2-5/8	9-1/8	Wood	6	10d	4	10d	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	3930	1595	17.48	7.09
3 x 12	HWUH312	--	2-5/8	11	Wood	6	10d	4	10d	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	3930	1595	17.48	7.09
3 x 14	HWUH314	--	2-5/8	13	Wood	6	10d	4	10d	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	3930	1595	17.48	7.09
3 x 16	HWUH316	--	2-5/8	16	Wood	6	10d	4	10d	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	3930	1595	17.48	7.09
(2) 2 x 6	HWUH26-2	--	3-1/8	5-3/8	Wood	6	10d	4	10d	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	3930	1595	17.48	7.09
(2) 2 x 8	HWUH28-2	--	3-1/8	7-1/8	Wood	6	10d	4	10d	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	3930	1595	17.48	7.09
(2) 2 x 10	HWUH210-2	--	3-1/8	9-1/8	Wood	6	10d	4	10d	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	3930	1595	17.48	7.09
(2) 2 x 12	HWUH212-2	--	3-1/8	11	Wood	6	10d	4	10d	6700	995	29.80	4.43	5260	780	23.40	3.47
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	3930	1595	17.48	7.09

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.

2) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

New products or updated product information are designated in **blue font**.

Beam/ Joist Size	USP Stock No.	Ref. No.	Dimensions (in)		Install Type	Fastener Schedule <sup>2</sup>				DF Factored Resistance				S-P-F Factored Resistance			
			W	H		Header		Joist		Lbs		kN		Lbs		kN	
						Qty	Type	Qty	Type	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
(2) 2 x 14	HWUH214-2	--	3-1/8	13	Wood	6	10d	4	10d	6700	<b>995</b>	29.80	<b>4.43</b>	<b>5260</b>	<b>780</b>	<b>23.40</b>	<b>3.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
(2) 2 x 16	HWUH216-2	--	3-1/8	16	Wood	6	10d	4	10d	6700	<b>995</b>	29.80	<b>4.43</b>	<b>5260</b>	<b>780</b>	<b>23.40</b>	<b>3.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
4 x 6	HWUH46	--	3-9/16	5-3/8	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
4 x 8	HWUH48	--	3-9/16	7-1/8	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
4 x 10	HWUH410	--	3-9/16	9-1/8	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
4 x 12	HWUH412	--	3-9/16	11	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
4 x 14	HWUH414	--	3-9/16	13	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
4 x 16	HWUH416	--	3-9/16	16	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
6 x 6	HWUH66	--	5-1/2	5-3/8	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
6 x 8	HWUH68	--	5-1/2	7-1/8	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
6 x 10	HWUH610	--	5-1/2	9-1/8	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
6 x 12	HWUH612	--	5-1/2	11	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
6 x 14	HWUH614	--	5-1/2	13	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
6 x 16	HWUH616	--	5-1/2	16	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
8 x 6	HWUH86	--	7-1/2	5-3/8	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
8 x 8	HWUH88	--	7-1/2	7-1/8	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
8 x 10	HWUH810	--	7-1/2	9-1/8	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
8 x 12	HWUH812	--	7-1/2	11	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
8 x 14	HWUH814	--	7-1/2	13	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>
8 x 16	HWUH816	--	7-1/2	16	Wood	6	NA21	4	10d	8625	<b>705</b>	38.37	<b>3.14</b>	<b>6775</b>	<b>555</b>	<b>30.14</b>	<b>2.47</b>
					Masonry	2	1/2"x6" J-Bolt	4	10d	5010	2035	22.29	9.05	<b>3930</b>	<b>1595</b>	<b>17.48</b>	<b>7.09</b>

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) **NAILS:** 10d nails are 0.148" dia. x 3" long, NA21 nails are 0.192" dia. x 1-3/4" long and are included with 4x, 6x, and 8x HWUH hangers.  
 New products or updated product information are designated in **blue font**.

**Specialty Options Chart**

Refer to Specialty Options pages 220, 222-223 for additional details.

Option	Skewed <sup>1,3</sup>	Sloped Seat <sup>2</sup>	Sloped / Skewed <sup>1,2,3</sup>	Top Flange Offset	Saddle	
Range	1° to 45°	1° to 45°	See Sloped Seat and Skewed	-- --	-- --	
Factored Resistance	100% of table load	100% of table load	100% of table load	Hanger Width 3-1/2" or less 3-9/16" to 5-1/2" 5-9/16" to 7-1/2"	% of table load: 60% 75% 85%	100% of table load per side
Ordering	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and <b>square cut (<i>SQ</i>) or bevel cut (<i>BL</i>)</b> to product number. Ex. HWUH410_SK45R_SQ	Add <i>SL</i> , slope required, and up ( <i>U</i> ) or down ( <i>D</i> ), to product number. Ex. HWUH410_SL30D	See Sloped Seat and Skewed. Ex. HWUH410_SK45R_SQ_SL30D	Add <i>OS</i> , and right ( <i>R</i> ) or left ( <i>L</i> ), to product number. Ex. HWUH410_OL	Add <i>SA</i> , and saddle width required to product number. Ex. HWUH410_SA=5-1/2"	

1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.  
 2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.  
 3) **For skewed hangers, the required cut type (square or bevel) of joist member may vary based on skew angle and width of hanger. Some square cut hangers will require custom pricing due to welded back plate.**  
 New products or updated product information are designated in **blue font**.

These hangers are designed to support standard lumber joists, I-Joists, or beams. Easy installation into concrete block walls makes the MPH an attractive alternative to fabricating seats in masonry (or attaching ledgers) to support joists or beams.

**Materials:** 12 gauge

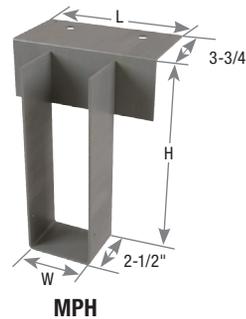
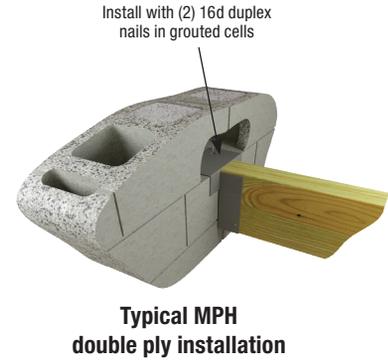
**Finish:** USP primer

**Options:** All nominal lumber sizes are available for rough full size lumber. See Specialty Options Chart on page 123.

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- 16d duplex nails are not supplied with MPH hangers.
- Place hanger into position on top of concrete block. Install (2) 16d duplex nails (0.162" dia. x 3-1/2" double head) through the top flange nail holes. Then continue laying the next course of block.
- A minimum of one course shall be laid over hanger top flange and one course below hanger top flange. Courses adjacent to the top flange shall be subsequently grouted.
- **These products do not provide uplift resistance.**



Beam/ Joist Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>3</sup>				DF		S-P-F	
				W	H <sup>2</sup>	L	Block		Joist		Factored Resistance <sup>1</sup>		Factored Resistance <sup>1</sup>	
							Qty	Type	Qty	Type	Vertical 100%	Vertical 100%	Lbs	kN
<b>Standard Lumber Sizes</b>														
2 x 10	MPH210	WM210	12	1-9/16	9-1/4	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
2 x 12	MPH212	WM212	12	1-9/16	11-1/4	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
2 x 14	MPH214	WM214	12	1-9/16	13-1/8	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
2 x 16	MPH216	WM216	12	1-9/16	15-1/8	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
(2) 2 x 10	MPH210-2	WM210-2	12	3-1/8	9-1/4	7	2	16d duplex	2	10d	6215	27.65	4880	21.71
(2) 2 x 12	MPH212-2	WM212-2	12	3-1/8	11-1/4	7	2	16d duplex	2	10d	6215	27.65	4880	21.71
(2) 2 x 14	MPH214-2	WM214-2	12	3-1/8	13-1/8	7	2	16d duplex	2	10d	6215	27.65	4880	21.71
(2) 2 x 16	MPH216-2	WM216-2	12	3-1/8	15-1/8	7	2	16d duplex	2	10d	6215	27.65	4880	21.71
3 x 10	MPH310	WM310	12	2-9/16	9-1/4	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
3 x 12	MPH312	WM312	12	2-9/16	11-1/4	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
3 x 14	MPH314	WM314	12	2-9/16	13-1/8	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
3 x 16	MPH316	WM316	12	2-9/16	15-1/8	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
4 x 10	MPH410	WM410	12	3-9/16	9-1/4	7	2	16d duplex	2	10d	6215	27.65	4880	21.71
4 x 12	MPH412	WM412	12	3-9/16	11-1/4	7	2	16d duplex	2	10d	6215	27.65	4880	21.71
4 x 14	MPH414	WM414	12	3-9/16	13-1/8	7	2	16d duplex	2	10d	6215	27.65	4880	21.71
4 x 16	MPH416	WM416	12	3-9/16	15-1/8	7	2	16d duplex	2	10d	6215	27.65	4880	21.71
6 x 10	MPH610	WM610	12	5-9/16	9-1/4	7	2	16d duplex	2	10d	6215	27.65	4880	21.71
<b>Engineered Lumber Sizes</b>														
1-1/2 x 9-1/4	MPH210	WM29.25	12	1-9/16	9-1/4	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
1-1/2 x 9-1/2	MPH1595	WM29.5	12	1-9/16	9-1/2	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
1-1/2 x 11-1/4	MPH212	WM211.25	12	1-9/16	11-1/4	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
1-1/2 x 11-7/8	MPH15118	WM211.88	12	1-9/16	11-7/8	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
1-1/2 x 14	MPH1514	---	12	1-9/16	14	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
1-3/4 x 9-1/2	MPH1795	WM9	12	1-13/16	9-1/2	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
1-3/4 x 11-7/8	MPH17118	WM11	12	1-13/16	11-7/8	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
1-3/4 x 14	MPH1714	WM14	12	1-13/16	14	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44
1-3/4 x 16	MPH1716	WM16	12	1-13/16	16	7	2	16d duplex	2	10d x 1-1/2	4705	20.93	3695	16.44

1) Masonry compressive strength shall be minimum 2,000 psi.

2) "Specify" denotes the required supported beam height that must be specified at the time of ordering.

3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d duplex nails are 0.162" dia. x 3-1/2" long, double headed nails and shall be installed in grouted cells in accordance to manufacturer's installation specifications.

Beam/ Joist Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>3</sup>				DF		S-P-F	
				W	H <sup>2</sup>	L	Block		Joist		Factored Resistance <sup>1</sup>		Factored Resistance <sup>1</sup>	
							Qty	Type	Qty	Type	Vertical 100%		Vertical 100%	
				Lbs		kN		Lbs		kN				
<b>Engineered Lumber Sizes</b>														
2-5/16 x 9-1/2	MPH2395	-- --	12	2-3/8	9-1/2	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-5/16 x 11-7/8	MPH23118	WM3511.88	12	2-3/8	11-7/8	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-5/16 x 14	MPH2314	WM3514	12	2-3/8	14	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-5/16 x 16	MPH2316	WM3516	12	2-3/8	16	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-5/16 x 18	MPH2318	WM3518	12	2-3/8	18	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-5/16 x 20	MPH2320	WM3520	12	2-3/8	20	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-1/2 x 9-1/4	MPH25925	-- --	12	2-1/2	9-1/4	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-1/2 x 9-1/2	MPH2595	-- --	12	2-1/2	9-1/2	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-1/2 x 11-1/4	MPH25112	-- --	12	2-1/2	11-1/4	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-1/2 x 11-7/8	MPH25118	-- --	12	2-1/2	11-7/8	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-1/2 x 14	MPH2514	WMI314	12	2-1/2	14	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-1/2 x 16	MPH2516	WMI316	12	2-1/2	16	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-1/2 x 18	MPH2518	WMI318	12	2-1/2	18	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-1/2 x 20	MPH2520	WMI320	12	2-1/2	20	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-1/2 x 22	MPH2522	-- --	12	2-1/2	22	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-1/2 x 24	MPH2524	-- --	12	2-1/2	24	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
2-1/2 x 26	MPH2526	-- --	12	2-1/2	26	7	2	16d duplex	2	10d x 1-1/2	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
3 x 9-1/4	MPH210-2	WM29.25-2	12	3-1/8	9-1/4	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
3 x 9-1/2	MPH1595-2	WM29.5-2	12	3-1/8	9-1/2	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
3 x 11-1/4	MPH15112-2	WM211.25-2	12	3-1/8	11-1/4	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
3 x 11-7/8	MPH15118-2	WM211.88-2	12	3-1/8	11-7/8	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
3-1/2 x 9-1/4	MPH410	WM410	12	3-9/16	9-1/4	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
3-1/2 x 9-1/2	MPH1795-2	WM3.56/9.5	12	3-5/8	9-1/2	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
3-1/2 x 11-1/4	MPH412	WM412	12	3-9/16	11-1/4	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
3-1/2 x 11-7/8	MPH17118-2	WM3.56/11.88	12	3-5/8	11-7/8	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
3-1/2 x 12	MPH3512	WMI412	12	3-1/2	12	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
3-1/2 x 14	MPH3514	WMI414	12	3-1/2	14	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
3-1/2 x 16	MPH3516	WMI416	12	3-1/2	16	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
3-1/2 x 18	MPH3518	WMI418	12	3-1/2	18	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
3-1/2 x 20	MPH3520	WMI420	12	3-1/2	20	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
4-5/8 x 11-7/8	MPH23118-2	WM3511.88-2	12	4-5/8	11-7/8	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
4-5/8 x 14	MPH2314-2	WM3514-2	12	4-5/8	14	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
4-5/8 x 16	MPH2316-2	WM3516-2	12	4-5/8	16	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
4-5/8 x 18	MPH2318-2	WM3518-2	12	4-5/8	18	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
4-5/8 x 20	MPH2320-2	WM3520-2	12	4-5/8	20	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
5-1/4 x 9-1/2	MPH5595	WM5.50/9.5	12	5-5/8	9-1/2	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
5-1/4 x 11-7/8	MPH55118	WM5.50/11.88	12	5-5/8	11-7/8	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
7 x 9-1/2	MPH3595-2	WMI49.5-2	12	7-1/8	9-1/2	8	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
7 x 11-1/4	MPH35112-2	WMI411.25-2	12	7-1/8	11-1/4	8	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
7 x 11-7/8	MPH35118-2	WMI411.88-2	12	7-1/8	11-7/8	8	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
7 x 14	MPH3514-2	WMI414-2	12	7-1/8	14	8	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
7 x 16	MPH3516-2	WMI416-2	12	7-1/8	16	8	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
7 x 18	MPH3518-2	WMI418-2	12	7-1/8	18	8	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
<b>Glulam Sizes</b>														
3-1/8 x glulam	MPH325	-- --	12	3-1/4	specify	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>
5-1/8 x glulam	MPH525	-- --	12	5-1/4	specify	7	2	16d duplex	2	10d	<b>6215</b>	<b>27.65</b>	<b>4880</b>	<b>21.71</b>

1) Masonry compressive strength shall be minimum 2,000 psi.

2) "Specify" denotes the required supported beam height that must be specified at the time of ordering.

3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d duplex nails are 0.162" dia. x 3-1/2" long, double headed nails and shall be installed in grouted cells in accordance to manufacturer's installation specifications.

New products or updated product information are designated in **blue font**.

**Specialty Options Chart**

Refer to Specialty Options pages 220, 222-223 for additional details.

Option	Skewed <sup>1,3</sup>	Sloped Seat <sup>2</sup>	Sloped / Skewed <sup>1,2,3</sup>	Top Flange Offset								
Range	1° to 60°	1° to 45°	See Sloped Seat and Skewed	-- --								
Factored Resistance	100% of table load	100% of table load	100% of table load	<table border="1"> <tr> <th>Hanger Width</th> <th>% of table load:</th> </tr> <tr> <td>3-1/2" or less</td> <td>60%</td> </tr> <tr> <td>3-9/16" to 5-1/2"</td> <td>75%</td> </tr> <tr> <td>5-9/16" to 7-1/2"</td> <td>85%</td> </tr> </table>	Hanger Width	% of table load:	3-1/2" or less	60%	3-9/16" to 5-1/2"	75%	5-9/16" to 7-1/2"	85%
Hanger Width	% of table load:											
3-1/2" or less	60%											
3-9/16" to 5-1/2"	75%											
5-9/16" to 7-1/2"	85%											
Ordering	Add SK, angle required, right (R) or left (L), and <b>square cut (SQ) or bevel cut (BV)</b> to product number. Ex. MPH210_SK45R_SQ	Add SL, slope required, and up (U) or down (D), to product number. Ex. MPH210_SL30D	See Sloped Seat and Skewed. Ex. MPH210_SK45R_SL30D	Add OS, and right (R) or left (L), to product number. Ex. MPH210_OSL								

1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.

2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.

3) For skewed hangers, the required cut type (square or bevel) of joist member may vary based on skew angle and width of hanger. Some square cut hangers will require custom pricing due to welded back plate.

New products or updated product information are designated in **blue font**.

A versatile solution for hanging beams from masonry walls. Face mount design allows hanger to be used with beam heights from 16" to 24". Available in a variety of widths for solid sawn, glulam, or engineered lumber beams.

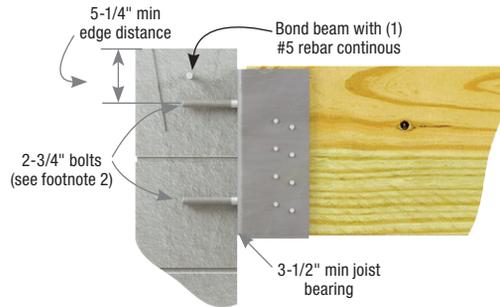
**Materials:** 1/4" steel

**Finish:** USP primer

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Fully grouted and reinforced concrete block or cast-in-place concrete with a minimum of (1) #5 rebar continuous to footing with standard hook at bolt locations.
- Minimum joist bearing length is 3-1/2".



**Typical UMH installation**



**UMH**

MiTek Stock No.	Ref. No.	Steel Gauge	W (in)	Fastener Schedule				Unit	DF Factored Resistance				S-P-F Factored Resistance			
				Header <sup>2,3</sup>		Joist <sup>4</sup>			Masonry 2,500 psi		Cast-in-Place Concrete 3,000 psi		Masonry 2,500 psi		Cast-in-Place Concrete 3,000 psi	
				Qty	Bolt Dia. (in)	Qty	Type		Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
UMH358	MBHU3.56/16KT, MBHU3.56/18KT	3	3-5/8	2	3/4	16	16d	Lbs	6610	4390	9455	7770	6610	4390	7445	6785
								kN	29.40	19.53	42.06	34.56	29.40	19.53	33.12	30.18
UMH458	--	3	4-5/8	2	3/4	16	16d	Lbs	6610	4390	9455	7770	6610	4390	7445	6785
								kN	29.40	19.53	42.06	34.56	29.40	19.53	33.12	30.18
UMH538	--	3	5-3/8	2	3/4	16	16d	Lbs	6610	4390	9455	7770	6610	4390	7445	6785
								kN	29.40	19.53	42.06	34.56	29.40	19.53	33.12	30.18
UMH558	MBHU5.50/16KT, MBHU5.50/18KT	3	5-5/8	2	3/4	16	16d	Lbs	6610	4390	9455	7770	6610	4390	7445	6785
								kN	29.40	19.53	42.06	34.56	29.40	19.53	33.12	30.18
UMH718	--	3	7-1/8	2	3/4	16	16d	Lbs	6610	4390	9455	7770	6610	4390	7445	6785
								kN	29.40	19.53	42.06	34.56	29.40	19.53	33.12	30.18

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.
  - 2) Fasten UMH hanger to concrete structure with two 3/4" dia. Powers Fasteners Wedge-Bolts® or equal with 5" minimum embedment. Bolts shall be installed in masonry with grouted cells in accordance with manufacturer's installation specifications.
  - 3) Bolts must conform to ASTM A 307 or better.
  - 4) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.
- New products or updated product information are designated in **blue font**.

EWP Hanger Selector Guide

EWP Hangers

Hanger Type	USP Series	Steel Gauge	Style							Supported Member				Supporting Member					100% Factored Resistance (Lbs.) Range		
			Face Mount	Top Mount	Skewed	Sloped	Formed	Welded	I-Joist	LVL, LSL, PSL	Truss	Glulam	Dimensional Wood	I-Joist	LVL, LSL, PSL	Truss	Glulam	Masonry	Header Material		
																			LVL	SPF	DF
Face Mount	THF	18	•						•	•			•	•	•				3,050 - 5,240	2,166 - 3,720	3,050 - 5,240
		16	•						•	•			•	•	•				3,310 - 6,855	2,350 - 4,867	3,310 - 6,855
		12	•						•	•			•	•	•				5,420 - 6,735	3,848 - 4,782	5,420 - 6,735
	THFI	18	•						•	•			•	•	•				1,860 - 2,045	1,715 - 1,885	1,860 - 2,045
		HUS	16	•					•	•			•	•	•				9,025	6,408	9,025
		HD	14	•					•	•			•	•	•				4,545 - 7,215	3,225 - 5,123	4,545 - 7,215
		HDQIF	14	•					•	•			•	•	•				5,315 - 8,460	3,775 - 6,005	5,315 - 8,460
		THD	14	•					•	•			•	•	•				11,540	8,193	11,540
			12	•					•	•			•	•	•				12,455 - 13,785	8,843 - 9,787	12,455 - 13,785
THDH	12	•					•	•			•	•	•				<b>13,050 - 16,365</b>	<b>9,200 - 14,020</b>	<b>13,050 - 16,365</b>		
Top Mount	TFL	18		•					•	•			•	•				2,370	1,771	2,495	
	THO	18		•					•	•			•	•				1,935 - 3,910	1,170 - 3,160	1,645 - 4,450	
		16		•					•	•			•	•				1,485 - 3,355	1,200 - 3,425	1,690 - 4,820	
		12		•					•	•			•	•				3,355 - 5,090	4,265 - 6,745	6,005 - 9,500	
	TFI	16		•					•	•			•	•				3,685 - 4,675	2,975 - 3,775	4,190 - 5,315	
	BPH	12		•					•	•			•	•				4,415 - 5,300	2,865 - 4,725	3,780 - 5,055	
	HBPH	12		•					•	•			•	•				9,555	7,890	9,380	
	PHM	7 - Top Flange, 10 - Stirrup		•						•			•	•				5,090 - 5,395	<b>3,935 - 4,685</b>	4,125 - <b>4,685</b>	
	PHXU	7		•						•			•	•				6,370 - 9,575	4,420 - 5,170	6,370 - 7,610	
	HLBH	7		•						•			•	•				14,725 - 15,295	12,840	13,825	
Glulam	HGU	7	•	•					•	•			•	•	•			<b>24,285</b>	<b>17,245</b>	<b>24,825</b>	
	KLEG <sup>1</sup>	7		•				•				•	•					15,060	12,950	15,060	
	KMEG <sup>1</sup>	7		•				•				•	•					17,555	15,095	17,555	
	KEG <sup>1</sup>	1/4" - Top Flange, 7 - Stirrup		•				•				•	•					23,125 - 27,785	19,890 - 23,895	23,125 - 27,785	
	KHHB	7		•				•				•	•					7,035	5,910	7,035	
	KGB	7		•				•				•	•					9,300	7,810	9,300	
	KHGB	7		•				•				•	•					10,845	9,110	10,845	
	KGLT <sup>2</sup>	3 - Top Flange, 7 - Stirrup		•				•				•	•					10,865	9,125	10,865	
	KHGLT <sup>2</sup>	3 - Top Flange, 7 - Stirrup		•				•				•	•					14,615 - 18,420	12,275 - 15,475	14,615 - 18,420	
	KGLS	3 - Top Flange, 7 - Stirrup		•				•				•	•					14,795 - 29,410	12,430 - 24,705	14,795 - 29,410	
	KHGLS	3 - Top Flange, 7 - Stirrup		•				•				•	•					29,785 - 30,220	25,020 - 25,385	29,785 - 30,220	
	KGLST	3 - Top Flange, 7 - Stirrup		•				•				•	•					18,575 - 37,575	15,605 - 31,565	18,575 - 37,575	
	KHGLST	3 - Top Flange, 7 - Stirrup		•				•				•	•					27,720 - 38,280	23,285 - 32,155	27,720 - 38,280	
	LGU	10		•	•			•				•	•	•				10,760	7,640	10,760	
	MGU	10		•	•			•				•	•	•				17,465	12,400	17,465	
Slope/Skew	LSSH	18	•	•	•			•	•			•	•	•				1,340 - 2,775	950 - 1,970	1,340 - 2,775	
		16	•	•	•			•	•			•	•	•				2,985 - 5,230	2,120 - 3,715	2,985 - 5,230	

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1) KEG, KEGQ, KLEG, KMEG hangers assume factored resistances with top flange.  
 2) KGLT, KHGLT hangers assume factored resistances based on 460 psi.  
 • Represents common applications and product configurations. Consult USP for additional applications and/or optional product configurations.  
 New products or updated product information are designated in **blue font**.

**Sloped I-Joists**

Use sloped seat hangers and beveled web stiffeners whenever the slope exceeds the following: 1/2:12 for seat bearing lengths of 2-1/2" or less; 3/8:12 for bearing lengths between 2-1/2" and 3-1/2"; and 1/4:12 for bearing lengths in excess of 3-1/2".

**Multiple I-Joist Plies**

Fasten together multiple plies of wood joists, in accordance with the manufacturer's installation guidelines, such that the joists act as a single unit.

**I-Joist Rotation**

It may be necessary to install straps, blocking, or sheathing to restrain torsional rotation of a supporting wood I-Joist when using top mount I-Joist hangers.

**Fasteners**

Install only the specified nails. The flanges of wood I-Joists may split if larger diameter nails or longer nails are installed. Do not install nails larger than 16d common wire nails (0.162" diameter) into the web stiffeners in the wood I-Joist.

**Backer Blocks**

Pattern the nails used to install backer blocks or web stiffeners in wood I-Joists to avoid splitting the block. The nail pattern should be sufficiently spaced to avoid the same grain line, particularly with solid sawn backer blocks. Backer blocks must be installed on wood I-Joist acting as the header, or supporting member. Install in accordance with the I-Joist manufacturer's installation guidelines. The nails used to install hangers mounted to an I-Joist header must penetrate through the web and into the backer block on the opposite side.

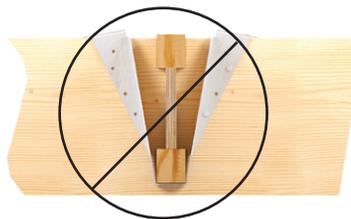
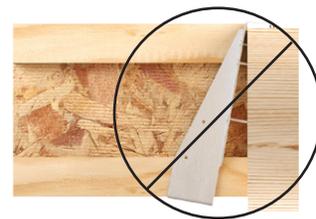
## Top Flange Hangers

The thickness of the hanger metal and nail heads on top mount hangers must be evaluated for the effect on subsequent sheathing. Ensure that the top mount hanger is installed so the flanges of the hanger are not over-spread which tends to elevate the supported I-Joist causing uneven

floor surfaces and squeaking. Similarly, ensure that the hanger is installed plumb such that the face flanges of the hanger are mounted firmly against the wide-face surface of the header.



Flush framing


 Hanger over-spread

 Hanger not plumb

## Correct Slant Nail Installation



Always secure wood I-Joist using 10d x 1-1/2" nail driven at a 30° to 45° angle and firmly seated

**Common Nailing Errors**
 **Wrong Angle**

When a nail is driven into the bottom flange of the wood I-Joist parallel to the glue lines, separation of veneers can occur which substantially reduces the design loads of the connection.


 **Nail Too Long**

When using nails longer than USP's recommended nails, bottom flange splitting may occur. Also, this can raise the wood I-Joist off the seat, resulting in uneven surfaces and squeaky floors along with reduced factored resistance.

Hangers for joists **without web stiffeners** must support the I-Joist's top flange and provide lateral resistance with no less than 1/8" contact.

Hangers for joists **with web stiffeners** must support a minimum of 60% of joist depth or potential joist rotation must be addressed.



(Top flange support requirements can be verified in this sections charts under Web Stiffener Req'd. Column.)

## Nailer Installations

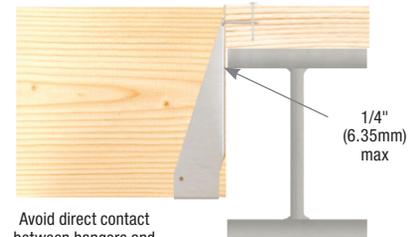
### Correct Hanger Attachment to Nailer

A nailer or sill plate is considered to be any wood member attached to a steel beam, concrete block wall, concrete stem wall, or other structure unsuitable for nailing, which is used as a nailing surface for top mount hangers to hold beams or joists.

### Nailer Sized Correctly

Top flange of hanger is fully supported and recommended nails have full penetration into nailer, resulting in a carried member hanging safely at the proper height.

The nailer must be sized to fit the support width as shown and be of sufficient thickness to satisfy recommended top flange nailing requirements. A design professional must specify nailer attachment to steel beams.



Avoid direct contact between hangers and steel beams which may cause squeaks

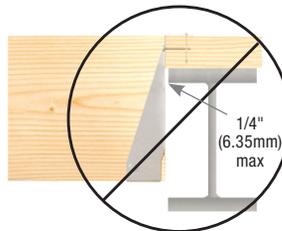
**Correct Attachment**

## Wrong Nailer Size Causes Component Failure



**Too Narrow**

Top flange not fully supported can cause nail breakout. Or, by fully supporting top flange, hanger is tilted back, causing lifting of carried member which results in uneven surfaces and squeaky floors.



**Too Wide**

Loading can cause cross grain breaking of nailer. The recommended nailer overhang is 1/4" maximum per side.



**Too Thin**

Top flange nailing cannot fully penetrate nailer, causing reduced factored resistance. Never use hangers which require multiple face nails since the factored resistance are dependent on all nail holes being used.

The THFI is a face mount hanger designed to attach EWP I-joist members to wood headers. The unique design of the THFI combines the installation ease of a top mount hanger with the installation flexibility of a face mount hanger. Because the side flanges extend to the top chord of the I-joist, web stiffeners are not required. The THFI hangers also feature strategically placed Seat Cleats® which lock the bottom flange of the I-joist to the hanger eliminating the need for joist nails to be installed.

The innovative top flange alignment tabs with the holding cleats assist the placing and alignment of the hanger prior to nailing by hanging onto the header with holding cleats biting into the wood. If the alignment tabs are not desired or a deeper height member is to be carried, the tabs can be easily bent out of the way. Alignment tabs do not contribute to the allowable design values of the THFI hangers.

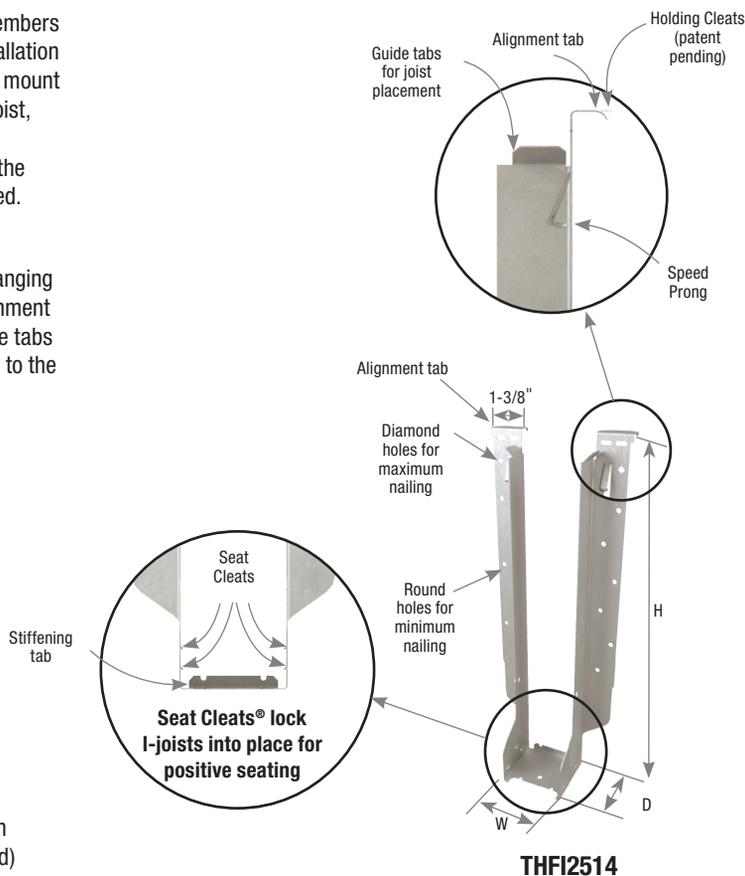
**Materials:** 18 gauge

**Finish:** G90 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

#### Installation:

- Use all specified fasteners.
- Alignment tabs are not structural and can be bent back or removed to assist hanger placement.
- Web stiffeners are not required for THFI hangers unless specified by the I-joist manufacturer. Web stiffeners are not required for lateral stability.
- For additional uplift capacity, install (2) 10d x 1-1/2" nails through diamond holes and into the joist member. (web stiffeners required)
- THFI2514 model has diamond holes in the header flange for MIN/MAX nailing option. For the MAX nailing option, install nails in both the round and diamond shaped header holes.



**Typical THFI installation**

Designed to provide lateral support for the top chords of I-Joists in depths up to 16". Eliminates the need for web stiffeners in most applications (see Web Stiffener Req'd. column in EWP Face Mount Hanger Chart for specific applications).

**Materials:** See EWP Face Mount Hangers charts, pages 132-134.

**Finish:** G90 galvanizing

**Options:** See Specialty Options chart.

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

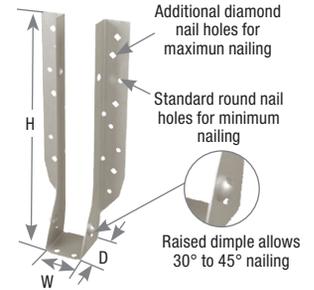
- Use all specified fasteners. See Product Notes, page 15.
- Install 10d x 1-1/2" nails into joist through raised dimple at 30° to 45° angle.
- **THF Min** – Fill all round nail holes.
- **THF Max** – Fill all round and diamond holes.



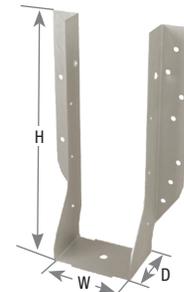
**Typical THF I-Joist to joist installation**



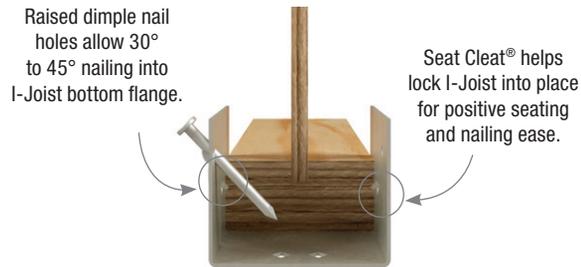
**Typical THF double I-Joist to LVL installation**



**THF single**



**THF double**



**THF Specialty Options Chart**

– refer to Specialty Options pages 220-221 for additional details.

Option	Skewed <sup>1,3</sup>	Sloped Seat <sup>2</sup>	Sloped / Skewed <sup>1,2,3</sup>	Inverted Flange
<b>Range</b>	1° to 67-1/2° when width is 1-3/4" or less. 1° to 50° on all others.	1° to 45°	See Sloped Seat and Skewed	Not available in widths less than 2-1/4"
<b>Factored Resistance</b>	100% of table load. 75% of uplift load on skews greater than 15°.	100% of table load	80% of table load. 75% of uplift load on skews greater than 15°.	100% of table load. 65% of table load when nailing into the support members end grain.
<b>Ordering</b>	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and <b>square cut (<i>SQ</i>) or bevel cut (<i>BV</i>)</b> to product number. Example: THF23925_SK45R_BV	Add <i>SL</i> , slope required, and up ( <i>U</i> ) or down ( <i>D</i> ), to product number. Example: THF23925_SL30D	See Sloped Seat and Skewed Example: THF23925_SK45R_BV_SL30D	Add <i>IF</i> , to product number. Example: THF23925_IF

- 1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.
  - 2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.
  - 3) For skewed hangers, the required cut type (square or bevel) of joist member may vary based on skew angle and width of hanger. Some square cut hangers will require custom pricing due to welded back plate.
  - 4) Modifications to THF hangers do not feature seat cleats.
- New products or updated product information are designated in **blue font**.

# HD / HDQIF Face Mount Hangers

EWP Hangers

**HD** – Designed to support LVL, LSL, and PSL beams and headers in medium load conditions.

**HDQIF** – inverted flange face mount hangers fasten to LVL, LSL and PSL beams and headers with WS Wood Screws.

**Materials:** See EWP Face Mount Hangers charts, pages 134-136.

**Finish:** G90 galvanizing

**Options:** See Specialty Options chart.

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

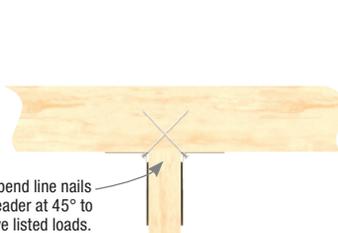
- Use all specified fasteners. See Product Notes, page 15.
- **HD** – Drive bend line nails into header at 45° to achieve listed loads.
- WS15 and WS3 Wood Screws are supplied with HDQIF hangers.



**Typical HD installation**

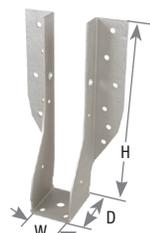


**Typical HDQIF installation**



Drive bend line nails into header at 45° to achieve listed loads.

**Typical HD bend line nail installation**



**HD**



**HDQIF**

**HD Specialty Options Chart**

– refer to Specialty Options pages 220-221 for additional details.

Option	Skewed <sup>1,3</sup>	Sloped Seat <sup>2</sup>	Sloped / Skewed <sup>1,2,3</sup>	Inverted Flange
<b>Range</b>	1° to 67-1/2° when width is 1-3/4" or less. 1° to 50° on all others.	1° to 45°	See Sloped Seat and Skewed	Not available in widths less than 2-1/4"
<b>Factored Resistance</b>	100% of table load. 75% of uplift load on skews greater than 15°.	100% of table load	80% of table load. 75% of uplift load on skews greater than 15°.	100% of table load. 65% of table load when nailing into the support members end grain.
<b>Ordering</b>	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and <b>square cut (SQ) or bevel cut (BV)</b> to product number. Example: HD410_SK45R_SQ	Add <i>SL</i> , slope required, and up ( <i>U</i> ) or down ( <i>D</i> ), to product number. Example: HD410_SL30D	See Sloped Seat and Skewed Example: HD410_SK45R_SQ_SL30D	Add <i>IF</i> , to product number. Example: HD410_IF

- 1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.
- 2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.
- 3) For skewed hangers, the required cut type (square or bevel) of joist member may vary based on skew angle and width of hanger. Some square cut hangers will require custom pricing due to welded back plate.
- 4) HD option hangers may be manufactured as welded products to achieve listed loads. Welded products have a primer finish. New products or updated product information are designated in blue font.

# HUS Face Mount Hangers

Designed for medium load conditions. Extended 3" deep seat provides extra truss bearing.

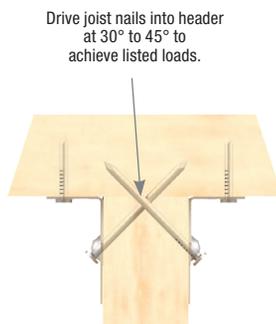
**Materials:** 16 gauge

**Finish:** G90 galvanizing

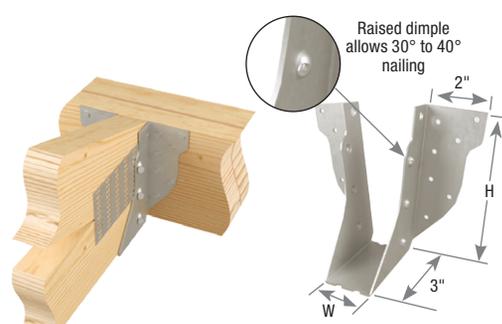
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Joist nails must be driven at a 30° to 45° angle through the joist into the header to achieve listed loads. Standard length "double shear" nails must be used to achieve listed load values.



**Typical HUS double shear installation**



**Typical HUS installation**

**HUS**

**THD** – Medium capacity hanger for LVL, LSL, and PSL beams.

**THDH** – Heavy capacity hanger for LVL, LSL, and PSL beams.

**Materials:** See EWP Face Mount Hangers charts, pages 135-136.

**Finish:** G90 galvanizing

**Options:** Rough/ Full sizes available for THD series.  
See Specialty Options chart.

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

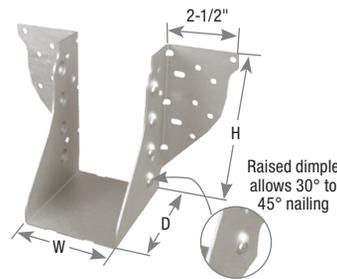
- Use all specified fasteners. See Product Notes, page 15.
- **THD** – Drive bend line nails into header at 45° to achieve listed loads.
- **THDH** – Drive joist nails into header at 30° to 45° to achieve listed loads.



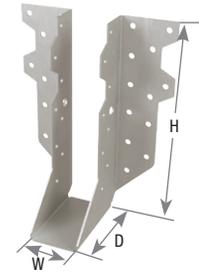
Typical THDH installation



Typical THD installation

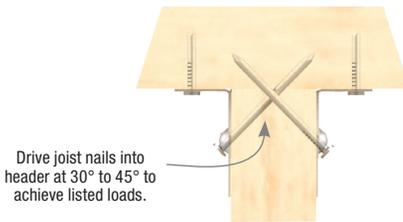


THDH26-2



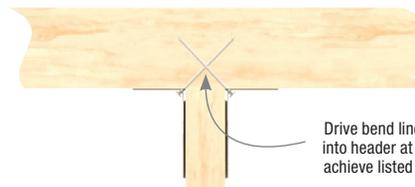
THD single

Some model designs may vary from illustration shown



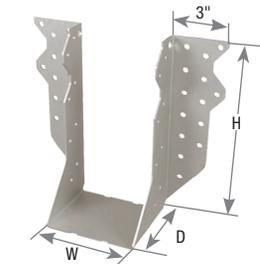
Drive joist nails into header at 30° to 45° to achieve listed loads.

Typical THDH double shear installation



Drive bend line nails into header at 45° to achieve listed loads.

Typical THD bend line nail installation



THD double or larger

**Specialty Options Chart**

– refer to Specialty Options pages 220 and 222 for additional details.

Option	USP Series	Skewed <sup>1,3,4</sup>	Sloped Seat <sup>2</sup>	Sloped / Skewed <sup>1,2,3,4</sup>	Inverted Flange
Range	THD	1° to 45°	1° to 45°	See Sloped Seat and Skewed	Not available in widths less than 3". Widths greater can have one flange inverted.
	THDH				N/A
Factored Resistance	THD	85% of table load	65% of table load	65% of table load	100% of table load. 65% of table load when nailing into the support members end grain.
	THDH	85% of table load. 50% of table uplift load.	52% of table load	52% of table load. 50% of table uplift load.	N/A
Ordering	THD	Add SK, angle required, right (R) or left (L), and <b>square cut (SQ) or bevel cut (BV)</b> to product number. Ex. THDH410_SK45R_BV	Add SL, slope required, and up (U) or down (D), to product number. Ex: THDH410_SL30D	See Sloped Seat and Skewed Ex. THDH410_SK45R_BV_SL30D	Add 1IF, one flange, right (R) and left (L), Ex. THD410_1IFR
	THDH				N/A

1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange. All skewed THDH hangers have nails on one side only.

2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.

3) THDH models - Skewed hangers typically require a bevel cut. A square cut option may be available as a custom.

4) THD models - For skewed hangers, the required cut type (square or bevel) of joist member may vary based on skew angle and width of hanger. Some square cut hangers will require custom pricing due to welded back plate.

New products or updated product information are designated in blue font.

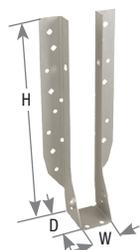
Joist Size	USP StockNo.	Ref. No.	Web Stiff Req.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2</sup>				Min/Max	Unit	DF Factored Resistance		S-P-F Factored Resistance	
					W	H	D	Header		Joist				Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>
								Qty	Type	Qty	Type						
					100%	115%	100%	115%									
1-1/2 x 9 -1/4 - 9-1/2	THF15925	LF159, MIU1.56/9	--	18	1-1/2	9-1/16	2	8	10d	2	10d x 1-1/2	Min	Lbs	2920	500	2395	410
1-1/2 x 11-1/4 - 11-7/8	THF15112	LF1511, MIU1.56/11	--	18	1-1/2	11-1/16	2	8	10d	2	10d x 1-1/2	Min	Lbs	2920	500	2395	410
1-1/2 x 14	THF15140	LF1514	--	18	1-1/2	13-1/2	2	12	10d	2	10d x 1-1/2	Min	Lbs	3655	500	2995	410
1-5/8 x 9-1/4 - 9-1/2	THF16925	--	--	18	1-5/8	9	2	8	10d	2	10d x 1-1/2	Min	Lbs	2920	500	2395	410
1-5/8 x 11-1/4 - 12	THF16112	--	--	18	1-5/8	11	2	8	10d	2	10d x 1-1/2	Min	Lbs	2920	500	2395	410
1-5/8 x 14	THF16140	--	--	18	1-5/8	13-7/16	2	12	10d	2	10d x 1-1/2	Min	Lbs	3655	500	2995	410
1-3/4 x 9-1/4 - 9-1/2	THF17925	IUS1.81/9.5, LF179	--	18	1-3/4	8-15/16	2	8	10d	2	10d x 1-1/2	Min	Lbs	2920	500	2395	410
1-3/4 x 11-7/8	THF17112	IUS1.81/11.88, LF1711	--	18	1-3/4	10-15/16	2	8	10d	2	10d x 1-1/2	Min	Lbs	2920	500	2395	410
1-3/4 x 14	THF17140	IUS1.81/14, LF1714	--	18	1-3/4	13-3/8	2	12	10d	2	10d x 1-1/2	Min	Lbs	3655	500	2995	410
1-3/4 x 16	THF17157	IUS1.81/16	--	18	1-13/16	15-3/4	3-1/2	24	10d	2	10d x 1-1/2	--	Lbs	5195	500	4255	410
2 - 2-1/8 x 9-1/2	THF20925	IUS2.06/9.5, LF209, LF219	--	18	2-1/8	8-7/8	2	8	10d	2	10d x 1-1/2	Min	Lbs	2920	500	2395	410
2 - 2-1/8 x 11-7/8	THF20112	IUS2.06/11.88, LF2011, LF2111	--	18	2-1/8	11-1/5	2	8	10d	2	10d x 1-1/2	Min	Lbs	2920	500	2395	410
2 - 2-1/8 x 14	THF20140	IUS2.06/14, LF2014, LF2114	--	18	2-1/8	13-1/4	2	12	10d	2	10d x 1-1/2	Min	Lbs	3655	500	2995	410
2 - 2-1/8 x 16	THF20157	IUS2.06/16	--	18	2-1/8	15-3/4	3-3/8	24	10d	2	10d x 1-1/2	--	Lbs	5195	500	4255	410

1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**

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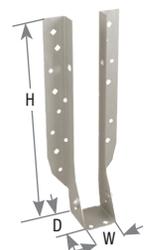
Joist Size	USP StockNo.	Ref. No.	Web Stiff Req.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2</sup>				Min/Max	Unit	DF Factored Resistance		S-P-F Factored Resistance	
					W	H	D	Header		Joist				Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
								Qty	Type	Qty	Type						
2-5/16 x 9-1/2	THF23925	LF239, IUS2.37/9.5, MIU2.37/9, U3510/14	--	18	2-5/16	9-3/16	2-1/2	12	10d	2	10d x 1-1/2	--	Lbs	3310	320	2600	260
														kN	14.72	1.42	11.57
2-5/16 x 11-7/8	THF23118	LF2311, IUS2.37/11.88, MIU2.37/11	--	18	2-5/16	11-3/16	2-1/2	14	10d	2	10d x 1-1/2	--	Lbs	3310	690	2600	565
														kN	14.72	3.07	11.57
2-5/16 x 14	THF23140	LF2314, IUS2.37/14, MIU2.37/14	--	16	2-5/16	13-1/2	2-1/2	18	10d	2	10d x 1-1/2	--	Lbs	4405	690	3460	565
														kN	19.59	3.07	15.39
2-5/16 x 16	THF23160	IUS2.37/16, MIU2.37/16	--	16	2-5/16	15-9/16	2-1/2	22	10d	2	10d x 1-1/2	--	Lbs	4405	690	3460	565
														kN	19.59	3.07	15.39
2-5/16 x 18 - 28	THF23180	MIU2.37/18, MIU2.37/20	x	16	2-5/16	17-1/8	2-1/2	24	10d	8	10d x 1-1/2	--	Lbs	5970	2335	4895	1915
														kN	26.56	10.39	21.77
2-1/2 x 9-1/4 - 9-1/2	THF25925	LF259, MIU2.56/9	--	18	2-1/2	9-1/8	2-1/2	12	10d	2	10d x 1-1/2	--	Lbs	3310	320	2600	260
														kN	14.72	1.42	11.57
2-1/2 x 9-1/2	THF2595	IUS2.56/9.25, IUS2.56/9.5	--	18	2-5/8	9-1/2	2	8	10d	--	--	--	Lbs	2345	235	1845	185
														kN	10.43	1.05	8.21
2-1/2 x 11-1/4 - 11-7/8	THF25112	LF2511, MIU2.56/11	--	18	2-1/2	11-1/8	2-1/2	14	10d	2	10d x 1-1/2	--	Lbs	3310	690	2600	565
														kN	14.72	3.07	11.57
2-1/2 x 11-7/8	THF25118	IUS2.56/11.88	--	18	2-5/8	11-7/8	2	10	10d	--	--	--	Lbs	2345	235	1845	185
														kN	10.43	1.05	8.21
2-1/2 x 13	THF25130	---	--	16	2-1/2	12-1/4	2-1/2	18	10d	2	10d x 1-1/2	--	Lbs	3310	690	2600	565
														kN	14.72	3.07	11.57
2-1/2 x 14	THF2514	IUS2.56/14	--	18	2-5/8	14	2	12	10d	--	--	Min	Lbs	4605	235	3615	185
													kN	20.48	1.05	16.08	0.82
	THF25140	LF2514, MIU2.56/14	--	16	2-1/2	13-7/16	2-1/2	18	10d	2	10d x 1-1/2	--	Lbs	4405	690	3460	565
														kN	19.59	3.07	15.39
2-1/2 x 16	THF25160	IUS2.56/16, MIU2.56/16	--	16	2-1/2	15-1/2	2-1/2	22	10d	2	10d x 1-1/2	--	Lbs	4405	690	3460	565
														kN	19.59	3.07	15.39
2-1/2 x 18 - 24	THF25160	MIU2.56/18, MIU2.56/20	x	16	2-1/2	15-1/2	2-1/2	22	10d	2	10d x 1-1/2	--	Lbs	4405	690	3460	565
														kN	19.59	3.07	15.39
2-5/8 x 9-1/4 - 9-1/2	THF26925	--	--	18	2-5/8	9-1/16	2-1/2	12	10d	2	10d x 1-1/2	--	Lbs	3310	320	2600	260
														kN	14.72	3.07	15.39
2-5/8 x 11-1/4 - 11-7/8	THF26112	--	--	18	2-5/8	11-1/16	2-1/2	14	10d	2	10d x 1-1/2	--	Lbs	3310	690	2600	565
														kN	14.72	3.07	11.57
2-5/8 x 14	THF26140	--	--	16	2-5/8	13-3/8	2-1/2	18	10d	2	10d x 1-1/2	--	Lbs	4405	690	3460	565
														kN	19.59	3.07	15.39
2-5/8 x 16	THF26160	--	--	16	2-5/8	15-7/16	2-1/2	22	10d	2	10d x 1-1/2	--	Lbs	4405	690	3460	565
														kN	19.59	3.07	15.39
3 x 9-1/4 - 14	THF15925-2	MIU3.12/9	x	16	3-1/8	9-3/16	2-1/2	12	10d	6	10d	--	Lbs	4965	3185	4070	2610
														kN	22.09	14.17	18.10
3 x 11-1/4 - 14	THF15112-2	MIU3.12/11	x	16	3-1/8	10-13/16	2-1/2	14	10d	6	10d	--	Lbs	5195	3185	4255	2610
														kN	23.11	14.17	18.93
3 x 14 - 20	THF15140-2	--	x	12	3-1/8	12-3/4	2-1/2	18	10d	6	10d	--	Lbs	5195	3185	4255	2610
														kN	23.11	14.17	18.93

1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**

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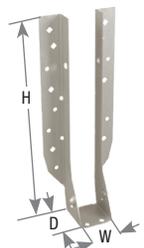
Joist Size	USP StockNo.	Ref. No.	Web Stiff Req.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2</sup>				Min/Max	Unit	DF Factored Resistance		S-P-F Factored Resistance	
					W	H	D	Header		Joist				Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
								Qty	Type	Qty	Type						
3-1/4 x 9-1/4 - 14	THF16925-2	--	x	16	3-3/8	9-1/16	2-1/2	12	10d	6	10d	--	Lbs	4965	3185	4070	2610
														kN	22.09	14.17	18.10
3-1/4 x 11-1/4 - 14	THF16112-2	--	x	16	3-3/8	10-3/4	2-1/2	14	10d	6	10d	--	Lbs	5195	3185	4255	2610
														kN	23.11	14.17	18.93
3-1/4 x 14	THF16140-2	--	x	12	3-3/8	12-5/8	2-1/2	18	10d	6	10d	--	Lbs	5195	3185	4255	2610
														kN	23.11	14.17	18.93
3-1/2 x 9-1/4 - 9-1/2	THF35925	LF359, IUS3.56/9.5	--	18	3-1/2	8-5/8	2-1/2	12	10d	2	10d x 1-1/2	--	Lbs	5075	445	4115	365
														kN	22.57	1.98	18.30
3-1/2 x 11-7/8 - 16	THF35112	LF3511, IUS3.56/11.88	--	18	3-1/2	11-1/8	2-1/2	16	10d	2	10d x 1-1/2	--	Lbs	5075	445	4115	365
														kN	22.57	1.98	18.30
3-1/2 x 14 - 20	THF35140	LF3514, IUS3.56/14	--	16	3-1/2	12-15/16	2-1/2	20	10d	2	10d x 1-1/2	--	Lbs	6680	445	5245	365
														kN	29.71	1.98	23.33
3-1/2 x 16 - 22	THF17157-2	--	x	12	3-5/8	15-3/4	2-1/2	22	10d	6	10d	--	Lbs	6735	3185	5290	2610
														kN	29.96	14.17	23.53
3-1/2 x 16 - 22	THF35157	IUS3.56/16	--	16	3-1/2	15	2-1/2	22	10d	2	10d x 1-1/2	--	Lbs	6680	445	5245	365
														kN	29.71	1.98	23.33
3-1/2 x 18 - 26	THF35165	--	x	16	3-1/2	16-9/16	2-1/2	24	10d	8	10d x 1-1/2	--	Lbs	6680	2335	5245	1915
														kN	29.71	10.39	23.33
4 - 4-3/16 x 9-1/2	THF20925-2	MIU4.12/9, MIU4.28/9	x	16	4-3/16	8-11/16	2-1/2	12	10d	6	10d	--	Lbs	5035	3185	4125	2610
														kN	22.40	14.17	18.35
4 - 4-3/16 x 11-1/4 - 11-7/8	THF20112-2	MIU4.12/11, MIU4.28/11	x	16	4-3/16	11	2-1/2	16	10d	6	10d	--	Lbs	5350	3185	4385	2610
														kN	23.80	14.17	19.51
4 - 4-3/16 x 14	THF20140-2	MIU4.12/14, MIU4.12/16, MIU4.28/14, MIU4.28/16	x	16	4-3/16	13-5/8	2-1/2	20	10d	6	10d	--	Lbs	6735	3185	5290	2610
														kN	29.96	14.17	23.53
4-1/2 - 4-5/8 x 9-1/4 - 14	THF23925-2	--	x	16	4-3/4	8-3/8	2-1/2	12	10d	6	10d	--	Lbs	5075	3185	4115	2610
														kN	22.57	14.17	18.30
4-1/2 - 4-5/8 x 11-1/4 - 16	THF23118-2	--	x	16	4-3/4	10-11/16	2-1/2	16	10d	6	10d	--	Lbs	6855	3185	5380	2610
														kN	30.49	14.17	23.93
4-5/8 x 14 - 22	THF23140-2	MIU4.75/14	x	12	4-3/4	13-5/16	2-1/2	20	10d	6	10d	--	Lbs	6680	3185	5245	2610
														kN	29.71	14.17	23.33
4-5/8 x 16 - 26	THF23160-2	MIU4.75/16, MIU4.75/18, MIU4.75/20	x	12	4-3/4	15-15/16	2-1/2	24	10d	6	10d	--	Lbs	6680	3185	5245	2610
														kN	29.71	14.17	23.33
5 x 9-1/4 - 11-7/8	THF25925-2	LF2-159, MIU5.12/9	x	16	5-1/8	8-3/16	2-1/2	12	10d	6	10d	--	Lbs	5075	3185	4115	2610
														kN	22.57	14.17	18.30
5 x 11-1/4 - 16	THF25112-2	LF2-1511, MIU5.12/11	x	16	5-1/8	10-7/16	2-1/2	16	10d	6	10d	--	Lbs	5075	3185	4115	2610
														kN	22.57	14.17	18.30
5 x 14 - 20	THF25140-2	MIU5.12/14	x	12	5-1/8	13-1/8	2-1/2	20	10d	6	10d	--	Lbs	6680	3185	5245	2610
														kN	29.71	14.17	23.33
5 x 16 - 26	THF25160-2	MIU5.12/16, MIU5.12/18, MIU5.12/20	x	12	5-1/8	15-3/4	2-1/2	24	10d	6	10d	--	Lbs	6680	3185	5245	2610
														kN	29.71	14.17	23.33
7 x 9-1/4 - 14	HD7100	HU410-2	x	14	7-1/8	9	2-1/2	12	16d	6	10d	--	Lbs	4920	2685	3865	2105
														kN	21.89	11.94	17.19
7 x 11-1/4 - 16	HD7120	HU412-2	x	14	7-1/8	10-5/8	2-1/2	16	16d	6	10d	--	Lbs	4675	2685	3670	2105
														kN	20.80	11.94	16.32
7 x 14 - 20	HD7140	HU414-2	x	14	7-1/8	13-1/8	2-1/2	20	16d	8	10d	--	Lbs	7485	2685	5875	2105
														kN	33.29	11.94	26.13

1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

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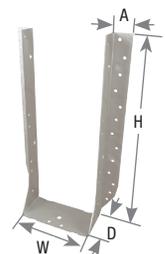
New products or updated product information are designated in **blue font**.



Joist Size	USP StockNo.	Ref. No.	Web Stiff Req.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2,3</sup>				Unit	DF		S-P-F	
					W	H	D	Header		Joist			Factored Resistance		Factored Resistance	
								Qty	Type	Qty	Type		Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
1-3/4 x 7-1/4	HD1770	HU7	x	14	1-13/16	7-1/8	2	14	16d	4	10d x 1-1/2	Lbs kN	3820 16.99	1555 6.92	3000 13.34	1220 5.43
1-3/4 x 9-1/2	HD17925	HU9, MIU1.81/9	x	14	1-13/16	9-1/8	2	18	16d	6	10d x 1-1/2	Lbs kN	5710 25.40	2005 8.92	4485 19.95	1575 7.01
	HD17925IF	--	x	14	1-13/16	9-1/8	2	18	16d	6	10d x 1-1/2	Lbs kN	5710 25.40	2005 8.92	4485 19.95	1575 7.01
	HDQ1791F	HUCQ1.81/9-SDS	x	14	1-13/16	9	3	8	WS3	4	WS15	Lbs kN	4975 22.13	1765 7.85	4460 19.84	1765 7.85
	HUS179	HUS1.81/10	x	16	1-13/16	9-1/8	3	30	16d	10	16d	Lbs kN	9030 40.17	6035 26.85	7085 31.52	4735 21.06
1-3/4 x 11-1/4 - 11-7/8	HD17112	HU11, MIU1.81/11	x	14	1-13/16	11-3/8	2	22	16d	6	10d x 1-1/2	Lbs kN	5915 26.31	2185 9.72	4640 20.64	1715 7.63
	HD17112IF	--	x	14	1-13/16	11-3/8	2	22	16d	6	10d x 1-1/2	Lbs kN	5915 26.31	2185 9.72	4640 20.64	1715 7.63
	HDQ17112IF	HUCQ1.81/11-SDS	x	14	1-13/16	11	3	10	WS3	6	WS15	Lbs kN	5470 24.33	2975 13.23	4775 21.24	2595 11.54
	HUS179	HUS1.81/10	x	16	1-13/16	9-1/8	3	30	16d	10	16d	Lbs kN	9030 40.17	6035 26.85	7085 31.52	4735 21.06
1-3/4 x 14	HD1714	HU14, MIU1.81/14, MIU1.81/16, MIU1.81/18, U14	x	14	1-13/16	13-5/16	2	26	16d	8	10d x 1-1/2	Lbs kN	5925 26.36	3190 14.19	4655 20.71	2505 11.14
	HD1714IF	--	x	14	1-13/16	13-5/16	2	26	16d	8	10d x 1-1/2	Lbs kN	5925 26.36	3190 14.19	4655 20.71	2505 11.14
	HDQ1714IF	--	x	14	1-13/16	13-3/8	3	12	WS3	6	WS15	Lbs kN	6730 29.94	3175 14.12	6525 29.02	3080 13.70
	HUS179	HUS1.81/10	x	16	1-13/16	9-1/8	3	30	16d	10	16d	Lbs kN	9030 40.17	6035 26.85	7085 31.52	4735 21.06
1-3/4 x 16	HD1714	HU14, MIU1.81/14, MIU1.81/16, MIU1.81/18, U14	x	14	1-13/16	13-5/16	2	26	16d	8	10d x 1-1/2	Lbs kN	5925 26.36	3190 14.19	4655 20.71	2505 11.14
	HD1714IF	--	x	14	1-13/16	13-5/16	2	26	16d	8	10d x 1-1/2	Lbs kN	5925 26.36	3190 14.19	4655 20.71	2505 11.14
	HDQ1714IF	--	x	14	1-13/16	13-3/8	3	12	WS3	6	WS15	Lbs kN	6730 29.94	3175 14.12	6525 29.02	3080 13.70
	HUS179	HUS1.81/10	x	16	1-13/16	9-1/8	3	30	16d	10	16d	Lbs kN	9030 40.17	6035 26.85	7085 31.52	4735 21.06
2-11/16 x 9-1/4 - 14	HD27925	HU2.75/10	x	14	2-3/4	8-5/8	2	18	16d	6	10d x 1-1/2	Lbs kN	5710 25.40	2185 9.72	4485 19.95	1715 7.63
	THDH27925	--	x	12	2-3/4	9-1/8	4	46	16d	12	16d	Lbs kN	14760 65.66	8210 36.52	11585 51.53	7385 32.85
2-11/16 x 11-1/4 - 16	HD27112	HU2.75/12	x	14	2-3/4	10-7/8	2	22	16d	6	10d x 1-1/2	Lbs kN	5915 26.31	2185 9.72	4640 20.64	1715 7.63
	THDH27112	--	x	12	2-3/4	10-7/8	4	56	16d	14	16d	Lbs kN	16130 71.75	8210 36.52	12660 56.31	7385 32.85
2-11/16 x 14 - 16	HD2714	HU2.75/14	x	14	2-3/4	12-7/8	2	26	16d	8	10d x 1-1/2	Lbs kN	5925 26.36	3190 14.19	4655 20.71	2505 11.14
	THDH2714	--	x	12	2-3/4	12-1/4	4	66	16d	16	16d	Lbs kN	17570 78.16	10140 45.10	15585 69.33	9125 40.59
3-1/2 x 9-1/4 - 14	HD410	MIU3.56/9	x	14	3-9/16	8-13/16	2-1/2	18	16d	10	10d	Lbs kN	7485 33.29	4435 19.73	5875 26.13	3485 15.50
	HDQ410IF	HUCQ410-SDS	x	14	3-9/16	9	3	12	WS3	6	WS3	Lbs kN	8460 37.63	4970 22.11	7385 32.85	4335 19.28
	THD410	HHUS410	x	14	3-5/8	9-1/16	3	38	16d	20	10d	Lbs kN	11540 51.33	8375 37.25	9060 40.30	7260 32.29
	THDH410	HGUS410	x	12	3-9/16	9-1/8	4	46	16d	12	16d	Lbs kN	14760 65.66	8210 36.52	11585 51.53	7385 32.85

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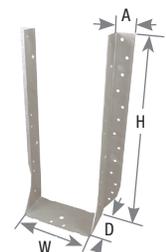
1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) WS15 Wood Screws are 1/4" x 1-1/2", WS3 Wood Screws are 1/4" x 3" and are included with HDQ hangers.  
 3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.  
**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**  
 New products or updated product information are designated in **blue font**.



EWP Hangers

Joist Size	USP StockNo.	Ref. No.	Web Stiff Req.	Ga.	Dimensions (in)			Fastener Schedule <sup>2,3</sup>				DF		S-P-F	
					W	H	D	Header		Joist		Factored Resistance		Factored Resistance	
								Qty	Type	Qty	Type	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
3-1/2 x 11-1/4 - 16	HD412	MIU3.56/11	x	14	3-9/16	10-13/16	2-1/2	22	16d	10	10d	Lbs 8250	4435	6475	3485
												kN 36.70	19.73	28.80	15.50
	HDQ412IF	HUCQ412-SDS	x	14	3-9/16	11	3	14	WS3	6	WS3	Lbs 8135	5220	6545	4965
												kN 36.19	23.22	29.11	22.09
3-1/2 x 14 - 20	THD412	--	x	14	3-5/8	11	3	48	16d	20	10d	Lbs 11540	8375	9060	7260
												kN 51.33	37.25	40.30	32.29
	THDH412	HGUS412	x	12	3-9/16	10-1/2	4	56	16d	14	16d	Lbs 16130	9845	12660	7730
												kN 71.75	43.79	56.31	34.38
3-1/2 x 16 - 22	HD414	MIU3.56/14	x	14	3-9/16	12-13/16	2-1/2	24	16d	10	10d	Lbs 8250	4290	6475	3365
												kN 36.70	19.08	28.80	14.97
	THD414	--	x	14	3-5/8	12-7/8	3	58	16d	20	10d	Lbs 11540	8375	9060	7260
												kN 51.33	37.25	40.30	32.29
3-1/2 x 18 - 26	THDH414	HGUS414	x	12	3-9/16	12-1/4	4	66	16d	16	16d	Lbs 17570	11335	15585	8895
												kN 78.16	50.42	69.33	39.57
	HD416	MIU3.56/16	x	14	3-9/16	14-13/16	2-1/2	26	16d	12	10d	Lbs 8190	4290	6430	3365
												kN 36.43	19.08	28.60	14.97
5-1/4 x 9-1/4 - 11-7/8	HD418	MIU3.56/18, MIU3.56/20	x	14	3-9/16	16-1/2	2-1/2	28	16d	8	10d	Lbs 8250	2685	6475	2105
												kN 36.70	11.94	28.80	9.36
	HD5210	--	x	14	5-3/8	7-7/8	2-1/2	18	16d	10	10d	Lbs 7485	4435	5875	3485
												kN 33.29	19.73	26.13	15.50
5-1/4 x 11-1/4 - 16	HDQ5210IF	HUCQ5.25/9-SDS	x	14	5-1/4	9	3	12	WS3	6	WS3	Lbs 8460	4970	7385	4335
												kN 37.63	22.11	32.85	19.28
	THD610	HHUS5.50/10	x	12	5-1/2	9	3	38	16d	20	10d	Lbs 12455	6425	9780	5045
												kN 55.40	28.58	43.50	22.44
5-1/4 x 14 - 20	THDH610	HGUS5.25/10, HGUS5.50/10	x	12	5-1/2	9	4	46	16d	16	16d	Lbs 12645	10140	9925	9125
												kN 56.25	45.10	44.15	40.59
	HD5212	--	x	14	5-3/8	9-7/8	2-1/2	22	16d	10	10d	Lbs 8250	4435	6475	3485
												kN 36.70	19.73	28.80	15.50
5-1/4 x 14 - 20	HDQ5212IF	HUCQ5.25/11-SDS	x	14	5-1/4	11	3	14	WS3	6	WS3	Lbs 8135	5220	6545	4965
												kN 36.19	23.22	29.11	22.09
	THD612	--	x	12	5-1/2	11	3	48	16d	20	10d	Lbs 13785	9850	10825	7730
												kN 61.32	43.81	48.15	34.38
5-1/4 x 14 - 20	THDH612	HGUS5.25/12, HGUS5.50/12	x	12	5-1/2	11	4	56	16d	20	16d	Lbs 15465	10140	15465	9125
												kN 68.79	45.10	68.79	40.59
	HD5214	--	x	14	5-3/8	11-7/8	2-1/2	24	16d	10	10d	Lbs 8250	4290	6475	3365
												kN 36.70	19.08	28.80	14.97
5-1/4 x 14 - 20	THD614	--	x	12	5-1/2	12-7/8	3	58	16d	20	10d	Lbs 13785	9850	10825	7730
												kN 61.32	43.81	48.15	34.38
	THDH614	HGUS5.50/14	x	12	5-1/2	13	4	66	16d	22	16d	Lbs 17570	11335	15585	8895
												kN 78.16	50.42	69.33	39.57
5-1/4 x 16 - 22	HD5216	--	x	14	5-3/8	13-7/8	2-1/2	30	16d	12	10d	Lbs 8190	4290	6430	3365
												kN 36.43	19.08	28.60	14.97
6-3/4 x 9-1/4 - 14	THDH6710	HGUS210-4, HGUS6.88/10	x	12	6-7/8	8-13/16	4	46	16d	12	16d	Lbs 12645	8210	9925	7385
												kN 56.25	36.52	44.15	32.85
6-3/4 x 11-1/4 - 18	THDH6712	HGUS212-4, HGUS6.88/12	x	12	6-7/8	10-13/16	4	56	16d	14	16d	Lbs 12645	9845	9925	7730
												kN 56.25	43.79	44.15	34.38
6-3/4 x 14 - 20	THDH6714	HGUS214-4, HGUS6.88/14	x	12	6-7/8	12-13/16	4	66	16d	16	16d	Lbs 17570	11335	15585	8895
												kN 78.16	50.42	69.33	39.57
7 x 9-1/4 - 14	HD7100	HU410-2	x	14	7-1/8	9	2-1/2	12	16d	6	10d	Lbs 4920	2685	3865	2105
												kN 21.89	11.94	17.19	9.36
	THD7210	HHUS7.25/10	x	12	7-1/4	9	3	38	16d	20	10d	Lbs 12455	6425	9780	5045
												kN 55.40	28.58	43.50	22.44
7 x 11-1/4 - 16	THDH7210	HGUS7.25/10	x	12	7-1/4	9	4	46	16d	12	16d	Lbs 12645	8210	9925	7385
												kN 56.25	36.52	44.15	32.85
	HD7120	HU412-2	x	14	7-1/8	10-5/8	2-1/2	16	16d	6	10d	Lbs 4675	2685	3670	2105
												kN 20.80	11.94	16.32	9.36
7 x 14 - 20	THDH7212	HGUS7.25/12	x	12	7-1/4	10-1/2	4	56	16d	14	16d	Lbs 12645	9845	9925	7730
												kN 56.25	43.79	44.15	34.38
	HD7140	HU414-2	x	14	7-1/8	13-1/8	2-1/2	20	16d	8	10d	Lbs 7485	2685	5875	2105
												kN 33.29	11.94	26.13	9.36
7 x 14 - 20	THDH7214	HGUS7.25/14	x	12	7-1/4	12-1/4	4	66	16d	16	16d	Lbs 17570	11335	15585	8895
												kN 78.16	50.42	69.33	39.57
7 x 16 - 22	HD7160	--	x	14	7-1/8	15-5/8	2-1/2	24	16d	8	10d	Lbs 8250	2685	6475	2105
7 x 18 - 26	HD7180	--	x	14	7-1/8	17-3/4	2-1/2	28	16d	8	10d	Lbs 8250	2685	6475	2105
												kN 36.70	11.94	28.80	9.36

1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) WS15 Wood Screws are 1/4" x 1-1/2", WS3 Wood Screws are 1/4" x 3" and are included with HDQ hangers.  
 3) NAILS: 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.  
**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**  
 New products or updated product information are designated in blue font.



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**TFI / THO** – Engineered for I-Joist to header applications. Offers full lateral support of the I-Joist top chord, eliminating the need for web stiffeners in most applications. Raised dimple nailing guides help assure correct 45° nailing into the I-Joist bottom flange. The THO's feature the Seat Cleat® that allows for quick, positive seating. The Seat Cleat® will hold the I-Joist in place, eliminating spring back during nailing in the bottom flange.

**TFL** – Features 1-1/2" top flange depth that accommodates all header types as well as back-to-back installations. Also features USP's Seat Cleat® for quick, positive seating.

**Materials:** See EWP Top Mount Hangers charts, pages 141-150.

**Finish:** G90 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

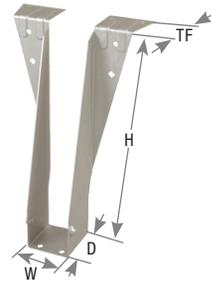
- Use all specified fasteners. See Product Notes, page 15.
- Refer to the top mount chart for applications requiring web stiffeners.
- Requirements for web stiffener from the I-Joist manufacturer should be followed, even if web stiffeners are not required in USP literature.



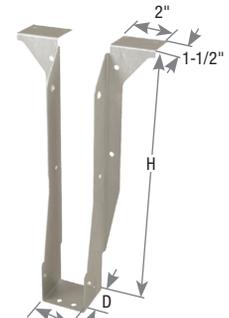
Typical THO installation



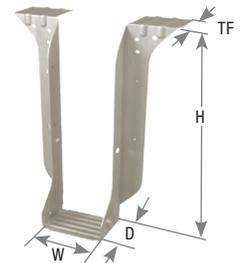
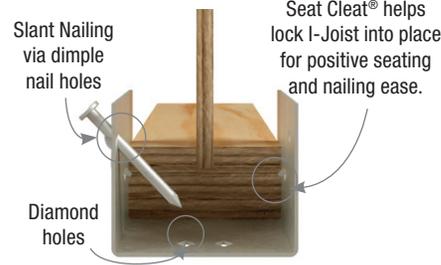
Typical TFL installation



THO



TFL



TFI

**Nailer Options**

– chart represents maximum factored resistance for hangers used on wood nailers. Reference page 127.

USP Series	Nailer Size	Fastener Schedule				DF Factored Resistance <sup>2</sup>				S-P-F Factored Resistance <sup>2</sup>			
		Header		Joist		Lbs		kN		Lbs		kN	
		Qty	Type	Qty	Type	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>
						100%	115%	100%	115%	100%	115%	100%	115%
TFL	2X	6	10d x 1-1/2	2	10d x 1-1/2	1830	265	8.14	1.18	1575	230	7.01	1.02
	3X	6	16d x 2-1/2	2	10d x 1-1/2	2305	265	10.25	1.18	1980	230	8.81	1.02
	(2) 2X	6	10d	2	10d x 1-1/2	1845	265	8.21	1.18	1585	230	7.05	1.02
	4X	6	16d	2	10d x 1-1/2	2535	265	11.28	1.18	2180	230	9.70	1.02
THO (single joist)	2X	6	10d x 1-1/2	2	10d x 1-1/2	1960	375	8.72	1.67	1685	325	7.50	1.45
	3X	6	16d x 2-1/2	2	10d x 1-1/2	2115	375	9.41	1.67	1820	325	8.10	1.45
	(2) 2X	6	10d	2	10d x 1-1/2	1965	375	8.74	1.67	1690	325	7.52	1.45
	4X	6	16d	2	10d x 1-1/2	2210	375	9.83	1.67	1900	325	8.45	1.45
THO (double joist)	2X	6	10d x 1-1/2	6	10d	2095	375	9.32	1.67	1800	325	8.01	1.45
	3X	6	16d x 2-1/2	6	10d	3360	520	14.95	2.31	2890	445	12.86	1.98
	(2) 2X	10	10d	6	10d	3415	520	15.19	2.31	2935	445	13.06	1.98
	4X	10	16d	6	10d	3840	520	17.08	2.31	3300	445	14.68	1.98
TFI	4X	6	16d	2	10d x 1-1/2	3685	375	16.39	1.67	3170	325	14.10	1.45
	4X	10	16d	2	10d x 1-1/2	4675	375	20.80	1.67	4020	325	17.88	1.45

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 2) Listed loads shall not be increased.
- 3) The nailer must be sized to fit the supported width and be of sufficient thickness to satisfy specified top flange nailing requirements. A design professional must specify nailer attachment to steel beams.
- 4) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

These hangers are used to support LVL, LSL, and PSL beams and headers in medium-to-heavy load conditions.

**Materials:** BPH – 12 gauge; HBPH – 10 gauge

**Finish:** G90 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

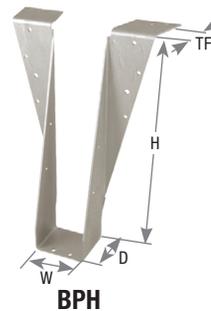
- Use all specified fasteners. See Product Notes, page 15.
- Refer to the top mount chart for applications requiring web stiffeners.
- Requirements for web stiffener from the I-Joist manufacturer should be followed, even if web stiffeners are not required in USP literature.
- For welded installations, see page 224.



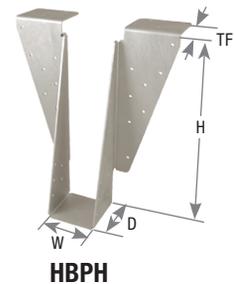
**Typical BPH installation**



**Typical HBPH installation**



**BPH**



**HBPH**

**Nailer Options**

– chart represents maximum factored resistance for hangers used on wood nailers. Reference page 127.

USP Series	Nailer Size <sup>3</sup>	Fastener Schedule <sup>4</sup>				DF Factored Resistance <sup>2</sup>				S-P-F Factored Resistance <sup>2</sup>			
		Header		Joist		Lbs		kN		Lbs		kN	
		Qty	Type	Qty	Type	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>
						100%	115%	100%	115%	100%	115%	100%	115%
BPH	2X	6	10d x 1-1/2	4	10d x 1-1/2	2995	240	13.32	1.07	2575	205	11.45	0.91
	3X	8	16d x 2-1/2	4	10d x 1-1/2	3400	555	15.12	2.47	2925	475	13.01	2.11
	(2) 2X	8	10d	4	10d x 1-1/2	3325	555	14.79	2.47	2860	475	12.72	2.11
	4X	8	16d	4	10d x 1-1/2	3235	555	14.39	2.47	2780	475	12.37	2.11
HBPH	2X	6	10d x 1-1/2	4	10d x 1-1/2	2995	240	13.32	1.07	2575	205	11.45	0.91
	3X	8	16d x 2-1/2	4	10d x 1-1/2	3400	555	15.12	2.47	2925	475	13.01	2.11
	(2) 2X	8	10d	4	10d x 1-1/2	3325	555	14.79	2.47	2860	475	12.72	2.11
	4X	8	16d	4	10d x 1-1/2	3235	555	14.39	2.47	2780	475	12.37	2.11

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
  - 2) Listed loads shall not be increased.
  - 3) The nailer must be sized to fit the supported width and be of sufficient thickness to satisfy specified top flange nailing requirements. A design professional must specify nailer attachment to steel beams.
  - 4) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long, 16d x 2-1/2 nails are 0.162" dia. x 2-1/2" long.
- New products or updated product information are designated in **blue font**.

**Specialty Options Chart** – refer to Specialty Options pages 220 and 222 for additional details

Option	Skewed <sup>1,3</sup>	Sloped Seat <sup>2</sup>	Sloped / Skewed <sup>1,2,3</sup>	Sloped Top Flange <sup>4</sup>
Range	1° to 50°	1° to 45°	See Sloped Seat and Skewed	0° to 45°
Factored Resistance	100% of table load	100% of table load	100% of table load	Reduce allowable table loads using straight-line interpolation
Ordering	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and <b>square cut (<i>SQ</i>) or bevel cut (<i>BV</i>)</b> to product number. Example: BPH3595_SK45R_SQ	Add <i>SL</i> , slope required, and up ( <i>U</i> ) or down ( <i>D</i> ), to product number. Example: BPH3595_SL30D	See Sloped Seat and Skewed. Example: BPH3595_SK45R_SQ_SL30D	Add <i>SF</i> , angle required and right ( <i>R</i> ) or left ( <i>L</i> ), to product number. Example: BPH3595_SF30L

- 1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.
  - 2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.
  - 3) **For skewed hangers, the required cut type (square or bevel) of joist member may vary based on skew angle and width of hanger. Some square cut hangers will require custom pricing due to welded back plate.**
  - 4) Sloped top flanges with slopes greater than 15° may have additional header nails.
- New products or updated product information are designated in **blue font**.

Heavy-duty hanger for LVL, LSL, and PSL beams.

**Materials:** 7 gauge

**Finish:** USP primer

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- For welded installations, see page 224.
- NA16D-RS ring shank nails are supplied with HLBH hangers.

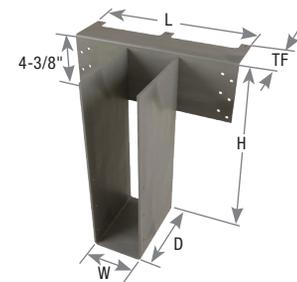


**Typical HLBH installation**

**Nailer Options**

– chart represents maximum factored resistance for hangers used on wood nailers. Reference page 127.

USP Series	Nailer Size	Fastener Schedule <sup>3</sup>				DF Factored Resistance <sup>2</sup>				S-P-F Factored Resistance <sup>2</sup>			
		Header		Joist		Lbs		kN		Lbs		kN	
		Qty	Type	Qty	Type	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
HLBH	4X	11	NA16D-RS	6	10d x 1-1/2	13825	1430	61.50	6.36	12840	1235	57.12	5.49
		11	NA16D-RS	6	16d	13825	1770	61.50	7.87	12840	1430	57.12	6.36



**HLBH**

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
  - 2) Listed loads shall not be increased.
  - 3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, NA16D-RS nails are 0.148 dia. x 3-1/2" long, 16d nails are 0.162" dia. x 3-1/2" long.
- New products or updated product information are designated in **blue font**.

**Specialty Options Chart**

– refer to Specialty Options pages 220, 222-223 for additional details

Option	Skewed <sup>1,3</sup>	Sloped Seat <sup>2</sup>	Sloped / Skewed <sup>1,2,3</sup>	Sloped Top Flange <sup>4</sup>	Top Flange Offset	Saddle <sup>5</sup>	Ridge
Range	1° to 50°	1° to 45°	See Sloped Seat and Skewed	0° to 45°	---	---	0° to 45°
Factored Resistance	11620 lbs. Max. 50% of uplift load on skew greater than 15°.	10080 lbs. Max.	9575 lbs. Max. 50% of uplift load on skew greater than 15°.	Reduce table loads using straight-line interpolation	45% of table load	100% of table load per side. <b>See footnote 5.</b>	100% of table load
Ordering	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and <b>square cut (<i>SQ</i>) or bevel cut (<i>BV</i>)</b> to product number. Ex. HLBH3595_SK45R_BV	Add <i>SL</i> , slope required, and up ( <i>U</i> ) or down ( <i>D</i> ), to product number. Ex. HLBH3595_SL30D	See Sloped Seat and Skewed. Ex. HLBH3595_SK45R_BV_SL30D	Add <i>SF</i> , angle required, and right ( <i>R</i> ) or left ( <i>L</i> ), to product number. Ex. HLBH3595_SF30L	Add <i>OS</i> , and right ( <i>R</i> ) or left ( <i>L</i> ), to product number. Ex. HLBH3595_OSL	Add <i>SA</i> , and saddle width required to product number. Ex. HLBH3595_SA=5-1/2"	Add <i>DA</i> , and angle required to product number. Ex. HLBH3595_DA30

- 1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.
  - 2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.
  - 3) **Skewed hangers typically require a bevel cut however, a square cut option may be available as a custom when requested.**
  - 4) Sloped top flanges with slopes greater than 15° may have additional header nails.
  - 5) Minimum header thickness shall be double the top flange (TF) dimension for 100% table load.
- New products or updated product information are designated in **blue font**.

Used to connect LVL, LSL, and PSL beams to headers in medium load conditions using standard nails.

**Materials:** See EWP Top Mount Hangers charts, pages 134-141.

**Finish:** USP primer; PHXU – G90 galvanizing.

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

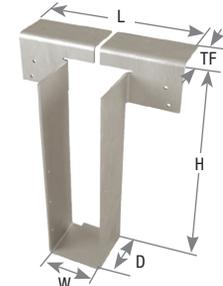
- Use all specified fasteners. See Product Notes, page 15.
- For welded installations, see page 224.

**Nailer Options**

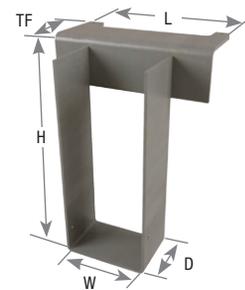
– chart represents maximum factored resistance for hangers used on wood nailers. Reference page 127.



**Typical PHXU installation**



**PHXU**



**PHM**

USP Series	Nailer Size	Fastener Schedule <sup>3</sup>				Unit	DF Factored Resistance <sup>2</sup>		S-P-F Factored Resistance <sup>2</sup>	
		Header		Joist			Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
		Qty	Type	Qty	Type					
PHM	2X	2	10d x 1-1/2	2	10d x 1-1/2	Lbs	4335	---	3730	---
						kN	19.28	---	16.59	---
	3X	2	16d x 2-1/2	2	10d x 1-1/2	Lbs	5140	---	4420	---
						kN	22.86	---	19.66	---
	(2) 2X	2	10d	2	10d x 1-1/2	Lbs	4790	---	4120	---
						kN	21.31	---	18.33	---
PHXU 1-3/4" widths	4X	8	16d	6	10d x 1-1/2	Lbs	6370	<b>1210</b>	<b>4420</b>	920
						kN	28.34	<b>5.38</b>	<b>19.66</b>	4.09
PHXU width > 1-3/4"	4X	8	16d	6	10d x 1-1/2	Lbs	7610	1005	<b>5170</b>	865
						kN	33.85	4.47	<b>23.00</b>	3.85
	4X	8	16d	6	10d	Lbs	7610	<b>1290</b>	<b>5170</b>	1150
						kN	33.85	<b>5.74</b>	<b>23.00</b>	5.12

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
  - 2) Listed loads shall not be increased.
  - 3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.
- New products or updated product information are designated in **blue font**.

**Specialty Options Chart**

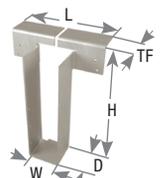
– refer to Specialty Options pages 220, 222-223 for additional details

Option	USP Series	Skewed <sup>1,3,5</sup>	Sloped Seat <sup>2</sup>	Sloped / Skewed <sup>1,2,3</sup>	Sloped Top Flange <sup>4</sup>	Top Flange Offset <sup>5,7</sup>	Saddle <sup>5,6</sup>	Ridge
Range	PHM PHXU	1° to 84° 1° to 60°	1° to 45°	See Sloped Seat and Skewed	0° to 35°	--	--	0° to 45° N/A
Factored Resistance	PHM PHXU	100% of table load	100% of table load	100% of table load up to Max. load of 3600 lbs. 100% of table load up to Max. load of 5615 lbs.	Reduce table load using straight-line interpolation	<b>Hanger Width</b> 3-1/2" or less 60% 3-9/16" to 5-1/2" 75% 5-9/16" to 7-1/2" 85%	100% of table load. <b>See footnote 6.</b>	100% of table load
Ordering	PHM PHXU	Add SK, angle required, right (R) or left (L), and <b>square cut (SQ) or bevel cut (BV)</b> to product number. Ex: PHXU1795_SK45R_SQ	Add SL, slope required, and up (U) or down (D), to product number. Ex: PHXU1795_SL30D	See Sloped Seat and Skewed. Ex: PHXU1795_SK45R_SQ_SL30D	Add SF, angle required, and right (R) or left (L), to product number. Ex: PHXU1795_SF30L	Add OS, and right (R) or left (L), to product number. Ex: PHXU1795_OSL	Add SA, and saddle width required to product number. Ex: PHXU1795_SA=5-1/2"	Add DA, and angle required to product number. Ex. PHXU1795_DA30 N/A

- 1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.
  - 2) Sloped or sloped/skewed hangers with slopes greater than 15° may have additional joist nails.
  - 3) **For skewed hangers, the required cut type (square or bevel) of joist member may vary based on skew angle and width of hanger. Some square cut hangers will require custom pricing due to welded back plate.**
  - 4) Sloped top flanges with slopes greater than 15° may have additional header nails.
  - 5) Skewed, top flange offset, or saddle options will have a solid, welded top flange.
  - 6) Minimum header thickness shall be double the top flange (TF) dimension for 100% table load.
  - 7) PHXU offset option - hanger will be welded with a closed top angle, not formed.
- New products or updated product information are designated in **blue font**.

Joist Size	USP Stock No.	Ref. No.	Web Stiff Req'd	Ga.	Dimensions (in)					Fastener Schedule <sup>3</sup>				Factored Resistance							
					W	H	D	L	TF	Header		Joist		Header Material (100%)						Uplift <sup>1</sup>	
										Qty	Type <sup>2</sup>	Qty	Type	LVL	PSL	LSL	SPF	I-Joist <sup>2</sup>	DF	DF	DF
					Unit	Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN
1-1/2 x 9-1/4	THO15925	LT15925	--	18	1-9/16	9-1/4	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	1935	1860	1920	<b>1250</b>	1445	<b>1595</b>	<b>420</b>
	BPH15925	LBV1.56/9.25	x	12	1-9/16	9-1/4	2-3/8	--	1-1/2	10	16d	4	10d x 1-1/2	kN	8.61	8.27	8.54	<b>5.56</b>	6.43	<b>7.09</b>	<b>1.87</b>
1-1/2 x 9-1/2	THO15950	LT159	--	18	1-1/2	9-1/2	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	4415	4415	4415	<b>3965</b>	--	<b>5050</b>	<b>1140</b>
	BPH1595	LBV1.56/9.5, MIT29.5	x	12	1-9/16	9-1/2	2-3/8	--	1-1/2	10	16d	4	10d x 1-1/2	kN	19.64	19.64	19.64	<b>17.64</b>	--	<b>22.46</b>	<b>5.07</b>
1-1/2 x 11-1/4	THO15118	LT151188, MIT211.88	--	18	1-1/2	11-7/8	2	--	1-9/16	6	10d	2	10d x 1-1/2	Lbs	4415	4415	4415	<b>3965</b>	--	<b>5050</b>	<b>1140</b>
	BPH15112	LBV1.56/11.25	x	12	1-9/16	11-1/4	2-3/8	--	1-1/2	10	16d	4	10d x 1-1/2	kN	19.64	19.64	19.64	<b>17.64</b>	--	<b>22.46</b>	<b>5.07</b>
1-1/2 x 11-7/8	THO15118	LT151188, MIT211.88	--	18	1-1/2	11-7/8	2	--	1-9/16	6	10d	2	10d x 1-1/2	Lbs	4415	4415	4415	<b>3965</b>	--	<b>5050</b>	<b>1140</b>
	BPH15118	LBV1.56/11.88	x	12	1-9/16	11-7/8	2-3/8	--	1-1/2	10	16d	4	10d x 1-1/2	kN	19.64	19.64	19.64	<b>17.64</b>	--	<b>22.46</b>	<b>5.07</b>
1-1/2 x 14	THO15140	---	--	16	1-9/16	14	2-3/8	--	1-1/2	10	10d	2	10d x 1-1/2	Lbs	1485	1485	1485	<b>1285</b>	1485	<b>1635</b>	<b>420</b>
	BPH1514	LBV1.56/14	x	12	1-9/16	14	2-3/8	--	1-1/2	10	16d	4	10d x 1-1/2	kN	6.61	6.61	6.61	<b>5.72</b>	6.61	<b>7.27</b>	<b>1.87</b>
1-5/8 x 9-1/2	THO16950	---	--	18	1-11/16	9-1/2	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1285</b>	1795	<b>1635</b>	<b>420</b>
	THO16112	---	--	16	1-11/16	11-1/4	2	--	1-1/2	6	10d	2	10d x 1-1/2	kN	10.54	10.25	10.90	<b>5.72</b>	7.98	<b>7.27</b>	<b>1.87</b>
1-5/8 x 11-1/4	THO16112	---	--	16	1-11/16	11-1/4	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1285</b>	1795	<b>1635</b>	<b>420</b>
	THO16118	---	--	16	1-11/16	11-7/8	2	--	1-1/2	6	10d	2	10d x 1-1/2	kN	10.54	10.25	10.90	<b>5.72</b>	7.98	<b>7.27</b>	<b>1.87</b>
1-5/8 x 14	THO16140	---	--	16	1-11/16	14	3	--	1-3/4	10	10d	2	10d x 1-1/2	Lbs	1485	1485	1485	<b>1285</b>	1795	<b>1635</b>	<b>420</b>
	THO16140	---	--	16	1-11/16	14	3	--	1-3/4	10	10d	2	10d x 1-1/2	kN	6.61	6.61	6.61	<b>5.72</b>	7.98	<b>7.27</b>	<b>1.87</b>
1-3/4 x 7-1/4	PHXU17725	LBV1.81/7.25, WP1.81/7.25	x	7	1-13/16	7-1/4	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	Lbs	6370	6370	6370	<b>6075</b>	--	<b>7740</b>	<b>1890</b>
	PHXU17725	---	--	16	1-11/16	11-1/4	2-1/2	7	3	2	16d	2	10d x 1-1/2	kN	28.34	28.34	28.34	<b>27.02</b>	--	<b>34.43</b>	<b>8.41</b>
1-3/4 x 9-1/4	BPH17925	LBV1.81/9.25	x	12	1-13/16	9-1/4	2-3/8	--	1-11/16	10	16d	4	10d x 1-1/2	Lbs	4890	4890	4890	<b>4160</b>	--	<b>5300</b>	<b>1140</b>
	PHM17925	WP9.25	x	7/10	1-13/16	9-1/4	2-1/2	7	3	2	16d	2	10d x 1-1/2	kN	21.75	21.75	21.75	<b>18.50</b>	--	<b>23.58</b>	<b>5.07</b>
1-3/4 x 9-1/2	PHM17925	WP9.25	x	7/10	1-13/16	9-1/4	2-1/2	7	3	2	16d	2	10d x 1-1/2	Lbs	5090	4795	4435	<b>4450</b>	--	<b>5670</b>	--
	PHXU17925	WPU1.81/9.25	x	7	1-13/16	9-1/4	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	kN	22.64	21.33	19.73	<b>19.79</b>	--	<b>25.22</b>	--
1-3/4 x 9-1/2	THO17950	LT179, ITS1.81/9.5	--	18	1-3/4	9-1/2	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	6370	6370	6370	<b>6075</b>	--	<b>7740</b>	<b>1890</b>
	BPH1795	LBV1.81/9.5, MIT9.5	x	12	1-13/16	9-1/2	2-3/8	--	1-11/16	10	16d	4	10d x 1-1/2	kN	28.34	28.34	28.34	<b>27.02</b>	--	<b>34.43</b>	<b>8.41</b>
1-3/4 x 9-1/2	BPH1795	LBV1.81/9.5, MIT9.5	x	12	1-13/16	9-1/2	2-3/8	--	1-11/16	10	16d	4	10d x 1-1/2	Lbs	4890	4890	4890	<b>4160</b>	--	<b>5300</b>	<b>1140</b>
	PHM1795	WP9	x	7/10	1-13/16	9-1/2	2-1/2	7	3	2	16d	2	10d x 1-1/2	kN	21.75	21.75	21.75	<b>18.50</b>	--	<b>23.58</b>	<b>5.07</b>
1-3/4 x 11-1/4	PHM1795	WP9	x	7/10	1-13/16	9-1/2	2-1/2	7	3	2	16d	2	10d x 1-1/2	Lbs	5090	4795	4435	<b>4450</b>	--	<b>5670</b>	--
	PHXU1795	---	x	7	1-13/16	9-1/2	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	kN	22.64	21.33	19.73	<b>19.79</b>	--	<b>25.22</b>	--
1-3/4 x 11-1/4	BPH17112	LBV1.81/11.25	x	12	1-13/16	11-1/4	2-3/8	--	1-11/16	10	16d	4	10d x 1-1/2	Lbs	6370	6370	6370	<b>6075</b>	--	<b>7740</b>	<b>1890</b>
	PHM17112	---	x	7/10	1-13/16	11-1/4	2-1/2	7	3	2	16d	2	10d x 1-1/2	kN	28.34	28.34	28.34	<b>27.02</b>	--	<b>34.43</b>	<b>8.41</b>
1-3/4 x 11-1/4	PHM17112	---	x	7/10	1-13/16	11-1/4	2-1/2	7	3	2	16d	2	10d x 1-1/2	Lbs	4890	4890	4890	<b>4160</b>	--	<b>5300</b>	<b>1140</b>
	PHXU17112	WPU1.81/11.25	x	7	1-13/16	11-1/4	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	kN	21.75	21.75	21.75	<b>18.50</b>	--	<b>23.58</b>	<b>5.07</b>
1-3/4 x 11-1/4	PHM17112	---	x	7/10	1-13/16	11-1/4	2-1/2	7	3	2	16d	2	10d x 1-1/2	Lbs	5090	4795	4435	<b>4450</b>	--	<b>5670</b>	--
	PHXU17112	WPU1.81/11.25	x	7	1-13/16	11-1/4	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	kN	22.64	21.33	19.73	<b>19.79</b>	--	<b>25.22</b>	--

1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) When I-joist is used as a header, all nails must be 10d x 1-1/2.  
 3) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.  
**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**  
 New products or updated product information are designated in **blue font**.



# Top Mount Hanger Charts

EWP Hangers

Joist Size	USP Stock No.	Ref. No.	Web Stiff Req'd	Ga.	Dimensions (in)					Fastener Schedule <sup>3</sup>				Unit	Factored Resistance						
					W	H	D	L	TF	Header		Joist			Header Material (100%)					Uplift <sup>1</sup>	
										Qty	Type <sup>2</sup>	Qty	Type		LVL	PSL	LSL	SPF	I-Joist <sup>2</sup>	DF	DF
					115%																
1-3/4 x 11-7/8	TH017118	LT171188, ITS1.81/11.88, MIT1.88	--	18	1-3/4	11-7/8	2	--	1-9/16	6	10d	2	10d x 1-1/2	Lbs	1935	1860	1920	<b>1665</b>	1735	<b>2125</b>	<b>490</b>
														kN	8.61	8.27	8.54	<b>7.41</b>	7.72	<b>9.45</b>	<b>2.18</b>
	BPH17118	BA1.81/11.88, LBV1.81/11.88	x	12	1-13/16	11-7/8	2-3/8	--	1-11/16	10	16d	4	10d x 1-1/2	Lbs	4890	4890	4890	<b>4160</b>	--	<b>5300</b>	<b>1140</b>
														kN	21.75	21.75	21.75	<b>18.50</b>	--	<b>23.58</b>	<b>5.07</b>
	PHM17118	WP11	x	7/10	1-13/16	11-7/8	2-1/2	7	3	2	16d	2	10d x 1-1/2	Lbs	5090	4795	4435	<b>4450</b>	--	<b>5670</b>	--
														kN	22.64	21.33	19.73	<b>19.79</b>	--	<b>25.22</b>	--
	PHXU17118	WPU1.81/11.88	x	7	1-13/16	11-7/8	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	Lbs	6370	6370	6370	<b>6075</b>	--	<b>7740</b>	<b>1890</b>
														kN	28.34	28.34	28.34	<b>27.02</b>	--	<b>34.43</b>	<b>8.41</b>
1-3/4 x 14	TFL1714	LT1714, ITS1.81/14	--	18	1-3/4	14	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18
	BPH1714	LBV1.81/14, MIT1.81/14	x	12	1-13/16	14	2-3/8	--	1-11/16	10	16d	4	10d x 1-1/2	Lbs	4890	4890	4890	<b>4160</b>	--	<b>5300</b>	<b>1140</b>
														kN	21.75	21.75	21.75	<b>18.50</b>	--	<b>23.58</b>	<b>5.07</b>
	PHM1714	WP14	x	7/10	1-13/16	14	2-1/2	7	3	2	16d	2	10d x 1-1/2	Lbs	5090	4795	4435	<b>4450</b>	--	<b>5670</b>	--
														kN	22.64	21.33	19.73	<b>19.79</b>	--	<b>25.22</b>	--
	PHXU1714	WPU1.81/14	x	7	1-13/16	14	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	Lbs	6370	6370	6370	<b>6075</b>	--	<b>7740</b>	<b>1890</b>
														kN	28.34	28.34	28.34	<b>27.02</b>	--	<b>34.43</b>	<b>8.41</b>
1-3/4 x 16	TFL1716	LT1716, ITS1.81/16	--	18	1-3/4	16	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18
	BPH1716	B1.81/16, LBV1.81/16, MIT1.81/16	x	12	1-13/16	16	2-3/8	--	1-11/16	10	16d	4	10d x 1-1/2	Lbs	4890	4890	4890	<b>4160</b>	--	<b>5300</b>	<b>1140</b>
														kN	21.75	21.75	21.75	<b>18.50</b>	--	<b>23.58</b>	<b>5.07</b>
	PHM1716	WP16	x	7/10	1-13/16	16	2-1/2	7	3	2	16d	2	10d x 1-1/2	Lbs	5090	4795	4435	<b>4450</b>	--	<b>5670</b>	--
														kN	22.64	21.33	19.73	<b>19.79</b>	--	<b>25.22</b>	--
2 - 2-1/8 x 9-1/2	TFL2095	LT209, ITS2.06/9.5	--	18	2-1/8	9-1/2	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18
2 - 2-1/8 x 11-7/8	TFL20118	LT201188, ITS2.06/11.88	--	18	2-1/8	11-7/8	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18
2 - 2-1/8 x 14	TFL2014	LT214, ITS2.06/14	--	18	2-1/8	14	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18
2 - 2-1/8 x 16	TFL2016	LT2016	--	18	2-1/8	16	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18
2-1/4 - 2-5/16 x 9-1/2	TFL2395	LT239, ITS2.37/9.5	--	18	2-5/16	9-1/2	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18
2-1/4 - 2-5/16 x 11-7/8	TFL23118	LT231188, ITS2.37/11.88	--	18	2-5/16	11-7/8	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18
2-1/4 - 2-5/16 x 14	TFL2314	LT2314, ITS2.37/14	--	18	2-5/16	14	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18
	TH023140	LBV2.37/14	--	18	2-3/8	14	2-3/8	--	2	12	10d	2	10d x 1-1/2	Lbs	3910	3910	3910	<b>3385</b>	2950	<b>4310</b>	<b>485</b>
														kN	17.39	17.39	17.39	<b>15.06</b>	13.12	<b>19.17</b>	<b>2.16</b>
	TFI3514	MIT3514	--	16	2-3/8	14	2-1/2	--	2-1/16	6	16d	2	10d x 1-1/2	Lbs	3685	3220	3260	<b>3290</b>	--	4190	<b>505</b>
														kN	16.39	14.32	14.50	<b>14.63</b>	--	18.64	<b>2.25</b>
	PHM2314	WP3514	x	7/10	2-3/8	14	2-1/2	7	3	2	16d	2	10d x 1-1/2	Lbs	5140	5140	4435	<b>4450</b>	--	<b>5670</b>	--
														kN	22.86	22.86	19.73	<b>19.79</b>	--	<b>25.22</b>	--

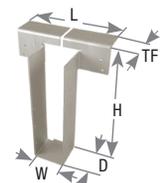
1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) When I-joist is used as a header, all nails must be 10d x 1-1/2.

3) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**

New products or updated product information are designated in **blue font**.



Continued on next page

Joist Size	USP Stock No.	Ref. No.	Web Stiff Req'd	Ga.	Dimensions (in)					Fastener Schedule <sup>3</sup>				Unit	Factored Resistance								
					W	H	D	L	TF	Header		Joist			Header Material (100%)					Uplift <sup>1</sup>			
										Qty	Type <sup>2</sup>	Qty	Type		LVL	PSL	LSL	SPF	I-Joist <sup>2</sup>		DF	DF 115%	
																			Lbs	kN	Lbs	kN	Lbs
2-1/4 - 2-5/16 x 16	TFL2316	---	--	18	2-5/16	16	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265		
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18		
	TFI3516	MIT3516	--	16	2-3/8	16	2-1/2	--	2-1/16	6	16d	2	10d x 1-1/2	Lbs	3685	3220	3260	<b>3290</b>	--	4190	<b>505</b>		
														kN	16.39	14.32	14.50	<b>14.63</b>	--	18.64	<b>2.25</b>		
	PHM2316	WP3516	x	7/10	2-3/8	16	2-1/2	7	3	2	16d	2	10d x 1-1/2	Lbs	5140	5140	4435	<b>4450</b>	--	<b>5670</b>	--		
														kN	22.86	22.86	19.73	<b>19.79</b>	--	<b>25.22</b>	--		
2-1/4 - 2-5/16 x 18	TFI3518	HIT3518, LBV2.37/18, MIT3518	--	16	2-3/8	18	2-1/2	--	2-1/16	6	16d	2	10d x 1-1/2	Lbs	3685	3220	3260	<b>3290</b>	--	4190	<b>505</b>		
														kN	16.39	14.32	14.50	<b>14.63</b>	--	18.64	<b>2.25</b>		
	PHM2318	WP3518	x	7/10	2-3/8	18	2-1/2	7	3	2	16d	2	10d x 1-1/2	Lbs	5140	5140	4435	<b>4450</b>	--	<b>5670</b>	--		
														kN	22.86	22.86	19.73	<b>19.79</b>	--	<b>25.22</b>	--		
2-1/4 - 2-5/16 x 20	TFI3520	HIT3520, LBV2.37/20, MIT3520	--	16	2-3/8	20	2-1/2	--	2-1/16	6	16d	2	10d x 1-1/2	Lbs	3685	3220	3260	<b>3290</b>	--	4190	<b>505</b>		
														kN	16.39	14.32	14.50	<b>14.63</b>	--	18.64	<b>2.25</b>		
	PHM2320	WP3520	x	7/10	2-3/8	20	2-1/2	7	3	2	16d	2	10d x 1-1/2	Lbs	5140	5140	4435	<b>4450</b>	--	<b>5670</b>	--		
														kN	22.86	22.86	19.73	<b>19.79</b>	--	<b>25.22</b>	--		
2-1/2 x 9-1/4	TFL25925	LT25925	--	18	2-1/2	9-1/4	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265		
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18		
2-1/2 x 9-3/8	TFL25938	LT259375	--	18	2-1/2	9-3/8	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265		
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18		
2-1/2 x 9-1/2	TFL2595	LT259, ITS2.56/9.5	--	18	2-1/2	9-1/2	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265		
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18		
2-1/2 x 11-1/4	TFL25112	LT251125	--	18	2-1/2	11-1/4	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265		
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18		
2-1/2 x 11-7/8	TFL25118	LT251188, ITS2.56/11.88	--	18	2-1/2	11-7/8	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265		
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18		
	TH025118	MIT311.88	--	16	2-9/16	11-7/8	2-3/8	--	1-15/16	10	10d	2	10d x 1-1/2	Lbs	2640	2640	2640	<b>2285</b>	2640	<b>2910</b>	<b>485</b>		
														kN	11.74	11.74	11.74	<b>10.16</b>	11.74	<b>12.94</b>	<b>2.16</b>		
2-1/2 x 13	TFL2513	LT2513	--	18	2-1/2	13	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265		
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18		
2-1/2 x 14	TFL2514	LT2514, ITS2.56/14	--	18	2-1/2	14	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265		
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18		
	TH025140	---	--	18	2-9/16	14	2-3/8	--	2	12	10d	2	10d x 1-1/2	Lbs	3910	3910	3910	<b>3385</b>	2950	<b>4310</b>	<b>485</b>		
														kN	17.39	17.39	17.39	<b>15.06</b>	13.12	<b>19.17</b>	<b>2.16</b>		
	TFI314	MIT314	--	16	2-9/16	14	2-1/2	--	2	6	16d	2	10d x 1-1/2	Lbs	3685	3220	3260	<b>3290</b>	--	4190	<b>505</b>		
														kN	16.39	14.32	14.50	<b>14.63</b>	--	18.64	<b>2.25</b>		
	PHM2514	WPI314	--	7/10	2-9/16	14	2-1/2	7	3	2	16d	2	10d x 1-1/2	Lbs	5140	5140	4435	<b>4450</b>	--	<b>5670</b>	--		
														kN	22.86	22.86	19.73	<b>19.79</b>	--	<b>25.22</b>	--		
2-1/2 x 16	TFL2516	LT2516	--	18	2-1/2	16	2	--	1-1/2	6	10d	2	10d x 1-1/2	Lbs	2370	2305	2450	<b>1960</b>	1795	<b>2495</b>	265		
														kN	10.54	10.25	10.90	<b>8.72</b>	7.98	<b>11.10</b>	1.18		
	TFI316	LBV2.56/16, MIT316	--	16	2-9/16	16	2-1/2	--	2	6	16d	2	10d x 1-1/2	Lbs	3685	3220	3260	<b>3290</b>	--	4190	<b>505</b>		
														kN	16.39	14.32	14.50	<b>14.63</b>	--	18.64	<b>2.25</b>		
	PHM2516	WPI316	--	7/10	2-9/16	16	2-1/2	7	3	2	16d	2	10d x 1-1/2	Lbs	5140	5140	4435	<b>4450</b>	--	<b>5670</b>	--		
														kN	22.86	22.86	19.73	<b>19.79</b>	--	<b>25.22</b>	--		
2-1/2 x 18	TFI318	HIT318, LBV2.56/18, MIT318	--	16	2-9/16	18	2-1/2	--	2	6	16d	2	10d x 1-1/2	Lbs	3685	3220	3260	<b>3290</b>	--	4190	<b>505</b>		
														kN	16.39	14.32	14.50	<b>14.63</b>	--	18.64	<b>2.25</b>		
2-1/2 x 20	TFI320	HIT320, LBV2.56/20, MIT320	--	16	2-9/16	20	2-1/2	--	2	6	16d	2	10d x 1-1/2	Lbs	3685	3220	3260	<b>3290</b>	--	4190	<b>505</b>		
														kN	16.39	14.32	14.50	<b>14.63</b>	--	18.64	<b>2.25</b>		
2-1/2 x 22	TFI322	HIT322, LBV2.56/22, WPI322	--	16	2-9/16	22	2-1/2	--	2	10	16d	2	10d x 1-1/2	Lbs	4675	4205	4250	<b>4175</b>	--	5315	<b>505</b>		
														kN	20.80	18.70	18.90	<b>18.57</b>	--	23.64	<b>2.25</b>		

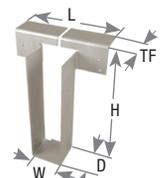
1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) When I-joist is used as a header, all nails must be 10d x 1-1/2.

3) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**

New products or updated product information are designated in **blue font**.



# Top Mount Hanger Charts

EWP Hangers

Joist Size	USP Stock No.	Ref. No.	Web Stiff Req'd	Ga.	Dimensions (in)					Fastener Schedule <sup>3</sup>				Unit	Factored Resistance						
					W	H	D	L	TF	Header		Joist			Header Material (100%)					Uplift <sup>1</sup>	
										Qty	Type <sup>2</sup>	Qty	Type		LVL	PSL	LSL	SPF	DF I-Joist <sup>2</sup>	DF	DF
																		115%			
2-1/2 x 24	TFI324	HIT324, LBV2.56/24, WPI324	--	16	2-9/16	24	2-1/2	--	2	10	16d	2	10d x 1-1/2	Lbs	4675	4205	4250	<b>4175</b>	--	5315	<b>505</b>
														kN	20.80	18.70	18.90	<b>18.57</b>	--	23.64	<b>2.25</b>
2-1/2 x 26	TFI326	HIT326, LBV2.56/26, WPI326	--	16	2-9/16	26	2-1/2	--	2	10	16d	2	10d x 1-1/2	Lbs	4675	4205	4250	<b>4175</b>	--	5315	<b>505</b>
														kN	20.80	18.70	18.90	<b>18.57</b>	--	23.64	<b>2.25</b>
2-5/8 x 9-1/2	THO26950	---	--	18	2-11/16	9-1/2	2-3/8	--	2	10	10d	2	10d x 1-1/2	Lbs	2340	2340	2340	<b>2025</b>	2950	<b>2580</b>	<b>485</b>
														kN	10.41	10.41	10.41	<b>9.01</b>	13.12	<b>11.48</b>	<b>2.16</b>
2-5/8 x 11-7/8	THO26118	---	--	16	2-11/16	11-7/8	2-3/8	--	2	10	10d	2	10d x 1-1/2	Lbs	2535	2535	2535	<b>2285</b>	2640	<b>2910</b>	<b>485</b>
														kN	11.28	11.28	11.28	<b>10.16</b>	11.74	<b>12.94</b>	<b>2.16</b>
2-5/8 x 14	THO26140	---	--	18	2-11/16	14	2-3/8	--	2	12	10d	2	10d x 1-1/2	Lbs	3910	3910	3910	<b>3385</b>	2950	<b>4310</b>	<b>485</b>
														kN	17.39	17.39	17.39	<b>15.06</b>	13.12	<b>19.17</b>	<b>2.16</b>
2-5/8 x 16	THO26160	---	--	18	2-11/16	16	2-3/8	--	2	12	10d	2	10d x 1-1/2	Lbs	3910	3910	3910	<b>3385</b>	2950	<b>4310</b>	<b>485</b>
														kN	17.39	17.39	17.39	<b>15.06</b>	13.12	<b>19.17</b>	<b>2.16</b>
2-11/16 x 9-1/4	PHXU27925	HWU2.75/9.25	--	7	2-3/4	9-1/4	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	Lbs	8670	8330	8670	<b>7090</b>	--	<b>9030</b>	<b>1770</b>
														kN	38.57	37.05	38.57	<b>31.54</b>	--	<b>40.17</b>	<b>7.87</b>
2-11/16 x 9-1/4	HLBH27925	GLTV2.75/9.25	x	7	2-3/4	9-1/4	6	12	2-3/4	15	NA16D-RS	6	10d x 1-1/2	Lbs	14725	15180	13825	<b>12215</b>	--	<b>15560</b>	<b>2530</b>
														kN	65.50	67.52	61.50	<b>54.34</b>	--	<b>69.21</b>	<b>11.25</b>
2-11/16 x 9-1/2	PHXU2795	---	--	7	2-3/4	9-1/2	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	Lbs	8670	8330	8670	<b>7090</b>	--	<b>9030</b>	<b>1770</b>
														kN	38.57	37.05	38.57	<b>31.54</b>	--	<b>40.17</b>	<b>7.87</b>
2-11/16 x 9-1/2	HLBH2795	GLTV2.75/9.5	x	7	2-3/4	9-1/2	6	12	2-3/4	15	NA16D-RS	6	10d x 1-1/2	Lbs	14725	15180	13825	<b>12215</b>	--	<b>15560</b>	<b>2530</b>
														kN	65.50	67.52	61.50	<b>54.34</b>	--	<b>69.21</b>	<b>11.25</b>
2-11/16 x 11-1/4	PHXU27112	---	--	7	2-3/4	11-1/4	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	Lbs	8670	8330	8670	<b>7090</b>	--	<b>9030</b>	<b>1770</b>
														kN	38.57	37.05	38.57	<b>31.54</b>	--	<b>40.17</b>	<b>7.87</b>
2-11/16 x 11-1/4	HLBH27112	GLTV2.75/11.25	x	7	2-3/4	11-1/4	6	12	2-3/4	15	NA16D-RS	6	10d x 1-1/2	Lbs	14725	15180	13825	<b>12215</b>	--	<b>15560</b>	<b>2530</b>
														kN	65.50	67.52	61.50	<b>54.34</b>	--	<b>69.21</b>	<b>11.25</b>
2-11/16 x 11-7/8	PHXU27118	---	--	7	2-3/4	11-7/8	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	Lbs	8670	8330	8670	<b>7090</b>	--	<b>9030</b>	<b>1770</b>
														kN	38.57	37.05	38.57	<b>31.54</b>	--	<b>40.17</b>	<b>7.87</b>
2-11/16 x 11-7/8	HLBH27118	GLTV2.75/11.88	x	7	2-3/4	11-7/8	6	12	2-3/4	15	NA16D-RS	6	10d x 1-1/2	Lbs	14725	15180	13825	<b>12215</b>	--	<b>15560</b>	<b>2530</b>
														kN	65.50	67.52	61.50	<b>54.34</b>	--	<b>69.21</b>	<b>11.25</b>
2-11/16 x 14	PHXU2714	---	--	7	2-3/4	14	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	Lbs	8670	8330	8670	<b>7090</b>	--	<b>9030</b>	<b>1770</b>
														kN	38.57	37.05	38.57	<b>31.54</b>	--	<b>40.17</b>	<b>7.87</b>
2-11/16 x 14	HLBH2714	GLTV2.75/14	x	7	2-3/4	14	6	12	2-3/4	15	NA16D-RS	6	10d x 1-1/2	Lbs	14725	15180	13825	<b>12215</b>	--	<b>15560</b>	<b>2530</b>
														kN	65.50	67.52	61.50	<b>54.34</b>	--	<b>69.21</b>	<b>11.25</b>
2-11/16 x 16	PHXU2716	---	--	7	2-3/4	16	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	Lbs	8670	8330	8670	<b>7090</b>	--	<b>9030</b>	<b>1770</b>
														kN	38.57	37.05	38.57	<b>31.54</b>	--	<b>40.17</b>	<b>7.87</b>
2-11/16 x 16	HLBH2716	GLTV2.75/16	x	7	2-3/4	16	6	12	2-3/4	15	NA16D-RS	6	10d x 1-1/2	Lbs	14725	15180	13825	<b>12215</b>	--	<b>15560</b>	<b>2530</b>
														kN	65.50	67.52	61.50	<b>54.34</b>	--	<b>69.21</b>	<b>11.25</b>
3 x 9-1/4	BPH31925	LBV3.12/9.25	x	12	3-1/8	9-1/4	3	--	2-1/8	10	16d	4	10d	Lbs	5265	5055	5435	<b>4285</b>	--	<b>5455</b>	<b>1140</b>
														kN	23.42	22.49	24.18	<b>19.06</b>	--	<b>24.27</b>	<b>5.07</b>
3 x 9-1/4	PHXU31925	WP29.25-2	x	7	3-1/8	9-1/4	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	Lbs	8670	8330	8670	<b>7090</b>	--	<b>9030</b>	<b>1770</b>
														kN	38.57	37.05	38.57	<b>31.54</b>	--	<b>40.17</b>	<b>7.87</b>
3 x 9-1/2	THO15950-2	LT2-159, MIT29.5-2	x	16	3-1/16	9-1/2	2-3/8	--	1-1/2	10	16d	6	10d	Lbs	3355	3585	3585	<b>3180</b>	3790	<b>4050</b>	<b>2140</b>
														kN	14.92	15.95	15.95	<b>14.15</b>	16.86	<b>18.02</b>	<b>9.52</b>
3 x 9-1/2	BPH3195	LBV3.12/9.5	x	12	3-1/8	9-1/2	3	--	2-7/16	10	16d	4	10d	Lbs	5265	5055	5435	<b>4285</b>	--	<b>5455</b>	<b>1140</b>
														kN	23.42	22.49	24.18	<b>19.06</b>	--	<b>24.27</b>	<b>5.07</b>
3 x 9-1/2	PHXU3195	WP29.5-2	x	7	3-1/8	9-1/2	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	Lbs	8670	8330	8670	<b>7090</b>	--	<b>9030</b>	<b>1770</b>
														kN	38.57	37.05	38.57	<b>31.54</b>	--	<b>40.17</b>	<b>7.87</b>

1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

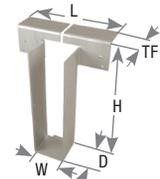
2) When I-joist is used as a header, all nails must be 10d x 1-1/2.

3) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**

New products or updated product information are designated in **blue font**.

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Joist Size	USP Stock No.	Ref. No.	Web Stiff Req'd	Ga.	Dimensions (in)					Fastener Schedule <sup>3</sup>				Unit	Factored Resistance							
					W	H	D	L	TF	Header		Joist			Header Material (100%)					Uplift <sup>1</sup>		
										Qty	Type <sup>2</sup>	Qty	Type		LVL	PSL	LSL	SPF	DF I-Joist <sup>2</sup>	DF	DF 115%	
3 x 11-1/4	BPH31112	LBV3.12/11.25	x	12	3-1/8	11-1/4	3	--	2-1/8	10	16d	4	10d	Lbs	5265	5055	5435	<b>4285</b>	--	<b>5455</b>	<b>1140</b>	
	PHXU31112	WP211.25-2	x	7	3-1/8	11-1/4	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	Lbs	8670	8330	8670	<b>7090</b>	--	<b>9030</b>	<b>1770</b>	
3 x 11-7/8	THO15118-2	LT2-151188, MIT211.88-2	x	16	3-1/16	11-7/8	2-3/8	--	1-1/2	10	16d	6	10d	Lbs	3355	3550	3550	<b>3155</b>	3790	<b>4020</b>	<b>2140</b>	
	BPH31118	LBV3.12/11.88	x	12	3-1/8	11-7/8	3	--	2-1/8	10	16d	4	10d	kN	14.92	15.79	15.79	<b>14.03</b>	16.86	<b>17.88</b>	<b>9.52</b>	
	PHXU31118	WP211.88-2	x	7	3-1/8	11-7/8	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	Lbs	5265	5055	5435	<b>4285</b>	--	<b>5455</b>	<b>1140</b>	
														kN	23.42	22.49	24.18	<b>19.06</b>	--	<b>24.27</b>	<b>5.07</b>	
	3 x 14	BPH3114	LBV3.12/14	x	12	3-1/8	14	3	--	2-3/32	10	16d	4	10d	Lbs	5265	5055	5435	<b>4285</b>	--	<b>5455</b>	<b>1140</b>
		PHXU3114	--	x	7	3-1/8	14	3-1/4	10	2-1/2	8	16d	6	10d x 1-1/2	kN	23.42	22.49	24.18	<b>19.06</b>	--	<b>24.27</b>	<b>5.07</b>
3-1/2 x 7-1/4	PHXU35725	WPU3.56/7.25	x	7	3-9/16	7-1/4	3-1/4	10	2-1/2	8	16d	6	10d	Lbs	8670	8330	8670	<b>7090</b>	--	<b>9030</b>	<b>1770</b>	
														kN	38.57	37.05	38.57	<b>31.54</b>	--	<b>40.17</b>	<b>7.87</b>	
3-1/2 x 9-1/4	THO35925	LT35925	--	16	3-9/16	9-1/4	2-3/8	--	2-1/2	10	10d	2	10d x 1-1/2	Lbs	2950	2950	2950	<b>2620</b>	2950	<b>3335</b>	<b>485</b>	
	BPH35925	BA410, LBV3.56/9.25	x	12	3-9/16	9-1/4	2-3/8	--	2-3/8	10	16d	4	10d	kN	13.12	13.12	13.12	<b>11.65</b>	13.12	<b>14.83</b>	<b>2.16</b>	
	HBPH35925	HB3.56/9.25	x	##	3-4/7	9-1/4	3.5	--	3	22	16d	10	16d	Lbs	5300	5055	5435	<b>4340</b>	--	<b>5530</b>	<b>2080</b>	
	PHM35925	WPI49.25	x	7/10	3-5/8	9-1/4	2-1/2	7	3	2	16d	2	10d	Lbs	11005	<b>11005</b>	<b>11005</b>	<b>8640</b>	--	<b>11005</b>	<b>5530</b>	
														kN	48.95	<b>48.95</b>	<b>48.95</b>	<b>38.43</b>	--	<b>48.95</b>	<b>24.60</b>	
	PHXU35925	HWI49.25, HWU3.56/9.25	x	7	3-9/16	9-1/4	3-1/4	10	2-1/2	8	16d	6	10d	Lbs	23.58	22.49	24.18	<b>19.31</b>	--	<b>24.60</b>	<b>9.25</b>	
kN														42.59	37.05	41.12	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>		
HLBH35925	---	x	7	3-5/8	9-1/4	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	1295	15215	13825	<b>11730</b>	--	<b>14940</b>	<b>2530</b>		
													kN	68.04	67.68	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>11.25</b>		
3-1/2 x 9-3/8	THO35938	LT359375	--	16	3-9/16	9-3/8	2-3/8	--	2-9/16	10	10d	2	10d x 1-1/2	Lbs	2950	2950	2950	<b>2620</b>	2950	<b>3335</b>	<b>485</b>	
3-1/2 x 9-1/2	THO35950	LT359	--	16	3-9/16	9-1/2	2-3/8	--	2-7/16	10	10d	2	10d x 1-1/2	kN	13.12	13.12	13.12	<b>11.65</b>	13.12	<b>14.83</b>	<b>2.16</b>	
	THO17950-2	MIT49.5	x	16	3-9/16	9-1/2	2-3/8	--	1-9/16	10	16d	6	10d	Lbs	2950	2950	2950	<b>2620</b>	2950	<b>3335</b>	<b>485</b>	
	BPH3595	LBV3.56/9.5	x	12	3-9/16	9-1/2	2-3/8	--	2-3/8	10	16d	4	10d	Lbs	14.92	15.95	15.95	<b>14.77</b>	16.86	<b>18.82</b>	<b>9.52</b>	
														kN	3355	3585	3585	<b>3320</b>	3790	<b>4230</b>	<b>2140</b>	
	HBPH3595	HB3.56/9.5	x	10	3-9/16	9-1/2	3-1/2	--	3	22	16d	10	16d	Lbs	5300	5055	5435	<b>4340</b>	--	<b>5530</b>	<b>2080</b>	
														kN	23.58	22.49	24.18	<b>19.31</b>	--	<b>24.60</b>	<b>9.25</b>	
	PHM3595	WPI49.5	x	7/10	3-5/8	9-1/2	2-1/2	7	3	2	16d	2	10d	Lbs	11005	<b>11005</b>	<b>11005</b>	<b>8640</b>	--	<b>11005</b>	<b>5530</b>	
														kN	48.95	<b>48.95</b>	<b>48.95</b>	<b>38.43</b>	--	<b>48.95</b>	<b>24.60</b>	
PHXU3595	GLTV3.59, HWI49.5, HWU3.56/9.5	x	7	3-9/16	9-1/2	3-1/4	10	2-1/2	8	16d	6	10d	Lbs	5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--		
													kN	24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--		
HLBH3595	HGLTV3.59	x	7	3-5/8	9-1/2	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	9575	8330	9245	<b>8280</b>	--	<b>10550</b>	<b>2355</b>		
													kN	42.59	37.05	41.12	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>		
HLBH3595	---	x	7	3-5/8	9-1/2	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	1295	15215	13825	<b>11730</b>	--	<b>14940</b>	<b>2530</b>		
													kN	68.04	67.68	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>11.25</b>		

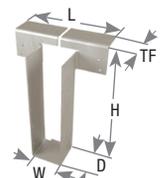
1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) When I-joist is used as a header, all nails must be 10d x 1-1/2.

3) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**

New products or updated product information are designated in **blue font**.

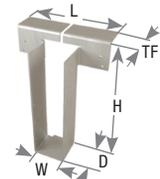


# Top Mount Hanger Charts

EWP Hangers

Joist Size	USP Stock No.	Ref. No.	Web Stiff Req'd	Ga.	Dimensions (in)					Fastener Schedule <sup>3</sup>				Factored Resistance													
					W	H	D	L	TF	Header		Joist		Header Material (100%)						Uplift <sup>1</sup>							
										Qty	Type <sup>2</sup>	Qty	Type	Unit	LVL	PSL	LSL	SPF	I-Joist <sup>2</sup>		DF	DF 115%					
3-1/2 x 11-1/4	TH035112	LT351125	--	16	3-9/16	11-1/4	2-3/8	--	2-1/2	10	10d	2	10d x 1-1/2	Lbs 2950	2950	2950	<b>2620</b>	2950	<b>3335</b>	<b>485</b>	kN 13.12	13.12	13.12	<b>11.65</b>	13.12	<b>14.83</b>	<b>2.16</b>
	BPH35112	BA412, LBV3.56/11.25	x	12	3-9/16	11-1/4	2-3/8	--	2-3/8	10	16d	4	10d	Lbs 5300	5055	5435	<b>4340</b>	--	<b>5530</b>	<b>2080</b>	kN 23.58	22.49	24.18	<b>19.31</b>	--	<b>24.60</b>	<b>9.25</b>
	HBP35112	HB3.56/11.25	x	10	3-9/16	11-1/4	3-1/2	--	3	22	16d	10	16d	Lbs <b>11005</b>	<b>11005</b>	<b>11005</b>	<b>8640</b>	--	<b>11005</b>	<b>5530</b>	kN <b>48.95</b>	<b>48.95</b>	<b>48.95</b>	<b>38.43</b>	--	<b>48.95</b>	<b>24.60</b>
	PHXU35112	GLTV3.56/11.25, HWI411.25, HWU3.56/11.25, WPI411.25	x	7	3-9/16	11-1/4	3-1/4	10	2-1/2	8	16d	6	10d	Lbs 9575	8330	9245	<b>8280</b>	--	<b>10550</b>	<b>2355</b>	kN 42.59	37.05	41.12	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>
	HLBH35112	HGLTV3.56/11.25	x	7	3-5/8	11-1/4	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs 15295	15215	13825	<b>11730</b>	--	<b>14940</b>	<b>2530</b>	kN 68.04	67.68	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>11.25</b>
3-1/2 x 11-7/8	TH035118	LT351188	--	18	3-9/16	11-7/8	2-3/8	--	2-1/2	10	10d	2	10d x 1-1/2	Lbs 2950	2950	2950	<b>2620</b>	2950	<b>3335</b>	<b>485</b>	kN 13.12	13.12	13.12	<b>11.65</b>	13.12	<b>14.83</b>	<b>2.16</b>
	TH017118-2	MIT411.88	x	16	3-9/16	11-7/8	2-3/8	--	1-9/16	10	16d	6	10d	Lbs 3355	3550	3550	<b>3665</b>	3790	<b>4670</b>	<b>2140</b>	kN 14.92	15.79	15.79	<b>16.30</b>	16.86	<b>20.77</b>	<b>9.52</b>
	BPH35118	BA3.56/11.88, LBV3.56/11.88	x	12	3-9/16	11-7/8	2-3/8	--	2-3/8	10	16d	4	10d	Lbs 5300	5055	5435	<b>4340</b>	--	<b>5530</b>	<b>2080</b>	kN 23.58	22.49	24.18	<b>19.31</b>	--	<b>24.60</b>	<b>9.25</b>
	HBP35118	HB3.56/11.88	x	10	3-9/16	11-7/8	3-1/2	--	3	22	16d	10	16d	Lbs <b>11005</b>	<b>11005</b>	<b>11005</b>	<b>8640</b>	--	<b>11005</b>	<b>5530</b>	kN <b>48.95</b>	<b>48.95</b>	<b>48.95</b>	<b>38.43</b>	--	<b>48.95</b>	<b>24.60</b>
	PHM35118	WPI411.88	x	7/10	3-5/8	11-7/8	2-1/2	7	3	2	16d	2	10d	Lbs 5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--	kN 24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--
	PHXU35118	GLTV3.511, HWI411.88, HWU3.56/11.88, WPU3.56/11.88	x	7	3-9/16	11-7/8	3-1/4	10	2.5	8	16d	6	10d	Lbs 9575	8330	9245	<b>8280</b>	--	<b>10550</b>	<b>2355</b>	kN 42.59	37.05	41.12	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>
	HLBH35118	HGLTV3.511	x	7	3-5/8	11-7/8	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs 15295	15215	13825	<b>11730</b>	--	<b>14940</b>	<b>2530</b>	kN 68.04	67.68	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>11.25</b>
3-1/2 x 12	TH035120	-- --	--	18	3-9/16	12	2-3/8	--	2-1/2	10	10d	2	10d x 1-1/2	Lbs 2950	2950	2950	<b>2620</b>	2950	<b>3335</b>	<b>485</b>	kN 13.12	13.12	13.12	<b>11.65</b>	13.12	<b>14.83</b>	<b>2.16</b>
	BPH3512	HWI412, LBV3.56/12	x	12	3-9/16	12	2-3/4	--	2-1/32	10	16d	6	10d	Lbs 5300	5055	5435	<b>4245</b>	--	<b>5405</b>	<b>2080</b>	kN 23.58	22.49	24.18	<b>18.88</b>	--	<b>24.04</b>	<b>9.25</b>
	HBP3512	HB3.56/12	x	10	3-9/16	12	3-1/2	--	3	22	16d	10	16d	Lbs <b>11005</b>	<b>11005</b>	<b>11005</b>	<b>8640</b>	--	<b>11005</b>	<b>5530</b>	kN <b>48.95</b>	<b>48.95</b>	<b>48.95</b>	<b>38.43</b>	--	<b>48.95</b>	<b>24.60</b>
	PHXU3512	GLTV3.512	x	7	3-9/16	12	3-1/4	10	2-1/2	8	16d	6	10d	Lbs 9575	8330	9245	<b>8280</b>	--	<b>10550</b>	<b>2355</b>	kN 42.59	37.05	41.12	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>
	HLBH3512	HGLTV3.512	x	7	3-5/8	12	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs 15295	15215	13825	<b>11730</b>	--	<b>14940</b>	<b>2530</b>	kN 68.04	67.68	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>11.25</b>
3-1/2 x 13	TH035130	LT3513	--	18	3-9/16	13	2-3/8	--	2-1/2	10	10d	2	10d x 1-1/2	Lbs 2950	2950	2950	<b>2620</b>	2950	<b>3335</b>	<b>485</b>	kN 13.12	13.12	13.12	<b>11.65</b>	13.12	<b>14.83</b>	<b>2.16</b>
3-1/2 x 14	TH035140	LT3514	--	18	3-9/16	14	2-3/8	--	2-1/2	12	10d	2	10d x 1-1/2	Lbs 3910	3910	3910	<b>3385</b>	2950	<b>4310</b>	<b>485</b>	kN 17.39	17.39	17.39	<b>15.06</b>	13.12	<b>19.17</b>	<b>2.16</b>
	TFI414	MIT414	--	16	3-9/16	14	2-1/2	--	2-1/8	6	16d	2	10d x 1-1/2	Lbs 3685	3220	3260	<b>3290</b>	--	<b>4190</b>	<b>505</b>	kN 16.39	14.32	14.50	<b>14.63</b>	--	<b>18.64</b>	<b>2.25</b>
	BPH3514	B3.56/14, BA3.56/14, LBV3.56/14	x	12	3-9/16	14	2-3/4	--	2-1/32	10	16d	6	10d	Lbs 5300	5055	5435	<b>4245</b>	--	<b>5405</b>	<b>2080</b>	kN 23.58	22.49	24.18	<b>18.88</b>	--	<b>24.04</b>	<b>9.25</b>
	HBP3514	HB3.56/14	x	10	3-9/16	14	3-1/2	--	3	22	16d	10	16d	Lbs <b>11005</b>	<b>11005</b>	<b>11005</b>	<b>8640</b>	--	<b>11005</b>	<b>5530</b>	kN <b>48.95</b>	<b>48.95</b>	<b>48.95</b>	<b>38.43</b>	--	<b>48.95</b>	<b>24.60</b>
	PHM3514	WPI414	x	7/10	3-5/8	14	2-1/2	7	3	2	16d	2	10d	Lbs 5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--	kN 24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--
	PHXU3514	GLTV3.514, HWI414, HWU3.56/14, WPU3.56/14	x	7	3-9/16	14	3-1/4	10	2.5	8	16d	6	10d	Lbs 9575	8330	9245	<b>8280</b>	--	<b>10550</b>	<b>2355</b>	kN 42.59	37.05	41.12	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>
	HLBH3514	HGLTV3.514	x	7	3-5/8	14	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs 15295	15215	13825	<b>11730</b>	--	<b>14940</b>	<b>2530</b>	kN 68.04	67.68	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>11.25</b>

1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) When I-joist is used as a header, all nails must be 10d x 1-1/2.  
 3) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.  
**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**  
 New products or updated product information are designated in **blue font**.

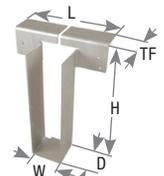


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Joist Size	USP Stock No.	Ref. No.	Web Stiff Req'd	Ga.	Dimensions (in)					Fastener Schedule <sup>3</sup>				Unit	Factored Resistance						
					W	H	D	L	TF	Header		Joist			Header Material (100%)					Uplift <sup>1</sup>	
										Qty	Type <sup>2</sup>	Qty	Type		LVL	PSL	LSL	SPF	I-Joist <sup>2</sup>		DF
																		Lbs	kN	Lbs	kN
3-1/2 x 16	TH035160	LT3516	--	18	3-9/16	16	2-3/8	--	2-1/2	12	10d	2	10d x 1-1/2	Lbs	3910	3910	3910	<b>3385</b>	2950	<b>4310</b>	<b>485</b>
														kN	17.39	17.39	17.39	<b>15.06</b>	13.12	<b>19.17</b>	<b>2.16</b>
	TFI416	MIT416	--	16	3-9/16	16	2-1/2	--	2-1/8	6	16d	2	10d x 1-1/2	Lbs	3685	3220	3260	<b>3290</b>	--	4190	<b>505</b>
														kN	16.39	14.32	14.50	<b>14.63</b>	--	18.64	<b>2.25</b>
	BPH3516	B3.56/16, BA3.56/16, LBV3.56/16	x	12	3-9/16	16	2-3/4	--	2-1/32	10	16d	6	10d	Lbs	5300	5055	5435	<b>4245</b>	--	<b>5405</b>	<b>2080</b>
														kN	23.58	22.49	24.18	<b>18.88</b>	--	<b>24.04</b>	<b>9.25</b>
	HBP3516	HB3.56/16	x	10	3-9/16	16	3-1/2	--	3	22	16d	10	16d	Lbs	<b>11005</b>	<b>11005</b>	<b>11005</b>	<b>8640</b>	--	<b>11005</b>	<b>5530</b>
													kN	<b>48.95</b>	<b>48.95</b>	<b>48.95</b>	<b>38.43</b>	--	<b>48.95</b>	<b>24.60</b>	
	PHM3516	WPI416	x	7/10	3-5/8	16	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--
													kN	24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--	
	PHXU3516	GLTV3.516, HWI416, HWU3.56/16, WPU3.56/16	x	7	3-9/16	16	3-1/4	10	2-1/2	8	16d	6	10d	Lbs	9575	8330	9245	<b>8280</b>	--	<b>10550</b>	<b>2355</b>
													kN	42.59	37.05	41.12	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>	
	HLBH3516	HGLTV3.516	x	7	3-5/8	16	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	15215	13825	<b>11730</b>	--	<b>14940</b>	<b>2530</b>
													kN	68.04	67.68	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>11.25</b>	
3-1/2 x 18	TFI418	HIT418, MIT418	--	16	3-9/16	18	2-1/2	--	2-1/8	6	16d	2	10d x 1-1/2	Lbs	3685	3220	3260	<b>3290</b>	--	4190	<b>505</b>
													kN	16.39	14.32	14.50	<b>14.63</b>	--	18.64	<b>2.25</b>	
	BPH3518	LBV3.56/18	x	12	3-9/16	18	2-3/4	--	2-1/32	10	16d	6	10d	Lbs	5300	5055	5435	<b>4245</b>	--	<b>5405</b>	<b>2080</b>
													kN	23.58	22.49	24.18	<b>18.88</b>	--	<b>24.04</b>	<b>9.25</b>	
	HBP3518	HB3.56/18	x	10	3-9/16	18	3-1/2	--	3	22	16d	10	16d	Lbs	<b>11005</b>	<b>11005</b>	<b>11005</b>	<b>8640</b>	--	<b>11005</b>	<b>5530</b>
														kN	<b>48.95</b>	<b>48.95</b>	<b>48.95</b>	<b>38.43</b>	--	<b>48.95</b>	<b>24.60</b>
	PHM3518	WPI418	x	7/10	3-5/8	18	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--
													kN	24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--	
	PHXU3518	GLTV3.518, HWI418, HWU3.56/18, WPU3.56/18	x	7	3-9/16	18	3-1/4	10	2-1/2	8	16d	6	10d	Lbs	9575	8330	9245	<b>8280</b>	--	<b>10550</b>	<b>2355</b>
													kN	42.59	37.05	41.12	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>	
	HLBH3518	HGLTV3.518	x	7	3-5/8	18	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	15215	13825	<b>11730</b>	--	<b>14940</b>	<b>2530</b>
													kN	68.04	67.68	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>11.25</b>	
3-1/2 x 20	TFI420	MIT420	--	16	3-9/16	20	2-1/2	--	2-1/8	6	16d	2	10d x 1-1/2	Lbs	3685	3220	3260	<b>3290</b>	--	4190	<b>505</b>
													kN	16.39	14.32	14.50	<b>14.63</b>	--	18.64	<b>2.25</b>	
	BPH3520	HIT420, LBV3.56/20	x	12	3-9/16	20	2-3/4	--	2-1/32	10	16d	6	10d	Lbs	5300	5055	5435	<b>4245</b>	--	<b>5405</b>	<b>2080</b>
													kN	23.58	22.49	24.18	<b>18.88</b>	--	<b>24.04</b>	<b>9.25</b>	
	HBP3520	HB3.56/20	x	10	3-9/16	20	3-1/2	--	3	22	16d	10	16d	Lbs	<b>11005</b>	<b>11005</b>	<b>11005</b>	<b>8640</b>	--	<b>11005</b>	<b>5530</b>
														kN	<b>48.95</b>	<b>48.95</b>	<b>48.95</b>	<b>38.43</b>	--	<b>48.95</b>	<b>24.60</b>
	PHM3520	WPI420	x	7/10	3-5/8	20	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--
													kN	24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--	
	PHXU3520	HWI420, WPU3.56/20	x	7	3-9/16	20	3-1/4	10	2-1/2	8	16d	6	10d	Lbs	9575	8330	9245	<b>8280</b>	--	<b>10550</b>	<b>2355</b>
													kN	42.59	37.05	41.12	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>	
	HLBH3520	---	x	7	3-5/8	20	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	15215	13825	<b>11730</b>	--	<b>14940</b>	<b>2530</b>
													kN	68.04	67.68	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>11.25</b>	
3-1/2 x 22	TFI422	HIT422	--	16	3-9/16	22	2-1/2	--	2-1/8	10	16d	2	10d x 1-1/2	Lbs	4675	4205	4250	<b>4175</b>	--	5315	<b>505</b>
													kN	20.80	18.70	18.90	<b>18.57</b>	--	23.64	<b>2.25</b>	
	BPH3522	HIT3522, LBV3.56/22	x	12	3-9/16	22	2-3/4	--	2-1/32	10	16d	6	10d	Lbs	5300	5055	5435	<b>4245</b>	--	<b>5405</b>	<b>2080</b>
													kN	23.58	22.49	24.18	<b>18.88</b>	--	<b>24.04</b>	<b>9.25</b>	
	HBP3522	HB3.56/22	x	10	3-9/16	22	3-1/2	--	3	22	16d	10	16d	Lbs	<b>11005</b>	<b>11005</b>	<b>11005</b>	<b>8640</b>	--	<b>11005</b>	<b>5530</b>
														kN	<b>48.95</b>	<b>48.95</b>	<b>48.95</b>	<b>38.43</b>	--	<b>48.95</b>	<b>24.60</b>
	PHM3522	HWI422, WPI422	x	7/10	3-5/8	22	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--
													kN	24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--	
	PHXU3522	WPU3.56/22	x	7	3-9/16	22	3-1/4	10	2-1/2	8	16d	6	10d	Lbs	9575	8330	9245	<b>8280</b>	--	<b>10550</b>	<b>2355</b>
													kN	42.59	37.05	41.12	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>	

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1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) When I-joist is used as a header, all nails must be 10d x 1-1/2.  
 3) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.  
**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**  
 New products or updated product information are designated in **blue font**.



# Top Mount Hanger Charts

EWP Hangers

Joist Size	USP Stock No.	Ref. No.	Web Stiff Req'd	Ga.	Dimensions (in)					Fastener Schedule <sup>3</sup>				Unit	Factored Resistance							
					W	H	D	L	TF	Header		Joist			Header Material (100%)					Uplift <sup>1</sup>		
										Qty	Type <sup>2</sup>	Qty	Type		LVL	PSL	LSL	SPF	DF I-Joist <sup>2</sup>	DF	DF 115%	
																		Lbs	kN	Lbs	kN	Lbs
3-1/2 x 24	TFI424	HIT424, LBV3.56/24	--	16	3-9/16	24	2-1/2	--	2-1/8	10	16d	2	10d x 1-1/2	Lbs	4675	4205	4250	<b>4175</b>	--	5315	<b>505</b>	
	BPH3524	-- --	x	12	3-9/16	24	2-3/4	--	2-1/32	10	16d	6	10d	Lbs	5300	5055	5435	<b>4245</b>	--	5405	<b>2080</b>	
														kN	23.58	22.49	24.18	<b>18.88</b>	--	24.04	<b>9.25</b>	
	HBP3524	HB3.56/24	x	10	3-9/16	24	3-1/2	--	3	22	16d	10	16d	Lbs	<b>11005</b>	<b>11005</b>	<b>11005</b>	<b>8640</b>	--	<b>11005</b>	<b>5530</b>	
														kN	<b>48.95</b>	<b>48.95</b>	<b>48.95</b>	<b>38.43</b>	--	<b>48.95</b>	<b>24.60</b>	
3-1/2 x 26	PHM3524	HWI424, WPI424	x	7/10	3-5/8	24	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	<b>4665</b>	--	5940	--	
	PHXU3524	WPU3.56/24	x	7	3-9/16	24	3-1/4	10	2-1/2	8	16d	6	10d	kN	24.00	22.86	19.73	<b>20.75</b>	--	26.42	--	
														Lbs	9575	8330	9245	<b>8280</b>	--	10550	<b>2355</b>	
														kN	42.59	37.05	41.12	<b>36.83</b>	--	46.93	<b>10.48</b>	
														Lbs	4675	4205	4250	<b>4175</b>	--	5315	<b>505</b>	
3-1/2 x 28														kN	20.80	18.70	18.90	<b>18.57</b>	--	23.64	<b>2.25</b>	
	TFI426	HIT426	--	16	3-9/16	26	2-1/2	--	2-1/8	10	16d	2	10d x 1-1/2	Lbs	5300	5055	5435	<b>4245</b>	--	5405	<b>2080</b>	
	BPH3526	LBV3.56/26	x	12	3-9/16	26	2-3/4	--	2-1/32	10	16d	6	10d	kN	23.58	22.49	24.18	<b>18.88</b>	--	24.04	<b>9.25</b>	
	HBP3526	HB3.56/26	x	10	3-9/16	26	3-1/2	--	3	22	16d	10	16d	Lbs	<b>11005</b>	<b>11005</b>	<b>11005</b>	<b>8640</b>	--	<b>11005</b>	<b>5530</b>	
														kN	<b>48.95</b>	<b>48.95</b>	<b>48.95</b>	<b>38.43</b>	--	<b>48.95</b>	<b>24.60</b>	
3-1/2 x 30														Lbs	5395	5140	4435	<b>4665</b>	--	5940	--	
	BPH3528	LBV3.56/28	x	12	3-9/16	28	2-3/4	--	2-1/32	10	16d	6	10d	kN	24.00	22.86	19.73	<b>20.75</b>	--	26.42	--	
	HBP3528	HB3.56/28	x	10	3-9/16	28	3-1/2	--	3	22	16d	10	16d	Lbs	9575	8330	9245	<b>8280</b>	--	10550	<b>2355</b>	
														kN	42.59	37.05	41.12	<b>36.83</b>	--	46.93	<b>10.48</b>	
														Lbs	5300	5055	5435	<b>4245</b>	--	5405	<b>2080</b>	
3-1/2 x 32														kN	23.58	22.49	24.18	<b>18.88</b>	--	24.04	<b>9.25</b>	
	BPH3530	LBV3.56/30	x	12	3-9/16	30	2-3/4	--	2-1/32	10	16d	6	10d	Lbs	<b>11005</b>	<b>11005</b>	<b>11005</b>	<b>8640</b>	--	<b>11005</b>	<b>5530</b>	
	HBP3530	HB3.56/30	x	10	3-9/16	30	3-1/2	--	3	22	16d	10	16d	kN	<b>48.95</b>	<b>48.95</b>	<b>48.95</b>	<b>38.43</b>	--	<b>48.95</b>	<b>24.60</b>	
														Lbs	5395	5140	4435	<b>4665</b>	--	5940	--	
														kN	24.00	22.86	19.73	<b>20.75</b>	--	26.42	--	
4 - 4-3/16 x 9-1/2	PHM3530	HWI430, WPI430	x	7/10	3-5/8	30	2-1/2	7	3	2	16d	2	10d	Lbs	9575	8330	9245	<b>8280</b>	--	10550	<b>2355</b>	
	PHXU3530	--	x	7	3-9/16	30	3-1/4	10	2-1/2	8	16d	6	10d	kN	42.59	37.05	41.12	<b>36.83</b>	--	46.93	<b>10.48</b>	
														Lbs	5300	5055	5435	<b>4245</b>	--	5405	<b>2080</b>	
4 - 4-3/16 x 9-1/2														kN	23.58	22.49	24.18	<b>18.88</b>	--	24.04	<b>9.25</b>	
	BPH3532	--	x	12	3-9/16	32	2-3/4	--	2-1/32	10	16d	6	10d	Lbs	5395	5140	4435	<b>4665</b>	--	5940	--	
	HBP3532	HWI432, WPI432	x	7/10	3-5/8	32	2-1/2	7	3	2	16d	2	10d	kN	24.00	22.86	19.73	<b>20.75</b>	--	26.42	--	
4 - 4-3/16 x 9-1/2														Lbs	9575	8330	9245	<b>8280</b>	--	10550	<b>2355</b>	
														kN	42.59	37.05	41.12	<b>36.83</b>	--	46.93	<b>10.48</b>	
														Lbs	3355	3840	3840	<b>3320</b>	3790	4230	<b>2140</b>	
													kN	14.92	17.08	17.08	<b>14.77</b>	16.86	18.82	<b>9.52</b>		
														Lbs	5395	5140	4435	<b>4665</b>	--	5940	--	
														kN	24.00	22.86	19.73	<b>20.75</b>	--	26.42	--	

1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

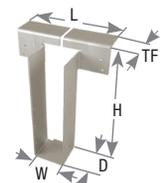
2) When I-joist is used as a header, all nails must be 10d x 1-1/2.

3) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**

New products or updated product information are designated in **blue font**.

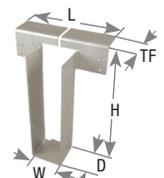
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Joist Size	USP Stock No.	Ref. No.	Web Stiff Req'd	Ga.	Dimensions (in)					Fastener Schedule <sup>3</sup>				Factored Resistance							
					W	H	D	L	TF	Header		Joist		Header Material (100%)						Uplift <sup>1</sup>	
										Qty	Type <sup>2</sup>	Qty	Type	Unit	LVL	PSL	LSL	SPF	DF I-Joist <sup>2</sup>	DF	DF 115%
4 - 4-3/16 x 11-7/8	THO20118-2	LBV4.12/11.88, LBV4.28/11.88, MIT4.28/11.88	x	16	4-3/16	11-7/8	3	--	2	10	16d	6	10d	Lbs	3355	3890	3890	<b>3665</b>	3790	<b>4670</b>	<b>2140</b>
	PHM42118	--	x	7/10	4-3/16	11-7/8	2-1/2	7	3	2	16d	2	10d	kN	14.92	17.30	17.30	<b>16.30</b>	16.86	<b>20.77</b>	<b>9.52</b>
4 - 4-3/16 x 14	THO20140-2	LBV4.12/14, LBV4.28/14, MIT4.28/14	x	12	4-3/16	14	3	--	1-15/16	10	16d	6	10d	Lbs	3355	5330	5330	<b>4610</b>	3785	<b>5870</b>	<b>2140</b>
	PHM4214	--	x	7/10	4-3/16	14	2-1/2	7	3	2	16d	2	10d	kN	14.92	23.71	23.71	<b>20.51</b>	16.84	<b>26.11</b>	<b>9.52</b>
4 - 4-3/16 x 16	THO20160-2	LBV4.12/16, LBV4.28/16	x	12	4-3/16	16	3	--	1-15/16	10	16d	6	10d	Lbs	3355	5330	5330	<b>4610</b>	3785	<b>5870</b>	<b>2140</b>
	PHM4216	--	x	7/10	4-3/16	16	2-1/2	7	3	2	16d	2	10d	kN	14.92	23.71	23.71	<b>20.51</b>	16.84	<b>26.11</b>	<b>9.52</b>
4-1/2 - 4-5/8 x 9-1/2	THO23950-2	LBV4.75/9.5, MIT359.5-2	x	12	4-3/4	9-1/2	3	--	2	10	16d	6	10d	Lbs	5090	5235	5235	<b>4570</b>	3785	<b>5820</b>	<b>2140</b>
	PHM2395-2	WP359.5-2	x	7/10	4-3/4	9-1/2	2-1/2	7	3	2	16d	2	10d	kN	22.64	23.29	23.29	<b>20.33</b>	16.84	<b>25.89</b>	<b>9.52</b>
4-1/2 - 4-5/8 x 11-7/8	THO23118-2	LBV4.75/11.88, MIT3511.88-2	x	12	4-3/4	11-7/8	3	--	2-1/8	10	16d	6	10d	Lbs	5090	5280	5280	<b>4570</b>	3785	<b>5820</b>	<b>2140</b>
	PHM23118-2	WP3511.88-2	x	7/10	4-3/4	11-7/8	2-1/2	7	3	2	16d	2	10d	kN	22.64	23.49	23.49	<b>20.33</b>	16.84	<b>25.89</b>	<b>9.52</b>
4-1/2 - 4-5/8 x 14	THO23140-2	LBV4.75/14, MIT3514-2	x	12	4-3/4	14	3	--	2-1/8	12	16d	6	10d	Lbs	5090	6345	6345	<b>5545</b>	3785	<b>7060</b>	<b>2140</b>
	PHM23140-2	WP3514-2	x	7/10	4-3/4	14	2-1/2	7	3	2	16d	2	10d	kN	22.64	28.22	28.22	<b>24.67</b>	16.84	<b>31.40</b>	<b>9.52</b>
4-1/2 - 4-5/8 x 16	THO23160-2	LBV4.75/16	x	12	4-3/4	16	3	--	2-1/8	12	16d	6	10d	Lbs	5090	6345	6345	<b>5545</b>	3785	<b>7060</b>	<b>2140</b>
	PHM2316-2	WP3516-2	x	7/10	4-3/4	16	2-1/2	7	3	2	16d	2	10d	kN	22.64	28.22	28.22	<b>24.67</b>	16.84	<b>31.40</b>	<b>9.52</b>
4-1/2 - 4-5/8 x 18	THO23180-2	LBV4.75/18	x	12	4-3/4	18	3	--	2-1/8	14	16d	6	10d	Lbs	5090	6745	6745	<b>7225</b>	3785	<b>9205</b>	<b>2140</b>
	PHM2318-2	WP3518-2	x	7/10	4-3/4	18	2-1/2	7	3	2	16d	2	10d	kN	22.64	30.00	30.00	<b>32.14</b>	16.84	<b>40.95</b>	<b>9.52</b>
4-1/2 - 4-5/8 x 20	THO23200-2	LBV4.75/20	x	12	4-3/4	20	3	--	2-1/8	14	16d	6	10d	Lbs	5090	6745	6745	<b>7225</b>	3785	<b>9205</b>	<b>2140</b>
	PHM2320-2	WP3520-2	x	7/10	4-3/4	20	2-1/2	7	3	2	16d	2	10d	kN	22.64	30.00	30.00	<b>32.14</b>	16.84	<b>40.95</b>	<b>9.52</b>
5 x 9-1/4	THO25925-2	LBV5.12/9.25	x	12	5-1/8	9-1/4	3	--	2-11/16	10	16d	6	10d	Lbs	5090	5280	5280	<b>4570</b>	3785	<b>5820</b>	<b>2140</b>
	PHM25925-2	WP3525-2	x	7/10	5-1/8	9-1/4	2-1/2	7	3	2	16d	2	10d	kN	22.64	23.49	23.49	<b>20.33</b>	16.84	<b>25.89</b>	<b>9.52</b>
5 x 9-1/2	THO25950-2	MIT39.5-2, LBV5.12/9.5	x	12	5-1/8	9-1/2	3	--	2-1/8	10	16d	6	10d	Lbs	5090	5280	5280	<b>4570</b>	3785	<b>5820</b>	<b>2140</b>
	PHM2595-2	WPI39.5-2	x	7/10	5-1/8	9-1/2	2-1/2	7	3	2	16d	2	10d	kN	22.64	23.49	23.49	<b>20.33</b>	16.84	<b>25.89</b>	<b>9.52</b>
5 x 11-1/4	THO25112-2	LBV5.12/11.25	x	12	5-1/8	11-1/4	3	--	2-1/8	10	16d	6	10d	Lbs	5090	5280	5280	<b>4570</b>	3785	<b>5820</b>	<b>2140</b>
	PHM25112-2	WP3511.25-2	x	7/10	5-1/8	11-1/4	2-1/2	7	3	2	16d	2	10d	kN	22.64	23.49	23.49	<b>20.33</b>	16.84	<b>25.89</b>	<b>9.52</b>
5 x 11-7/8	THO25118-2	LBV5.12/11.88, MIT311.88-2	x	12	5-1/8	11-7/8	3	--	2-1/8	10	16d	6	10d	Lbs	5090	5280	5280	<b>4570</b>	3785	<b>5820</b>	<b>2140</b>
	PHM25118-2	WP311.88-2	x	7/10	5-1/8	11-7/8	2-1/2	7	3	2	16d	2	10d	kN	22.64	23.49	23.49	<b>20.33</b>	16.84	<b>25.89</b>	<b>9.52</b>

1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) When I-joist is used as a header, all nails must be 10d x 1-1/2".  
 3) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.  
**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**  
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# Top Mount Hanger Charts

EWP Hangers

Joist Size	USP Stock No.	Ref. No.	Web Stiff Req'd	Ga.	Dimensions (in)					Fastener Schedule <sup>3</sup>				Factored Resistance									
					W	H	D	L	TF	Header		Joist		Header Material (100%)						Uplift <sup>1</sup>			
										Qty	Type <sup>2</sup>	Qty	Type	LVL	PSL	LSL	SPF	I-Joist <sup>2</sup>	DF	DF	115%		
					Unit	Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN		
5 x 14	TH025140-2	MIT314-2, LBV5.12/14	x	12	5-1/8	14	3	--	2-1/8	12	16d	6	10d	Lbs	5090	6345	6345	5545	3785	7060	2140		
														kN	22.64	28.22	28.22	24.67	16.84	31.40	9.52		
5 x 16	PHM2514-2	WPI314-2	x	7/10	5-1/8	14	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	4665	--	5940	--		
														kN	24.00	22.86	19.73	20.75	--	26.42	--		
5 x 16	TH025160-2	MIT5.12/16, LBV5.12/16	x	12	5-1/8	16	3	--	2-1/8	12	16d	6	10d	Lbs	5090	6345	6345	5545	3785	7060	2140		
														kN	22.64	28.22	28.22	24.67	16.84	31.40	9.52		
5 x 16	HBPH5116	HB5.12/16	x	10	5-1/8	16	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620		
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00		
5 x 16	PHM2516-2	WPI316-2	x	7/10	5-1/8	16	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	4665	--	5940	--		
														kN	24.00	22.86	19.73	20.75	--	26.42	--		
5 x 18	TH025180-2	B5.12/18	x	12	5-1/8	18	3	--	2-1/8	14	16d	6	10d	Lbs	5090	6745	6745	7225	3785	9205	2140		
														kN	22.64	30.00	30.00	32.14	16.84	40.95	9.52		
5 x 18	HBPH5118	HB5.12/18	x	10	5-1/8	18	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620		
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00		
5 x 18	PHM2518-2	WPI318-2	x	7/10	5-1/8	18	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	4665	--	5940	--		
														kN	24.00	22.86	19.73	20.75	--	26.42	--		
5 x 20	TH025200-2	B5.12/20	x	12	5-1/8	20	3	--	2-1/8	14	16d	6	10d	Lbs	5090	6745	6745	7225	3785	9205	2140		
														kN	22.64	30.00	30.00	32.14	16.84	40.95	9.52		
5 x 20	HBPH5120	HB5.12/20	x	10	5-1/8	20	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620		
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00		
5 x 20	PHM2520-2	WPI320-2	x	7/10	5-1/8	20	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	4665	--	5940	--		
														kN	24.00	22.86	19.73	20.75	--	26.42	--		
5 x 22	HBPH5122	HB5.12/22	x	10	5-1/8	22	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620		
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00		
5 x 22	PHM2522-2	WPI322-2	x	7/10	5-1/8	22	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	4665	--	5940	--		
														kN	24.00	22.86	19.73	20.75	--	26.42	--		
5 x 24	HBPH5124	HB5.12/24	x	10	5-1/8	24	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620		
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00		
5 x 24	PHM2524-2	WPI324-2	x	7/10	5-1/8	24	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	4665	--	5940	--		
														kN	24.00	22.86	19.73	20.75	--	26.42	--		
5 x 26	HBPH5126	HB5.12/26	x	10	5-1/8	26	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620		
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00		
5 x 26	PHM2526-2	WPI326-2	x	7/10	5-1/8	26	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	4665	--	5940	--		
														kN	24.00	22.86	19.73	20.75	--	26.42	--		
5 x 28	HBPH5128	HB5.12/28	x	10	5-1/8	28	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620		
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00		
5 x 30	HBPH5130	HB5.12/30	x	10	5-1/8	30	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620		
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00		
5-1/4 x 7-1/4	BPH55725	-- --	x	10	5-9/16	7-1/4	2-1/4	--	2-1/2	10	16d	6	10d	Lbs	5300	5055	5435	4295	--	5470	2935		
														kN	23.58	22.49	24.18	19.11	--	24.33	13.06		
5-1/4 x 7-1/4	HBPH55725	HB5.50/7.25	x	10	5-1/2	7-1/4	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620		
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00		
5-1/4 x 9-1/4	HBPH55925	HB5.50/9.25	x	10	5-1/2	9-1/4	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620		
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00		
5-1/4 x 9-1/4	PHXU55925	GLTV5.50/9.25, HWU5.50/9.25	x	7	5-1/2	9-1/4	3-1/4	11-1/2	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	8280	--	10550	2355		
														kN	42.59	37.05	42.59	36.83	--	46.93	10.48		
5-1/4 x 9-1/4	HLBH55925	--	x	7	5-9/16	9-1/4	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	15215	13825	11730	--	14940	2860		
														kN	68.04	67.68	61.50	52.18	--	66.46	12.72		

1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

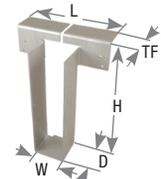
2) When I-joist is used as a header, all nails must be 10d x 1-1/2.

3) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

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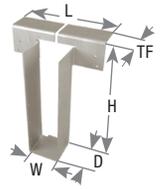


Joist Size	USP Stock No.	Ref. No.	Web Stiff Req'd	Ga.	Dimensions (in)					Fastener Schedule <sup>3</sup>				Unit	Factored Resistance						
					W	H	D	L	TF	Header		Joist			Header Material (100%)					Uplift <sup>1</sup>	
										Qty	Type <sup>2</sup>	Qty	Type		LVL	PSL	LSL	SPF	I-Joist <sup>2</sup>	DF	DF
5-1/4 x 9-1/2	BPH5595	--	x	12	5-9/16	9-1/2	3	--	2-1/6	10	16d	4	10d	Lbs	5300	5055	5435	4295	--	5470	2935
														kN	23.58	22.49	24.18	19.11	--	24.33	13.06
	HBP5595	HB5.50/9.5	x	10	5-1/2	9-1/2	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00
	PHM5595	WP5.50/9.5	x	7/10	5-5/8	9-1/2	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	4665	--	5940	--
													kN	24.00	22.86	19.73	20.75	--	26.42	--	
	PHXU5595	GLTV5.59, HWU5.50/9.5	x	7	5-1/2	9-1/2	3-1/4	11.5	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	8280	--	10550	2355
													kN	42.59	37.05	42.59	36.83	--	46.93	10.48	
	HLBH5595	HGLTV5.59	x	7	5-9/16	9-1/2	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	15215	13825	11730	--	14940	2860
													kN	68.04	67.68	61.50	52.18	--	66.46	12.72	
5-1/4 x 11-1/4	HBP55112	HB5.50/11.25	x	10	5-1/2	11-1/4	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00
	PHXU55112	GLTV5.50/11.25, HWU5.50/11.25	x	7	5-1/2	11-1/4	3-1/4	11-1/2	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	8280	--	10550	2355
													kN	42.59	37.05	42.59	36.83	--	46.93	10.48	
	HLBH55112	--	x	7	5-9/16	11-1/4	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	15215	13825	11730	--	14940	2860
													kN	68.04	67.68	61.50	52.18	--	66.46	12.72	
5-1/4 x 11-1/2	HLBH55115	GLTV5.511	x	7	5-9/16	11-1/2	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	15215	13825	11730	--	14940	2860
													kN	68.04	67.68	61.50	52.18	--	66.46	12.72	
5-1/4 x 11-7/8	BPH55118	--	x	12	5-9/16	11-7/8	2-1/2	--	2-1/32	10	16d	6	10d	Lbs	5300	5055	5435	4245	--	5405	2935
														kN	23.58	22.49	24.18	18.88	--	24.04	13.06
	HBP55118	HB5.50/11.88	x	10	5-1/2	11-7/8	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00
	PHM55118	--	x	7/10	5-5/8	11-7/8	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	4665	--	5940	--
													kN	24.00	22.86	19.73	20.75	--	26.42	--	
	PHXU55118	GLTV5.511, HWU5.50/11.88	x	7	5-1/2	11-7/8	3-1/4	11-1/2	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	8280	--	10550	2355
													kN	42.59	37.05	42.59	36.83	--	46.93	10.48	
	HLBH55118	HGLTV5.511	x	7	5-9/16	11-7/8	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	15215	13825	11730	--	14940	2860
													kN	68.04	67.68	61.50	52.18	--	66.46	12.72	
5-1/4 x 12	HBP5512	HB5.50/12	x	10	5-1/2	12	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00
	PHXU5512	--	x	7	5-1/2	12	3-1/4	11-1/2	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	8280	--	10550	2355
													kN	42.59	37.05	42.59	36.83	--	46.93	10.48	
	HLBH5512	--	x	7	5-9/16	12	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	15215	13825	11730	--	14940	2860
													kN	68.04	67.68	61.50	52.18	--	66.46	12.72	
5-1/4 x 14	BPH5514	--	x	12	5-9/16	14	2-1/2	--	2-1/32	10	16d	6	10d	Lbs	5300	5055	5435	4245	--	5405	2935
														kN	23.58	22.49	24.18	18.88	--	24.04	13.06
	HBP5514	HB5.50/14	x	10	5-1/2	14	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00
	PHM5514	--	x	7/10	5-5/8	14	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	4665	--	5940	--
													kN	24.00	22.86	19.73	20.75	--	26.42	--	
	PHXU5514	GLTV5.514, HWU5.50/14	x	7	5-1/2	14	3-1/4	11-1/2	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	8280	--	10550	2355
													kN	42.59	37.05	42.59	36.83	--	46.93	10.48	
	HLBH5514	HGLTV5.514	x	7	5-9/16	14	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	15215	13825	11730	--	14940	2860
													kN	68.04	67.68	61.50	52.18	--	66.46	12.72	

EWP Hangers

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1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) When I-joist is used as a header, all nails must be 10d x 1-1/2".  
 3) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.  
**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**  
 New products or updated product information are designated in **blue font**.



Joist Size	USP Stock No.	Ref. No.	Web Stiff Req'd	Ga.	Dimensions (in)					Fastener Schedule <sup>3</sup>				Factored Resistance							
					W	H	D	L	TF	Header		Joist		Header Material (100%)					Uplift <sup>1</sup>		
										Qty	Type <sup>2</sup>	Qty	Type	Unit	LVL	PSL	LSL	SPF	I-Joist <sup>2</sup>	DF	DF 115%
5-1/4 x 16	BPH5516	--	x	12	5-9/16	16	2-1/2	--	2-1/32	10	16d	6	10d	Lbs	5300	5055	5435	<b>4245</b>	--	<b>5405</b>	<b>2935</b>
														kN	23.58	22.49	24.18	<b>18.88</b>	--	<b>24.04</b>	<b>13.06</b>
	HBP5516	HB5.50/16	x	10	5-1/2	16	3-1/2	--	3	22	16d	10	16d	Lbs	<b>10405</b>	<b>10405</b>	<b>10405</b>	<b>8635</b>	--	<b>10405</b>	<b>5620</b>
														kN	<b>46.28</b>	<b>46.28</b>	<b>46.28</b>	<b>38.41</b>	--	<b>46.28</b>	<b>25.00</b>
	PHM5516	--	x	7/10	5-5/8	16	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--
													kN	24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--	
	PHXU5516	GLTV5.516, HWU5.50/16	x	7	5-1/2	16	3-1/4	11-1/2	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	<b>8280</b>	--	<b>10550</b>	<b>2355</b>
													kN	42.59	37.06	42.59	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>	
	HLBH5516	HGLTV5.516	x	7	5-9/16	16	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	15215	13825	<b>11730</b>	--	<b>14940</b>	<b>2860</b>
													kN	68.04	67.68	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>12.72</b>	
5-1/4 x 18	BPH5518	--	x	12	5-9/16	18	2-1/2	--	2-1/32	10	16d	6	10d	Lbs	5300	5055	5435	<b>4245</b>	--	<b>5405</b>	<b>2935</b>
													kN	23.58	22.49	24.18	<b>18.88</b>	--	<b>24.04</b>	<b>13.06</b>	
	HBP5518	HB5.50/18	x	10	5-1/2	18	3-1/2	--	3	22	16d	10	16d	Lbs	<b>10405</b>	<b>10405</b>	<b>10405</b>	<b>8635</b>	--	<b>10405</b>	<b>5620</b>
														kN	<b>46.28</b>	<b>46.28</b>	<b>46.28</b>	<b>38.41</b>	--	<b>46.28</b>	<b>25.00</b>
	PHM5518	--	x	7/10	5-5/8	18	2-1/2	7	3	2	16d	2	10d	Lbs	5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--
													kN	24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--	
	PHXU5518	GLTV5.518	x	7	5-1/2	18	3-1/4	11-1/2	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	<b>8280</b>	--	<b>10550</b>	<b>2355</b>
													kN	42.59	37.06	42.59	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>	
	HLBH5518	HGLTV5.518	x	7	5-9/16	18	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	15215	13825	<b>11730</b>	--	<b>14940</b>	<b>2860</b>
													kN	68.04	67.68	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>12.72</b>	
5-1/4 x 20	HBP5520	HB5.50/20	x	10	5-1/2	20	3-1/2	--	3	22	16d	10	16d	Lbs	<b>10405</b>	<b>10405</b>	<b>10405</b>	<b>8635</b>	--	<b>10405</b>	<b>5620</b>
													kN	<b>46.28</b>	<b>46.28</b>	<b>46.28</b>	<b>38.41</b>	--	<b>46.28</b>	<b>25.00</b>	
	PHXU5520	--	x	7	5-1/2	20	3-1/4	11.5	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	<b>8280</b>	--	<b>10550</b>	<b>2355</b>
													kN	42.59	37.06	42.59	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>	
	HLBH5520	--	x	7	5-9/16	20	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	15215	13825	<b>11730</b>	--	<b>14940</b>	<b>2860</b>
													kN	68.04	67.68	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>12.72</b>	
7 x 7-1/4	PHXU71725	--	x	7	7-1/8	7-1/4	3-1/4	13-1/8	2-1/2	8	3.5	6	10d	Lbs	9575	8330	9575	<b>8280</b>	--	<b>10550</b>	<b>2355</b>
													kN	42.59	37.06	42.59	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>	
7 x 9-1/4	BPH71925	--	x	12	7-1/8	9-1/4	3	--	2-3/8	10	16d	6	10d	Lbs	5300	5055	5435	<b>4340</b>	--	<b>5530</b>	<b>2935</b>
													kN	23.58	22.49	24.18	<b>19.31</b>	--	<b>24.60</b>	<b>13.06</b>	
	HBP71925	HB7.12/9.25	x	10	7-1/8	9-1/4	3-1/2	--	3	22	16d	10	16d	Lbs	<b>10405</b>	<b>10405</b>	<b>10405</b>	<b>8635</b>	--	<b>10405</b>	<b>5620</b>
														kN	<b>46.28</b>	<b>46.28</b>	<b>46.28</b>	<b>38.41</b>	--	<b>46.28</b>	<b>25.00</b>
	PHM35925-2	--	x	7/10	7-1/8	9-1/4	2-1/2	10	3	2	16d	2	10d	Lbs	5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--
													kN	24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--	
	PHXU71925	WPI49.25-2	x	7	7-1/8	9-1/4	3-1/4	13-1/8	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	<b>8280</b>	--	<b>10550</b>	<b>2355</b>
													kN	42.59	37.06	42.59	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>	
	HLBH71925	--	x	7	7-1/8	9-1/4	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	14935	13825	<b>11730</b>	--	<b>14940</b>	<b>2860</b>
													kN	68.04	66.44	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>12.72</b>	
7 x 9-1/2	BPH7195	B7.12/9.5	x	12	7-1/8	9-1/2	3	--	2-3/8	10	16d	6	10d	Lbs	5300	5060	5435	<b>4340</b>	--	<b>5530</b>	<b>2935</b>
													kN	23.58	22.51	24.18	<b>19.31</b>	--	<b>24.60</b>	<b>13.06</b>	
	HBP7195	HB7.12/9.5	x	10	7-1/8	9-1/2	3-1/2	--	3	22	16d	10	16d	Lbs	<b>10405</b>	<b>10405</b>	<b>10405</b>	<b>8635</b>	--	<b>10405</b>	<b>5620</b>
														kN	<b>46.28</b>	<b>46.28</b>	<b>46.28</b>	<b>38.41</b>	--	<b>46.28</b>	<b>25.00</b>
	PHM3595-2	--	x	7/10	7-1/8	9-1/2	2-1/2	10	3	2	16d	2	10d	Lbs	5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--
													kN	24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--	
	PHXU7195	GLTV49.5-2, WPI49.5-2	x	7	7-1/8	9-1/2	3-1/4	13-1/8	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	<b>8280</b>	--	<b>10550</b>	<b>2355</b>
													kN	42.59	37.06	42.59	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>	
	HLBH7195	--	x	7	7-1/8	9-1/2	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	14935	13825	<b>11730</b>	--	<b>14940</b>	<b>2860</b>
													kN	68.04	66.44	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>12.72</b>	

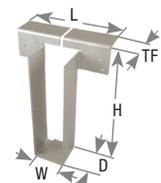
1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) When I-joist is used as a header, all nails must be 10d x 1-1/2.

3) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**

New products or updated product information are designated in **blue font**.



Joist Size	USP Stock No.	Ref. No.	Web Stiff Req'd	Ga.	Dimensions (in)					Fastener Schedule <sup>3</sup>				Unit	Factored Resistance														
					W	H	D	L	TF	Header		Joist			Header Material (100%)					Uplift <sup>1</sup>									
										Qty	Type <sup>2</sup>	Qty	Type		LVL	PSL	LSL	SPF	I-Joist <sup>2</sup>		DF	DF 115%							
7 x 11-1/4	BPH71112	--	x	12	7-1/8	11-1/4	3	--	2-3/16	10	16d	6	10d	Lbs	5300	5060	5435	<b>4305</b>	--	<b>5485</b>	<b>2935</b>	kN	23.58	22.51	24.18	<b>19.15</b>	--	<b>24.40</b>	<b>13.06</b>
	HBPH71112	HB7.12/11.25	x	10	7-1/8	11-1/4	3-1/2	--	3	22	16d	10	16d	Lbs	<b>10405</b>	<b>10405</b>	<b>10405</b>	<b>8635</b>	--	<b>10405</b>	<b>5620</b>	kN	<b>46.28</b>	<b>46.28</b>	<b>46.28</b>	<b>38.41</b>	--	<b>46.28</b>	<b>25.00</b>
	PHXU71112	GLTV411.25-2	x	7	7-1/8	11-1/4	3-1/4	13-1/8	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	<b>8280</b>	--	<b>10550</b>	<b>2355</b>	kN	42.59	37.05	42.59	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>
	HLBH71112	HGLTV411.25-2	x	7	7-1/8	11-1/4	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	14935	13825	<b>11730</b>	--	<b>14940</b>	<b>2860</b>	kN	68.04	66.43	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>12.72</b>
7 x 11-7/8	BPH71118	B7.12/11.88	x	12	7-1/8	11-7/8	3	--	2-3/16	10	16d	6	10d	Lbs	5300	5060	5435	<b>4305</b>	--	<b>5485</b>	<b>2935</b>	kN	23.58	22.51	24.18	<b>19.15</b>	--	<b>24.40</b>	<b>13.06</b>
	HBPH71118	HB7.12/11.88	x	10	7-1/8	11-7/8	3-1/2	--	3	22	16d	10	16d	Lbs	<b>10405</b>	<b>10405</b>	<b>10405</b>	<b>8635</b>	--	<b>10405</b>	<b>5620</b>	kN	<b>46.28</b>	<b>46.28</b>	<b>46.28</b>	<b>38.41</b>	--	<b>46.28</b>	<b>25.00</b>
	PHM35118-2	--	x	7/10	7-1/8	11-7/8	2-1/2	10	3	2	16d	2	10d	Lbs	5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--	kN	24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--
	PHXU71118	GLTV411.88-2, HWU7.12/11.88, WPI411.88-2	x	7	7-1/8	11-7/8	3-1/4	13-1/8	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	<b>8280</b>	--	<b>10550</b>	<b>2355</b>	kN	42.59	37.05	42.59	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>
	HLBH71118	HGLTV411.88-2	x	7	7-1/8	11-7/8	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	14935	13825	<b>11730</b>	--	<b>14940</b>	<b>2860</b>	kN	68.04	66.43	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>12.72</b>
7 x 14	BPH7114	B7.12/14	x	12	7-1/8	14	3	--	2-3/16	10	16d	6	10d	Lbs	5300	5060	5435	<b>4305</b>	--	<b>5485</b>	<b>2935</b>	kN	23.58	22.51	24.18	<b>19.15</b>	--	<b>24.40</b>	<b>13.06</b>
	HBPH7114	HB7.12/14	x	10	7-1/8	14	3.5	--	3	22	16d	10	16d	Lbs	<b>10405</b>	<b>10405</b>	<b>10405</b>	<b>8635</b>	--	<b>10405</b>	<b>5620</b>	kN	<b>46.28</b>	<b>46.28</b>	<b>46.28</b>	<b>38.41</b>	--	<b>46.28</b>	<b>25.00</b>
	PHM3514-2	--	x	7/10	7-1/8	14	2-1/2	10	3	2	16d	2	10d	Lbs	5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--	kN	24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--
	PHXU7114	GLTV414-2, WPI414-2	x	7	7-1/8	14	3-1/4	13-1/8	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	<b>8280</b>	--	<b>10550</b>	<b>2355</b>	kN	42.59	37.05	42.59	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>
	HLBH7114	HGLTV414-2	x	7	7-1/8	14	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	14935	13825	<b>11730</b>	--	<b>14940</b>	<b>2860</b>	kN	68.04	66.43	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>12.72</b>
7 x 16	BPH7116	B7.12/16	x	12	7-1/8	16	3	--	2-3/16	10	16d	6	10d	Lbs	5300	5060	5435	<b>4305</b>	--	<b>5485</b>	<b>2935</b>	kN	23.58	22.51	24.18	<b>19.15</b>	--	<b>24.40</b>	<b>13.06</b>
	HBPH7116	HB7.12/16	x	10	7-1/8	16	3-1/2	--	3	22	16d	10	16d	Lbs	<b>10405</b>	<b>10405</b>	<b>10405</b>	<b>8635</b>	--	<b>10405</b>	<b>5620</b>	kN	<b>46.28</b>	<b>46.28</b>	<b>46.28</b>	<b>38.41</b>	--	<b>46.28</b>	<b>25.00</b>
	PHM3516-2	--	x	7/10	7-1/8	16	2-1/2	10	3	2	16d	2	10d	Lbs	5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--	kN	24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--
	PHXU7116	GLTV416-2, WPI416-2	x	7	7-1/8	16	3-1/4	13-1/8	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	<b>8280</b>	--	<b>10550</b>	<b>2355</b>	kN	42.59	37.05	42.59	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>
	HLBH7116	HGLTV416-2	x	7	7-1/8	16	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	14935	13825	<b>11730</b>	--	<b>14940</b>	<b>2860</b>	kN	68.04	66.43	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>12.72</b>
7 x 18	BPH7118	B7.12/18	x	12	7-1/8	18	3	--	2-3/16	10	16d	6	10d	Lbs	5300	5060	5435	<b>4305</b>	--	<b>5485</b>	<b>2935</b>	kN	23.58	22.51	24.18	<b>19.15</b>	--	<b>24.40</b>	<b>13.06</b>
	HBPH7118	HB7.12/18	x	10	7-1/8	18	3-1/2	--	3	22	16d	10	16d	Lbs	<b>10405</b>	<b>10405</b>	<b>10405</b>	<b>8635</b>	--	<b>10405</b>	<b>5620</b>	kN	<b>46.28</b>	<b>46.28</b>	<b>46.28</b>	<b>38.41</b>	--	<b>46.28</b>	<b>25.00</b>
	PHM3518-2	--	x	7/10	7-1/8	18	2-1/2	10	3	2	16d	2	10d	Lbs	5395	5140	4435	<b>4665</b>	--	<b>5940</b>	--	kN	24.00	22.86	19.73	<b>20.75</b>	--	<b>26.42</b>	--
	PHXU7118	GLTV418-2, HWI418-2	x	7	7-1/8	18	3-1/4	13-1/8	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	<b>8280</b>	--	<b>10550</b>	<b>2355</b>	kN	42.59	37.05	42.59	<b>36.83</b>	--	<b>46.93</b>	<b>10.48</b>
	HLBH7118	HGLTV418-2	x	7	7-1/8	18	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	14935	13825	<b>11730</b>	--	<b>14940</b>	<b>2860</b>	kN	68.04	66.43	61.50	<b>52.18</b>	--	<b>66.46</b>	<b>12.72</b>

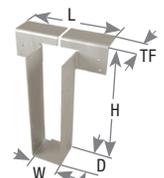
1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) When I-joist is used as a header, all nails must be 10d x 1-1/2.

3) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**

New products or updated product information are designated in **blue font**.



Joist Size	USP Stock No.	Ref. No.	Web Stiff Req'd	Ga.	Dimensions (in)					Fastener Schedule <sup>3</sup>				Unit	Factored Resistance						
					W	H	D	L	TF	Header		Joist			Header Material (100%)					Uplift <sup>1</sup>	
										Qty	Type <sup>2</sup>	Qty	Type		LVL	PSL	LSL	SPF	DF I-Joist <sup>2</sup>	DF	DF 115%
7 x 20	BPH7120	B7.12/20	x	12	7-1/8	20	3	--	2-3/16	10	16d	6	10d	Lbs	5300	5055	5435	4305	--	5485	2935
														kN	23.58	22.49	24.18	19.15	--	24.40	13.06
	HBPH7120	HB7.12/20	x	10	7-1/8	20	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00
	PHM3520-2	-- --	x	7/10	7-1/8	20	2-1/2	10	3	2	16d	2	10d	Lbs	5395	5140	4435	4665	--	5940	--
													kN	24.00	22.86	19.73	20.75	--	26.42	--	
	PHXU7120	GLTV420-2	x	7	7-1/8	20	3-1/4	13-1/8	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	8280	--	10550	2355
														kN	42.59	37.05	42.59	36.83	--	46.93	10.48
	HLBH7120	-- --	x	7	7-1/8	20	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	14935	13825	11730	--	14940	2860
														kN	68.04	66.43	61.50	52.18	--	66.46	12.72
7 x 22	BPH7122	B7.12/22	x	12	7-1/8	22	3	--	2-3/16	10	16d	6	10d	Lbs	5300	5055	5435	4305	--	5485	2935
														kN	23.58	22.49	24.18	19.15	--	24.40	13.06
	HBPH7122	HB7.12/22	x	10	7-1/8	22	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00
	PHXU7122	HWI422-2	x	7	7-1/8	22	3-1/4	13-1/8	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	8280	--	10550	2355
														kN	42.59	37.05	42.59	36.83	--	46.93	10.48
	HLBH7122	GLTV422-2, HGLTV7.12/22	x	7	7-1/8	22	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	14935	13825	11730	--	14940	2860
														kN	68.04	66.43	61.50	52.18	--	66.46	12.72
7 x 24	BPH7124	B7.12/24	x	12	7-1/8	24	3	--	2-3/16	10	16d	6	10d	Lbs	5300	5055	5435	4305	--	5485	2935
														kN	23.58	22.49	24.18	19.15	--	24.40	13.06
	HBPH7124	HB7.12/24	x	10	7-1/8	24	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00
	PHXU7124	HWI424-2	x	7	7-1/8	24	3-1/4	13-1/8	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	8280	--	10550	2355
														kN	42.59	37.05	42.59	36.83	--	46.93	10.48
	HLBH7124	GLTV424-2, HGLTV7.12/24	x	7	7-1/8	24	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	14935	13825	11730	--	14940	2860
														kN	68.04	66.43	61.50	52.18	--	66.46	12.72
7 x 26	HBPH7126	HB7.12/26	x	10	7-1/8	26	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00
	PHXU7126	B7.12/26, HWI426-2	x	7	7-1/8	26	3-1/4	13-1/8	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	8280	--	10550	2355
														kN	42.59	37.05	42.59	36.83	--	46.93	10.48
	HLBH7126	GLTV426-2	x	7	7-1/8	26	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	14935	13825	11730	--	14940	2860
														kN	68.04	66.43	61.50	52.18	--	66.46	12.72
7 x 28	HBPH7128	HB7.12/28	x	10	7-1/8	28	3-1/2	--	3	22	16d	10	16d	Lbs	10405	10405	10405	8635	--	10405	5620
														kN	46.28	46.28	46.28	38.41	--	46.28	25.00
	PHXU7128	B7.12/28, HWI428-2	x	7	7-1/8	28	3-1/4	13-1/8	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	8280	--	10550	2355
														kN	42.59	37.05	42.59	36.83	--	46.93	10.48
	HLBH7128	GLTV428-2	x	7	7-1/8	28	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	14935	13825	11730	--	14940	2860
														kN	68.04	66.43	61.50	52.18	--	66.46	12.72
7 x 30	PHXU7130	HWI430-2	x	7	7-1/8	30	3-1/4	13-1/8	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	8280	--	10550	2355
														kN	42.59	37.05	42.59	36.83	--	46.93	10.48
	HLBH7130	GLTV430-2, HGLTV430-2	x	7	7-1/8	30	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	14935	13825	11730	--	14940	2860
														kN	68.04	66.43	61.50	52.18	--	66.46	12.72
7 x 32	PHXU7132	HWI432-2	x	7	7-1/8	32	3-1/4	13-1/8	2-1/2	8	16d	6	10d	Lbs	9575	8330	9575	8280	--	10550	2355
														kN	42.59	37.05	42.59	36.83	--	46.93	10.48
	HLBH7132	GLTV432-2, HGLTV432-2	x	7	7-1/8	32	6	12	3-1/8	15	NA16D-RS	6	16d	Lbs	15295	14935	13825	11730	--	14940	2860
														kN	68.04	66.43	61.50	52.18	--	66.46	12.72

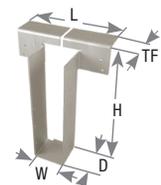
1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) When I-joist is used as a header, all nails must be 10d x 1-1/2.

3) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Load tables address hanger/header/fastener limitations only. Joist limitations must be determined for each installation.**

New products or updated product information are designated in **blue font**.



The TMP and TMPH are designed to make rafter-to-plate connections and eliminate time-consuming bird's-mouth notching or bevel plate installation. Both series are available in I-Joists sizes, as well as standard 2x sizes.

**TMP** – Adjusts to pitches from 1/12 to 6/12.

**TMPH** – Adjusts to pitches from 6/12 to 14/12.

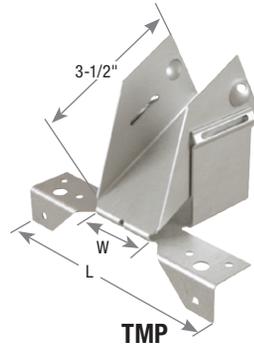
**Materials:** TMP – 18 gauge;  
 TMPH – 16 gauge, Fulcrum – 12 gauge

**Finish:** G90 galvanizing

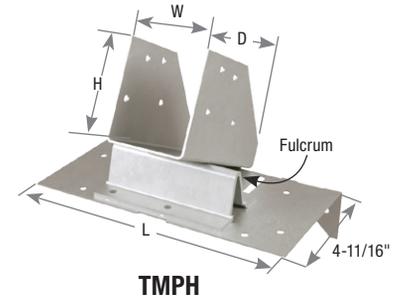
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

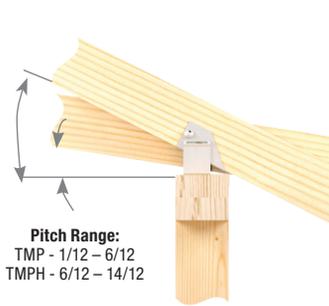
- Use all specified fasteners. See Product Notes, page 15.
- Position connector on top plate. Fasten connector to outside of top plate with specified nails. Insert rafter into rafter pocket. Adjust rafter and pocket to correct pitch. Fasten rafter to connector with specified nails. Installing the TMP requires driving specified nails through the opposing slots in the pocket. TMPH installation involves sliding the fulcrum until it supports the pocket at the desired pitch and nailing down through the fulcrum base into the top plate to lock the fulcrum into position.



**TMP**



**TMPH**



**Pitch Range:**  
 TMP - 1/12 – 6/12  
 TMPH - 6/12 – 14/12



**Typical TMP installation**



**Typical TMPH installation**

Rafter Width (in)	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule <sup>2</sup>				DF Factored Resistance		S-P-F Factored Resistance	
				W	L	Plate		Rafter		Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
						Qty	Type	Qty	Type				
1-1/2	TMP2	VPA2	18	1-9/16	5-9/16	6	10d	4	10d x 1-1/2	1390 6.18	400 1.78	1090 4.85	315 1.40
1-3/4	TMP175	VPA25	18	1-13/16	5-9/16	6	10d	4	10d x 1-1/2	1620 7.20	400 1.78	1270 5.65	315 1.40
2 or 2-1/8	TMP21	VPA2.06, VPA2.1	18	2-1/8	6-3/8	6	10d	4	10d x 1-1/2	1815 8.07	400 1.78	1425 6.34	315 1.40
2-5/16	TMP23	VPA35	18	2-3/8	6-3/8	6	10d	4	10d x 1-1/2	2770 12.32	400 1.78	2175 9.67	315 1.40
2-1/2 or 2-5/8	TMP25	VPA3	18	2-11/16	6-3/8	6	10d	4	10d x 1-1/2	2770 12.32	400 1.78	2175 9.67	315 1.40
3	TMP31	-- --	18	3-1/8	7-5/16	6	10d	4	10d x 1-1/2	2770 12.32	400 1.78	2175 9.67	315 1.40
3-1/2	TMP4	VPA4	18	3-9/16	7-5/16	6	10d	4	10d x 1-1/2	2770 12.32	400 1.78	2175 9.67	315 1.40

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase is allowed.

2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

New products or updated product information are designated in **blue font**.

Rafter Width (in)	USP Stock No.	Ref. No.	Dimensions (in)			Fastener Schedule <sup>3</sup>				Unit	DF Factored Resistance						S-P-F Factored Resistance					
			W	H	L	Plate		Rafter <sup>2</sup>			According to Pitch						According to Pitch					
						Qty	Type	Qty	Type		6/12	7/12	8/12	10/12	12/12	Uplift <sup>1</sup> 115%	6/12	7/12	8/12	10/12	12/12	Uplift <sup>1</sup> 115%
1-1/2	TMPH2	VPA2	1-9/16	2-1/2	6-9/16	10	10d	8	10d x 1-1/2	Lbs	5220	5385	5540	4470	4120	375	4100	4225	4350	3510	3235	295
										kN	23.22	23.95	24.64	19.88	18.33	1.67	18.24	18.79	19.35	15.61	14.39	1.31
1-3/4	TMPH175	VPA25	1-13/16	2-3/8	6-9/16	10	10d	8	10d x 1-1/2	Lbs	5220	5385	5540	4470	4120	375	4100	4225	4350	3510	3235	295
										kN	23.22	23.95	24.64	19.88	18.33	1.67	18.24	18.79	19.35	15.61	14.39	1.31
2 or 2-1/8	TMPH21	VPA2.06, VPA2.1	2-1/8	2-5/8	7-3/8	10	10d	8	10d x 1-1/2	Lbs	5220	5385	5540	4470	4120	375	4100	4225	4350	3510	3235	295
										kN	23.22	23.95	24.64	19.88	18.33	1.67	18.24	18.79	19.35	15.61	14.39	1.31
2-5/16	TMPH23	VPA35	2-3/8	2-1/2	7-3/8	10	10d	8	10d x 1-1/2	Lbs	5220	5385	5540	4470	4120	375	4100	4225	4350	3510	3235	295
										kN	23.22	23.95	24.64	19.88	18.33	1.67	18.24	18.79	19.35	15.61	14.39	1.31
2-1/2 or 2-5/8	TMPH25	VPA3	2-11/16	2-5/16	7-3/8	10	10d	8	10d x 1-1/2	Lbs	5220	5385	5540	4470	4120	375	4100	4225	4350	3510	3235	295
										kN	23.22	23.95	24.64	19.88	18.33	1.67	18.24	18.79	19.35	15.61	14.39	1.31
3	TMPH31	-- --	3-1/8	2-11/16	8-9/16	10	10d	8	10d x 1-1/2	Lbs	5220	5385	5540	4470	4120	375	4100	4225	4350	3510	3235	295
										kN	23.22	23.95	24.64	19.88	18.33	1.67	18.24	18.79	19.35	15.61	14.39	1.31
3-1/2	TMPH4	VPA4	3-9/16	2-1/2	8-9/16	10	10d	8	10d x 1-1/2	Lbs	5220	5385	5540	4470	4120	375	4100	4225	4350	3510	3235	295
										kN	23.22	23.95	24.64	19.88	18.33	1.67	18.24	18.79	19.35	15.61	14.39	1.31

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase is allowed.

2) Web stiffeners are required for all Wood I-Joist installations.

3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

New products or updated product information are designated in **blue font**.

The LSSH series connects rafters to ridge beams in vaulted roof structures. This series is field adjustable to meet a variety of skew and/or slope applications. Slopes and skew 0° to 45°.

**Materials:** See chart

**Finish:** G90 galvanizing; LSSH15-TZ – G-185 Galvanizing

**Options:** See chart for Corrosion Finish Options

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

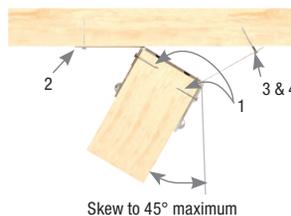
- Use all specified fasteners. See Product Notes, page 15.

**Steps:**

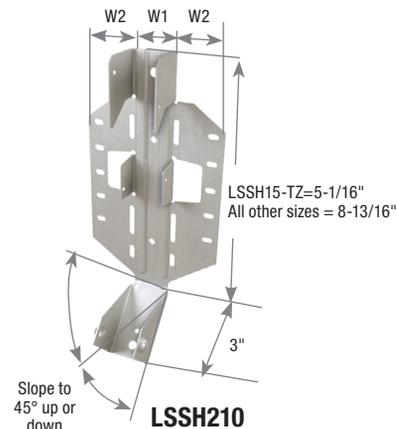
1. Position LSSH connector against plumb-cut end of joist. Fasten joist side flanges on both sides with 10d (0.148") x 1-1/2" nails. Bend seat up to fit against joist bottom and drive (1) 10d (0.148") x 1-1/2" nail through bottom seat into rafter bottom. Drive (2) 10d (0.148") x 1-1/2" nails at downward angle through dimpled nailing guides.
  2. Lean connector and rafter end against ridge beam at desired position. Install specified 10d (0.148" x 3") or 16d (0.162" x 3-1/2") nails through nail holes into ridge beam at right 90° angle. If skewing the rafter, only drive nails into ridge beam on inside flange.
  3. Bend flange to desired angle.
  4. Hammer outside flange until edge touches header. Fasten outside flange to ridge by driving specified 10d (0.148" x 3) or 16d (0.162" x 3-1/2") nails through nail holes.
- Web stiffeners are required for all wood I-Joist installations.
  - Designer may consider adding a tension restraint for the supported member for roof slopes exceeding 6/12. Refer to pages 86-87.



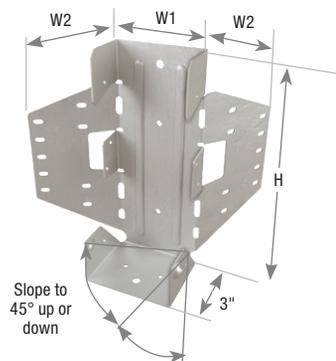
**Typical LSSH179 installation**



Skew to 45° maximum



**LSSH210**



**LSSH35**

Rafter Width (in)	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2</sup>				DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish
				W1	W2	H	Header		Rafter		Lbs		kN		Lbs		kN		
							Qty	Type	Qty	Type	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	
<b>SLOPED ONLY HANGERS</b>																			
1-1/2	LSSH15-TZ	LSU26, LSU26Z, LSSU28, LSSU28Z	18	1-9/16	1-3/4	5-1/16	6	10d HDG	7	10d x 1-1/2 HDG	1590	1175	7.07	5.23	1250	925	5.56	4.11	
1-1/2	LSSH210	LSSU210	18	1-9/16	1-3/4	8-13/16	10	10d	7	10d x 1-1/2	2685	1695	11.94	7.54	2110	1330	9.39	5.92	
1-3/4	LSSH179	LSSU125	18	1-13/16	1-5/8	8-13/16	10	10d	7	10d x 1-1/2	2685	1695	11.94	7.54	2110	1330	9.39	5.92	
2 - 2-1/8	LSSH20	LSSU12.06, LSSU2.1	18	2-1/8	2-1/2	8-13/16	10	10d	7	10d x 1-1/2	2535	1555	11.28	6.92	1990	1220	8.85	5.43	
2-1/4 - 2-5/16	LSSH23	LSSU135	18	2-5/16	2-3/8	8-13/16	10	10d	7	10d x 1-1/2	2535	1555	11.28	6.92	1990	1220	8.85	5.43	
2-1/2	LSSH25	LSSUH310	16	2-9/16	2-3/4	8-13/16	18	16d	12	10d x 1-1/2	4125	1895	18.35	8.43	3240	1490	14.41	6.63	
2-5/8	LSSH26	---	16	2-11/16	2-5/8	8-13/16	18	16d	12	10d x 1-1/2	4125	1895	18.35	8.43	3240	1490	14.41	6.63	
3	LSSH31	LSSU210-2	16	3-1/8	3-3/4	8-13/16	18	16d	12	10d x 1-1/2	5065	2515	22.53	11.19	3980	1975	17.70	8.79	
3-1/2	LSSH35	LSSU410	16	3-9/16	3-1/2	8-13/16	18	16d	12	10d x 1-1/2	5065	2515	22.53	11.19	3980	1975	17.70	8.79	
<b>SKEWEH HANGERS or SLOPED &amp; SKEWEH HANGERS</b>																			
1-1/2	LSSH15-TZ	LSU26, LSU26Z, LSSU28, LSSU28Z	18	1-9/16	1-3/4	5-1/16	6	10d HDG	7	10d x 1-1/2 HDG	1295	1175	5.76	5.23	1015	925	4.51	4.11	
1-1/2	LSSH210	LSSU210	18	1-9/16	1-3/4	8-13/16	10	10d	7	10d x 1-1/2	2685	1695	11.94	7.54	2110	1330	9.39	5.92	
1-3/4	LSSH179	LSSU125	18	1-13/16	1-5/8	8-13/16	10	10d	7	10d x 1-1/2	2685	1695	11.94	7.54	2110	1330	9.39	5.92	
2 - 2-1/8	LSSH20	LSSU12.06, LSSU2.1	18	2-1/8	2-1/2	8-13/16	10	10d	7	10d x 1-1/2	2535	1555	11.28	6.92	1990	1220	8.85	5.43	
2-1/4 - 2-5/16	LSSH23	LSSU135	18	2-5/16	2-3/8	8-13/16	10	10d	7	10d x 1-1/2	2535	1555	11.28	6.92	1990	1220	8.85	5.43	
2-1/2	LSSH25	LSSUH310	16	2-9/16	2-3/4	8-13/16	14	16d	12	10d x 1-1/2	2895	1895	12.88	8.43	2270	1490	10.10	6.63	
2-5/8	LSSH26	---	16	2-11/16	2-5/8	8-13/16	14	16d	12	10d x 1-1/2	2895	1895	12.88	8.43	2270	1490	10.10	6.63	
3	LSSH31	LSSU210-2	16	3-1/8	3-3/4	8-13/16	14	16d	12	10d x 1-1/2	3045	2515	13.55	11.19	2390	1975	10.63	8.79	
3-1/2	LSSH35	LSSU410	16	3-9/16	3-1/2	8-13/16	14	16d	12	10d x 1-1/2	3045	2515	13.55	11.19	2390	1975	10.63	8.79	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long. New products or updated product information are designated in **blue font**.

**Corrosion Finish**

- Stainless Steel
- Gold Coat
- HDG
- Triple Zinc

LGU, MGU, and HGU's are high capacity girder to girder face mount connectors. Fastening is by WS structural screws for ease of installation. Fastenings are placed high on connector to permit the connection of a deep carried member to a shallower carrying member. Very useful where tops of beams must be flush.

**Materials:** LGU / MGU – 10 gauge; HGU – 7 gauge

**Finish:** G90 galvanizing

**Options:** See Specialty Options chart on page 158.

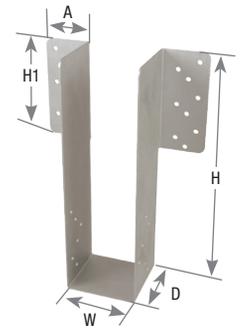
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- WS structural screws supplied with connector. Substituting lag screws will reduce capacity.
- Beams comprised of multiple plies must be laminated to act as a single member.
- Multi-ply carrying beams may require additional connection of laminations at connector.
- Beam height dimension (H) must be specified when ordering.



Typical LGU, MGU, HGU installation



LGU, MGU, HGU

Beam Width (in)	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)					Fastener Schedule <sup>3</sup>				Unit	DF Factored Resistance		S-P-F Factored Resistance	
				W	H <sup>2</sup> (min)	H1	D	A	Header		Truss			Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
									Qty	Type	Qty	Type					
3-1/8	LGU325	LGU3.25-SDS	10	3-1/4	8	7-3/8	4-1/2	3-1/4	18	WS3	12	WS3	Lbs	10760	<b>6980</b>	<b>8655</b>	<b>6305</b>
													kN	47.86	<b>31.05</b>	<b>38.50</b>	<b>28.05</b>
3-1/2	LGU363	LGU3.63-SDS	10	3-5/8	8	7-3/8	4-1/2	3-1/4	18	WS3	12	WS3	Lbs	10760	<b>6980</b>	<b>8655</b>	<b>6305</b>
													kN	47.86	<b>31.05</b>	<b>38.50</b>	<b>28.05</b>
	MGU363	MGU3.63-SDS	10	3-5/8	9-1/4	8-5/8	4-1/2	4	24	WS3	16	WS3	Lbs	17465	<b>8555</b>	<b>14055</b>	<b>7730</b>
													kN	77.69	<b>38.05</b>	<b>62.52</b>	<b>34.38</b>
	HGU363	HGU3.63-SDS	7	3-5/8	11	10-3/8	5-1/4	4-3/4	38	WS3	24	WS3	Lbs	<b>20240</b>	<b>11355</b>	<b>20240</b>	<b>11355</b>
													kN	<b>90.03</b>	<b>50.51</b>	<b>90.03</b>	<b>50.51</b>
5-1/8	LGU525	LGU5.25-SDS	10	5-1/4	8	7-3/8	4-1/2	3-1/4	18	WS3	12	WS3	Lbs	10760	<b>6980</b>	<b>8655</b>	<b>6305</b>
													kN	47.86	<b>31.05</b>	<b>38.50</b>	<b>28.05</b>
	MGU525	MGU5.25-SDS	10	5-1/4	9-1/4	8-5/8	4-1/2	4	24	WS3	16	WS3	Lbs	17465	<b>8555</b>	<b>14055</b>	<b>7730</b>
													kN	77.69	<b>38.05</b>	<b>62.52</b>	<b>34.38</b>
	HGU525	HGU5.25-SDS	7	5-1/4	11	10-3/8	5-1/4	4-3/4	38	WS3	24	WS3	Lbs	<b>20240</b>	<b>11355</b>	<b>20240</b>	<b>11355</b>
													kN	<b>90.03</b>	<b>50.51</b>	<b>90.03</b>	<b>50.51</b>
5-1/4	MGU550	MGU5.50-SDS	10	5-1/2	9-1/4	8-5/8	4-1/2	4	24	WS3	16	WS3	Lbs	17465	<b>8555</b>	<b>14055</b>	<b>7730</b>
													kN	77.69	<b>38.05</b>	<b>62.52</b>	<b>34.38</b>
	HGU550	HGU5.50-SDS	7	5-1/2	11	10-3/8	5-1/4	4-3/4	38	WS3	24	WS3	Lbs	<b>20240</b>	<b>11355</b>	<b>20240</b>	<b>11355</b>
													kN	<b>90.03</b>	<b>50.51</b>	<b>90.03</b>	<b>50.51</b>
5-1/2	MGU562	MGU5.62-SDS	10	5-5/8	9-1/4	8-5/8	4-1/2	4	24	WS3	16	WS3	Lbs	17465	<b>8555</b>	<b>14055</b>	<b>7730</b>
													kN	77.69	<b>38.05</b>	<b>62.52</b>	<b>34.38</b>
	HGU562	HGU5.62-SDS	7	5-5/8	11	10-3/8	5-1/4	4-3/4	38	WS3	24	WS3	Lbs	<b>20240</b>	<b>11355</b>	<b>20240</b>	<b>11355</b>
													kN	<b>90.03</b>	<b>50.51</b>	<b>90.03</b>	<b>50.51</b>
6-3/4	MGU700	MGU7.00-SDS	10	7	9-1/4	8-5/8	4-1/2	4	24	WS3	16	WS3	Lbs	17465	<b>8555</b>	<b>14055</b>	<b>7730</b>
													kN	77.69	<b>38.05</b>	<b>62.52</b>	<b>34.38</b>
	HGU700	HGU7.00-SDS	7	7	11	10-3/8	5-1/4	4-3/4	38	WS3	24	WS3	Lbs	<b>20240</b>	<b>11355</b>	<b>20240</b>	<b>11355</b>
													kN	<b>90.03</b>	<b>50.51</b>	<b>90.03</b>	<b>50.51</b>
7	HGU725	HGU7.25-SDS	7	7-1/4	11	10-3/8	5-1/4	4-3/4	38	WS3	24	WS3	Lbs	<b>20240</b>	<b>11355</b>	<b>20240</b>	<b>11355</b>
													kN	<b>90.03</b>	<b>50.51</b>	<b>90.03</b>	<b>50.51</b>
8-3/4	HGU900	HGU9.00-SDS	7	9	11	10-3/8	5-1/4	4-3/4	38	WS3	24	WS3	Lbs	<b>20240</b>	<b>11355</b>	<b>20240</b>	<b>11355</b>
													kN	<b>90.03</b>	<b>50.51</b>	<b>90.03</b>	<b>50.51</b>

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) H denotes minimum hanger height. Specify height when ordering.

3) WS3 Wood Screws are 1/4" x 3" long and are included in hangers.

New products or updated product information are designated in **blue font**.

**Specialty Options Chart**

– refer to Specialty Options pages 220 and 222 for additional details

Glulam Beam Connectors

Option	USP Series	Skewed <sup>1</sup>	Inverted Flange
<b>Range</b>	LGU MGU HGU	1° to 45°	One Inverted-Flange option available on some sizes. See footnotes 2 and 3.
<b>Factored Resistance</b>	LGU	55% of table value. 30% of uplift.	100% of table value
	MGU	65% of table value. 30% of uplift.	
	HGU	70% of table value. 30% of uplift.	
<b>Ordering</b>	LGU MGU HGU	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and <b>square cut (<i>SQ</i>) or bevel cut (<i>BV</i>)</b> to product number. Ex. LGU525_H=18_SK45R_SQ	Add <i>1F</i> and right ( <i>R</i> ) or left ( <i>L</i> ) to product number. Ex. LGU525_H=18_1IFR

- 1) Skewed hangers with skews greater than 15° may have all joist fasteners on outside flange.
  - 2) One inverted-flange (1IF) is available on the following sizes: LGU363, LGU525, MGU525, MGU550, MGU563, MGU700, HGU525, HGU550, HGU562, HGU700, HGU725, HGU900
  - 3) The inverted flange option is not available on skewed LGU, MGU or HGU hangers.
  - 4) **Bevel cut required on skewed parts to meet table loads.**
  - 5) **Skewed hangers typically require a bevel cut however, a square cut option may be available as a custom when requested.**
- New products or updated product information are designated in **blue font**.

**GHF** Glulam Face Mount Hangers

**Materials:** See chart

**Finish:** USP primer

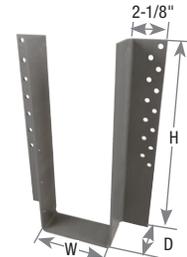
**Options:** See Specialty Options Chart on page 159.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- WS Wood Screws are supplied with GHF hangers.



**Typical GHF51135 installation**



**GHF**

Glulam Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2</sup>				DF Factored Resistance <sup>1</sup>				S-P-F Factored Resistance <sup>1</sup>			
				W	H	D	Header		Joist		Lbs		kN		Lbs		kN	
							Qty	Type	Qty	Type	Floor	Uplift <sup>3</sup>	Floor	Uplift <sup>3</sup>	Floor	Uplift <sup>3</sup>	Floor	Uplift <sup>3</sup>
				100%	115%	100%	115%	100%	115%	100%	115%							
3-1/8 x 6	GHF31600	--	12	3-3/16	5-7/8	2-3/8	10	WS25	4	WS25	<b>3980</b>	<b>2340</b>	<b>17.70</b>	<b>10.41</b>	<b>3125</b>	<b>1835</b>	<b>13.90</b>	<b>8.16</b>
3-1/8 x 7-1/2	GHF31750	--	12	3-3/16	7-3/8	2-3/8	12	WS25	4	WS25	<b>4770</b>	<b>2340</b>	<b>21.22</b>	<b>10.41</b>	<b>3745</b>	<b>1835</b>	<b>16.66</b>	<b>8.16</b>
3-1/8 x 9	GHF31900	--	12	3-3/16	8-7/8	2-3/8	16	WS25	5	WS25	<b>6360</b>	<b>2920</b>	<b>28.29</b>	<b>12.99</b>	<b>4995</b>	<b>2295</b>	<b>22.22</b>	<b>10.21</b>
3-1/8 x 10-1/2	GHF31105	--	12	3-3/16	10-3/8	2-3/8	20	WS25	6	WS25	<b>7950</b>	<b>3505</b>	<b>35.36</b>	<b>15.59</b>	<b>6240</b>	<b>2755</b>	<b>27.76</b>	<b>12.25</b>
3-1/8 x 12	GHF31120	--	12	3-3/16	11-7/8	2-3/8	22	WS25	6	WS25	<b>8420</b>	<b>3505</b>	<b>37.45</b>	<b>15.59</b>	<b>6610</b>	<b>2755</b>	<b>29.40</b>	<b>12.25</b>
3-1/8 x 13-1/2	GHF31135	--	12	3-3/16	13-3/8	2-3/4	24	WS25	6	WS25	<b>8420</b>	<b>3505</b>	<b>37.45</b>	<b>15.59</b>	<b>6610</b>	<b>2755</b>	<b>29.40</b>	<b>12.25</b>
3-1/8 x 15	GHF31150	--	12	3-3/16	14-7/8	2-3/4	26	WS25	7	WS25	<b>9770</b>	<b>4100</b>	<b>43.46</b>	<b>18.24</b>	<b>7670</b>	<b>3220</b>	<b>34.12</b>	<b>14.32</b>
3-1/8 x 16-1/2	GHF31165	--	12	3-3/16	16-3/8	2-3/4	28	WS25	9	WS25	<b>10565</b>	<b>5270</b>	<b>47.00</b>	<b>23.44</b>	<b>8295</b>	<b>4135</b>	<b>36.90</b>	<b>18.39</b>
3-1/8 x 18	GHF31178	--	12	3-3/16	17-3/4	2-3/4	30	WS25	11	WS25	<b>11360</b>	<b>6435</b>	<b>50.53</b>	<b>28.62</b>	<b>8920</b>	<b>5055</b>	<b>39.68</b>	<b>22.49</b>
3-1/4 x 9	GHF32900	--	12	3-5/16	8-7/8	2-3/8	16	WS25	5	WS25	<b>6360</b>	<b>2920</b>	<b>28.29</b>	<b>12.99</b>	<b>4995</b>	<b>2295</b>	<b>22.22</b>	<b>10.21</b>
3-1/4 x 12	GHF32120	--	12	3-5/16	11-7/8	2-3/8	22	WS25	6	WS25	<b>8420</b>	<b>3505</b>	<b>37.45</b>	<b>15.59</b>	<b>6610</b>	<b>2755</b>	<b>29.40</b>	<b>12.25</b>

1) Factored resistances based on seat bearing calculated at 560 psi perpendicular to grain.  
 2) WS25 Wood Screws are 1/4" x 2-1/2" long and the WS3 Wood Screws are 1/4" x 3" long and are included with GHF hangers.  
 3) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 New products or updated product information are designated in **blue font**.

Glulam Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2</sup>				DF Factored Resistance <sup>1</sup>				S-P-F Factored Resistance <sup>1</sup>			
				W	H	D	Header		Joist		Lbs		kN		Lbs		kN	
							Qty	Type	Qty	Type	Floor	Uplift <sup>3</sup>	Floor	Uplift <sup>3</sup>	Floor	Uplift <sup>3</sup>	Floor	Uplift <sup>3</sup>
				100%	115%	100%	115%	100%	115%	100%	115%							
5-1/8 x 6	GHF51600	--	12	5-3/16	5-7/8	2-3/8	10	WS3	4	WS3	3980	2340	17.70	10.41	3125	1835	13.90	8.16
5-1/8 x 7-1/2	GHF51750	--	12	5-3/16	7-3/8	2-3/8	14	WS3	4	WS3	5570	2340	24.78	10.41	4370	1835	19.44	8.16
5-1/8 x 9	GHF51900	--	12	5-3/16	8-7/8	2-3/8	18	WS3	5	WS3	7160	2920	31.85	12.99	5620	2295	25.00	10.21
5-1/8 x 10-1/2	GHF51105	--	12	5-3/16	10-3/8	2-3/8	22	WS3	6	WS3	8750	3505	38.92	15.59	6870	2755	30.56	12.25
5-1/8 x 12	GHF51120	--	12	5-3/16	11-7/8	2-3/8	24	WS3	6	WS3	9540	3505	42.44	15.59	7490	2755	33.32	12.25
5-1/8 x 13-1/2	GHF51135	--	7	5-3/16	13-3/8	2-3/8	26	WS3	6	WS3	11800	4010	52.49	17.84	9260	3145	41.19	13.99
5-1/8 x 15	GHF51150	--	7	5-3/16	14-7/8	2-3/4	28	WS3	7	WS3	12705	4675	56.51	20.80	9975	3670	44.37	16.32
5-1/8 x 16-1/2	GHF51165	--	7	5-3/16	16-3/8	2-3/4	30	WS3	7	WS3	13615	4675	60.56	20.80	10685	3670	47.53	16.32
5-1/8 x 18	GHF51178	--	7	5-3/16	17-3/4	2-3/4	32	WS3	8	WS3	14520	5345	64.59	23.78	11400	4195	50.71	18.66
5-1/8 x 19-1/2	GHF51192	--	7	5-3/16	19-1/8	2-3/4	34	WS3	8	WS3	15095	5345	67.15	23.78	11850	4195	52.71	18.66
5-1/8 x 21	GHF51205	--	7	5-3/16	20-3/8	2-3/4	36	WS3	9	WS3	15545	6010	69.15	26.73	12200	4720	54.27	21.00
5-1/8 x 24	GHF51233	--	7	5-3/16	23-1/4	2-3/4	40	WS3	11	WS3	16450	7345	73.17	32.67	12915	5770	57.45	25.67
5-1/4 x 9	GHF52900	--	12	5-5/16	8-7/8	2-3/8	18	WS3	5	WS3	7160	2920	31.85	12.99	5620	2295	25.00	10.21
5-1/4 x 12	GHF52120	--	12	5-5/16	11-7/8	2-3/8	24	WS3	6	WS3	9540	3505	42.44	15.59	7490	2755	33.32	12.25
6-3/4 x 6	GHF67600	--	12	6-7/8	5-7/8	2-3/8	12	WS3	4	WS3	4770	2340	21.22	10.41	3745	1835	16.66	8.16
6-3/4 x 7-1/2	GHF67750	--	12	6-7/8	7-3/8	2-3/8	16	WS3	5	WS3	6360	2920	28.29	12.99	4995	2295	22.22	10.21
6-3/4 x 9	GHF67900	--	12	6-7/8	8-7/8	2-3/8	20	WS3	6	WS3	7950	3505	35.36	15.59	6240	2755	27.76	12.25
6-3/4 x 10-1/2	GHF67105	--	12	6-7/8	10-3/8	2-3/8	24	WS3	8	WS3	9540	4685	42.44	20.84	7490	3675	33.32	16.35
6-3/4 x 12	GHF67120	--	7	6-7/8	11-7/8	2-3/4	28	WS3	8	WS3	12705	5345	56.51	23.78	9975	4195	44.37	18.66
6-3/4 x 13-1/2	GHF67135	--	7	6-7/8	13-3/8	2-3/4	30	WS3	8	WS3	13615	5345	60.56	23.78	10685	4195	47.53	18.66
6-3/4 x 15	GHF67150	--	7	6-7/8	14-7/8	2-3/4	32	WS3	10	WS3	14520	6680	64.59	29.71	11400	5245	50.71	23.33
6-3/4 x 16-1/2	GHF67165	--	7	6-7/8	16-3/8	2-3/4	34	WS3	10	WS3	15430	6680	68.64	29.71	12110	5245	53.87	23.33
6-3/4 x 18	GHF67180	--	7	6-7/8	17-3/4	2-3/4	36	WS3	12	WS3	16335	8015	72.66	35.65	12825	6290	57.05	27.98
6-3/4 x 19-1/2	GHF67195	--	7	6-7/8	19-1/8	3	40	WS3	14	WS3	18150	9350	80.74	41.59	14250	7340	63.39	32.65
6-3/4 x 21	GHF67210	--	7	6-7/8	20-3/8	3	44	WS3	18	WS3	18875	12025	83.96	53.49	14820	9440	65.92	41.99
6-3/4 x 22-1/2	GHF67225	--	7	6-7/8	21-7/8	3	46	WS3	20	WS3	18875	13360	83.96	59.43	14820	10485	65.92	46.64
6-3/4 x 24	GHF67240	--	7	6-7/8	23-1/4	3	48	WS3	22	WS3	18875	14695	83.96	65.37	14820	11535	65.92	51.31

1) Factored resistances based on seat bearing calculated at 560 psi perpendicular to grain.  
 2) WS25 Wood Screws are 1/4" x 2-1/2" long and the WS3 Wood Screws are 1/4" x 3" long and are included with GHF hangers.  
 3) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 New products or updated product information are designated in **blue font**.

**Specialty Options Chart**

– refer to Specialty Options pages 220-221 for additional details

Option	Skewed <sup>1,3</sup>	Sloped Seat <sup>2</sup>	Sloped / Skewed <sup>1,2</sup>	Inverted Flange
Range	1° to 50°	1° to 45°	See Sloped Seat and Skewed	Not available in widths less than 4-1/2"
Factored Resistance	100% of table load. 75% of uplift load on skews greater than 15°.	100% of table load	80% of table load on skews greater. 75% of uplift load than 15°.	100% of table load. 65% of table load when nailing into the support members end grain.
Ordering	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and <b>square cut (<i>SQ</i>) or bevel cut (<i>BI</i>)</b> to product number. Ex. GHF31900_SK45R_BV	Add <i>SL</i> , slope required, and up ( <i>U</i> ) or down ( <i>D</i> ), to product number. Ex. GHF31900_SL30D	See Sloped Seat and Skewed. Ex. GHF31900_SK45R_BV_SL30D	Add <i>IF</i> to product number. Ex. GHF51135_IF



**Typical GHF51135IF inverted flange installation**

1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.  
 2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.  
 3) **Skewed hangers typically require a bevel cut however, a square cut option may be available as a custom when requested.**  
 New products or updated product information are designated in **blue font**.

Bolt-only fastening, heavy steel construction, and a continuous top flange allow the KLEG, KMEG, and KEG products to have high load capacities.

**KLEG** – (4) bolt light-duty hanger.

**KMEG** – (6) bolt medium-duty hanger.

**KEG** – (8) bolt heavy-duty hanger.

**Materials:** See chart

**Finish:** USP primer

**Options:** See Specialty Options Chart.

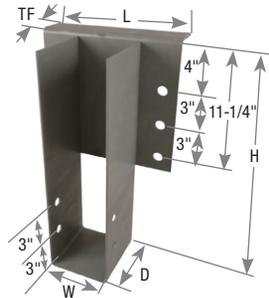
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

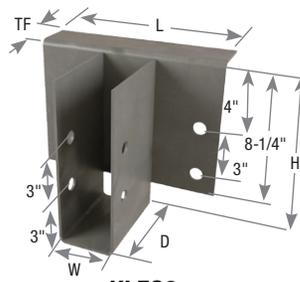
- Use all specified fasteners. See Product Notes, page 15.
- Bolts are not supplied unless ordered separately. Bolts provided by other suppliers must meet or exceed ASTM A 307 Grade A, or ASME SAE Grade 2, or better.
- **Minimum header height is 10" for the KLEG; 13" for the KMEG; 20" for the KEG.**
- Beam height dimension (H) must be specified when ordering.



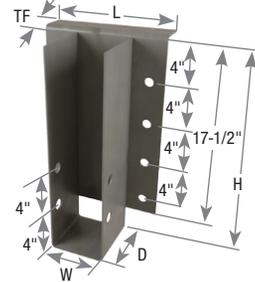
Typical KLEG5 installation



KMEG5



KLEG3



KEG5



KLEG without top flange

Beam Width (in)	USP Stock No.	Ref. No.	Steel Gauge		Dimensions (in)					Fastener Schedule				DF Factored Resistance <sup>1</sup>			S-P-F Factored Resistance <sup>1</sup>			
			Top Flange	U-Strap	W	H <sup>3</sup>	D	TF	L	Header		Joist		With Top Flange	Without Top Flange	Uplift 115% <sup>2</sup>	With Top Flange	Without Top Flange	Uplift 115% <sup>2</sup>	
										Qty	Bolt Dia.	Qty	Bolt Dia.							Unit
3-1/8	KLEG3	LEG3	7	7	3-1/4	specify	6	2-1/2	12	4	3/4	2	3/4	Lbs	15060	5125	4040	12950	4410	3475
5-1/8	KLEG5	LEG5	7	7	5-1/4	specify	6	2-1/2	12	4	3/4	2	3/4	Lbs	15060	5125	<b>5125</b>	12950	4410	5085
	KMEG5	MEG5	7	7	5-1/4	specify	6	2-1/2	12	6	3/4	2	3/4	kN	66.99	22.80	<b>22.80</b>	57.60	19.62	22.62
	KEG5	EG5	1/4	7	5-1/4	specify	6	2-1/2	12	8	1	2	1	Lbs	17555	7620	5915	15095	6555	5085
6-3/4	KLEG7	LEG7	7	7	6-7/8	specify	6	2-1/2	12	4	3/4	2	3/4	kN	102.87	58.67	33.92	88.48	50.47	29.18
	KMEG7	MEG7	7	7	6-7/8	specify	6	2-1/2	12	6	3/4	2	3/4	Lbs	15060	5125	<b>5125</b>	12950	4410	5085
	KEG7	EG7	1/4	7	6-7/8	specify	6	2-1/2	13-1/2	8	1	2	1	kN	66.99	22.80	<b>22.80</b>	57.60	19.62	22.62
8-3/4	KEG9	EG9	1/4	7	8-7/8	specify	6	2-1/2	15-1/2	8	1	2	1	Lbs	24410	13235	9595	20995	11380	8250
														kN	108.58	58.87	42.68	93.39	50.62	36.70
														Lbs	26100	13270	9580	22445	11410	8240
10-3/4	KEG11	---	1/4	7	10-7/8	specify	6	2-1/2	17-1/2	8	1	2	1	kN	116.10	59.03	42.61	99.84	50.75	36.65
														Lbs	27785	13300	9570	23895	11440	8230
														kN	123.59	59.16	42.57	106.29	50.89	36.61

1) Factored resistances are for a supporting member with a width of 5-1/2", and 560 psi perpendicular to grain loading in single shear.  
 2) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 3) "Specify" denotes the required supported beam height that must be specified at the time of ordering.  
 New products or updated product information are designated in **blue font**.

**Specialty Options Chart**

– refer to Specialty Options pages 220, 222-223 for additional details

Option	Skewed <sup>3,4</sup>	Sloped Seat	Top Flange Offset <sup>1,2</sup>
Range	1° to 45°	1° to 45°	---
Factored Resistance	KLEG - 14400 lbs. Max. KMEG - 14400 lbs. Max. KEG - 20520 lbs. Max.	KLEG - 13920 lbs. Max. KMEG - 13920 lbs. Max. KEG - 13920 lbs. Max.	KLEG - 8160 lbs. Max. KLEG - 9" min. height. KMEG - 8160 lbs. Max. KMEG - 11" min. height.
Ordering	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and <b>square cut (<i>SQ</i>)</b> to product number. Ex. KLEG3_H=112_SK45R_SQ	Add <i>SL</i> , slope required, and up ( <i>U</i> ) or down ( <i>D</i> ), to product number. Ex. KLEG3_H=112_SL30D	Add <i>OS</i> , and right ( <i>R</i> ) or left ( <i>L</i> ), to product number. Ex. KLEG3_H=112_OSL

- 1) Top flange offset hangers may not be skewed.
  - 2) Top flange offset option is not available for KEG models.
  - 3) Carried member must have square cut end on skewed option. Refer to Typical PHXU hanger, skewed, left shown, Type B illustration on page 222.
- New products or updated product information are designated in **blue font**.

These hangers cover medium-to-heavy glulam beam and purlin applications.

**KHHB** – Medium capacity hanger.

**KGB** – Medium-to-heavy capacity hanger.

**KHGB** – Heavy capacity hanger.

**Materials:** 7 gauge

**Finish:** USP primer

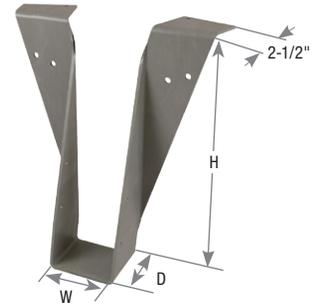
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

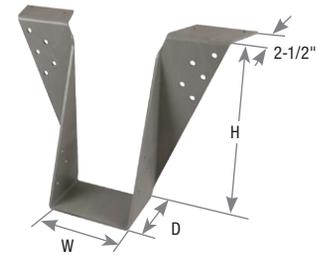
- Use all specified fasteners. See Product Notes, page 15.
- WS3 Wood Screws are supplied with hangers.
- Beam height dimension (H) must be specified when ordering.
- **Minimum height (H) is 7-1/2".**
- See Welded Installation chart on page 224.



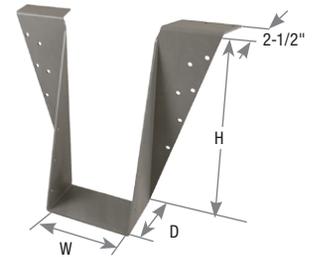
**Typical KHHB installation**



**KHHB**



**KGB**



**KHGB**

Beam Width (in)	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in) <sup>3</sup>			Fastener Schedule <sup>5</sup>					Unit	DF Factored Resistance <sup>1</sup>		S-P-F Factored Resistance <sup>1</sup>	
				W	H <sup>3</sup>	D	Header <sup>4</sup>		Joist				Vertical 100%	Uplift <sup>2</sup> 115%	Vertical 100%	Uplift <sup>2</sup> 115%
							Top Qty	Face Qty	Wood Screw	Qty	Wood Screw					
3-1/8	KHHB3	HHB3	7	3-1/4	specify	3	4	6	WS3	6	WS3	Lbs	9545	3005	7495	2360
	KGB3	GB3	7	3-1/4	specify	3-1/2	4	10	WS3	6	WS3	kN	42.46	13.37	33.34	10.50
5-1/8	KHHB5	HHB5	7	5-1/4	specify	3	4	6	WS3	6	WS3	Lbs	9545	3005	7495	2360
	KGB5	GB5	7	5-1/4	specify	3-1/2	4	10	WS3	6	WS3	kN	45.22	13.37	35.50	10.50
	KHGB5	HGB5	7	5-1/4	specify	4	4	12	WS3	6	WS3	Lbs	10165	3005	7980	2360
												kN	45.22	13.37	35.50	10.50
6-3/4	KHHB7	HHB7	7	6-7/8	specify	3	4	6	WS3	6	WS3	Lbs	9545	3005	7495	2360
	KGB7	GB7	7	6-7/8	specify	3-1/2	4	10	WS3	6	WS3	kN	42.46	13.37	33.34	10.50
	KHGB7	HGB7	7	6-7/8	specify	4	4	12	WS3	6	WS3	Lbs	10165	3005	7980	2360
											kN	45.22	13.37	35.50	10.50	

1) Factored resistances are based on 560 psi perpendicular to grain loading.  
 2) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 3) "Specify" denotes the required supported beam height must be specified at the time of ordering.  
 4) Supporting header shall be no less than 3" thick.  
 5) WS3 Wood Screws are 1/4" x 3" long and are included with hangers.  
 New products or updated product information are designated in **blue font**.

These heavy beam hangers are designed for use with glulam and timber beams. The continuous top mount flange offers high load capacity with minimal nailing.

**KGLT** – Medium capacity hanger.

**KHGLT** – Heavy capacity hanger.

**Materials:** Top Flange – 3 gauge; U-Strap – 7 gauge

**Finish:** USP primer

**Options:** See Specialty Options Chart on page 163.

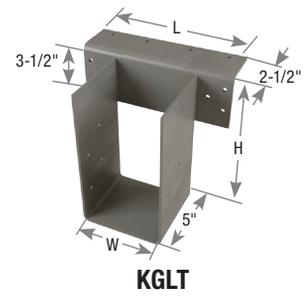
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

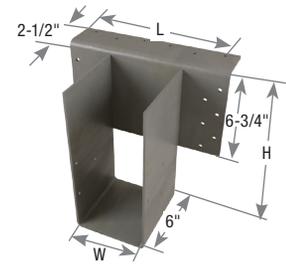
- Use all specified fasteners. See Product Notes, page 15.
- Beam height dimension (H) must be specified when ordering.
- See Welded Installation chart on page 224.



**Typical KGLT5 installation**



**KGLT**



**KHGLT**

Beam Width	USP Stock No.	Ref. No.	Dimensions (in)			Fastener Schedule <sup>4</sup>					Unit	DF Factored Resistance <sup>2,5</sup>		S-P-F Factored Resistance <sup>2,5</sup>	
			W	H <sup>3</sup>	L	Header		Joist				f <sub>cp</sub> = 625 psi	Uplift <sup>1</sup>	f <sub>cp</sub> = 625 psi	Uplift <sup>1</sup>
						Qty	Face	Wood Screw	Qty	Wood Screw					
3-1/8	KGLT3	GLT3	3-1/4	specify	10	4	6	WS3	8	WS3	Lbs	<b>15325</b>	<b>4575</b>	<b>12030</b>	<b>3590</b>
											kN	<b>68.17</b>	<b>20.35</b>	<b>53.51</b>	<b>15.97</b>
3-1/8	KHGLT3	HGLT3	3-1/4	specify	12	6	12	WS3	6	WS3	Lbs	<b>19455</b>	<b>3875</b>	<b>15275</b>	<b>3040</b>
											kN	<b>86.54</b>	<b>17.24</b>	<b>67.95</b>	<b>13.52</b>
3-1/2	KGLT4	GLT4, GLTV4	3-5/8	specify	10	4	6	WS3	8	WS3	Lbs	<b>15325</b>	<b>4575</b>	<b>12030</b>	<b>3590</b>
											kN	<b>68.17</b>	<b>20.35</b>	<b>53.51</b>	<b>15.97</b>
3-1/2	KHGLT4	HGLT4, HGLTV4	3-5/8	specify	12	6	12	WS3	6	WS3	Lbs	<b>19455</b>	<b>3875</b>	<b>15275</b>	<b>3040</b>
											kN	<b>86.54</b>	<b>17.24</b>	<b>67.95</b>	<b>13.52</b>
5-1/8	KGLT5	GLT5, GLTV5	5-1/4	specify	10	4	6	WS3	8	WS3	Lbs	<b>15325</b>	<b>4575</b>	<b>12030</b>	<b>3590</b>
											kN	<b>68.17</b>	<b>20.35</b>	<b>53.51</b>	<b>15.97</b>
5-1/8	KHGLT5	HGLT5, HGLTV5	5-1/4	specify	12	6	12	WS3	6	WS3	Lbs	<b>19455</b>	<b>3875</b>	<b>15275</b>	<b>3040</b>
											kN	<b>86.54</b>	<b>17.24</b>	<b>67.95</b>	<b>13.52</b>
5-1/2	KGLT6	GLT6, GLTV6	5-5/8	specify	12	4	6	WS3	8	WS3	Lbs	<b>15325</b>	<b>4575</b>	<b>12030</b>	<b>3590</b>
											kN	<b>68.17</b>	<b>20.35</b>	<b>53.51</b>	<b>15.97</b>
5-1/2	KHGLT6	HGLT6, HGLTV6	5-5/8	specify	12	6	12	WS3	6	WS3	Lbs	<b>19455</b>	<b>3875</b>	<b>15275</b>	<b>3040</b>
											kN	<b>86.54</b>	<b>17.24</b>	<b>67.95</b>	<b>13.52</b>
5-5/16	KHGLT537	HGLTV5.37	5-3/8	specify	12	6	12	WS3	6	WS3	Lbs	<b>19455</b>	<b>3875</b>	<b>15275</b>	<b>3040</b>
											kN	<b>86.54</b>	<b>17.24</b>	<b>67.95</b>	<b>13.52</b>
6-3/4	KGLT7	GLT7, GLTV7.12	6-7/8	specify	12	4	6	WS3	8	WS3	Lbs	<b>15325</b>	<b>4575</b>	<b>12030</b>	<b>3590</b>
											kN	<b>68.17</b>	<b>20.35</b>	<b>53.51</b>	<b>15.97</b>
6-3/4	KHGLT7	HGLT7, HGLTV7.12	6-7/8	specify	12	6	12	WS3	6	WS3	Lbs	<b>19455</b>	<b>3875</b>	<b>15275</b>	<b>3040</b>
											kN	<b>86.54</b>	<b>17.24</b>	<b>67.95</b>	<b>13.52</b>
8-3/4	KGLT9	-- --	8-7/8	specify	14	4	6	WS3	8	WS3	Lbs	<b>15325</b>	<b>4575</b>	<b>12030</b>	<b>3590</b>
											kN	<b>68.17</b>	<b>20.35</b>	<b>53.51</b>	<b>15.97</b>
8-3/4	KHGLT9	HGLT9, HGLTV9	8-7/8	specify	14	6	12	WS3	6	WS3	Lbs	<b>19455</b>	<b>3875</b>	<b>15275</b>	<b>3040</b>
											kN	<b>86.54</b>	<b>17.24</b>	<b>67.95</b>	<b>13.52</b>
10-3/4	KHGLT11	-- --	10-7/8	specify	16	6	12	WS3	6	WS3	Lbs	<b>19455</b>	<b>3875</b>	<b>15275</b>	<b>3040</b>
											kN	<b>86.54</b>	<b>17.24</b>	<b>67.95</b>	<b>13.52</b>

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) KGLT and KHGLT load values based on 625 psi perpendicular to grain loading.  
 3) "Specify" denotes the required supported beam height that must be specified at time of ordering, with 7-1/2" being the minimum.  
 4) WS3 Wood Screws are 1/4" x 3" long and are included with the hangers.  
 5) No further increase for duration of load allowed.  
 New products or updated product information are designated in **blue font**.

**Specialty Options Chart**

– refer to Specialty Options pages 220, 220-223 for additional details

Option	Skewed <sup>1,3</sup>	Sloped Seat <sup>2,3</sup>	Sloped / Skewed <sup>1,2,3</sup>	Sloped Top Flange <sup>4</sup>	Top Flange Offset	Saddle
Range	1° to 50°	1° to 45°	See Sloped Seat and Skewed	0° to 45°	---	---
Factored Resistance	50% of uplift load on skew greater than 15°	KGLT - 5920 lbs. Max. KHGLT - 10080 lbs. Max.	50% of uplift load on skew greater than 15°	Reduce table loads using straight-line interpolation	60% of table load for KGLT. 45% of table load for KHGLT.	100% of table load per side
Ordering	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and <b>square cut (<i>SQ</i>) or bevel cut (<i>BV</i>)</b> to product number. Ex. KGLT3_H=16_SK45R_BV	Add <i>SL</i> , slope required, and up ( <i>U</i> ) or down ( <i>D</i> ), to product number. Ex. KGLT3_H=16_SL30D	See Sloped Seat and Skewed. Ex. KGLT3_H=16_SK45R_BV_SL30D	Add <i>SF</i> , angle required and right ( <i>R</i> ) or left ( <i>L</i> ), to product number. Ex. KGLT3_H=16_SF30L	Add <i>OS</i> , and right ( <i>R</i> ) or left ( <i>L</i> ), to product number. Ex. KGLT3_H=16_OSL	Add <i>SA</i> , and saddle width required to product number. Ex. KGLT3_H=16_SA=5-1/2"

- 1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.
  - 2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.
  - 3) Skewed hangers typically require a bevel cut however, a square cut option may be available as a custom when requested.
  - 4) Sloped top flanges with slopes greater than 15° may have additional header nails.
- New products or updated product information are designated in **blue font**.

Glulam Beam Connectors

**KGLS / KGLST / KHGLS / KHGLST** Glulam Saddle Hangers

**KGLS** – Saddle hanger.

**KGLST** – Saddle hanger with seismic straps.

**KHGLS** – Heavier version of KGLS.

**KHGLST** – Heavier version of KGLST.

**Materials:** Top flange - 3 gauge; Stirrup - 7 gauge

**Finish:** USP primer

**Options:** See KGLS & KHGLS Specialty Options Chart on page 164.

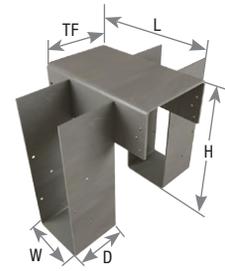
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Loads and nail schedule apply to each saddle hanger stirrup.
- **Minimum header height is 8-1/2" for the KGLS; 8-1/2" for the KGLST; 10-1/2" for the KHGLS, and 10-1/2" for the KHGLST.**
- Beam height dimension (H) must be specified when ordering.
- **KGLST** and **KHGLST** models include seismic straps which must be installed with (3) 3/4" thru-bolts in each supported member and (2) 3/4" thru-bolts into the supporting beams.
- See Welded Installation chart on page 224.



**Typical KHGLST installation**



**KGLS**



**KHGLST**

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Supported Glulam Beam Size (in)	USP Stock No.	Ref. No.	Dimensions (in) <sup>3</sup>					Fastener Schedule								Unit	DF Factored Resistance <sup>2,6</sup>		S-P-F Factored Resistance <sup>2,6</sup>	
			W	H <sup>7</sup>	D	L	TF	Wood Screws <sup>2,5</sup>				Bolts					Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
								Header		Joist		Header		Joist						
			Qty	Type	Qty	Type	Qty	Dia.	Qty	Dia.	Qty	Dia.	Qty	Dia.	Qty		Dia.			
3-1/8	KGLS35	GLS3-5	3-1/4	specify	5	6	5-1/4	6	WS3	6	WS3	--	--	--	--	Lbs	15570	3755	12225	2945
																kN	69.26	16.70	54.38	13.10
	KGLST35	-- --	3-1/4	specify	6-1/2	10	5-1/4	6	WS3	6	WS3	2	3/4	3	3/4	Lbs	19265	3755	15125	2945
																kN	85.69	16.70	67.28	13.10
	KGLS37	GLS3-7	3-1/4	specify	5	6	6-7/8	6	WS3	6	WS3	--	--	--	--	Lbs	15570	3755	12225	2945
																kN	69.26	16.70	54.38	13.10
5-1/8	KGLST37	-- --	3-1/4	specify	6-1/2	10	6-7/8	6	WS3	6	WS3	2	3/4	3	3/4	Lbs	19265	3755	15125	2945
																kN	85.69	16.70	67.28	13.10
	KGLS39	GLS3-9	3-1/4	specify	5	6	8-7/8	6	WS3	6	WS3	--	--	--	--	Lbs	15570	3755	12225	2945
																kN	69.26	16.70	54.38	13.10
	KGLST39	-- --	3-1/4	specify	6-1/2	10	8-7/8	6	WS3	6	WS3	2	3/4	3	3/4	Lbs	19265	3755	15125	2945
																kN	85.69	16.70	67.28	13.10
6-3/4	KGLS55	GLS5-5	5-1/4	specify	5	9	5-1/4	6	WS3	6	WS3	--	--	--	--	Lbs	22020	3755	17290	2945
																kN	97.95	16.70	76.91	13.10
	KGLST55	-- --	5-1/4	specify	6-1/2	12	5-1/4	6	WS3	6	WS3	2	3/4	3	3/4	Lbs	28075	3755	22040	2945
																kN	124.88	16.70	98.04	13.10
	KGLS57	GLS5-7	5-1/4	specify	5	9	6-7/8	6	WS3	6	WS3	--	--	--	--	Lbs	23450	3755	18410	2945
																kN	104.31	16.70	81.89	13.10
8-3/4	KGLST57	-- --	5-1/4	specify	6-1/2	12	6-7/8	6	WS3	6	WS3	2	3/4	3	3/4	Lbs	29505	3755	23165	2945
																kN	131.24	16.70	103.04	13.10
	KHGLS5	HGLS5	5-1/4	specify	6-1/2	12	specify	14	WS3	8	WS3	--	--	--	--	Lbs	30595	5005	24020	3930
																kN	136.09	22.26	106.85	17.48
	KHGLST5	-- --	5-1/4	specify	6	12	specify	14	WS3	8	WS3	2	3/4	3	3/4	Lbs	28575	5005	22435	3930
																kN	127.11	22.26	99.80	17.48
6-3/4	KGLS77	GLS7-7	6-7/8	specify	5	12	6-7/8	6	WS3	6	WS3	--	--	--	--	Lbs	29850	3755	23435	2945
																kN	132.78	16.70	104.24	13.10
	KGLST77	-- --	6-7/8	specify	6-1/2	12	6-7/8	6	WS3	6	WS3	2	3/4	3	3/4	Lbs	35755	3755	28070	2945
																kN	159.05	16.70	124.86	13.10
	KGLS79	GLS7-9	6-7/8	specify	5	12	8-7/8	6	WS3	6	WS3	--	--	--	--	Lbs	29850	3755	23435	2945
																kN	132.78	16.70	104.24	13.10
8-3/4	KGLST79	-- --	6-7/8	specify	6-1/2	12	8-7/8	6	WS3	6	WS3	2	3/4	3	3/4	Lbs	37825	3755	29695	2945
																kN	168.25	16.70	132.09	13.10
	KHGLS7	HGLS7	6-7/8	specify	6	12	specify	14	WS3	8	WS3	--	--	--	--	Lbs	32630	5005	25615	3930
																kN	145.15	22.26	113.94	17.48
	KHGLST7	-- --	6-7/8	specify	6-1/2	14	specify	14	WS3	8	WS3	2	3/4	3	3/4	Lbs	36565	5005	28705	3930
																kN	162.65	22.26	127.69	17.48
8-3/4	KHGLS9	HGLS9	8-7/8	specify	6	12	specify	14	WS3	8	WS3	--	--	--	--	Lbs	32630	5005	25615	3930
																kN	145.15	22.26	113.94	17.48
8-3/4	KHGLST9	-- --	8-7/8	specify	6-1/2	16	specify	14	WS3	8	WS3	2	3/4	3	3/4	Lbs	40505	5005	31800	3930
																kN	180.18	22.26	141.45	17.48

- 1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
  - 2) Factored resistances and fastener schedules apply to each side of the saddled hanger.
  - 3) Minimum header height is 8-1/2" for the KGLS and KGLST; 10-1/2" for the KHGLS and KHGLST.
  - 4) Hangers with seismic straps may require a minimum joist depth. Consult USP for additional information.
  - 5) WS3 Wood Screws are 1/4" x 3" long and are included with hangers.
  - 6) The bearing loads are based on 560 psi.
  - 7) "Specify" denotes the required supported beam height that must be specified at time of ordering.
- New products or updated product information are designated in **blue font**.

**KGLS / KHGLS Specialty Options Chart** – refer to Specialty Options pages 220, 222-223 for additional details

Option	Skewed <sup>1,3</sup>	Sloped Seat <sup>2</sup>	Sloped / Skewed <sup>1,2</sup>	Sloped Top Flange <sup>4</sup>	Top Flange Offset	Saddle
Range	1° to 50°	1° to 45°	See Sloped Seat and Skewed	0° to 30°	May not be skewed	5" minimum saddle
Factored Resistance	KGLS - 6500 lbs. Max. KHGLS - 7980 lbs. Max. 50% of uplift load on skews greater than 15°.	KGLS - 9360 lbs. Max. KHGLS - 13200 lbs. Max.	KGLS - 7920 lbs. Max. <b>KHGLS - may not be sloped / skewed.</b>	Reduce allowable table loads using straight-line interpolation.	50% of table load for KGLS. 45% of table load for KHGLS.	100% of table load per side
Ordering	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and <b>square cut (<i>SO</i>) or bevel cut (<i>BI</i>)</b> to product number. Ex. KGLS35H115_SK45R_BV	Add <i>SL</i> , slope required, and up ( <i>U</i> ) or down ( <i>D</i> ), to product number. Example: KGLS35H115_SL30D	See Sloped Seat and Skewed. Example: KGLS35H115_SK45R_BV_SL30D	Add <i>SF</i> , angle required, and right ( <i>R</i> ) or left ( <i>L</i> ), to product number. Example: KGLS35H115_SF30L	Add <i>OS</i> , and right ( <i>R</i> ) or left ( <i>L</i> ), to product number. Example: KGLS35H115_OSL	Add <i>SA</i> , and saddle width required to product number. Example: KGLS35H115_SA=5-1/2"

- 1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.
  - 2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.
  - 3) **Skewed hangers typically require a bevel cut however, a square cut option may be available as a custom when requested.**
  - 4) Sloped top flanges with greater than 15° may have additional header nails.
- New products or updated product information are designated in **blue font**.

# NOP Moisture Barrier Plates

Moisture Barrier Plates protect the bottom chords of trusses from moisture damage caused by direct contact with concrete. These plates eliminate the need for more expensive treated wood plates.

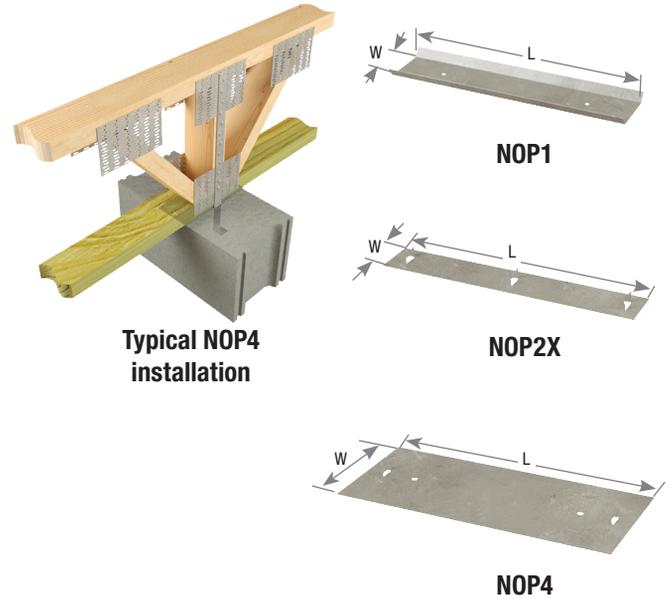
**Materials:** See chart  
**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Pre-attach to truss bottom chord or rafter using pre-punched prongs and/or 6d common nails to prevent wood-to-concrete contact.

Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule <sup>1</sup>	
				W	L	Qty	Type
2x	NOP2X	TSS2, TBP8	26	1-7/16	8	-- --	-- --
	NOP1	-- --	22	1-1/2	8	2	6d
4x	NOP4	TSS2-2	26	3-1/2	8	2	6d

1) **NAILS:** 6d nails are 0.120" dia. x 2" long.



Typical NOP4 installation

NOP1

NOP2X

NOP4

Truss & Rafter

# LPTA Embedded Truss Anchors

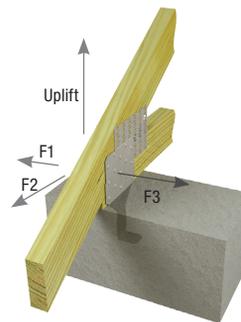
Low profile design attaches to 2 x 4 or larger bottom chords and provides uplift and lateral load resistance.

**Materials:** 18 gauge  
**Finish:** G90 galvanizing

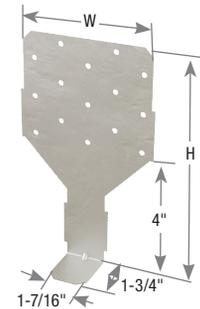
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

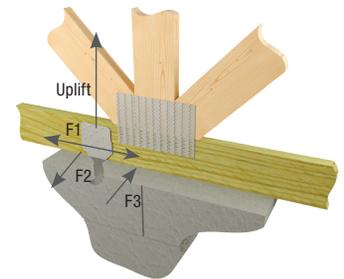
- Use all specified fasteners. See Product Notes, page 15.
- Embed LPTA 4" into concrete tie beam or masonry bond beam.
- Anchors should be spaced no closer than 8" center-to-center.
- **Moisture barrier may be required.**



Typical LPTA perpendicular installation



LPTA



Typical LPTA parallel installation

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule		Unit	DF Factored Resistance <sup>1</sup>			S-P-F Factored Resistance <sup>1</sup>		
			W	H	Min Qty <sup>2</sup>	Type <sup>3</sup>		Uplift	F1	F2	Uplift	F1	F2
LPTA	LTA2	18	5	8-1/4	10	10d x 1-1/2	Lbs	1555	1005	1865	1555	1005	1865
							kN	6.92	4.47	8.30	6.92	4.47	8.30

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) Minimum quantity of fasteners to be installed. Product may have additional nail holes not needed to meet published factored resistance of product.

3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long.

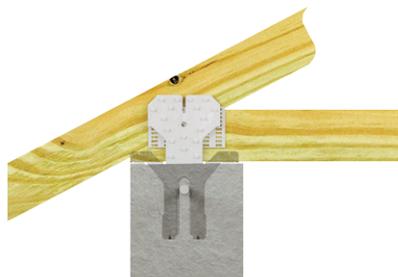
# HLPTA Embedded Truss Anchor

The HLPTA75 is designed and tested to provide higher lateral capacity and net uplift. Offers greater pullout resistance and is compatible with bond beam reinforcing.

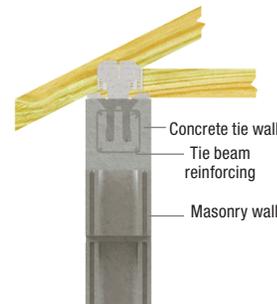
**Materials:** 18 gauge  
**Finish:** G90 galvanizing

**Installation:**

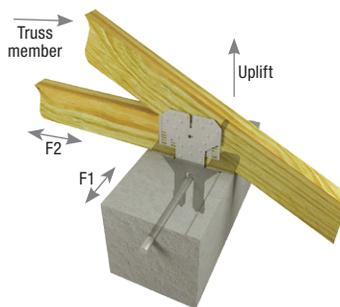
- Use all specified fasteners. See Product Notes, page 15.
- Embed in concrete tie beam or masonry bond beam until the seat is resting on the surface.
- Minimum of one #7 rebar or two #5 rebars through the theoretical shear cone is required.
- Grout or concrete compressive strength shall be 2,500 psi at 28 days.
- Minimum spacing between anchors is 10" to achieve full design load capacities on single anchors.
- When used in a double rebar installation, concrete tie beam stirrup should be sized to accommodate connector leg placement.
- Designer shall verify connector clearance when using in conjunction with stirrups and two rebar applications.
- Verify grout is not in contact with truss member.  
**Moisture barrier may be required.**



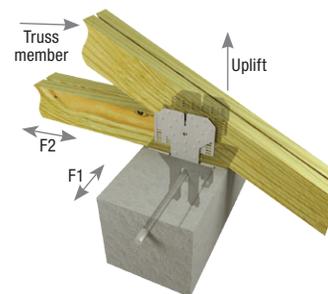
**Typical HLPTA75 single rebar installation**



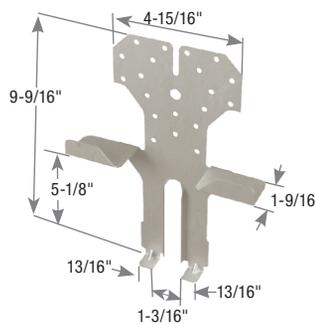
**Typical HLPTA75 double rebar installation**



**Typical HLPTA75 single anchor installation**



**Typical HLPTA75 double anchor installation**



**HLPTA75**

USP Stock No.	Ref. No.	Ga.	Installation Type	Fastener Schedule <sup>2</sup>			DF Factored Resistance <sup>1</sup>						S-P-F Factored Resistance <sup>1</sup>					
				Seat Plate Qty	Truss/Rafter Qty	Type	Lbs			kN			Lbs			kN		
							Uplift 115%	F1 115%	F2 115%	Uplift 115%	F1 115%	F2 115%	Uplift 115%	F1 115%	F2 115%	Uplift 115%	F1 115%	F2 115%
<b>HLPTA75</b>	-- --	18	Single Anchor	2	20	10d x 1-1/2	3105	2590	2500	13.81	11.52	11.12	2660	2220	2145	11.83	9.88	9.54
			Double Anchor	-- --	40	10d x 1-1/2	5085	2995	3045	22.62	13.32	13.54	4355	2565	2610	19.37	11.41	11.61

1) Short-term load duration has been taken into consideration; no further increase is allowed.

2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long.

New products or updated product information are designated in **blue font**.

The RFUS is a multi-purpose engineered solution for attaching trusses to concrete or masonry walls. Wedgebolt™ fastening eliminates mislocated cast-in-place anchor bolts and allows retrofit installations.

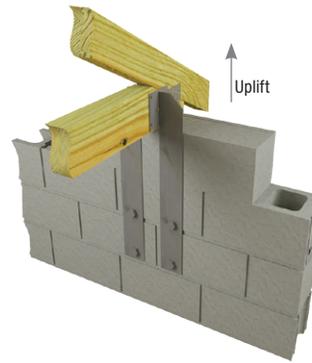
**Materials:** 10 gauge

**Finish:** USP primer

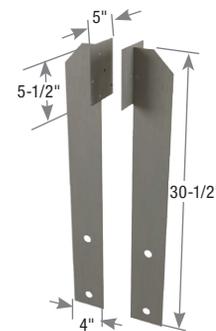
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- **Always install in pairs.**
- Use all specified fasteners. See Product Notes, page 15.
- Designer shall be responsible for design of masonry structure, including any required reinforcement.
- For 1 ply applications, add filler block. Refer to page 190 for wood filler block installation.
- **Moisture barrier may be required.**



**Typical RFUS installation**



**RFUS**

USP Stock No.	Ref. No.	Steel Gauge	No. of Plies <sup>5</sup>	Fastener Schedule <sup>3,4</sup>				DF		S-P-F	
				Rafter/Truss <sup>6</sup>		Concrete/Masonry <sup>2</sup>		Factored Resistance		Factored Resistance	
				Qty	Type	Qty	Type	Uplift 115% <sup>1</sup>		Uplift 115% <sup>1</sup>	
								Lbs	kN	Lbs	kN
RFUS	FGTR	10	2 Ply >	12	WS3	4	3/4" x 6" Wedge Bolts	5690	25.31	4780	21.26

- 1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 2) Use Powers Fasteners 3/4" x 6" Wedge Bolts; or equal, installed in accordance with manufacturer's specifications.
- 3) Fasteners shall be installed to fully grouted and reinforced concrete masonry or reinforced concrete (f'c = 2,500 psi at 28 days).
- 4) Fastener schedule is for two straps used together. The straps shall be installed in pairs.
- 5) Truss plies shall be fastened together to act as a unit.
- 6) WS3 Wood Screws are 1/4" x 3" long and are supplied with RFUS connector.

# LUGT Girder Tiedowns

The LUGT series is an extremely adaptable tiedown for girder trusses and offers several installation options to accommodate different framing conditions. It is an ideal retrofit solution to reinforce truss connections to transfer high wind loads to supporting walls and can be used on either, concrete or CMU block walls. Sizes available for 2-ply, 3-ply and 4-ply trusses.

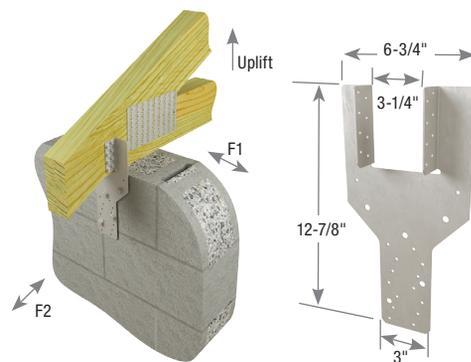
**Materials:** See chart

**Finish:** G90 galvanizing

**Codes:** Factored resistances are derived from data submitted to various North American building code evaluators and are in accordance with CSA 086-14.

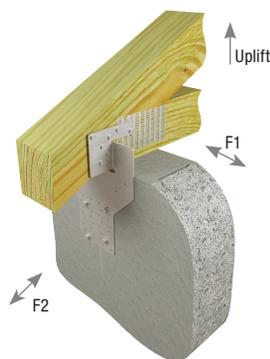
**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- All fastener holes must be filled with specified fasteners to achieve loads listed in the chart. Smaller fasteners holes are for girder-to-stud applications (reference page 172) and do not need to be filled when used for concrete/masonry installations.
- WS Wood Screws included with LUGT3 and LUGT4.
- Powers Wedge-Bolt+ Fasteners require the Powers SDS Wedge-Bit drill bit. USP #1314. Refer to page 28. Wedge-Bits are not included and must be ordered separately.
- **For concrete and masonry applications, a moisture barrier may be required, check local building code.**

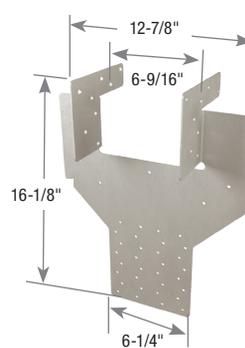


**Typical LUGT2 masonry installation**

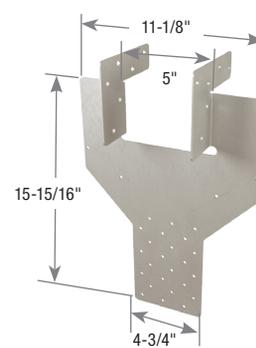
**LUGT2**



**Typical LUGT4 masonry installation (LUGT3 similar)**



**LUGT4**



**LUGT3**

No. of Plies	USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>3,8</sup>				Unit	DF Factored Resistance			S-P-F Factored Resistance		
				Rafter/Truss		CMU/Concrete Wall <sup>4,5,6,7</sup>			Uplift	F1	F2	Uplift	F1	F2
				Qty	Type	Qty	Type							
2	LUGT2	LGT2	14	16	10d	5	1/4WB	Lbs	3415	1795	765	2685	1410	600
								kN	15.19	7.98	3.40	11.94	6.27	2.67
3	LUGT3	LGT3-SDS2.5	12	12	WS25	4	3/8WB	Lbs	5260	--	--	4220	--	--
								kN	23.40	--	--	18.77	--	--
4	LUGT4	LGT4-SDS3	12	16	WS3	4	3/8WB	Lbs	5260	--	--	4275	--	--
								kN	23.40	--	--	19.02	--	--

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) Factored resistances apply where roof pitch is between 3:12 and 8:12.  
 3) Additional anchorage products to be designed by others.  
 4) 1/4WB denotes a 1/4" x 3" Powers "Wedge Bolt" or equivalent installed in a predrilled hole. Refer to manufacturer's literature for further information.  
 5) 3/8WB denotes a 3/8" x 5" Powers "Wedge Bolt" or equivalent installed in a predrilled hole. Refer to manufacturer's literature for further information.  
 6) Fasteners must be installed in fully grouted and reinforced concrete masonry (f'm = 1500 psi) or reinforced concrete (f'c = 2,500 psi).  
 7) Wedge Bolts are not supplied with the LUGT2, LUGT3 or LUGT4.  
 8) **NAILS:** 10d nails are 0.148" dia. x 3" long, WS25 Wood Screws are 1/4" dia. x 2-1/2" long (supplied with LUGT3) and WS3 Wood Screws are 1/4" dia. x 3" long (supplied with LUGT4).  
 New products or updated product information are designated in **blue font**.

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# MUGT Girder Tiedown

Designed for higher uplift resistance for concrete block construction. The MUGT15 can accommodate variable truss bearing depths.

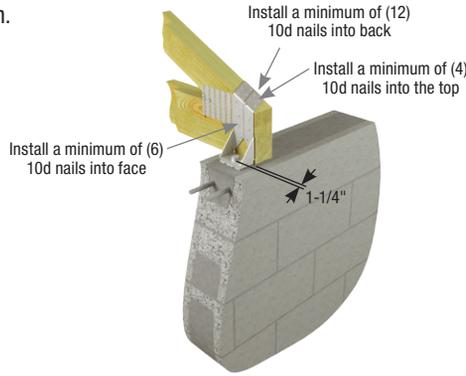
**Materials:** 12 gauge

**Finish:** G90 galvanizing

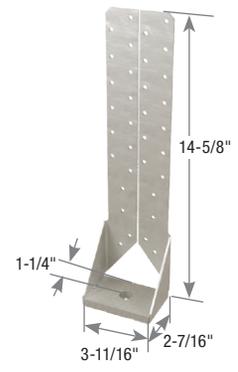
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- When straps are wrapped over the truss, install nails in backside of truss. See MUGT15 installation diagram for minimum nail requirements into the face and on top of the truss.
- If installed straight-up with no wrap over the top of the truss, fill all nail holes.
- **Moisture barrier may be required.**



**Typical MUGT15 installation**



**MUGT15**

USP Stock No.	Ref. No.	Steel Gauge	Mounting Condition	Fastener Schedule <sup>2</sup>						DF Factored Resistance		S-P-F Factored Resistance	
				Anchor Bolt <sup>3</sup>		Rafter/Truss <sup>4</sup>				Uplift 115% <sup>1</sup>		Uplift 115% <sup>1</sup>	
				Qty	Dia. (in)	Top Qty	Face Qty	Back Qty	Type	Lbs	kN	Lbs	kN
MUGT15	MGT	12	Face-Max	1	5/8	--	28	--	10d	4650	20.69	4000	17.79
			Top-Min	1	5/8	4	6	12	10d	4320	19.22	3715	16.53

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) Additional anchorage products to be designed by others.  
 3) Designer must specify anchor bolt type, length, and embedment.  
 4) **NAILS:** 10d nails are 0.148" dia. x 3" long.

# HUGT Girder Tiedowns

The HUGT series high uplift girder tiedowns can be installed on beams and top chords of trusses with slopes from 0° to 34°.

**Materials:** 7 gauge

**Finish:** USP primer

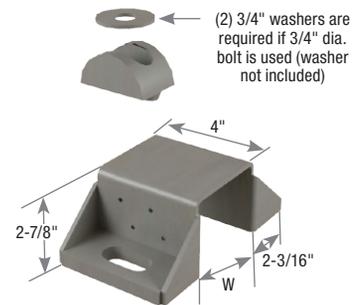
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Install the HUGT over the beam or truss (see "W" dimension on chart for appropriate width).
- Attached members shall be designed to resist applied loads.
- **Moisture barrier may be required.**



**Typical HUGT2 installation**



**HUGT**

USP Stock No.	Ref. No.	Steel Gauge	W (in)	O.C. Dim Between Anchors (in)	Fastener Schedule <sup>3,4</sup>				DF Factored Resistance		S-P-F Factored Resistance	
					Concrete/CMU		Girder <sup>5</sup>		Uplift 115% <sup>1,2</sup>		Uplift 115% <sup>1,2</sup>	
					Qty	Dia. (in)	Qty	Type	Lbs	kN	Lbs	kN
HUGT2	HGT-2	7	3-5/16	5-3/4	2	3/4	8	10d	18575	82.63	9365	41.66
HUGT3	HGT-3	7	4-15/16	7-3/8	2	3/4	8	10d	18575	82.63	9365	41.66
HUGT4	HGT-4	7	6-7/8	9	2	3/4	8	10d	18575	82.63	9365	41.66

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) Factored resistances apply where roof pitch is between 3:12 and 8:12.  
 3) Additional anchorage products to be designed by others.  
 4) Designer must specify anchor bolt type, length, and embedment.  
 5) **NAILS:** 10d nails are 0.148" dia. x 3" long.

For installation into grouted concrete tie beam or masonry bond beam.  
Provides lateral and uplift resistance.

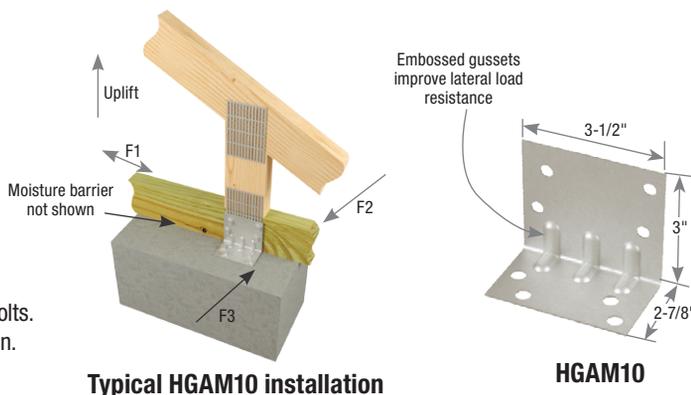
**Materials:** 14 gauge

**Finish:** G90 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Install USP's WS15 Wood Screws into the truss and drill holes for wedge bolts. Install wedge bolts into concrete block per manufacturer's recommendation.
- WS Wood Screws and Wedge bolts are included with HGAM10 angles.
- Powers Wedge-Bolt+ Fasteners require Powers SDS Wedge-Bit drill bit, USP #1314. Refer to page 28. Wedge-Bits are not included and must be ordered separately.
- **Moisture barrier may be required.**



Typical HGAM10 installation

HGAM10

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>2</sup>				Unit	DF Factored Resistance				S-P-F Factored Resistance			
			Rafter/Truss		Plate <sup>3</sup>			Uplift	F1	F2	F3	Uplift	F1	F2	F3
			Qty	Wood Screw	Qty	Type (in)									
HGAM10KT	HGAM10KTA	14	4	WS15	4	1/4	Lbs	945	1115	1150	765	815	955	990	660
							kN	4.20	4.96	5.12	3.40	3.63	4.25	4.40	2.94

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase is allowed.  
 2) WS15 Wood Screws are 1/4" x 1-1/2" long.  
 3) Use Powers Fasteners 1/4" x 1-3/4" Wedge-Bolt® (included); or equal. Drill hole in concrete or masonry with 1/4" masonry drill bit. Refer to manufacturer's literature for further information.

## SHA Masonry Uplift Connectors

Connects trusses directly to masonry or concrete and features slotted base holes to ease installation.

**Materials:** Angle – 3 gauge; Gussets – 10 gauge

**Finish:** USP primer

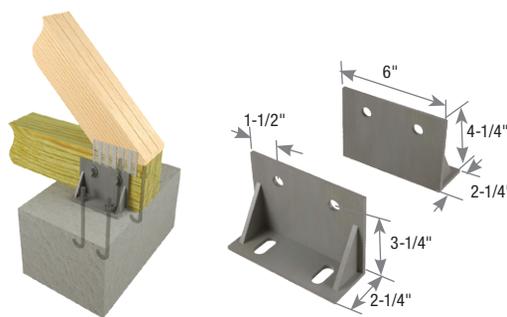
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Bolts must be ordered separately.
- Install directly flush to masonry wall.
- **The SHA series connectors shall be installed in pairs.**
- **Moisture barrier may be required.**

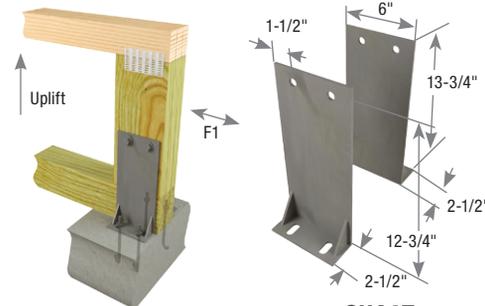
USP Stock No.	Ref. No.	Fastener Schedule <sup>3</sup>				No. of Plies <sup>6</sup>	Unit	DF Factored Resistance		S-P-F Factored Resistance	
		Concrete Wall		Rafter/Truss <sup>7</sup>				Uplift <sup>1,2</sup>	Uplift <sup>1,2</sup>	Uplift <sup>1,2</sup>	Uplift <sup>1,2</sup>
		Qty	Dia. (in)	Qty	Dia. (in)						
SHA6	---	4	1/2	2	3/4	2 Ply	Lbs	2500	2500		
							kN	11.12	11.12		
						3 Ply or >	Lbs	3750	3750		
							kN	16.68	16.68		
SHA6T	---	4	1/2	2	3/4	2 Ply	Lbs	11180	8825		
							kN	49.73	39.26		
						3 Ply or >	Lbs	12600	8945		
							kN	56.05	39.79		

1) Factored resistances have been increased 15% for wind or seismic loads; no further increase shall be permitted.  
 2) Factored resistances are for a pair of SHA devices. SHA's shall be installed in pairs.  
 3) Fastener schedule is for a pair of SHA devices.  
 4) 1/2" x 8" J-Bolts or equivalent.  
 5) Concrete compressive strength shall be 2500 psi or greater at 28 days.  
 6) Multiple ply truss shall be fastened together to act as a single unit.  
 7) Bolts shall conform to ASTM A 307 or better.  
 8) The designer must specify anchor bolt type, length, and embedment.



Typical SHA6 installation

SHA6



Typical SHA6T installation

SHA6T

# RTM Hurricane Retrofit Connector

Designed as a retrofit connector for trusses installed on top plates.  
Can also be used as a holdown for a roof or floor system.

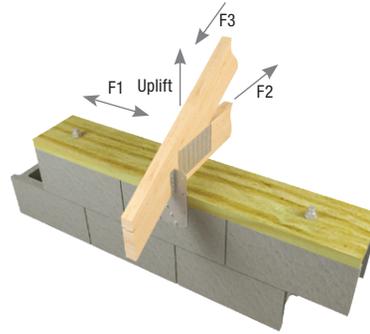
**Materials:** 18 gauge

**Finish:** G90 galvanizing

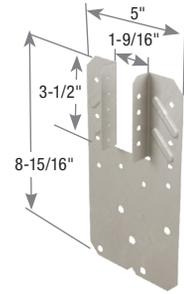
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Tapcon® Concrete Screws are not supplied with RT16M connector.
- Install Tapcon® Concrete Screws in lower two holes for Single Top Plate or Conventional Raised Foundation or Modular Home Installations.
- **Moisture barrier may be required.**



**Typical RT16M top plate installation**



**RT16M**

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>2,3,4</sup>						Unit	DF Factored Resistance <sup>1</sup>				S-P-F Factored Resistance <sup>1</sup>			
			Truss/Rafter		Top Plate		Masonry Block			Uplift 115%	F1 115%	F2 115%	F3 115%	Uplift 115%	F1 115%	F2 115%	F3 115%
			Qty	Type	Qty	Type	Qty	Type									
RT16M	HM9KT	18	9	10d x 1-1/2	---	---	4	1/4" x 1-3/4" Tapcon	Lbs	1730	1045	795	190	1470	1045	795	190
									kN	7.70	4.65	3.54	0.85	6.54	4.65	3.54	0.85
			9	10d x 1-1/2	4	16d	2	1/4" x 1-3/4" Tapcon	Lbs	1690	---	---	---	1470	---	---	---
									kN	7.52	---	---	---	6.54	---	---	---

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase is allowed.
- 2) Install with 1/4" x 1-3/4" Tapcon® Concrete Screws in accordance to manufacturer's installation specifications.
- 3) Fasteners to be installed to fully grouted and reinforced concrete masonry.
- 4) **Nails:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long.

# HGA Hurricane Gusset Angles

Versatile wood-to-wood connector that satisfies high wind and seismic loading requirements.

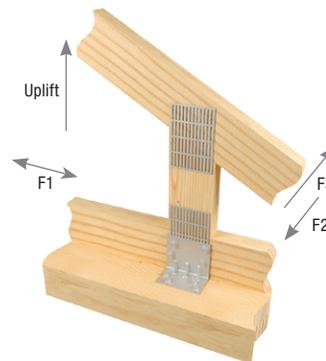
**Materials:** 14 gauge

**Finish:** G90 galvanizing

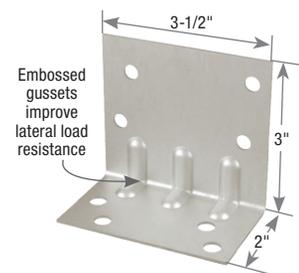
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Install with USP's WS3 Wood Screws into top plate, and WS15 Wood Screws into the truss.
- WS Wood Screws are included with HGA10 angles.
- **Moisture barrier may be required.**



**Typical HGA10 installation**



**HGA10**

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>2</sup>				Unit	DF Factored Resistance <sup>1</sup>				S-P-F Factored Resistance <sup>1</sup>			
			Rafter/Truss		Plate			Uplift 115%	F1 115%	F2 115%	F3 115%	Uplift 115%	F1 115%	F2 115%	F3 115%
			Qty	Wood Screw	Qty	Wood Screw									
HGA10KT	HGA10KT	14	4	WS15	4	WS3	Lbs	1330	1365	1620	865	1145	1175	1395	745
							kN	5.92	6.07	7.21	3.85	5.09	5.23	6.21	3.31

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase is allowed.
- 2) WS15 Wood Screws are 1/4" x 1-1/2" long and WS3 Wood Screws are 1/4" x 3" long.

# LUGT Girder Tiedowns

The LUGT series is an extremely adaptable tiedown for girder trusses and offers several installation options to accommodate different framing conditions. It is an ideal retrofit solution to reinforce truss connections to transfer high wind loads to supporting walls. Sizes available for 1-ply, 2-ply, 3-ply and 4-ply trusses.

**Materials:** See chart

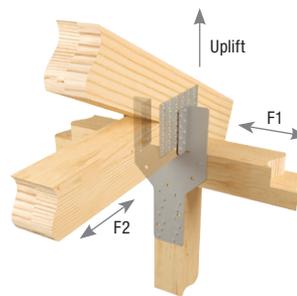
**Finish:** G90 galvanizing

**Codes:** Factored resistances are derived from data submitted to various North American building code evaluators and are in accordance with CSA O86-14.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- All fastener holes must be filled with specified fasteners to achieve loads listed in the chart. Large fastener holes are for concrete/masonry installations (reference page 168) and do not need to be filled when used for girder-to-stud applications.
- WS Wood Screws included with LUGT3 and LUGT4.

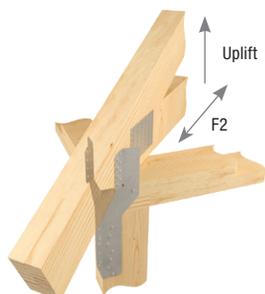
Truss & Rafter



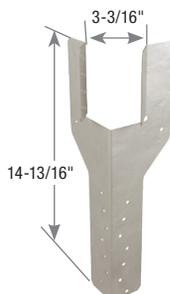
Typical LUGT2 installation



LUGT2



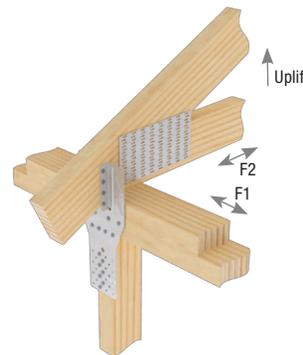
Typical LUGTC2 corner hip installation



LUGTC2



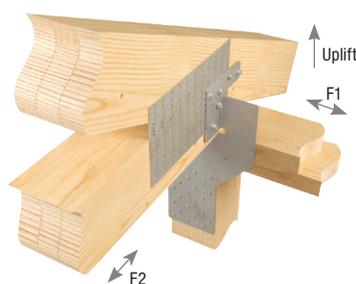
LUGT1 offset stud installation



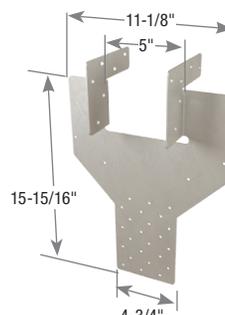
Typical LUGT1 installation



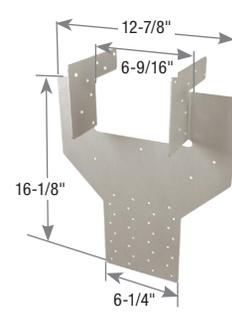
LUGT1



Typical LUGT3 installation (LUGT4 similar)



LUGT3



LUGT4

No. of Plies	USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>3,6</sup>						DF Factored Resistance			S-P-F Factored Resistance			
				Rafter/Truss		Plate		Stud <sup>4,5</sup>		Uplift	F1	F2	Uplift	F1	F2	
				Qty	Type	Qty	Type	Qty	Type							115% <sup>1,2,5</sup>
1	LUGT1	H10S	18	8	8d x 1-1/2	8	8d x 1-1/2	7	8d x 1-1/2	Lbs	1415	1090	290	1295	895	235
										kN	6.29	4.85	1.29	5.76	3.98	1.05
2	LUGT2	LGT2	14	16	10d	2	10d	14	10d	Lbs	3595	1795	805	2825	1410	630
	LUGTC2	--	14	16	10d	2	10d	14	10d	kN	15.99	7.98	3.58	12.57	6.27	2.80
										Lbs	3595	--	805	2825	--	630
										kN	15.99	--	3.58	12.57	--	2.80
3	LUGT3	LGT3-SDS2.5	12	12	WS25	4	16d Sinker	24	16d Sinker	Lbs	5485	3075	1380	4775	2415	1085
										kN	24.40	13.68	6.14	21.24	10.74	4.83
4	LUGT4	LGT4-SDS3	12	16	WS3	5	16d Sinker	32	16d Sinker	Lbs	7345	--	--	5765	--	--
										kN	32.67	--	--	25.64	--	--

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) Factored resistances apply where roof pitch is between 3:12 and 8:12.  
 3) Additional anchorage products to be designed by others.  
 4) For proper installation, the number of studs must be equal-to or greater-than the number of roof truss plies.  
 5) The LUGT1 can be installed with the stud offset from the rafter a maximum of 1" (center-to-center) with no reduction in uplift capacity.  
 6) NAILS: 8d x 1-1/2 are 0.131" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d Sinkers are 0.148" dia. x 3-1/4" long, WS25 Wood Screws are 1/4" dia. x 2-1/2" long (supplied with LUGT3) and WS3 Wood Screws are 1/4" dia. x 3" long (supplied with LUGT4).  
 New products or updated product information are designated in blue font.

Designed for higher uplift resistance for wood frame construction. The MUGT15 can accommodate variable truss bearing depths.

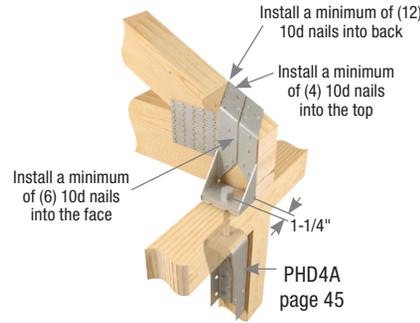
**Materials:** 12 gauge

**Finish:** G90 galvanizing

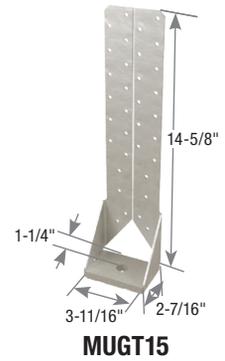
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

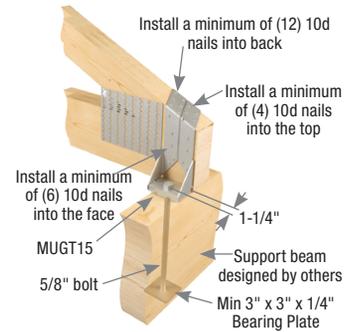
- Use all specified fasteners. See Product Notes, page 15.
- When straps are wrapped over the truss, install nails in backside of truss. See MUGT15 installation diagram for minimum nail requirements into the face and on top of the truss.
- If installed straight-up with no wrap over the top of the the truss, fill all nail holes.
- **Moisture barrier may be required.**



**Typical MUGT15 top-min installation with PHD4A**



**MUGT15**



**Typical MUGT15 connection to support beam**

USP Stock No.	Ref. No.	Steel Gauge	Mounting Condition	Fastener Schedule <sup>2</sup>						DF Factored Resistance		S-P-F Factored Resistance	
				Rod/Bolt <sup>3</sup>		Rafter/Truss <sup>4</sup>				Uplift 115% <sup>1</sup>		Uplift 115% <sup>1</sup>	
				Qty	Dia. (in)	Top Qty	Face Qty	Back Qty	Type	Lbs	kN	Lbs	kN
MUGT15	MGT	12	Face-Max	1	5/8	---	28	---	10d	4650	20.69	4000	17.79
			Top-Min	1	5/8	4	6	12	10d	4320	19.22	3715	16.53

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 2) Additional anchorage products to be designed by others.
- 3) Designer must specify anchor bolt type, length, and holdown device.
- 4) **NAILS:** 10d nails are 0.148" dia. x 3" long.

**HUGT** Girder Tiedowns

The HUGT series high uplift girder tiedowns can be installed on beams and top chords of trusses with slopes from 0° to 34°.

**Materials:** 7 gauge

**Finish:** USP primer

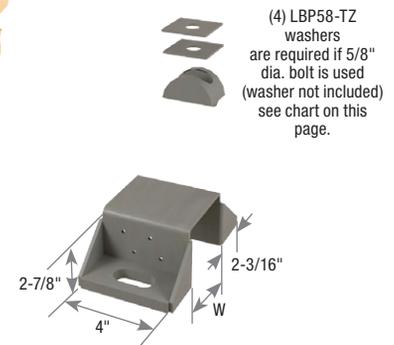
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Install the HUGT over the beam or truss (see "W" dimension on chart for appropriate width).
- Install (4) LBP58-TZ washers if (2) 5/8" tension bolts are used.
- Attached members shall be designed to resist applied loads.
- **Moisture barrier may be required.**



**Typical HUGT3 installation with HTT45's**



**HUGT**

USP Stock No.	Ref. No.	Steel Gauge	W (in)	O.C. Dim Between Anchors (in)	Fastener Schedule <sup>3,4</sup>						DF Factored Resistance		S-P-F Factored Resistance	
					Anchor Washers		Threaded Rod		Girder <sup>5</sup>		Uplift <sup>1,2</sup>		Uplift <sup>1,2</sup>	
					Qty	Type	Qty	Dia. (in)	Qty	Type	Lbs	kN	Lbs	kN
HUGT2	HGT-2	7	3-5/16	5-3/4	4	LBP58-TZ	2	5/8	8	10d	18575	82.63	9365	41.66
HUGT3	HGT-3	7	4-15/16	7-3/8	4	LBP58-TZ	2	5/8	8	10d	18575	82.63	9365	41.66
HUGT4	HGT-4	7	6-7/8	9	4	LBP58-TZ	2	5/8	8	10d	18575	82.63	9365	41.66

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.
- 2) Factored resistances apply where roof pitch is between 3:12 and 8:12.
- 3) Additional anchorage products to be designed by others.
- 4) Designer must specify anchor bolt type, length, and holdown device.
- 5) **NAILS:** 10d nails are 0.148" dia. x 3" long.

These anchors tie trusses and rafters to top plates and may be used to tie wood framing members to resist uplift and lateral forces.

**Materials:** See chart

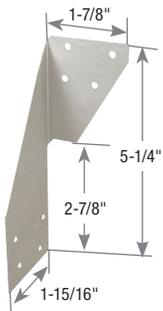
**Finish:** G90 galvanizing;  
HHCP4-TZ – G-185 galvanizing.

**Options:** See chart for Corrosion  
Finish Options

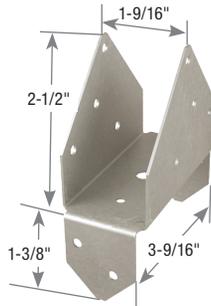
**Codes:** Factored resistances are derived from data submitted to various North American building code evaluators.



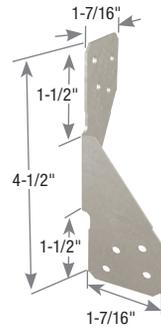
Truss & Rafter



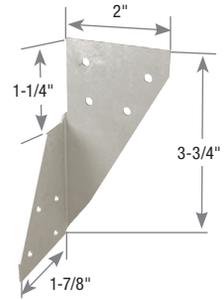
**RT5**  
(left version shown)



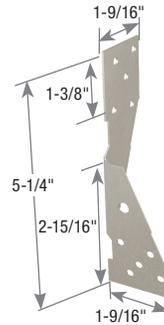
**RT6**



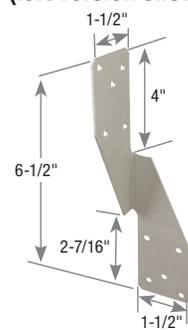
**RT3A**



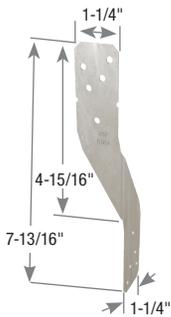
**RT4**  
(left version shown)



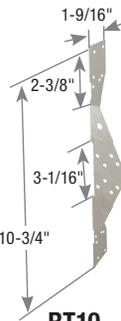
**RT7**  
(left version shown)



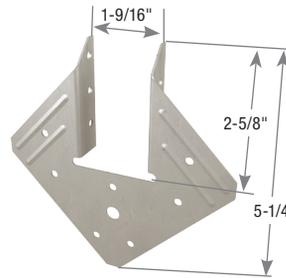
**RT7A**



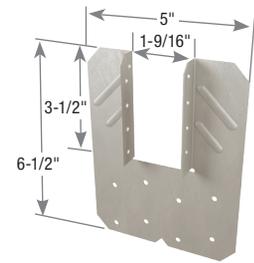
**RT8A**



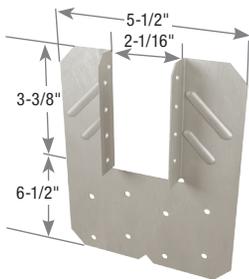
**RT10**



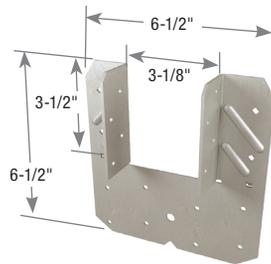
**RT15**



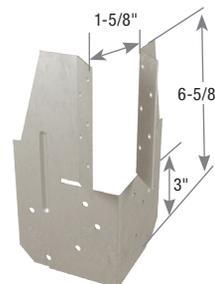
**RT16A**



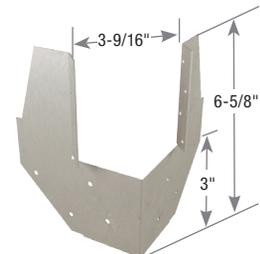
**RT16AR**



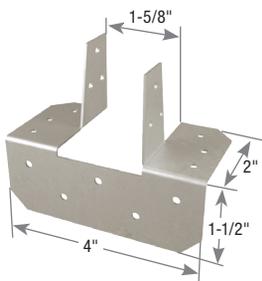
**RT16-2**



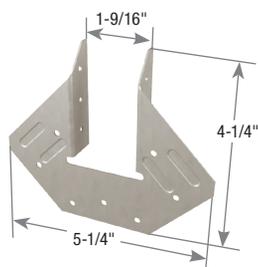
**HHCP2**



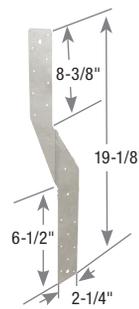
**HHCP4-TZ**



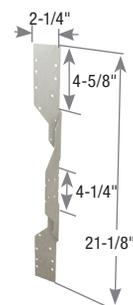
**HC520**



**HCPRS**



**LFTA6**  
(left version shown)



**RT20**

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**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- All nail holes must be filled with specified nails to achieve loads listed in the chart. For substituting with different nail sizes, refer to “Optional Nails” on page 19 or consult a design professional.
- Depending on pitch, birdsmouth notching may be required with some models to enable installers to fill all nail holes. Consult a design professional for appropriate notching.
- Designer shall determine if solid blocking is required.
- LFTA6, RT4, RT5, and RT7 ship in equal quantities of left and right versions. Left version images shown.



**Typical RT3A**  
truss/rafter to plate  
installation



**Typical RT4**  
truss/rafter to plate  
installation



**Typical RT5**  
truss/rafter to double  
plate installation



**Typical RT6**  
truss/rafter to  
plate installation

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>3</sup>						Unit	DF Factored Resistance			S-P-F Factored Resistance			Corrosion Finish
			Truss/Rafter		Plate		Stud			Uplift	F1	F2	Uplift	F1	F2	
			Qty	Type	Qty	Type	Qty	Type								
RT3A	H3	18	4	8d	4	8d	---	---	Lbs	1190	310	310	1020	265	265	Blue
									kN	5.29	1.38	1.38	4.54	1.18	1.18	Blue
RT4	H4	18	4	8d	4	8d	---	---	Lbs	760	350	350	650	300	300	Blue
									kN	3.38	1.56	1.56	2.89	1.33	1.33	Blue
RT5	H5	18	4	8d	4	8d	---	---	Lbs	995	425	425	855	365	365	Blue
									kN	4.43	1.89	1.89	3.80	1.62	1.62	Blue
RT6	HS24	18	8	10d x 1-1/2	6	10d x 1-1/2	---	---	Lbs	1070	1310	1310	915	1125	1125	Blue
									kN	4.76	5.83	5.83	4.07	5.00	5.00	Blue
RT7	H2.5	18	5	8d	5	8d	---	---	Lbs	940	315	315	805	270	270	Blue
									kN	4.18	1.40	1.40	3.58	1.20	1.20	Blue
RT7A	H2.5A	18	5	8d	5	8d	---	---	Lbs	1235	345	345	1060	295	295	Blue
									kN	5.49	1.53	1.53	4.72	1.31	1.31	Blue
RT8A	H8	18	5	10d x 1-1/2	5	10d x 1-1/2	---	---	Lbs	1430	350	350	1225	300	300	Blue
									kN	6.36	1.56	1.56	5.45	1.33	1.33	Blue
RT10	H2, H2A	18	6	8d	8	8d	6	8d	Lbs	940	315	315	805	270	270	Blue
									kN	4.18	1.40	1.40	3.58	1.20	1.20	Blue
RT15	H1	18	5	8d x 1-1/2	5	8d	---	---	Lbs	975	925	485	835	795	415	Blue
									kN	4.34	4.11	2.16	3.71	3.54	1.85	Blue
RT16A	H10A, H14	18	9	10d x 1-1/2	8	10d	---	---	Lbs	2545	1285	1195	2180	1100	1025	Blue
									kN	11.32	5.72	5.32	9.70	4.89	4.56	Blue
RT16AR	H10AR	18	9	10d x 1-1/2	8	10d	---	---	Lbs	2545	1285	1195	2180	1100	1025	Blue
									kN	11.32	5.72	5.32	9.70	4.89	4.56	Blue
RT16-2	H10-2	18	8	8d	8	8d	---	---	Lbs	1860	1050	675	1595	900	580	Blue
									kN	8.27	4.67	3.00	7.09	4.00	2.58	Blue
HHCP2	HCP2	18	10	10d x 1-1/2	10	10d x 1-1/2	---	---	Lbs	1505	710	---	1070	505	---	Blue
									kN	6.69	3.16	---	4.76	2.25	---	Blue
HHCP4-TZ	HCP4Z	16	8	10d	8	10d	---	---	Lbs	1835	690	---	1575	590	---	Blue
									kN	8.16	3.07	---	7.01	2.62	---	Blue
HC520	GBC	18	---	---	11	8d	6	8d	Lbs	640	510	560	555	440	485	Blue
									kN	2.85	2.27	2.49	2.47	1.96	2.16	Blue
HCPRS	---	18	---	---	5	8d	6	8d	Lbs	1020	945	340	660	665	240	Blue
									kN	4.54	4.20	1.51	2.94	2.96	1.07	Blue
LFTA6 <sup>2</sup>	H6	16	8	8d	8	8d	---	---	Lbs	1265	870	---	1075	775	---	Blue
									kN	5.63	3.87	---	4.78	3.45	---	Blue
RT20	---	16	9	10d x 1-1/2	4	10d	9	10d x 1-1/2	Lbs	1925	---	---	1650	---	---	Blue
									kN	8.56	---	---	7.34	---	---	Blue

1) 15% increase for short-term loads such as wind and earthquake has been taken into account for factored resistances, no further increase allowed.

2) LFTA6: To achieve F1 lateral loads, three nails must be installed on each side on the strap located closest to the bend line. Lateral F1 load direction does not apply to roof truss-to-top plate installations.

3) NAILS: 8d x 1-1/2 are 0.131" dia. x 1-1/2" long, 8d nails are 0.131" dia. x 2-1/2" long, 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

New products or updated product information are designated in blue font.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc



**Typical RT7**  
truss/rafter to double  
plate installation



**Typical RT7A**  
truss/rafter to double  
plate installation



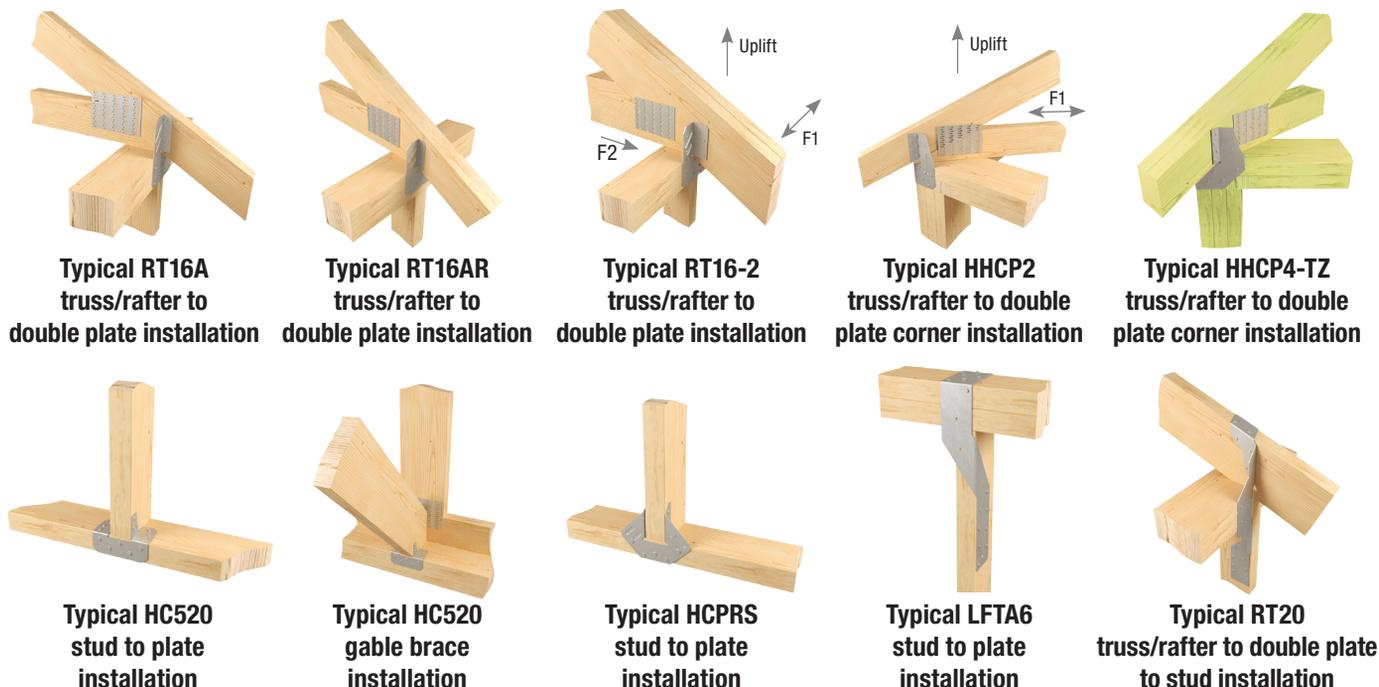
**Typical RT8A**  
stud to double  
plate installation



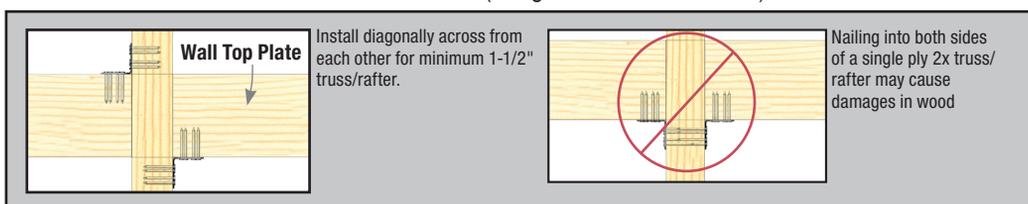
**Typical RT10**  
truss/rafter to double  
plate to stud installation



**Typical RT15**  
truss/rafter to double  
plate installation



Anchor installation to achieve twice the load (using two identical anchors)



(Top View)

## RUSC Retrofit Strap Connector

The RUSC Retro Uplift Strap Connector provides a wood-to-wood uplift connection attaching trusses with a 2 x 4 bottom chord to a double stud in the wall below. WS3 Wood Screws are utilized for fast installation. The connector can be installed after roof sheathing has been installed.

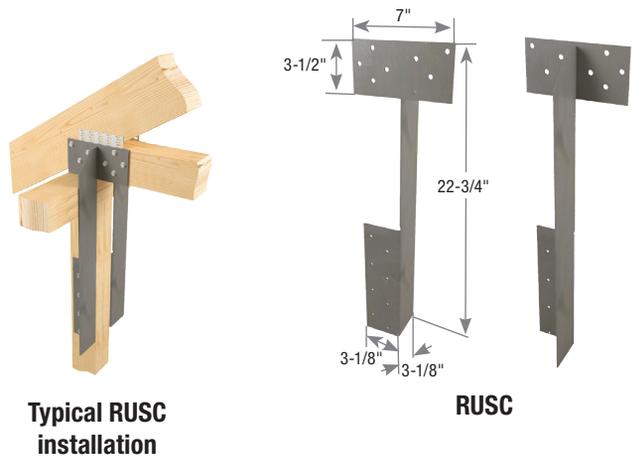
**Materials:** 10 gauge

**Finish:** USP primer

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- **The RUSC shall be installed in pairs.**
- Install on minimum 2 ply with equal wall studs centered directly below.
- Works with 2 x 4 bottom chord member and 2 x 4 wall studs.



Typical RUSC installation

RUSC

USP Stock No.	Ref. No.	Steel Gauge	No. of Plies <sup>5</sup>	Fastener Schedule <sup>3,4</sup>				DF		S-P-F	
				Rafter/Truss		Stud		Factored Resistance		Factored Resistance	
				Qty	Type	Qty	Type	Uplift 115% <sup>1,2</sup>		Uplift 115% <sup>1,2</sup>	
								Lbs	kN	Lbs	kN
RUSC	--	10	2 Ply or greater	16	WS3	16	WS3	6250	27.80	5410	24.07

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase is allowed.  
 2) Designer must specify stud or post to resist published load values.  
 3) WS3 Wood Screws are 1/4" x 3" long and are included with RUSC connectors.

4) Fastener schedule is for two straps used together. The RUSC shall be installed in pairs with a minimum 2 ply truss and wall stud attachment.  
 5) Truss plies shall be fastened together to act as a single unit.

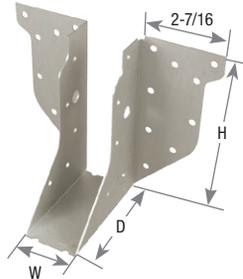
THDS26 hangers can be used to support headers, joists and trusses in medium load conditions. An open back design allows installation after a member is placed in position.

**Materials:** 18 gauge  
**Finish:** G90 galvanizing

**Installation:**  
 • Use all specified fasteners. See Product Notes, page 15.



**Typical THDS26 installation**



**THDS26**

USP Stock No.	Ref. No.	Ga.	Dimensions (in)			Application <sup>4</sup>		Fastener Schedule <sup>5</sup>				Unit	DF Factored Resistance		S-P-F Factored Resistance					
			W	H	D	Header	Joist <sup>3</sup>	Header		Joist <sup>2</sup>			Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%				
								Qty	Type	Qty	Type									
THDS26	--	18	1-5/8	5-1/8	3-1/2	(1) 2x6 S-P-F	(1) 2x6 S-P-F	18	16d x 2-1/2	10	10d x 1-1/2	Lbs	<b>2110</b>	<b>1690</b>	<b>2110</b>	<b>1690</b>				
						(2) 2x6 S-P-F	(1) 2x6 S-P-F	18	16d x 2-1/2	10	10d x 1-1/2	Lbs	<b>2340</b>	<b>1690</b>	<b>2340</b>	<b>1690</b>				
						(1) 2x6 S-P-F	(1) S-P-F plated truss	18	16d x 2-1/2	10	10d x 1-1/2	Lbs	<b>3415</b>	<b>1690</b>	<b>3415</b>	<b>1690</b>				
						(2) 2x6 S-P-F	(1) S-P-F plated truss	18	16d x 2-1/2	10	10d x 1-1/2	Lbs	<b>3640</b>	<b>1690</b>	<b>3640</b>	<b>1690</b>				

- 1) Factored uplift resistances have been increased 15% for short-term loading such as wind and earthquake; reduce for other load durations in accordance with the code.
- 2) When used in a truss application, the fasteners into the supported member will need to be driven through the truss plate to complete the installation.
- 3) Where truss plate is not within 1/4" of bottom surface use values for 2x6 S-P-F joist.
- 4) Supporting and supported wood members are to be designed by others. Ensure supporting member can accept all fasteners.
- 5) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 16d x 2-1/2 nails are 0.162" dia. x 2-1/2" long.  
 New products or updated product information are designated in **blue font**.

# MUS / HUS Slant Nail Truss Hangers

The MUS / HUS hanger series offers double shear nailing. USP's raised dimple allows for 30° to 45° nailing through the joist into header, resulting in higher loads and less nailing.

**Materials:** MUS – 18 gauge; HUS – 16 gauge

**Finish:** G90 galvanizing

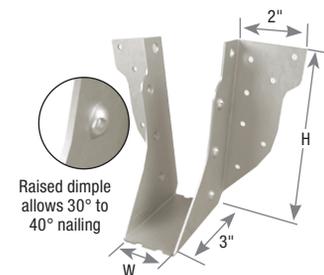
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

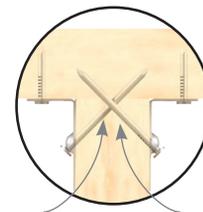
- Use all specified fasteners. See Product Notes, page 15.
- Joist nails must be driven in at a 30° to 45° angle through the joist or truss into the header to achieve listed loads. **Standard length "double shear" nails must be used to achieve listed load values.**
- See EWP applications page 135.



Typical HUS installation (MUS similar)



HUS



MUS

Double shear nail design features fewer nails and faster installation

Uses standard length nails

Plated Truss

Joist / Truss Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule <sup>3</sup>				Unit	DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish
				W	H	Header		Truss <sup>2</sup>			Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	
						Qty	Type	Qty	Type						
2 x 6 - 8	MUS26	MUS26	18	1-9/16	5-1/16	6	10d	6	10d	Lbs	<b>2845</b>	<b>1425</b>	<b>2825</b>	<b>1415</b>	
	HUS26	HUS26, LJS26DS	16	1-5/8	5-7/16	14	16d	6	16d	kN	<b>12.66</b>	<b>6.34</b>	<b>12.57</b>	<b>6.29</b>	
2 x 8 - 10	MUS28	MUS28	18	1-9/16	7-1/16	8	10d	8	10d	Lbs	<b>3855</b>	<b>2030</b>	<b>3830</b>	<b>2015</b>	
	HUS28	HUS28	16	1-5/8	7-3/16	22	16d	8	16d	kN	<b>17.15</b>	<b>9.03</b>	<b>17.04</b>	<b>8.96</b>	
2 x 10 - 12	HUS210	HUS210	16	1-5/8	9-3/16	30	16d	10	16d	Lbs	<b>9030</b>	<b>6035</b>	<b>7085</b>	<b>4735</b>	
										kN	<b>40.17</b>	<b>26.85</b>	<b>31.52</b>	<b>21.06</b>	
1-3/4 x 5-1/2 - 7-1/4	HUS175	HU1.81/5	16	1-13/16	5-3/8	14	16d	6	16d	Lbs	<b>5480</b>	<b>3630</b>	<b>4305</b>	<b>2850</b>	
										kN	<b>24.38</b>	<b>16.15</b>	<b>19.15</b>	<b>12.68</b>	
1-3/4 x 7-1/4 - 11-1/4	HUS177	-- --	16	1-13/16	7-1/8	22	16d	8	16d	Lbs	<b>7120</b>	<b>4840</b>	<b>5590</b>	<b>3800</b>	
										kN	<b>31.67</b>	<b>21.53</b>	<b>24.87</b>	<b>16.90</b>	
1-3/4 x 9-1/4 - 14	HUS179	HUS1.81/10	16	1-13/16	9-1/8	30	16d	10	16d	Lbs	<b>9030</b>	<b>6035</b>	<b>7085</b>	<b>4735</b>	
										kN	<b>40.17</b>	<b>26.85</b>	<b>31.52</b>	<b>21.06</b>	

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) Nails must be driven at a 30° to 45° angle through the joist or truss into the header to achieve the table loads.

3) **NAILS:** 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

# THD Heavy-Duty Face Mount Truss Hangers

Medium-to-heavy capacity face mount hanger. Some THD models are available with a min/max installation option.

**Materials:** See chart

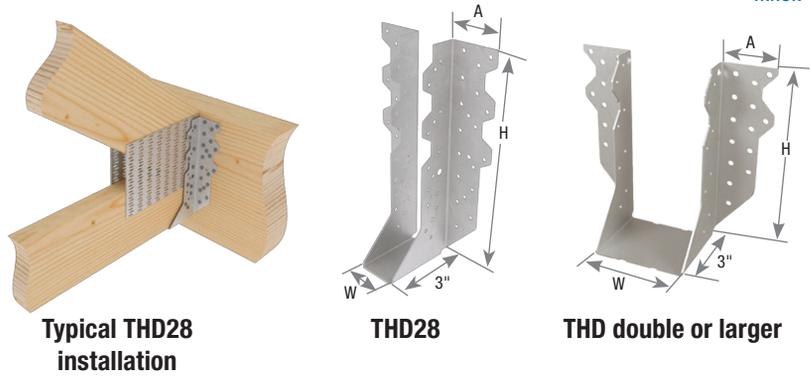
**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- **THD Min** – Fill all round nail holes.
- **THD Max** – Fill all round and diamond holes.



Joist / Truss Size	USP Stock No.	Ref. No.	Ga.	Dimensions (in)			Fastener Schedule <sup>2</sup>				DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish	
				W	H	A	Min/Max	Header		Joist		Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%		Uplift <sup>1</sup> 115%
								Qty	Type	Qty	Type					
2 x 6 - 8	THD26	HTU26	16	1-5/8	5-1/16	1-7/8	Min	18	16d	12	10d x 1-1/2	Lbs	5010	4390	3935	3450
							Max	20	16d	20	10d x 1-1/2	kN	22.29	19.53	17.50	15.35
2 x 8 - 10	THD28	HTU28	16	1-5/8	7	1-7/8	Min	28	16d	16	10d x 1-1/2	Lbs	7350	4390	5770	3450
							Max	28	16d	26	10d x 1-1/2	kN	32.69	19.53	25.67	15.35
2 x 10 - 12	THD210	HTU210	16	1-5/8	9	1-7/8	Min	38	16d	20	10d x 1-1/2	Lbs	8380	5835	6580	4580
							Max	38	16d	32	10d x 1-1/2	kN	37.28	25.96	29.27	20.37
(2) 2 x 6 - 8	THD26-2	HHUS26-2, HTU26-2	14	3-7/16	5-3/8	2	--	18	16d	12	10d	Lbs	7090	5745	5565	4510
(2) 2 x 8 - 10	THD28-2	HHUS28-2, HTU28-2	14	3-7/16	7-1/8	2	--	28	16d	16	10d	kN	31.54	25.56	24.75	20.06
												Lbs	8195	4885	6435	3835
(2) 2 x 10 - 12	THD210-2	HHUS210-2, HTU210-2	14	3-7/16	9-1/8	2	--	38	16d	20	10d	kN	36.45	21.73	28.62	17.06
												Lbs	11540	8375	9060	7260
4 x 6 - 8	THD46	HHUS46	14	3-5/8	5-5/16	2	--	18	16d	12	10d	Lbs	7090	5745	5565	4510
4 x 8 - 10	THD48	HHUS48	14	3-5/8	7-1/16	2	--	28	16d	16	10d	kN	31.54	25.56	24.75	20.06
												Lbs	8195	4885	6435	3835
4 x 10 - 12	THD410	HHUS410	14	3-5/8	9-1/16	2	--	38	16d	20	10d	kN	36.45	21.73	28.62	17.06
												Lbs	11540	8375	9060	7260
4 x 12 - 14	THD412	---	14	3-5/8	11	3	--	48	16d	20	10d	kN	51.33	37.25	40.30	32.29
												Lbs	11540	8375	9060	7260
4 x 14 - 16	THD414	---	14	3-5/8	12-7/8	3	--	58	16d	20	10d	kN	51.33	37.25	40.30	32.29
												Lbs	11540	8375	9060	7260
(3) 2 x 10 - 12	THD210-3	HHUS210-3	12	5-1/8	9	3	--	38	16d	20	10d	Lbs	12455	8375	9780	7260
6 x 10 - 12	THD610	HHUS5.50/10	12	5-1/2	9	3	--	38	16d	20	10d	kN	55.40	28.58	43.50	22.44
												Lbs	12455	6425	9780	5045
6 x 12 - 14	THD612	---	12	5-1/2	11	3	--	48	16d	20	10d	kN	13785	9850	10825	7730
												Lbs	61.32	43.81	48.15	34.38
6 x 14 - 16	THD614	---	12	5-1/2	12-7/8	3	--	58	16d	20	10d	kN	13785	9850	10825	7730
												Lbs	61.32	43.81	48.15	34.38
(4) 2 x 10 - 12	THD210-4	HHUS210-4	12	6-3/4	9	3	--	38	16d	20	10d	Lbs	12455	8375	9780	7260
												kN	55.40	37.25	43.50	32.29
7 x 9-1/4 - 14	THD7210	HHUS7.25/10	12	7-1/4	9	3	--	38	16d	20	10d	Lbs	12455	6425	9780	5045
												kN	55.40	28.58	43.50	22.44

Some model designs may vary from illustration shown

- 1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
  - 2) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.
- New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

**Specialty Options Chart** – refer to Specialty Options pages 220-221 for additional details.

Option	Skewed <sup>1,3</sup>	Sloped Seat <sup>2</sup>	Sloped / Skewed <sup>1,2,3</sup>	Inverted Flange
Range	1° to 45°	1° to 45°	See Sloped Seat and Skewed	Not available in widths < 3". Widths > 3" can have one flange inverted.
Factored Resistance	85% of table load	65% of table load	65% of table load	100% of table load. 65% of table load when nailing into the support members end grain.
Ordering	Add <i>SK</i> , angle required, right ( <i>R</i> ) or left ( <i>L</i> ), and <b>square cut (SQ) or bevel cut (BV)</b> to product number. Ex. THD410_SK45R_SQ	Add <i>SL</i> , slope required, and up ( <i>U</i> ) or down ( <i>D</i> ), to product number. Ex. THD410_SL30D	See Sloped Seat and Skewed. Ex. THD410_SK45R_SQ_SL30D	Add <i>1IF</i> , one flange, right ( <i>R</i> ) and left ( <i>L</i> ), to product number. Ex. THD410_1IFR

- 1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.
  - 2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.
  - 3) **For skewed hangers, the required cut type (square or bevel) of joist member may vary based on skew angle and width of hanger. Some square cut hangers will require custom pricing due to welded back plate.**
- New products or updated product information are designated in **blue font**.

**Materials:** 12 gauge

**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

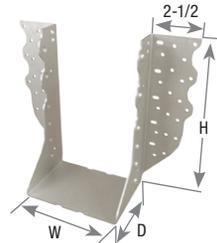
- Use all specified fasteners. See Product Notes, page 15.
- Joist nails must be driven in at a 30° to 45° angle through the joist or truss into the header to achieve listed loads. **Standard length “double shear” nails must be used to achieve listed load values.**
- See EWP applications pages 135-136.



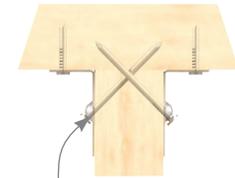
Typical THDH double shear installation



Typical THDH26-2 installation



THDH



Drive joist nails into header at 30° to 45° to achieve listed loads.

Plated Truss

Joist / Truss Size	USP Stock No.	Ref. No.	Dimensions (in)			Fastener Schedule <sup>2,3</sup>				Unit	DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish
			W	H	D	Header		Truss			Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	
						Qty	Type	Qty	Type						
2 x 6 - 8	THDH26	HGUS26	1-5/8	5-7/16	5	20	16d	8	16d	Lbs	7540	4395	5920	3955	
										kN	33.54	19.55	26.33	17.59	
2 x 8 - 10	THDH28	HGUS28	1-5/8	7-3/16	5	36	16d	12	16d	Lbs	13075	8210	10265	7385	
										kN	58.16	36.52	45.66	32.85	
2 x 10 - 12	THDH210	-- --	1-5/8	9-3/16	5	46	16d	16	16d	Lbs	16120	10140	16120	9125	
										kN	71.71	45.10	71.71	40.59	
2-11/16 x 9-1/4 - 14	THDH27925	HGUS2.75/10	2-3/4	9-1/8	4	46	16d	12	16d	Lbs	14760	8210	11585	7385	
										kN	65.66	36.52	51.53	32.85	
2-11/16 x 11-1/4 - 16	THDH27112	HGUS2.75/12	2-3/4	10-7/8	4	56	16d	14	16d	Lbs	16130	8210	12660	7385	
										kN	71.75	36.52	56.31	32.85	
2-11/16 x 14 - 16	THDH2714	HGUS2.75/14	2-3/4	12-1/4	4	66	16d	16	16d	Lbs	17570	10140	15585	9125	
										kN	78.16	45.10	69.33	40.59	
3-1/4 x 9-1/2	THDH3210	HGUS3.25/10	3-3/16	9-3/8	4	46	16d	12	16d	Lbs	14760	8210	11585	7385	
										kN	65.66	36.52	51.53	32.85	
3-1/4 x 10-5/8	THDH3212	HGUS3.25/12	3-3/16	10-5/8	4	56	16d	14	16d	Lbs	16130	9845	12660	7730	
										kN	71.75	43.79	56.31	34.38	
(2) 2 x 6 - 8	THDH26-2	HGUS26-2	3-7/16	5-3/8	4	20	16d	8	16d	Lbs	7540	4395	5920	3955	
										kN	33.54	19.55	26.33	17.59	
(2) 2 x 8 - 10	THDH28-2	HGUS28-2	3-7/16	7-1/8	4	36	16d	10	16d	Lbs	13075	5380	10265	4770	
										kN	58.16	23.93	45.66	21.22	
(2) 2 x 10 - 12	THDH210-2	HGUS210-2	3-7/16	9-1/8	4	46	16d	12	16d	Lbs	14760	8210	11585	7385	
										kN	65.66	36.52	51.53	32.85	
4 x 6 - 8	THDH46	HGUS46	3-9/16	5-3/8	4	20	16d	8	16d	Lbs	7540	4395	5920	3955	
										kN	33.54	19.55	26.33	17.59	
4 x 8 - 10	THDH48	HGUS48	3-9/16	7-1/8	4	36	16d	10	16d	Lbs	12825	5380	10065	4770	
										kN	57.05	23.93	44.77	21.22	
4 x 10 - 12	THDH410	HGUS410	3-9/16	9-1/8	4	46	16d	12	16d	Lbs	14760	8210	11585	7385	
										kN	65.66	36.52	51.53	32.85	
4 x 12 - 14	THDH412	HGUS412	3-9/16	10-1/2	4	56	16d	14	16d	Lbs	16130	9845	12660	7730	
										kN	71.75	43.79	56.31	34.38	
4 x 14 - 16	THDH414	HGUS414	3-9/16	13-1/16	4	66	16d	16	16d	Lbs	17570	11335	15585	8895	
										kN	78.16	50.42	69.33	39.57	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) Joist nails need to be toe nailed at a 30° to 45° angle to achieve factored resistances shown.

3) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

Joist / Truss Size	USP Stock No.	Ref. No.	Dimensions (in)			Fastener Schedule <sup>2,3</sup>				Unit	DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish
			W	H	D	Header		Truss			Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	
						Qty	Type	Qty	Type						
(3) 2 x 6 - 8	THDH26-3	HGUS26-3	5-1/8	5-7/16	4	20	16d	8	16d	Lbs	7540	4395	5920	3955	
										kN	33.54	19.55	26.33	17.59	
(3) 2 x 8 - 10	THDH28-3	HGUS28-3	5-1/8	7-3/16	4	36	16d	12	16d	Lbs	11005	8210	8790	7385	
										kN	48.95	36.52	39.10	32.85	
(3) 2 x 10 - 12	THDH210-3	HGUS210-3	5-1/8	9-3/16	4	46	16d	16	16d	Lbs	16120	10140	16120	9125	
										kN	71.71	45.10	71.71	40.59	
(3) 2 x 12 - 14	THDH212-3	HGUS212-3	5-1/8	11-3/16	4	56	16d	20	16d	Lbs	15465	10140	15465	9125	
										kN	68.79	45.10	68.79	40.59	
(3) 2 x 14 - 16	THDH214-3	HGUS214-3	5-1/8	13-3/16	4	66	16d	22	16d	Lbs	17570	11335	15585	8895	
										kN	78.16	50.42	69.33	39.57	
6 x 10 - 12	THDH610	HGUS5.25/10, HGUS5.50/10	5-1/2	9	4	46	16d	16	16d	Lbs	12645	10140	9925	9125	
										kN	56.25	45.10	44.15	40.59	
6 x 12 - 14	THDH612	HGUS5.25/12, HGUS5.50/12	5-1/2	11	4	56	16d	20	16d	Lbs	15465	10140	15465	9125	
										kN	68.79	45.10	68.79	40.59	
6 x 14 - 16	THDH614	HGUS5.50/14	5-1/2	13	4	66	16d	22	16d	Lbs	17570	11335	15585	8895	
										kN	78.16	50.42	69.33	39.57	
(4) 2 x 6 - 8	<b>THDH26-4</b>	HGUS26-4	6-9/16	5-7/16	4	20	16d	8	16d	Lbs	7540	4395	5920	3955	
										kN	33.54	19.55	26.33	17.59	
(4) 2 x 8 - 10	<b>THDH28-4</b>	HGUS28-4	6-7/16	7-9/16	4	36	16d	12	16d	Lbs	11005	8210	8790	7385	
										kN	48.95	36.52	39.10	32.85	
6-3/4 x 9 - 14-1/2	THDH6710	HGUS210-4, HGUS6.88/10	6-7/8	8-13/16	4	46	16d	12	16d	Lbs	12645	8210	9925	7385	
										kN	56.25	36.52	44.15	32.85	
6-3/4 x 11 - 18	THDH6712	HGUS212-4, HGUS6.88/12	6-7/8	10-13/16	4	56	16d	14	16d	Lbs	12645	9845	9925	7730	
										kN	56.25	43.79	44.15	34.38	
6-3/4 x 13 - 20-1/2	THDH6714	HGUS214-4, HGUS6.88/14	6-7/8	12-13/16	4	66	16d	16	16d	Lbs	17570	11335	15585	8895	
										kN	78.16	50.42	69.33	39.57	
7 x 9-1/4 - 14	THDH7210	HGUS7.25/10	7-1/4	9	4	46	16d	12	16d	Lbs	12645	8210	9925	7385	
										kN	56.25	36.52	44.15	32.85	
7 x 11-1/4 - 16	THDH7212	HGUS7.25/12	7-1/4	10-1/2	4	56	16d	14	16d	Lbs	12645	9845	9925	7730	
										kN	56.25	43.79	44.15	34.38	
7 x 14 - 18	THDH7214	HGUS7.25/14	7-1/4	12-1/4	4	66	16d	16	16d	Lbs	17570	11335	15585	8895	
										kN	78.16	50.42	69.33	39.57	

Plated Truss

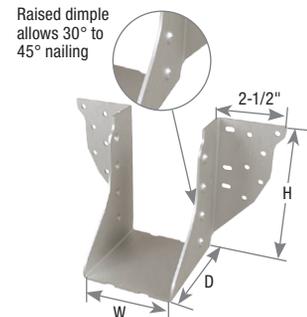
- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
  - 2) Joist nails need to be toe nailed at a 30° to 45° angle to achieve factored resistances shown.
  - 3) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.
- New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

**Specialty Options Chart**

– refer to Specialty Options pages 220-221 for additional details.

Option	Skewed <sup>1,3</sup>	Sloped Seat <sup>2</sup>	Sloped / Skewed <sup>1,2,3</sup>
<b>Range</b>	1° to 45°	1° to 45°	See Sloped Seat and Skewed
<b>Factored Resistance</b>	85% of table allowable load. 50% of table uplift load.	85% of table allowable load	52% of table allowable load. 50% of table uplift load.
<b>Ordering</b>	Add SK, angle required, right (R) or left (L), and <b>square cut (SQ) or bevel cut (BV)</b> to product number. Ex. THDH410_SK45R_BV	Add SL, slope required, and up (U) or down (D), to product number. Ex. THDH410_SL30D	See Sloped Seat and Skewed. Ex. THDH410_SK45R_BV_SL30D



**THDH26-2**

Some model designs may vary from illustration shown

- 1) Skewed THDH hangers with skews greater than 15° always have all joist nailing on one side of the outside flange.
  - 2) Sloped or sloped / skewed hangers with slopes greater than 15° may have additional joist nails.
  - 3) **Skewed hangers typically require a bevel cut. A square cut option may be available as a custom.**
- Inverted flange option is not available for THDH models.**  
New products or updated product information are designated in **blue font**.

The new THDHQ hangers are designed to attach multi-ply girder trusses together using USP's WS Wood Screws for higher design load capacity. THDHQ hangers can also be used to attach structural composite lumber (SCL).

**Materials:** 12 gauge

**Finish:** G90 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

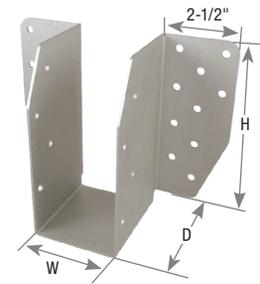
- Use all specified fasteners.
- WS Wood Screws are supplied with THDHQ hangers.
- See table footnotes.



**Typical THDHQ28-2 truss installation**



**Typical THDHQ28-2 SCL installation**



**THDHQ28-2**

Plated Truss

Supported Member	USP Stock No.	Ref. No.	Dimensions (in)				Fastener Schedule <sup>2,7</sup>				Unit	DF Factored Resistance		S-P-F Factored Resistance	
			W	H	D	A	Supporting Member <sup>3,4,5</sup>		Supported Member			Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
							Qty	Type	Qty	Type					
<b>Double 2x Sizes</b>															
(2) 2 x 6 - 8	THDHQ26-2	HGUQ26-2-SDS3	3-5/16	5-7/16	4	1-15/16	12	WS3	4	WS3	Lbs	<b>8130</b>	<b>3545</b>	<b>6380</b>	<b>2845</b>
											kN	<b>36.16</b>	<b>15.77</b>	<b>28.38</b>	<b>12.66</b>
(2) 2 x 8 - 10	THDHQ28-2	HGUQ28-2-SDS3	3-5/16	7-3/16	4	2-13/16	20	WS3	8	WS3	Lbs	<b>14660</b>	<b>6290</b>	<b>11510</b>	<b>5240</b>
											kN	<b>65.21</b>	<b>27.98</b>	<b>51.20</b>	<b>23.31</b>
(2) 2 x 10 - 12	THDHQ210-2	HGUQ210-2-SDS3	3-5/16	9-3/16	4	2-13/16	28	WS3	8	WS3	Lbs	<b>16195</b>	<b>9695</b>	<b>12715</b>	<b>8075</b>
											kN	<b>72.04</b>	<b>43.13</b>	<b>56.56</b>	<b>35.92</b>
<b>Triple 2x Sizes</b>															
(3) 2 x 6 - 8	THDHQ26-3	HGUQ26-3-SDS4.5	4-15/16	5-7/16	4	1-15/16	12	WS45	4	WS45	Lbs	<b>8130</b>	<b>3545</b>	<b>6380</b>	<b>2845</b>
											kN	<b>36.16</b>	<b>15.77</b>	<b>28.38</b>	<b>12.66</b>
(3) 2 x 8 - 10	THDHQ28-3	HGUQ28-3-SDS4.5	4-15/16	7-3/16	4	2-13/16	20	WS45	8	WS45	Lbs	<b>14660</b>	<b>6290</b>	<b>11510</b>	<b>5240</b>
											kN	<b>65.21</b>	<b>27.98</b>	<b>51.20</b>	<b>23.31</b>
(3) 2 x 10 - 12	THDHQ210-3	HGUQ210-3-SDS4.5	4-15/16	9-3/16	4	2-13/16	28	WS45	8	WS45	Lbs	<b>16195</b>	<b>9695</b>	<b>12715</b>	<b>8075</b>
											kN	<b>72.04</b>	<b>43.13</b>	<b>56.56</b>	<b>35.92</b>
<b>Quadruple 2x Sizes</b>															
(4) 2 x 6 - 8	THDHQ26-4	HGUQ26-4-SDS6	6-9/16	5-7/16	4	1-15/16	12	WS6	4	WS6	Lbs	<b>8130</b>	<b>4565</b>	<b>6380</b>	<b>3585</b>
											kN	<b>36.16</b>	<b>20.31</b>	<b>28.38</b>	<b>15.95</b>
(4) 2 x 8 - 10	THDHQ28-4	HGUQ28-4-SDS6	6-9/16	7-3/16	4	2-13/16	20	WS6	8	WS6	Lbs	<b>14660</b>	<b>8335</b>	<b>11510</b>	<b>6945</b>
											kN	<b>65.21</b>	<b>37.08</b>	<b>51.20</b>	<b>30.89</b>
(4) 2 x 10 - 12	THDHQ210-4	HGUQ210-4-SDS6	6-9/16	9-3/16	4	2-13/16	28	WS6	8	WS6	Lbs	<b>16195</b>	<b>7695</b>	<b>12715</b>	<b>6410</b>
											kN	<b>72.04</b>	<b>34.23</b>	<b>56.56</b>	<b>28.51</b>
<b>4x Sizes</b>															
4 x 6 - 8	THDHQ46	HGUQ46-SDS3	3-5/8	5-7/16	4	1-15/16	12	WS3	8	WS3	Lbs	<b>8130</b>	<b>3545</b>	<b>6380</b>	<b>2845</b>
											kN	<b>36.16</b>	<b>15.77</b>	<b>28.38</b>	<b>12.66</b>
4 x 8 - 10	THDHQ48	HGUQ48-SDS3	3-5/8	7-3/16	4	2-13/16	20	WS3	8	WS3	Lbs	<b>14660</b>	<b>6290</b>	<b>11510</b>	<b>5240</b>
											kN	<b>65.21</b>	<b>27.98</b>	<b>51.20</b>	<b>23.31</b>
4 x 10 - 12	THDHQ410	HGUQ410-SDS3	3-5/8	9-3/16	4	2-13/16	28	WS3	8	WS3	Lbs	<b>16195</b>	<b>9695</b>	<b>12715</b>	<b>8075</b>
											kN	<b>72.04</b>	<b>43.13</b>	<b>56.56</b>	<b>35.92</b>

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) WS3 is 1/4" x 3" long wood screw, WS45 is 1/4" x 4-1/2" long wood screw, WS6 is 1/4" x 6" long wood screw and are included with THDHQ hangers.  
 3) WS Wood Screw length into supporting member is based on supporting member width being equal to supported member width. See notes 4 and 5 for fastening information.  
 4) WS Wood Screws shall penetrate properly into all plies of the supporting member and as a minimum, penetration into the last ply of the supporting member shall be at least one inch. Additional WS screws (not supplied) can be installed to the back side of the outer ply, designed by others, when the aforementioned penetration requirement is not met.  
 5) For construction safety concern, if the supplied WS Wood Screws protrude past the last ply of the supporting member, shorter length WS screws can be used;  
 ex. WS3 screws may be substituted for WS45 screws and WS45 screws may be substituted for WS6 screws, with no load reduction. Alternately, a backer block member may be used as determined by the designer.  
 6) Cross-grain tension may limit factored resistances per CSA 086-14 Section 12.2.1.4. For assistance, contact USP Structural Connectors.  
 7) WS Wood Screws may be installed through metal truss connector plates as approved by the Truss Designer, provided the requirements of CSA 086-14 Section 5.3.8 and TPIC-2014 Section 7.5 are met. (Pre-drilling required through the plate using a maximum of 5/32" bit).  
 8) For hanger installations supported by LSL, of specific gravity no less than 0.50, use the DF factored resistances.  
 New products or updated product information are designated in **blue font**.

The MSH is field adjustable. The flanges can be used in top mount, face mount, or combination installations. An open back design allows installation after a member is placed in position.

**Materials:** See chart

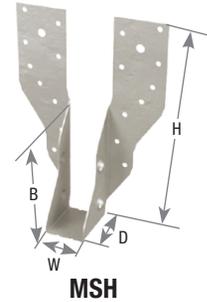
**Finish:** G90 galvanizing

**Options:** See chart for Corrosion Finish Options

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Web stiffeners are required for I-Joist installations.



### Mounting Conditions

Face Max	Top-Max	Top-Min	Combination Face-Max / Top-Max
<p>All header nails used should be driven into the wide face of the header.</p> <p><b>Typical MSH face-max installation</b></p>	<p>The hanger is installed in a top mount condition with at least six lowest header face nail holes filled, and four top flange nails filled. The strap must wrap over the top at least 2-1/2".</p> <p><b>Typical MSH top-max installation</b></p>	<p>The hanger is installed in a top mount condition with at least the top two header face nail holes filled, and four top flange nails filled. The strap must wrap over the top at least 2-1/2" and the joist nails shall be installed straight into the joist for all models.</p> <p><b>Typical MSH top-min installation</b></p>	<p>Face-Max values apply for the entire connection. Follow fastening directions for the applicable mounting condition for each individual flange strap.</p> <p><b>Typical MSH combination installation</b></p>

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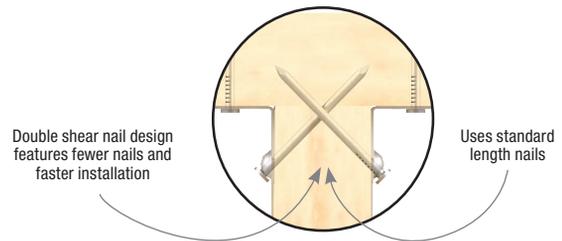
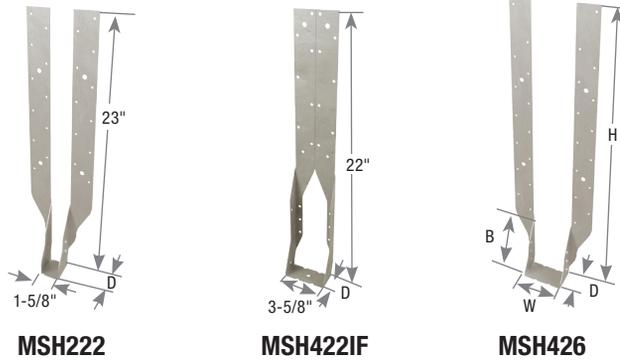
Plated Truss

Joist Material & Width	USP Stock No.	Ref. No.	Ga.	Dimensions (in)				Mounting Condition	Fastener Schedule <sup>2</sup>				DF Factored Resistance				S-P-F Factored Resistance				
				W	H	D	B		Header		Joist		Lbs		kN		Lbs		kN		
									Top Qty	Face Qty	Type	Qty	Type	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
2x Lumber or Trusses	MSH29	THA29	18	1-5/8	8-3/4	2-1/4	5	face-max	--	18	10d	4	10d x 1-1/2	4625	1435	20.57	6.38	3630	1125	16.15	5.00
								top-max	4	6	10d	4	10d x 1-1/2	4785	1435	21.28	6.38	3760	1125	16.73	5.00
								top-min	4	2	10d	4	10d x 1-1/2	3630	--	16.15	--	2850	--	12.68	--
	MSH213	THA213	18	1-5/8	12-3/4	2-1/4	5	face-max	--	20	10d	4	10d	4625	1435	20.57	6.38	3630	1125	16.15	5.00
								top-max	4	6	10d	4	10d	4785	1435	21.28	6.38	3760	1125	16.73	5.00
								top-min	4	2	10d	4	10d x 1-1/2	3630	--	16.15	--	2850	--	12.68	--
	MSH218	THA218	18	1-5/8	16-3/4	2-1/4	5	face-max	--	26	10d	4	10d x 1-1/2	4625	1435	20.57	6.38	3630	1125	16.15	5.00
								top-max	4	6	10d	4	10d x 1-1/2	4785	1435	21.28	6.38	3760	1125	16.73	5.00
								top-min	4	2	10d	4	10d x 1-1/2	3630	--	16.15	--	2850	--	12.68	--
	MSH222	THA222	18	1-5/8	23	1-3/4	10-13/16	face-max	--	22	10d	4	10d x 1-1/2	3640	1085	16.19	4.83	2860	850	12.72	3.78
								top-max	4	6	10d	4	10d x 1-1/2	4125	1085	18.35	4.83	3235	850	14.39	3.78
								top-min	4	2	10d	4	10d x 1-1/2	3440	--	15.30	--	2700	--	12.01	--

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

New products or updated product information are designated in blue font.



Plated Truss

Joist Material & Width	USP Stock No.	Ref. No.	Ga.	Dimensions (in)				Mounting Condition	Fastener Schedule <sup>2</sup>				DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish	
				W	H	D	B		Header		Joist		Lbs		kN		Lbs		kN			
									Top Qty	Face Qty	Type	Qty	Type	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%		Uplift <sup>1</sup> 115%
1-3/4" LVL or I-Joist	MSH1713	--	18	1-13/16	14-7/16	1-3/4	10-3/4	face-max	--	12	10d	4	10d	3640	1085	16.19	4.83	2860	850	12.72	3.78	
								top-max	4	6	10d	4	10d	4125	1085	18.35	4.83	3235	850	14.39	3.78	
	MSH1722	THA1.81/22	18	1-13/16	22-7/8	1-3/4	10-3/4	top-min	4	2	10d	4	10d x 1-1/2	3440	--	15.30	--	2700	--	12.01	--	
								face-max	--	22	10d	4	10d x 1-1/2	3410	940	15.17	4.18	2900	800	12.90	3.56	
2" wide I-Joist	MSH2022	THA2.06/22	18	2-1/16	22-5/8	1-3/4	10-7/16	top-max	4	6	10d	4	10d	4495	975	19.99	4.34	3660	795	16.28	3.54	
								top-min	4	2	10d	4	10d	3370	--	14.99	--	2750	--	12.23	--	
								face-max	--	22	10d	4	10d	3410	940	15.17	4.18	2900	800	12.90	3.56	
								top-max	4	6	10d	4	10d x 1-1/2	4495	975	19.99	4.34	3660	795	16.28	3.54	
2-5/16" wide I-Joist	MSH2322	THA3522	18	2-3/8	22-5/8	1-3/4	10-7/16	top-min	4	2	10d	4	10d x 1-1/2	3370	--	14.99	--	2750	--	12.23	--	
								face-max	--	22	10d	4	10d x 1-1/2	3410	940	15.17	4.18	2900	800	12.90	3.56	
								top-max	4	6	10d	4	10d x 1-1/2	4495	975	19.99	4.34	3660	795	16.28	3.54	
								top-min	4	2	10d	4	10d x 1-1/2	3370	--	14.99	--	2750	--	12.23	--	
2-1/2" wide Floor Trusses	MSH322	THA322	18	2-9/16	22-1/2	1-3/4	10-3/8	face-max	--	22	10d	4	10d x 1-1/2	3410	940	15.17	4.18	2900	800	12.90	3.56	
								top-max	4	6	10d	4	10d x 1-1/2	4495	975	19.99	4.34	3660	795	16.28	3.54	
								top-min	4	2	10d	4	10d x 1-1/2	3370	--	14.99	--	2750	--	12.23	--	
								face-max	--	22	10d	4	10d x 1-1/2	3410	940	15.17	4.18	2900	800	12.90	3.56	
(2) 2x Lumber or Trusses	MSH218-2	THA218-2	16	3-1/8	17-3/4	1-3/4	10-1/16	face-max	--	16	10d	4	10d	3940	1105	17.53	4.92	3090	865	13.75	3.85	
								top-max	4	6	10d	4	10d	5530	1105	24.60	4.92	4340	865	19.31	3.85	
	MSH222-2	THA222-2	16	3-1/8	22-1/4	1-3/4	10-1/16	top-min	4	2	10d	4	10d	3425	--	15.24	--	2690	--	11.97	--	
								face-max	--	22	10d	4	10d	5335	1105	23.73	4.92	4190	865	18.64	3.85	
3-1/2" wide Floor Trusses	MSH413	THA413	16	3-9/16	14	1-3/4	7-5/8	top-max	4	6	10d	6	10d	5125	2865	22.80	12.74	4020	2250	17.88	10.01	
								top-min	4	2	10d	6	10d	3215	--	14.30	--	2525	--	11.23	--	
								face-max	--	18	10d	6	10d	6930	2865	30.83	12.74	5440	2250	24.20	10.01	
	MSH418	THA418	16	3-9/16	17-1/2	1-3/4	7-5/8	top-max	4	6	10d	6	10d	5125	2865	22.80	12.74	4020	2250	17.88	10.01	
								top-min	4	2	10d	6	10d	3215	--	14.30	--	2525	--	11.23	--	
								face-max	--	22	10d	6	10d	6015	2490	26.76	11.08	5115	2115	22.75	9.41	
	MSH422	THA422, THA422	16	3-9/16	21-1/2	1-3/4	7-5/8	top-max	4	6	10d	6	10d	5125	2865	22.80	12.74	4020	2250	17.88	10.01	
								top-min	4	2	10d	6	10d	3215	--	14.30	--	2525	--	11.23	--	
								face-max	--	22	10d	4	10d	5335	1105	23.73	4.92	4190	865	18.64	3.85	
	MSH422IF	THAC418, THAC422	16	3-5/8	22	1-3/4	9-13/16	top-max	4	6	10d	4	10d	5530	1105	24.60	4.92	4340	865	19.31	3.85	
								top-min	4	2	10d	4	10d	3425	--	15.24	--	2690	--	11.97	--	
								face-max	--	36	10d	6	10d	6285	2345	27.96	10.43	4935	1840	21.95	8.18	
MSH424	--	16	3-5/8	21-1/2	2	5-3/16	top-max	4	6	10d	6	10d	4705	2345	20.93	10.43	3695	1840	16.44	8.18		
							top-min	4	2	10d	6	10d	2455	--	10.92	--	1930	--	8.59	--		
MSH426	THA426, THAC426	14	3-5/8	26	1-3/4	8	top-max	4	8	16d	6	16d	6115	3415	27.20	15.19	4800	2685	21.35	11.94		
							top-min	4	2	16d	6	16d	4340	905	19.31	4.03	3405	710	15.15	3.16		
(2) 3-1/2" wide Floor Trusses	MSH422-2	THA422-2	14	7-1/4	22-1/8	2	11	face-max	--	26	16d	6	16d	9025	1935	40.15	8.61	7355	1575	32.72	7.01	
								top-max	4	10	16d	6	16d	7275	2145	32.36	9.54	5710	1685	25.40	7.50	
								top-min	4	4	16d	6	16d	6665	--	29.65	--	5230	--	23.26	--	
	MSH426-2	THA426-2	14	7-1/4	26-1/16	2	11	face-max	--	22	10d	4	10d	9025	1935	40.15	8.61	7355	1575	32.72	7.01	
								top-max	4	6	10d	4	10d	7275	2145	32.36	9.54	5710	1685	25.40	7.50	
								top-min	4	4	10d	4	10d	6665	--	29.65	--	5230	--	23.26	--	
4-5/8" wide I-Joist	MSH2322-2	--	16	4-3/4	22	1-3/4	9-1/4	face-max	--	46	10d	4	10d	8120	995	36.12	4.43	6375	810	28.36	3.60	
								top-max	4	6	10d	4	10d	5240	995	23.31	4.43	4115	810	18.30	3.60	
	MSH2622-2	--	16	5-3/8	22	1-3/4	9-1/4	top-min	4	2	10d	4	10d	3475	--	15.46	--	2830	--	12.59	--	
								face-max	--	46	10d	4	10d	8120	995	36.12	4.43	6375	810	28.36	3.60	
top-max	4	6	10d	4	10d	5240	995	23.31	4.43	4115	810	18.30	3.60									
top-min	4	2	10d	4	10d	3475	--	15.46	--	2830	--	12.59	--									

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.

2) NAILS: 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, 16d nails are 0.162" dia. x 3-1/2" long.

New products or updated product information are designated in blue font.

Corrosion Finish ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

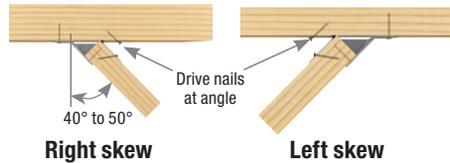
The MSHL/R is a versatile 45-degree skewed hanger with multiple installation options. It can be installed on a supporting girder truss as well as solid-sawn and structural composite lumber headers.

**Materials:** See chart

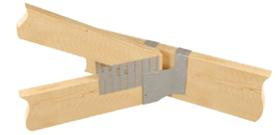
**Finish:** G90 galvanizing

**Installation:**

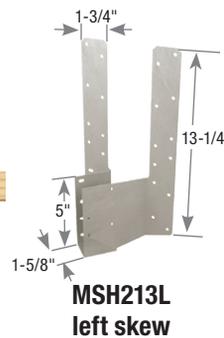
- Install the required number of fasteners according to the load table.
- Install fasteners into the carrying members at the locations described below based on the proper "Mounting Condition."
- Web stiffeners are required for I-Joist installations.
- Hanger is factory skewed at 45° left or right.



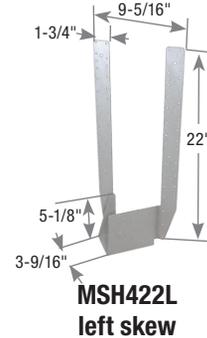
Typical MSH213R installation right skew



Typical MSH213R installation left skew



MSH213L left skew



MSH422L left skew



MSH422R right skew

### CONNECTION TO CARRYING MEMBER Mounting Condition

Face-Max	Top-Max	Top-Min	Combination Face-Max/Top-Max
<p>For MSH422L/R, bottom six (6) fastener holes (three on each side of bucket) must be filled. Install eight (8) additional fasteners (four (4) in each strap) where applicable. For MSH213L/R, bottom eight (8) fastener holes must be filled (four (4) in each strap). Install fourteen (14) additional fasteners, seven (7) in each strap. Min. 2x6 bottom chord required.</p> <p>Typical MSH422R face-max installation</p>	<p>The straps must be field-bent over the header a minimum of 2" to allow four (4) top flange nail holes to be filled (two in each strap). The bottom six (6) fastener holes (three on each side of the bucket) must be filled. Min. 2x6 bottom chord required.</p> <p>Typical MSH422R top-max installation</p>	<p>The straps must be field bent over the header a minimum of 2" to allow four (4) top flange nail holes to be filled (two in each strap). Also install the two (2) uppermost face nails (one on each strap) near the top of the header.</p> <p>Typical MSH422R top-min installation</p>	<p>Follow the Face-Max installation for one side of the connector and the Top-Max installation for the opposite side of the connector. The Face-Max factored resistances apply to this type of installation. Min. 2x6 bottom chord required.</p> <p>Typical MSH422R combination installation</p>

### CONNECTION TO CARRIED MEMBER - All Mounting Conditions

Install six (6) 10d x 1-1/2" nails into 2x carried member, or six (6) 10d nails into 3-1/2" wide carried member.

Joist Material & Width	USP Stock No.	Ref. No.	Steel Gauge	Mounting Condition	Fastener Schedule <sup>2</sup>					Unit	DF Factored Resistance		S-P-F Factored Resistance	
					Header		Joist				Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
					Top Qty	Face Qty	Type	Qty	Type					
2x Lumber or Trusses	MSH213L/R	--	18	face-max	--	22	10d	6	10d x 1-1/2"	Lbs	2795	1155	2790	1150
				top-max	4	6	10d	6	10d x 1-1/2"	kN	12.43	5.14	12.41	5.12
				top-min	4	2	10d	6	10d x 1-1/2"	Lbs	2700	1155	2600	1150
				combination	2	14	10d	6	10d x 1-1/2"	kN	12.01	5.14	11.57	5.12
3-1/2" LVL or Floor Trusses	MSH422L/R	THAL/R422	16	face-max	--	14	10d	6	10d	Lbs	1925	--	1855	--
				top-max	4	6	10d	6	10d	kN	8.56	--	8.25	--
				top-min	4	2	10d	6	10d	Lbs	2795	1155	2790	1150
				combination	2	10	10d	6	10d	kN	12.43	5.14	12.41	5.12
				face-max	--	14	10d	6	10d	Lbs	2630	995	2065	780
				top-max	4	6	10d	6	10d	kN	11.70	4.43	9.19	3.47
				top-min	4	2	10d	6	10d	Lbs	2605	995	2045	780
				combination	2	10	10d	6	10d	kN	11.59	4.43	9.10	3.47
face-max	--	14	10d	6	10d	Lbs	2290	--	1800	--				
top-max	4	6	10d	6	10d	kN	10.19	--	8.01	--				
top-min	4	2	10d	6	10d	Lbs	2630	995	2065	780				
combination	2	10	10d	6	10d	kN	11.70	4.43	9.19	3.47				

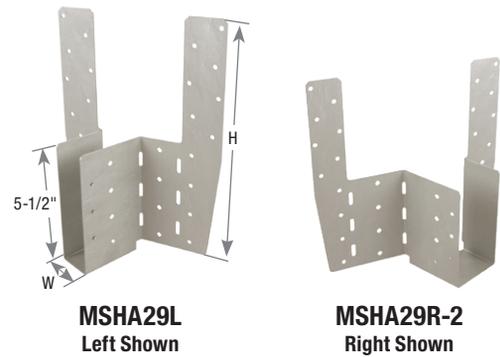
1) Factored uplift resistances have been increased 15% for short-term loads such as wind or earthquake; reduce for other load durations in accordance with the code.  
 2) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long  
 New products or updated product information are designated in **blue font**.

USP's MSHA Series hanger offers the most flexible field solution for truss-to-truss connections accommodating a range of skews and challenging web-chord geometry often found in truss framing. Eliminating the need for special orders, the MSHA Series hanger provides economical solutions for 1-ply or 2-ply roof trusses and 1-ply floor trusses skewed between 22-1/2° to 75°. MSHA hangers can be installed in top-min, top-max, face-max or combination conditions as required.

**Materials:** 16 gauge  
**Finish:** G90 galvanizing

**Installation:**

- Install the required number of fasteners according to the load table.
- Install fasteners into the carrying member at the locations described below based on the proper "Mounting Condition".
- Product is factory skewed 22-1/2° and may be field skewed from 22-1/2° to 75°. See installation sequence below for skews greater than 22-1/2°.
- Face-Max and Combination mounting conditions require a minimum chord or header height of 7-1/4". Top-Max and Top-Min mounting conditions require a minimum chord or header height of 5-1/2".



**MSHA29L**  
Left Shown

**MSHA29R-2**  
Right Shown

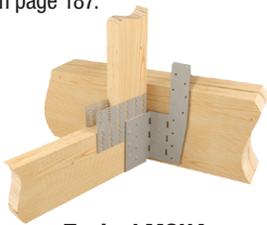
Plated Truss

**CONNECTION TO CARRYING MEMBER**  
**Mounting Conditions:**

**Face-Max**

Fill the lowest four holes nearest each side of the bucket. For a 22-1/2° skew, fill the four diamond holes on one side and 4 round holes on the other. For skews greater than 22-1/2°, fill the 4 round holes on each side.

Add an equal amount of nails in each side of the hanger in any of the remaining nail holes to meet the minimum fastener requirements listed in the table on page 187.

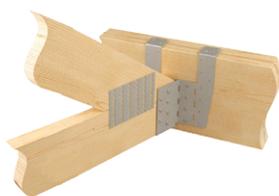


**Typical MSHA**  
face-max installation

**Top-Max**

Field bend the strap over the supporting member. The bent strap must extend a minimum of 2 inches over the carrying member to allow for the four top flange nail holes to be filled.

Fill the lowest four nail holes nearest each side of the bucket. For a 22-1/2° skew, fill the four diamond holes on one side and 4 round holes on the other. For skews greater than 22-1/2°, fill the 4 round holes on each side.



**Typical MSHA**  
top-max installation

**Top-Min**

Field bend the strap over the supporting member. The bent strap must extend a minimum of 2 inches over the carrying member to allow for the four top flange nail holes to be filled.

Fill the four nail holes (two each strap) nearest the top of the carrying member.



**Typical MSHA**  
top-min installation

**Combination**  
(Face-Max/Top-Max)

Follow the Face-Max installation for one side of the connector. Follow the Top-Max installation for the opposite side of the connector.

The Face-Max factored resistance apply to this type of installation.



**Typical MSHA**  
combination installation

**CONNECTION TO CARRIED MEMBER**  
**Mounting Conditions:**

For the 22-1/2° skew installation, all round holes must be filled.  
 For skews greater than 22-1/2°, only the diamond holes must be filled.

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Installation Sequence for Skews > 22-1/2°

**Step 1:** Install acute side top and/or face header fasteners.

**Step 2:** Utilizing a piece of scrap fastened to the hanger on the obtuse side, bend the hanger to the desired angle.

**Step 3:** Bend the obtuse side of hanger back toward the header until the flange lies flat against the header, and install header top and/or face fasteners as noted above.

**Step 4:** Install carried truss and all required fasteners working from the bottom up. Align back edge of carried member with the slotted holes on the acute side.

Joist Width	USP Stock No.	Ref. No.	Dimensions (in)		Min H <sub>eff</sub> <sup>2</sup> (in)	Mounting Condition <sup>3</sup>	Skew Angle (degrees)	Fastener Schedule <sup>4</sup>				DF Factored Resistance				S-P-F Factored Resistance					
			W	H				Carrying Member		Carried Member		Lbs		kN		Lbs		kN			
								Top Qty	Face Qty	Type	Qty	Type	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	
			100%	115%				100%	115%	100%	115%	100%	115%								
2x Trusses	MSHA29L/R	THASR/L29	1-5/8	10-3/4	7-1/4	face-max	22-1/2	--	12	10d	7	10d x 1-1/2	2335	1625	10.39	7.23	2015	1400	8.96	6.23	
							23 to 45	--	12	10d	4	10d x 1-1/2	2025	930	9.01	4.14	1590	805	7.07	3.58	
							46 to 75	--	12	10d	4	10d x 1-1/2	2025	930	9.01	4.14	1590	805	7.07	3.58	
						5-1/2	top-max	22-1/2	4	8	10d	7	10d x 1-1/2	2870	1625	12.77	7.23	2260	1360	10.05	6.05
								23 to 45	4	8	10d	4	10d x 1-1/2	2435	930	10.83	4.14	1915	755	8.52	3.36
							46 to 75	4	8	10d	4	10d x 1-1/2	2190	930	9.74	4.14	1720	755	7.65	3.36	
							top-min	22-1/2	4	4	10d	7	10d x 1-1/2	1955	--	8.70	--	1685	--	7.50	--
								23 to 45	4	4	10d	4	10d x 1-1/2	1765	--	7.85	--	1385	--	6.16	--
								46 to 75	4	4	10d	4	10d x 1-1/2	950	--	4.23	--	745	--	3.31	--
2-2x Trusses	MSHA29L/R-2	THASR/L29-2	3-1/8	10-3/4	7-1/4	face-max	22-1/2	--	12	10d	7	10d	2340	1630	10.41	7.25	1955	1360	8.70	6.05	
							23 to 45	--	12	10d	4	10d	1910	935	8.50	4.16	1495	755	6.65	3.36	
							46 to 75	--	12	10d	4	10d	1910	935	8.50	4.16	1495	755	6.65	3.36	
					5-1/2	top-max	22-1/2	4	8	10d	7	10d	2880	1630	12.81	7.25	2260	1360	10.05	6.05	
							23 to 45	4	8	10d	4	10d	2470	935	10.99	4.16	1970	780	8.76	3.47	
						46 to 75	4	8	10d	4	10d	2125	935	9.45	4.16	1665	780	7.41	3.47		
						top-min	22-1/2	4	4	10d	7	10d	1960	--	8.72	--	1685	--	7.50	--	
							23 to 45	4	4	10d	4	10d	1765	--	7.85	--	1385	--	6.16	--	
							46 to 75	4	4	10d	4	10d	950	--	4.23	--	745	--	3.31	--	
4x Trusses	MSHA422L/R	THASR/L422	3-5/8	22-1/8	7-1/4	face-max	22-1/2	--	12	10d	7	10d	2320	1615	10.32	7.18	2015	1400	8.96	6.23	
							23 to 45	--	12	10d	4	10d	2025	925	9.01	4.11	1590	805	7.07	3.58	
							46 to 75	--	12	10d	4	10d	2025	925	9.01	4.11	1590	805	7.07	3.58	
					5-1/2	top-max	22-1/2	4	8	10d	7	10d	2855	1615	12.70	7.18	2260	1360	10.05	6.05	
							23 to 45	4	8	10d	4	10d	2450	925	10.90	4.11	1970	780	8.76	3.47	
						46 to 75	4	8	10d	4	10d	2125	925	9.45	4.11	1665	780	7.41	3.47		
						top-min	22-1/2	4	4	10d	7	10d	1940	--	8.63	--	1685	--	7.50	--	
							23 to 45	4	4	10d	4	10d	1765	--	7.85	--	1385	--	6.16	--	
							46 to 75	4	4	10d	4	10d	950	--	4.23	--	745	--	3.31	--	

Plated Truss

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1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) H<sub>eff</sub> is the minimum distance from the top of the hanger seat to the top of the carrying member.  
 3) For tabulated top-mount installation loads, the straps must be wrapped over the header a minimum of 2".  
 4) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.  
 New products or updated product information are designated in **blue font**.

USP's MSSH217 hanger accommodates a skew range of 60° to 85° (5° minimum to 30° maximum off the girder) without the need for a more expensive custom design hanger. Face nail to webs or bend the flange strap over the chord. Available in left (L) or right (R) configurations.

**Materials:** 18 gauge

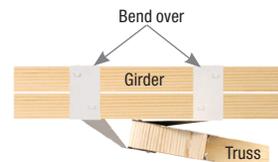
**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- The 3 lower holes on each strap are for top nailing when the strap is bent over the truss chord. These holes are not for face nailing.
- One or both straps may be bent over the bottom chord of the girder with top and backside nailing.
- **Note:** Select the correct (right or left) hanger so that the strap on the outside of the angle will pass the end of the truss. When facing the hanger, the strap in the rear turns in the direction of the skew. The front strap turns to pass behind the end of the carried member.
- Attach the hanger at the end of the truss with a single 10d (0.148" dia) x 1-1/2" nail into the side flange or bottom.
- Place the truss in position against the girder. Push the outside strap past the end of the truss to the girder web and face nail through the top 8 holes with 10d (0.148" dia) x 1-1/2" nails into the girder.
- The strap inside the angle can be formed over diagonal webs (if design allows) or bend over the girder chord. Use two nails into the top and fill all nail holes on the front/back side of the girder.
- If the outside strap does not contact a web, bend the strap tightly over the girder chord. Use two nails into the top and fill all nail holes on the back side of the girder.
- For uplift resistance, other means of attachment are required. If both the truss and girder have vertical webs, attach a scab to pack out the girder web nearly flush with the truss web and use a field adjustable MP framing angle across the two. A top chord connection for uplift requires a flat LSTA strap tie wrapped under the girder and over the truss chord.



**MSSH217L**  
Left shown attached to web and top of chord



Top view right shown

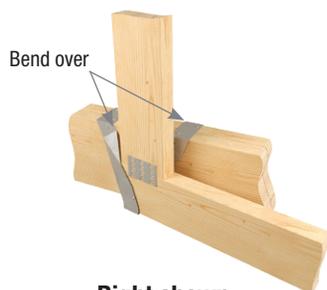


**MSSH217R**  
Right shown attached to webs

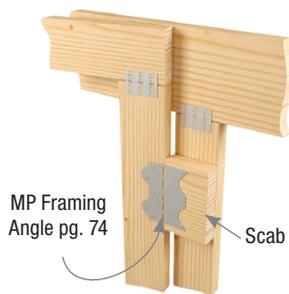


**MSSH217R**  
right shown

Plated Truss



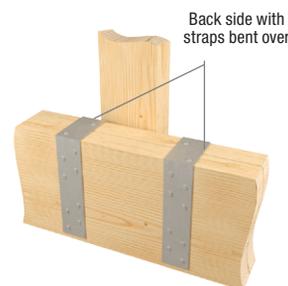
Right shown bent over bottom chord



Additional strapping for high uplift



Additional strapping for high uplift



Back view shown

USP Stock No.	Ref. No.	Steel Gauge	Mounting Condition	Fastener Schedule <sup>2,3,5</sup>						DF Factored Resistance <sup>1</sup>		S-P-F Factored Resistance <sup>1</sup>		
				Supporting Member				Supported Member		Vertical 100%		Vertical 100%		
				Top (per strap)		Face/Backside (per strap)		Girder		Lbs	kN	Lbs	kN	
				Qty	Type	Qty	Type	Qty	Type					
MSSH217L/R	--	18	face-max	--	--	8	10d x 1-1/2	1	10d x 1-1/2	1 or 2	2115	9.41	1720	7.65
			top-min	2	10d	3	10d x 1-1/2	1	10d x 1-1/2		2115	9.41	1720	7.65

1) No uplift value with this hanger. Use other hardware higher on carried member to counteract uplift.  
 2) One or both straps may be bent over chord member with top and backside nailing.  
 3) Maintain minimum 3/4" edge distance when installing nails.  
 4) The supported member shall be supported by blocking or other means to prevent rotation.  
 5) **Nails:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" x 3" long.  
**Note: The lower holes on each strap are for top nailing when strap is bent. These holes are not for face nailing.**

The SNP3 Skewed Nail Plate is designed and tested for connecting square cut corner jack trusses at skewers up to 45°.

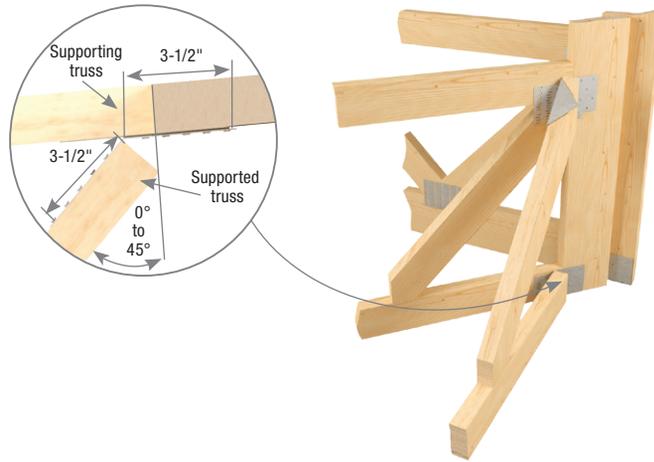
**Materials:** 16 gauge

**Finish:** G90 galvanizing

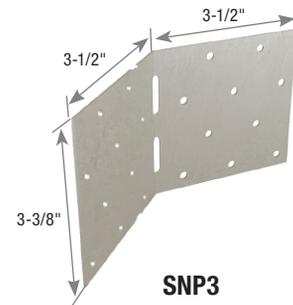
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Install specified fasteners from bend line out from each end. Not all nail holes will be filled.
- Attach to the supported truss on the acute angle side so the SNP3 runs behind the end of the jack.
- Set jack truss against supporting truss and nail on exposed flange.
- **Bend angle only once.**
- 8d common (0.131" dia. x 2-1/2" long) nails may be substituted for 8d x 1-1/2" nails with no reduction in load.



Typical SNP3 installation



SNP3

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>2</sup>		Unit	DF Factored Resistance		S-P-F Factored Resistance	
			Each End			Vertical 100%	Upift <sup>1</sup> 115%	Vertical 100%	Upift <sup>1</sup> 115%
			Qty	Type					
SNP3	TJC37	16	6	8d x 1-1/2	Lbs	865	995	680	780
					kN	3.85	4.43	3.02	3.47

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase is allowed.

2) **NAILS:** 8d x 1-1/2 nails are 0.131" dia. x 1-1/2" long.

New products or updated product information are designated in **blue font**.

**HHC / HJC / HJHC / HTHJ** Hip / Jack Connectors

**HHC** – Designed to support hip/hip and jack truss/rafter. Contact USP when using in multi-ply applications.

**HJHC** – Allows for hip/hip support and hip/jack/hip installations.

**HJC & HTHJ** – Used to simultaneously hang a combination of hips and jacks off girder trusses. These hangers fit both left-hand and right-hand applications. An open back design allows for retrofit installations.

**Materials:** HHC, HJC, & HJHC – 12 gauge, HTHJ – 18 gauge

**Finish:** G90 galvanizing

**Options:** See Specialty Options Chart on page 190.

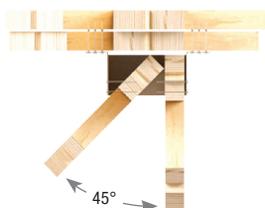
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

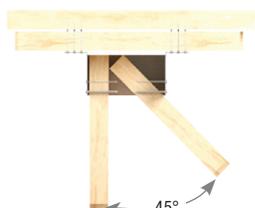
- Use all specified fasteners. See Product Notes, page 15.



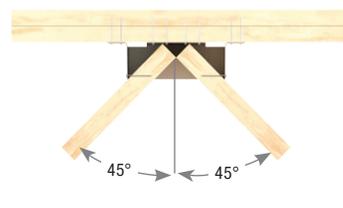
Typical HJC/HTHJ installation



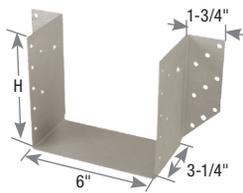
Typical HJC/HTHJ installation top view



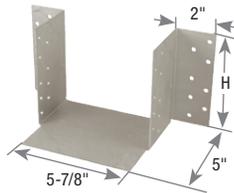
Typical HHC installation top view



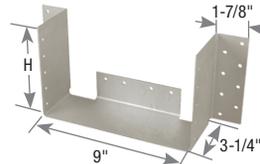
Typical HJHC installation top view



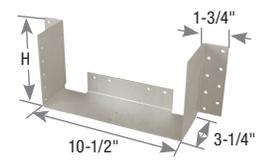
**HJC**



**HTHJ**



**HHC**



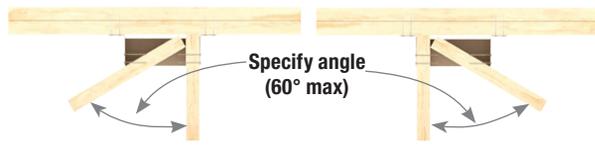
**HJHC**

Description	USP Stock No.	Ref. No.	Steel Gauge	H (in)	Fastener Schedule <sup>4,5</sup>						Unit	DF Factored Resistance <sup>2</sup>		S-P-F Factored Resistance <sup>2</sup>	
					Carrying Member		Carried Member					Vertical 100%	Uplift <sup>1,3</sup> 115%	Vertical 100%	Uplift <sup>1,3</sup> 115%
					Qty	Type <sup>3</sup>	per Hip		per Jack						
							Qty	Type	Qty	Type		Qty	Type		
2 x 6 right / left	HJC26	LTHJA26, THJA26, THJU26	12	5-3/8	16	16d	5	10d	7	10d	Lbs	<b>5740</b>	<b>4540</b>	<b>4505</b>	<b>3565</b>
											kN	<b>25.53</b>	<b>20.19</b>	<b>20.04</b>	<b>15.86</b>
2 x 6 terminal	HHC26	LTHJA26, THJA26	12	5-7/16	20	16d	5	10d	--	--	Lbs	<b>5740</b>	<b>3105</b>	<b>4505</b>	<b>2725</b>
											kN	<b>25.53</b>	<b>13.81</b>	<b>20.04</b>	<b>12.12</b>
	HJHC26	--	12	5-7/16	20	16d	5	10d	2	10d	Lbs	<b>5740</b>	<b>2175</b>	<b>4505</b>	<b>1910</b>
											kN	<b>25.53</b>	<b>9.67</b>	<b>20.04</b>	<b>8.50</b>
HTHJ26-18	--	18	5	16	16d	7	16d	5	16d	Lbs	<b>3695</b>	<b>2570</b>	<b>2900</b>	<b>2020</b>	
										kN	<b>16.44</b>	<b>11.43</b>	<b>12.90</b>	<b>8.99</b>	
2 x 8 right / left	HJC28	--	12	7-1/8	20	16d	6	10d	8	10d	Lbs	<b>5740</b>	<b>4540</b>	<b>4505</b>	<b>3565</b>
											kN	<b>25.53</b>	<b>20.19</b>	<b>20.04</b>	<b>15.86</b>
2 x 8 terminal	HHC28	--	12	7-3/16	24	16d	6	10d	--	--	Lbs	<b>5740</b>	<b>3725</b>	<b>4505</b>	<b>3270</b>
											kN	<b>25.53</b>	<b>16.57</b>	<b>20.04</b>	<b>14.55</b>
	HJHC28	--	12	7-3/16	24	16d	6	10d	2	10d	Lbs	<b>5740</b>	<b>2485</b>	<b>4505</b>	<b>2180</b>
											kN	<b>25.53</b>	<b>11.05</b>	<b>20.04</b>	<b>9.70</b>

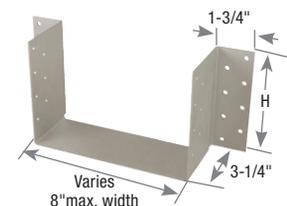
- 1) 15% increase for short-term loads such as wind and earthquake has been taken into consideration, no further increase allowed.
  - 2) Loading published for total load of hip / jack connection.
  - 3) For maximum factored uplift resistance for individual hip or jack member, consult USP design professional.
  - 4) For single 2x carrying member (header), 10d header nails may be substituted with 10d x 1-1/2" and multiply the listed factored resistances by 0.90; 16d header nails may be substituted with 10d x 1-1/2" and multiply the listed factored resistances by 0.78.
  - 5) **NAILS:** 10d nails are 0.148" dia. x 3" long, 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long, 16d nails are 0.162" dia. x 3-1/2" long.
- New products or updated product information are designated in **blue font**.

**HJC Specialty Options Chart**

Option	Hip Truss Skew
Range	30° to 60°
Factored Resistance	100% of table load
Ordering	Add SK, angle of hip required, to product number. Ex. HJC26_SK55



**Typical HJC (skewed) installation with alternate skew angle top view**



**HJC (skewed)**

# BN Breakfast Nook Hangers

Designed to carry four mono trusses in one connector, it reduces installation time and cost. Provides a tested, load rated connection. Standard configuration spacing: 22-1/2°, 45°, 45°, 45°, 22-1/2°. The design also includes field adjustable nailing tabs.

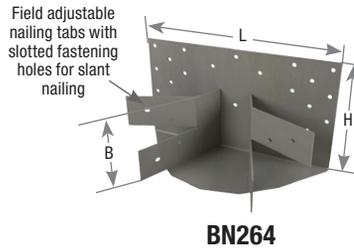
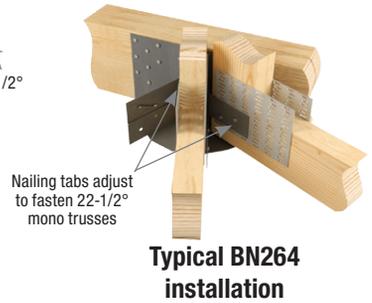
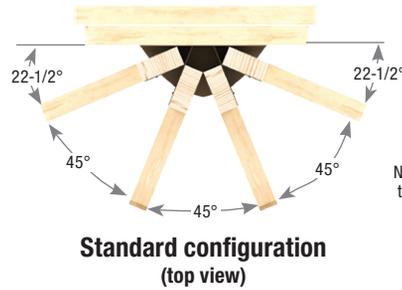
**Materials:** 14 gauge

**Finish:** USP primer

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Allow a 2" setback for each mono truss.
- For pitched ceiling, design mono trusses with end-vertical upset. Upset equals tangent of the ceiling slope times 5.6".
- **Bend tab only once.**



USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>3</sup>				DF Factored Resistance <sup>2</sup>				S-P-F Factored Resistance <sup>2</sup>			
			L	H	B	Carrying Member		Carried Member		Vertical (100%)		Uplift (115%) <sup>1</sup>		Vertical (100%)		Uplift (115%) <sup>1</sup>	
						Qty	Type	Qty	Type	Lbs.	kN	Lbs.	kN	Lbs.	kN	Lbs.	kN
BN264	THJM2-4-SDS3	14	10	5-3/8	3-1/4	20	10d	2	10d x 1-1/2	4565	20.31	1060	4.72	3585	15.95	830	3.69
BN284	-- --	14	10	7-1/8	3-1/4	20	10d	2	10d x 1-1/2	4565	20.31	1060	4.72	3585	15.95	830	3.69

- 1) Short-term load duration factor has been taken into consideration; no further increase allowed.
- 2) Loading published for total load of connection. Factored load on each single member shall not exceed 25% of the factored resistance listed.
- 3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long. New products or updated product information are designated in blue font.

## LDSC / DSC Drag Strut Connectors

Transfers lateral loads from girder truss into bearing walls.

**Materials:** See chart

**Finish:** USP primer

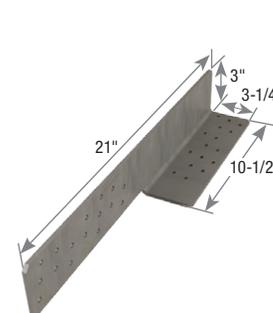
**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

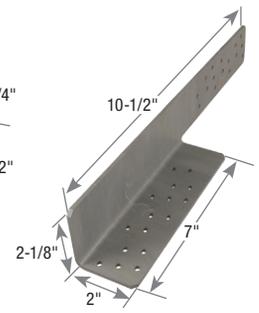
- Use all specified fasteners. See Product Notes, page 15.
- WS3 Wood Screw, 1/4" dia. x 3" long, are supplied with DSC4 connector.



Typical DSC4R installation



DSC4R right shown



LDSC4L left shown

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>2,3</sup>				DF Factored Resistance				S-P-F Factored Resistance			
			Truss		Top Plate		Compression		Tension		Compression		Tension	
			Qty	Type	Qty	Type	115% <sup>1</sup>	115% <sup>1</sup>	115% <sup>1</sup>	115% <sup>1</sup>	115% <sup>1</sup>	115% <sup>1</sup>	115% <sup>1</sup>	115% <sup>1</sup>
LDSC4L/R	-- --	14	9	10d x 1-1/2	9	10d x 1-1/2	1700	7.56	1700	7.56	1475	6.56	1475	6.56
DSC4L/R	DSC5R/L-SDS3	3	16	WS3	16	WS3	6165	27.42	6140	27.31	5305	23.60	5280	23.49

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 2) WS3 wood screws are 1/4" x 3" and are included with DSC4 connector.
- 3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long.

The GTWS series girder-to-girder hangers feature high uplift capacities along with high gravity load ratings.

**Materials:** 10 gauge

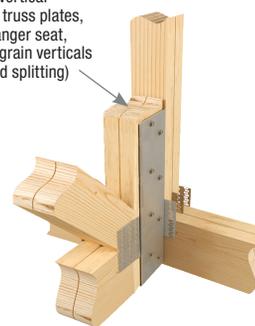
**Finish:** G90 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- WS Wood Screws are included with hangers where specified.
- **GTWS2T** shall be installed to a minimum 2x4 vertical member of a girder truss with no restriction on the size of the bottom chord.
- **GTWS3T** shall be installed to a minimum 2x6 vertical member of a girder truss with no restriction on the size of the bottom chord.
- **GTWS4T** shall be installed to a minimum 2x8 vertical member of a girder truss with no restriction on the size of the bottom chord.

Min. 2x6 vertical (Min. 3" height truss plates, flush with hanger seat, required on end grain verticals to resist wood splitting)



**Typical GTWS installation**



**GTWS3T**



**GTWS2T**

Plated Truss

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule				Unit	DF Factored Resistance		S-P-F Factored Resistance	
			W	H	D	Supporting Truss		Supported Truss			Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
						Qty	Wood Screw <sup>2,3</sup>	Qty	Wood Screw <sup>2,3</sup>					
GTWS2T	--	10	3-1/4	16	4	22	WS3	16	WS3	Lbs	20425	<b>18400</b>	<b>16035</b>	<b>14445</b>
										kN	90.85	<b>81.85</b>	<b>71.33</b>	<b>64.25</b>
GTWS3T	--	10	4-7/8	16	5	28	WS3	24	WS3	Lbs	20425	23530	<b>16035</b>	<b>18470</b>
										kN	90.85	104.67	<b>71.33</b>	<b>82.16</b>
GTWS4T	--	10	6-1/2	16	5	28	WS3	24	WS3	Lbs	20425	23530	<b>16035</b>	<b>18470</b>
										kN	90.85	104.67	<b>71.33</b>	<b>82.16</b>

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) WS3 wood screws are 1/4" x 3" long and are included with the GTWS hangers.  
 3) The wood screws of the GTWS hangers may be installed in both vertical and horizontal members.  
 New products or updated product information are designated in **blue font**.

The GTQ / GTQM hangers connect to multi-ply girder truss with USP's WS Wood Screws offering high load capacities. Design features minimum and maximum fastening installation options to accommodate various sizes of vertical web. GTQM's are designed for LVL sizes, for example GTQM218.

**Materials:** 7 gauge

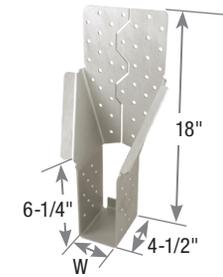
**Finish:** G90 galvanizing

**Installation:**

- Use all WS wood screws as specified.
- Install hanger centered on vertical web.
- GTQ's are designed to be installed on various sizes of vertical web. Maintain a minimum 5/8" fastener edge distance as per the National Design Specification where truss connector plates are not present.
- Install WS wood screws in all fastener holes including diamond holes for maximum values.



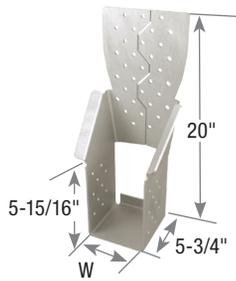
**Typical GTQ218 installation**  
(GTQM218 similar)



**GTQ218**  
(GTQM218 similar)



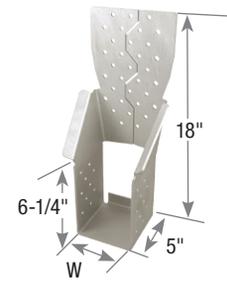
**Typical GTQ420 installation**  
(GTQM420 similar)



**GTQ420**  
(GTQM420 similar)



**Typical GTQ318 installation**  
(GTQM318 similar)



**GTQ318**  
(GTQM318 similar)

USP Stock No.	Ref. No.	Dimensions (in)			Install Type	Min. Vert. Web Size	Fastener Schedule						DF Factored Resistance		S-P-F Factored Resistance		
		W	H	D			Supporting Truss			Supported Member			Unit	Vertical 100%	Uplift <sup>1</sup> 115%	Vertical 100%	Uplift <sup>1</sup> 115%
							Qty	Type <sup>2,3,4</sup>	Min. # of Plies	Qty	Type <sup>2,4</sup>	No. of Plies					
GTQ218	THGQ2, THGQH2	3-1/4	18	4-1/2	Min	2x6	18	USP WS (See Footnote 3)	2	20	WS3	2	Lbs	12935	8660	10490	7020
					Max	2x8	30	USP WS (See Footnote 3)	2	20	WS3		kN	57.54	38.52	46.66	31.23
GTQM218	---	3-5/8	18	4-1/2	Min	2x6	18	USP WS (See Footnote 3)	2	20	WS3	2	Lbs	12935	8660	10490	7020
					Max	2x8	30	USP WS (See Footnote 3)	2	20	WS3		kN	57.54	38.52	46.66	31.23
GTQ318	THGQ3, THGQH3	4-7/8	18	5	Min	2x6	25	USP WS (See Footnote 3)	2	20	WS45	3	Lbs	16665	8660	13515	7020
					Max	2x8	33	USP WS (See Footnote 3)	2	20	WS45		kN	74.13	38.52	60.12	31.23
GTQM318	---	5-1/2	18	5	Min	2x6	25	USP WS (See Footnote 3)	2	20	WS45	3	Lbs	21295	8965	17265	7270
					Max	2x8	33	USP WS (See Footnote 3)	2	20	WS45		kN	94.72	39.88	76.80	32.34
GTQ420	THGQH4	6-1/2	20	5-3/4	Min	2x8	41	USP WS (See Footnote 3)	3	20	WS6	4	Lbs	20960	8835	16455	6935
					Max	2x10	47	USP WS (See Footnote 3)	3	20	WS6		kN	93.23	39.30	73.20	30.85
GTQM420	---	7-1/4	20	5-3/4	Min	2x8	41	USP WS (See Footnote 3)	3	20	WS6	4	Lbs	26035	8835	20440	6935
					Max	2x10	47	USP WS (See Footnote 3)	3	20	WS6		kN	115.81	39.30	90.92	30.85

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.  
 2) WS3 is 1/4" x 3" long wood screw, WS45 is 1/4" x 4-1/2" long wood screw, WS6 is 1/4" x 6" long wood screw and are included with GTQ and GTQM hangers.  
 3) When fastening to a multi-ply supporting truss: use WS3 for 2-ply, WS45 for 3-ply and WS6 for 4-ply.  
 4) WS Wood Screws may be installed through metal truss connector plates as approved by the Truss Designer, provided the requirements of CSA O86-14 Subsection 5.3.8. and TPIC-2014 Section 7.5 are met. (Pre-drilling required through the plate using a maximum 5/32" bit).  
 5) Truss plies of the supporting member must be fastened together to transfer the load (through all truss plies) that is not transferred by the hanger screws; fastening schedule is to be specified by the truss designer.  
 6) Supported members on GTQM hangers shall have Specific Gravity of not less than 0.46.  
 7) The span of the supported member shall be shortened by 1/2" at the hanger end to allow space for screw head and back plate (7 ga).  
 New products or updated product information are designated in **blue font**.

The GT primarily hangs girder trusses off other girder trusses, although a wide variety of other heavy-duty installations apply.

**Materials:** Back Plate – 3 gauge; Strap – 7 gauge

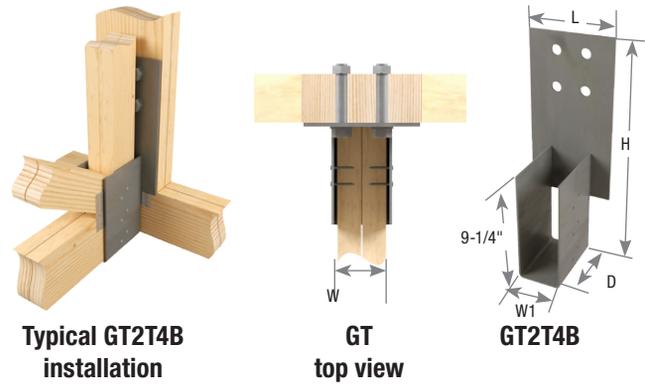
**Finish:** USP primer

**Options:** All models available in LVL sizes, use M in place of T, as in GT2M4B.

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Minimum heel height is 9-1/4" for GT hangers.



**GT Load Table**

Supported Member	USP Stock No.	Ref. No.	Dimensions (in)				Fastener Schedule <sup>3,4</sup>				DF Factored Resistance <sup>1</sup>				S-P-F Factored Resistance <sup>1</sup>				
			W1	L	H	D	Supporting Truss		Supported Truss		Supporting Member				Supporting Member				
							Qty	Bolt Dia. <sup>2</sup> (in)	Qty	Type	Unit	1 Ply 100%	2 Ply 100%	3 Ply 100%	Uplift 115% <sup>1</sup>	1 Ply 100%	2 Ply 100%	3 Ply 100%	Uplift 115% <sup>1</sup>
												Lbs	kN	Lbs	kN	Lbs	kN	Lbs	kN
2 ply	GT2T2B	--	3-7/16	6	19	4-1/2	2	3/4	12	16d	Lbs 2880	4230	5575	3340	2265	3320	4375	2620	
	GT2T2BH	--	3-7/16	6	22-1/4	4-1/2	2	1	12	16d	Lbs 3790	6670	9545	3340	2975	5235	7495	2620	
	GT2T3B	--	3-7/16	6	22	4-1/2	3	3/4	12	16d	Lbs 4180	6250	8320	3340	3285	4910	6530	2620	
	GT2T4B	THGB2	3-7/16	7	19	5-1/2	4	3/4	12	16d	Lbs 5785	9720	13650	3340	4540	7630	10715	2620	
	GT2T6B	--	3-7/16	7-1/4	22	6	6	3/4	12	16d	Lbs 8685	14855	21020	3340	6815	11660	16500	2620	
	GT2T6BH	--	3-7/16	7-1/4	26-1/4	6	6	1	12	16d	Lbs 11450	16515	21575	3340	8990	12965	16935	2620	
	GT2T8B	THGBH2	3-7/16	7-1/4	25	6	8	3/4	12	16d	Lbs 11580	17530	23475	3340	9090	13760	18430	2620	
3 ply	GT3T3B	---	5-1/8	6	22	4-1/2	3	3/4	12	16d	Lbs 4180	6250	8320	3340	3285	4910	6530	2620	
	GT3T3BH	---	5-1/8	6	26-1/4	4-1/2	3	1	12	16d	Lbs 5335	9760	14180	3340	4190	7660	11130	2620	
	GT3T4B	THGB3	5-1/8	7	19	5-1/2	4	3/4	12	16d	Lbs 5785	9720	13650	3340	4540	7630	10715	2620	
	GT3T4BH	--	5-1/8	7	22-1/4	5-1/2	4	1	12	16d	Lbs 7630	14750	21865	3340	5990	11580	17165	2620	
	GT3T6B	--	5-1/8	7-1/4	22	6	6	3/4	12	16d	Lbs 8685	14855	21020	3340	6815	11660	16500	2620	
	GT3T6BH	--	5-1/8	7-1/4	26-1/4	6	6	1	12	16d	Lbs 11450	16515	21575	3340	8990	12965	16935	2620	
	GT3T8B	THGBH3	5-1/8	7-1/4	25	6	8	3/4	12	16d	Lbs 11580	17530	23475	3340	9090	13760	18430	2620	
	GT3T8BH	--	5-1/8	7-1/4	30-1/4	6	8	1	12	16d	Lbs 15270	23485	31695	3340	11985	18435	24885	2620	
4 ply	GT4T4B	--	6-1/2	7-1/2	19	5-1/2	4	3/4	12	16d	Lbs 5785	9720	13650	3340	4540	7630	10715	2620	
	GT4T4BH	--	6-1/2	7-1/2	22-1/4	5-1/2	4	1	12	16d	Lbs 7630	14750	21865	3340	5990	11580	17165	2620	
	GT4T6B	--	6-1/2	7-1/2	22	6	6	3/4	12	16d	Lbs 8685	14855	21020	3340	6815	11660	16500	2620	
	GT4T6BH	--	6-1/2	7-1/2	26-1/4	6	6	1	12	16d	Lbs 11440	16510	21575	3340	8980	12960	16935	2620	
	GT4T8B	THGBH4	6-1/2	7-1/2	25	6	8	3/4	12	16d	Lbs 11570	17525	23475	3340	9085	13760	18430	2620	
5 ply	GT5T8BH	--	8-1/8	9-1/4	30-1/4	6	8	1	12	16d	Lbs 15230	23465	31695	3340	11955	18420	24885	2620	
											kN 67.75	104.38	140.99	14.86	53.18	81.94	110.69	11.65	

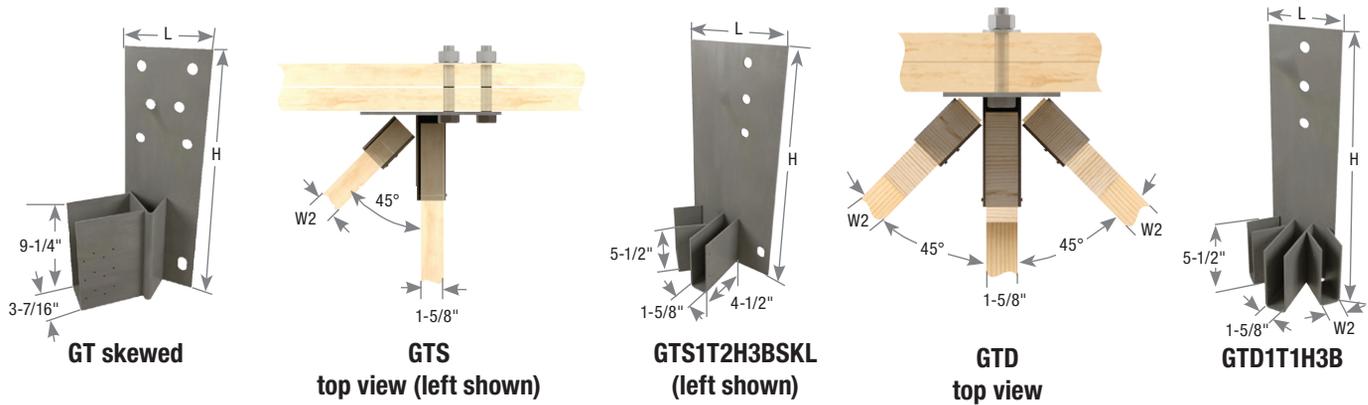
1) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.

2) Bolts shall conform to ASTM A 307 Grade A or better.

3) GT series require 2 x 6 vertical member for 2, 3, and 4 bolt hangers and 2 x 8 for 6 and 8 bolt hangers.

4) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

New products or updated product information are designated in **blue font**.



**GTD / GTS Load Table**

Supported Member	USP Stock No. <sup>6</sup>	Ref. No.	Dimensions (in)			Fastener Schedule <sup>4,7</sup>						Unit	DF Factored Resistance <sup>1</sup>				S-P-F Factored Resistance <sup>1</sup>			
			W2 <sup>5</sup>	L	H	Supporting Truss		Supported Truss		Supported Hip			Supporting Member				Supporting Member			
						Qty	Bolt Dia. <sup>3</sup> (in)	Qty	Type	Qty	Type		1 Ply 100%	2 Ply 100%	3 Ply 100%	Uplift 115% <sup>2</sup>	1 Ply 100%	2 Ply 100%	3 Ply 100%	Uplift 115% <sup>2</sup>
2 ply skewed 45°	*GT2T2BSKL/R	--	--	6	19	3	3/4	12	16d	--	--	Lbs	2880	4230	5575	3340	2265	3320	4375	2620
	*GT2T4BSKL/R	--	--	7-1/4	19	5	3/4	12	16d	--	--	kN	12.81	18.82	24.80	14.86	10.08	14.77	19.46	11.65
1 ply hip & jack	*GTS1T1H3BSKL/R	--	1-5/8	9-1/4	22	4	3/4	4	10d x 1-1/2	4	10d x 1-1/2	Lbs	4180	6250	8320	--	3285	4910	6530	--
	*GTS1T1H4BSKL/R	--	1-5/8	9-1/4	19	5	3/4	4	10d x 1-1/2	4	10d x 1-1/2	kN	18.59	27.80	37.01	--	14.61	21.84	29.05	--
2 ply hip & 1 ply jack	*GTS1T2H3BSKL/R	--	3-7/16	9-1/4	22	4	3/4	4	10d x 1-1/2	4	10d x 1-1/2	Lbs	4180	6250	8320	--	3285	4910	6530	--
												kN	18.59	27.80	37.01	--	14.61	21.84	29.05	--
1 ply terminal hip	GTD1T1H3B	--	1-5/8	6	22	3	3/4	4	10d x 1-1/2	4	10d x 1-1/2	Lbs	4180	6250	8320	--	3285	4910	6530	--
												kN	18.59	27.80	37.01	--	14.61	21.84	29.05	--
2 ply terminal hip	GTD1T2H3B	--	3-7/16	8	22	3	3/4	4	10d x 1-1/2	4	10d x 1-1/2	Lbs	4180	6250	8320	--	3285	4910	6530	--
												kN	18.59	27.80	37.01	--	14.61	21.84	29.05	--

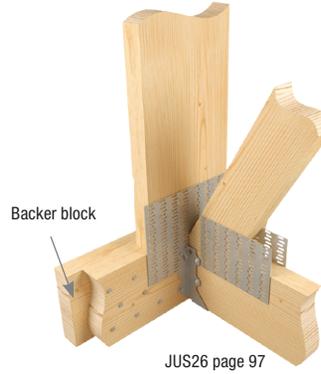
Plated Truss

- 1) Factored resistance for GTS and GTD is the total of hip and jack connection.
  - 2) Factored uplift resistance has been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.
  - 3) Bolts shall conform to ASTM A 307 or better.
  - 4) GT Series require 2 x 6 vertical member for 2, 3, and 4 bolt hangers and 2 x 8 for 6 and 8 bolt hangers.
  - 5) All side pocket applications assume 45° angle.
  - 6) Must specify right or left for all GTS and GT skewed.
  - 7) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 16d nails are 0.162" dia. x 3-1/2" long.
- New products or updated product information are designated in **blue font**.

### Backer block installation

Wood blocking used to achieve full design load value of a face mount hanger attached to a carrying member. **(Blocking to be designed by truss designer or engineer of record).**

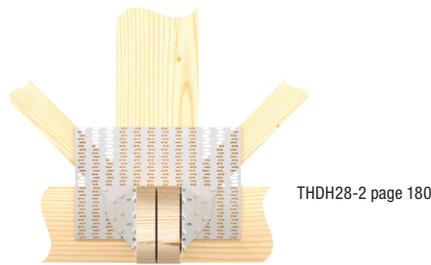
- Wood blocking should be of similar size/grade as the truss member to which it is attached. The blocking should be designed to act as one unit with truss members.
- Truss designer shall approve blocking size/grade, fasteners required, and application.
- All fasteners used to attach wood blocking should be independent of the fasteners in the truss hanger.



### Panel joint installation

Connection with face mount hanger attaching to a truss panel joint.

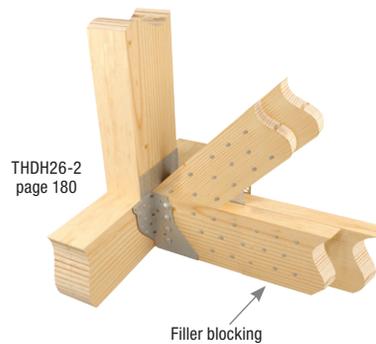
- Hanger nails that do not penetrate wood at panel joint provide no load resistance; reduce listed factored resistance accordingly.



### Filler block installation

Wood filler blocking used for supported member of width less than hanger width. **(Blocking and blocking fasteners/quantity to be designed by truss designer or engineer of record).**

- Wood blocking should be of similar or better grade as the truss member to which it is attached. The blocking should be designed to act as one unit with truss member.



# TRUSS BRACE & SPACER (STABILIZER™)

The Stabilizer™ Truss Brace & Spacer provides temporary construction bracing in the roof and ceiling planes, as well as permanent lateral bracing for webs as specified by your truss engineering.

The Stabilizer™ is easily installed by embedding the patented MII 20 teeth on the top flange straight into the edge of the truss member to be braced with a framing hammer. The side tabs are then secured by driving the teeth into the face of the truss member being braced.

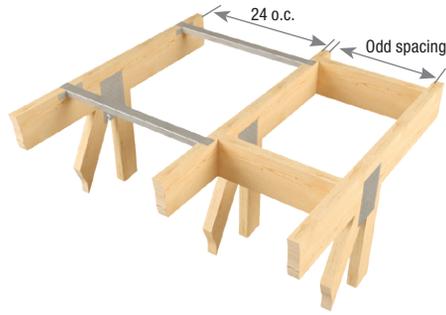
**Materials:** 20 gauge

**Finish:** G60 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use 31-16 for standard 16" o.c. spacing and 31-24 for standard 24" o.c. spacing. For odd spacing, cut and insert a solid block between the trusses.
- Typically, The Stabilizer™ is installed at 6'– 8' centers along the roof plane and 10'– 15' along the ceiling plane. (Refer to engineering specifications BCSI 1-03, published by The Truss Plate Institute for specific bracing requirements.)
- The Stabilizer™ must be supplemented with diagonal bracing in the roof and ceiling planes and cross bracing in the web plane at required intervals.
- Web forces are not to exceed 8000 lbs.
- The Stabilizer™ is properly installed when the top flap and side tabs are flush with the member being braced.



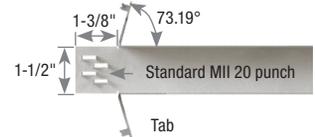
Temporary construction bracing installation



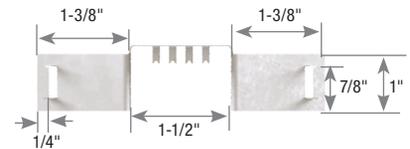
31-24 Stabilizer™



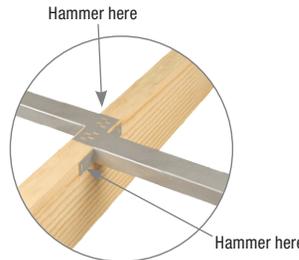
Side view



Top view



End view



Chord attachment detail



Web bracing installation

**Important:** The erection contractor is responsible for determining and installing the temporary bracing for the structure, including the trusses. It is most important for the installer to provide adequate means for bracing the first truss installed. The performance of the entire bracing system depends on the adequacy of the ground bracing or other means of bracing the first group of trusses installed. The building designer is responsible for the permanent bracing design of the overall structure including the truss. This includes the design of required supplemental diagonal and cross bracing.

USP Stock No.	Ref. No.	Steel Gauge	O.C. Spacing (in)	Factored Axial Loads (Lbs.)		
				Tension	Tension with Fastener	Compression
31-16	TsBR2-16	20	16	152	222	608
31-24	TsBR2-24	20	24	152	222	608

- 1) 1 pound = 4.448N
- 2) Fastener shall be (1) 8d or 10d common wire nail inserted through nail slot.
- 3) **NAILS:** 8d nails are 0.131" dia. x 2-1/2" long, 10d nails are 0.148" dia. x 3" long.

Truss spacers give framers fast and accurate spacing for trusses, rafters, or floor joists. The TS and TSX eliminate the need to mark layouts on bearing plates, improve installation speed, and help eliminate spacing errors. These spacers are light weight and compact.

**Materials:** See chart

**Finish:** G90 galvanizing

**Installation:**

- Use (1) 8d nail per end to fasten units to trusses, rafters, or floor joists.

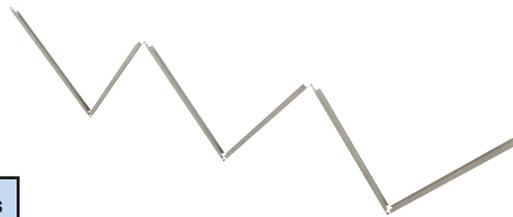
**Important:** These units provide spacing guides only. Do not rely on the TS or TSX for bracing.



Typical TSX installation



TS single-unit spacer



TSX multi-unit spacer

Joist Width	USP Stock No. <sup>1</sup>	Ref. No.	Steel Gauge	O. C. Spacing	Overall Length	Sections Per Piece
1-1/2	TS	-- --	20	24	2' 1-1/2"	1
	TSX16	TSF2-16	22	16	8'	6
	TSX24	TSF2-24	22	24	10'	5

1) TSX spacers are shipped folded.

Plated Truss

## SBP Supplementary Bearing Plates

Use the SBP instead of extra truss plies or nail-on scabs to distribute concentrated truss reactions and avoid top plate crushing. The two-piece design accommodates any number of girder plies. A wraparound design gives superior uplift resistance, and reinforcement ribs effectively distribute bearing loads. Works with both single and double 2x4 or 2x6 top plates.

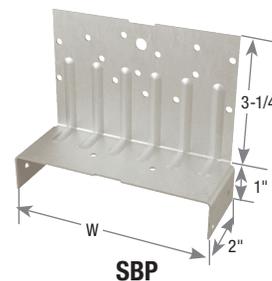
**Materials:** 16 gauge

**Finish:** G90 galvanizing

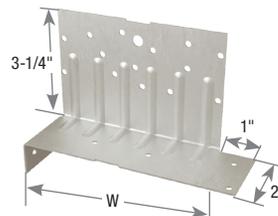
**Codes:** Factored resistances are derived from data submitted to various North American building code evaluators and are in accordance with CSA 086-09.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- **The SBP shall be installed in pairs.**



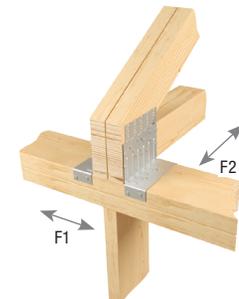
SBP



SBP one tab up

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Wood Species	f <sub>cp</sub> (psi)	No. of Truss Plies	Factored Resistance (Lbs)			Factored Resistance (kN)		
			SBP's Alone		SBP + Truss Bearing	SBP's Alone		SBP + Truss Bearing
			100%	100%	EBL (in)	100%	100%	EBL (mm)
<b>SBP4 on 2x4 / 2x6 Top Plate and Alternate Installation</b>								
DF	1015	1	5035	9300	7.63	22.40	41.37	193.88
		2	5035	13565	5.57	22.40	60.33	141.39
		3	5035	17825	4.88	22.40	79.30	123.89
		4	5035	22090	4.53	22.40	98.27	115.14
S-P-F	769	1	3575	6805	7.38	15.90	30.26	187.34
		2	3575	10030	5.44	15.90	44.63	138.12
		3	3575	13260	4.79	15.90	58.99	121.71
		4	3575	16490	4.47	15.90	73.35	113.51
Hem Fir	667	1	3930	6730	8.41	17.48	29.95	213.59
		2	3930	9535	5.95	17.48	42.41	151.24
		3	3930	12335	5.14	17.48	54.88	130.46
		4	3930	15140	4.73	17.48	67.34	120.07
<b>SBP6 on 2x6 / 2x8 Top Plate and Alternate Installation</b>								
DF	1015	1	7315	14015	11.50	32.54	62.35	292.21
		2	7315	20715	8.50	32.54	92.15	215.96
		3	7315	27415	7.50	32.54	121.96	190.54
		4	7315	34115	7.00	32.54	151.77	177.83
S-P-F	769	1	5195	10270	11.13	23.11	45.68	282.75
		2	5195	15340	8.31	23.11	68.24	211.23
		3	5195	20415	7.38	23.11	90.81	187.38
		4	5195	25490	6.91	23.11	113.38	175.46
Hem Fir	667	1	5705	10110	12.63	25.38	44.97	320.70
		2	5705	14510	9.06	25.38	64.55	230.20
		3	5705	18915	7.88	25.38	84.14	200.03
		4	5705	23320	7.28	25.38	103.73	184.95



Typical SBP installation



Typical SBP6 one tab up on a 2x8 top plate installation (SBP4 similar)



Typical SBP one tab up alternate installation

Plated Truss

- 1) Factored resistance is for a pair of SBP devices.
- 2) Multiple ply trusses shall be fastened together to act as a single unit.
- 3) EBL denotes effective bearing length and includes the actual bearing length plus the contribution of the SBP device.
- 4) Assumes full seating of truss on top plate.

USP Stock No.	Ref. No.	W (in)	Truss/Joist Thickness	Fastener Schedule <sup>2,6</sup>						Application	Factored Resistance (115%) <sup>1,3</sup>											
				Plate			Truss				DF (Lbs)			DF (kN)			S-P-F (Lbs)			S-P-F (kN)		
				Top <sup>5</sup> Qty	Sides Qty	Type	Qty	Type	Uplift		F1	F2	Uplift	F1	F2	Uplift	F1	F2	Uplift	F1	F2	
SBP4	TBE4	3-1/2	2-7/8" or less	4	8	10d	20	10dx1-1/2	Standard Installation	2435	2880	3065	10.83	12.81	13.63	1730	2045	2175	7.70	9.10	9.68	
			20				10d															
			2-7/8" or less	4	8	10d	20	10dx1-1/2	One Tab Up (2x6 Top Plate)	1435	2880	2230	6.38	12.81	9.92	805	2045	1965	3.58	9.10	8.74	
			20				10d															
			2-7/8" or less	4	8	10d	20	10dx1-1/2	One Tab Up (Alternate)	1435	1880	1315	6.38	8.36	5.85	805	1120	1125	3.58	4.98	5.00	
			20				10d															
SBP6	TBE6	5-1/2	2-7/8" or less	4	8	10d	28	10dx1-1/2	Standard Installation	2435	2880	3065	10.83	12.81	13.63	1730	2045	2175	7.70	9.10	9.68	
			28				10d															
			2-7/8" or less	4	8	10d	28	10dx1-1/2	One Tab Up (2x8 Top Plate)	1435	2880	2230	6.38	12.81	9.92	805	2045	1965	3.58	9.10	8.74	
			28				10d															
			2-7/8" or less	4	8	10d	28	10dx1-1/2	One Tab Up (Alternate)	1435	1880	1315	6.38	8.36	5.85	805	1120	1125	3.58	4.98	5.00	
			28				10d															

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase is allowed. For standard term loads divide the values by 1.15.
  - 2) Fastener schedule is for a pair of SBP devices.
  - 3) Factored resistances are for a pair of SBP devices.
  - 4) Multiple ply trusses shall be fastened together to act as a single unit.
  - 5) Where truss sits on a single top plate, 10d x 1-1/2 nails may be used on the top side of the top plate.
  - 6) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.
- New products or updated product information are designated in **blue font**.

FTC clips slide easily onto the top or bottom chord and provides a guide to help position and support the second truss during assembly.

FTCF clips easily install after the trusses are installed.

**Materials:** 18 gauge

**Finish:** G90 galvanizing

**Codes:** Factored resistances are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- The truss designer must determine the number of clips required and the spacing between clips based on loading conditions.

**Concentrated Load Condition: (Side-loaded onto a 2-ply truss):**

- The FTC clips shall be installed in pairs, or multiples of two, on either side of, and within 12" of a concentrated load.
- Divide half of the concentrated load by the clip capacity to determine the number of clips required.

**Example:**

Concentrated (point) load = 3000 lbs, FTC1 capacity (SPF) = 1080 lbs

$$\frac{1/2 (3000 \text{ lbs})}{1080 \text{ lbs}} = 1.4 = 2 \text{ clips}$$

Install two FTC1 clips, one on each side of, and within 12" of concentrated load.

**Uniform Load condition (side-loaded onto a 2-ply truss):**

- To transfer uniform loads to the second ply, the FTC clips shall be installed at a regular interval along the loaded chord. Spacing between clips is limited to 24" maximum.
- Divide the clip capacity by half the required load per lineal foot (PLF) to determine the spacing between clips.

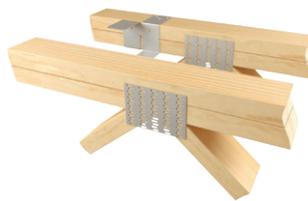
**Example:**

Uniform distributed load = 500 PLF.

FTC1 capacity (SPF) = 1080 lbs

$$\frac{1080 \text{ lbs}}{1/2 (500) \text{ PLF}} = 4.32' \text{ spacing}$$

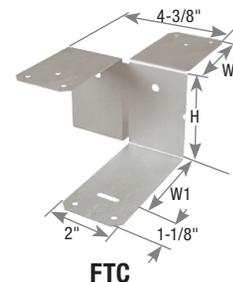
Space clips at 24" (MAX) along the loaded chord.



Typical FTC installation



Typical FTC 2-ply metal web truss installation



FTC

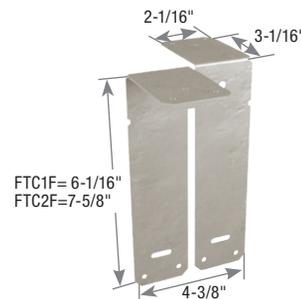


Step 1



Step 2

Typical FTC2F retrofit installation



FTC\_F

Truss Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>3</sup>			Unit	DF Factored Maximum Transfer Resistance <sup>1,2</sup>	S-P-F Factored Maximum Transfer Resistance <sup>1,2</sup>
				W1	W2	H	Qty	Type				
3 x 2	FTC32	-- --	18	2-1/2	2-1/16	1-1/2	10	10d x 1-1/2	Lbs	980	850	
									kN	4.36	3.78	
4 x 2	FTC1	-- --	18	3-1/2	3-1/16	1-1/2	10	10d x 1-1/2	Lbs	1245	1080	
									kN	5.54	4.80	
	FTC1F	-- --	18	-- --	-- --	10	10d x 1-1/2	Lbs	1245	1080		
								kN	5.54	4.80		
(2) 4 x 2	FTC2	-- --	18	3-1/2	3-1/16	3	10	10d	Lbs	1245	1080	
									kN	5.54	4.80	
	FTC2F	-- --	18	-- --	-- --	10	10d	Lbs	1245	1080		
								kN	5.54	4.80		

1) Factored transfer resistances are for 100% floor load, and shall not be increased for short term load duration.  
 2) Truss designer shall determine the number of clips for concentrated loads and the spacing for uniform loads.  
 3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

The STC provides uplift resistance by securing trusses to top plates. Slotted nail holes allow for horizontal movement up to 1-1/4" as scissor trusses deflect.

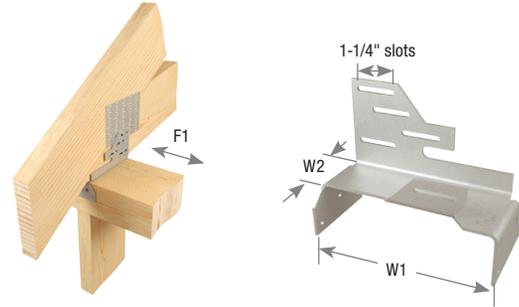
**Materials:** 12 gauge

**Finish:** G90 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- When installing, do not fully set nails.
- Locate nails into the center of slots to allow for horizontal movement.



Typical STC installation

STC

USP Stock No.	Ref. No.	Steel Gauge	Description	Dimensions (in)		Fastener Schedule <sup>2</sup>				DF Factored Resistance		S-P-F Factored Resistance	
				W1	W2	Truss		Plate		Uplift 115% <sup>1</sup>	F1 115% <sup>1</sup>	Uplift 115% <sup>1</sup>	F1 115% <sup>1</sup>
						Qty	Type	Qty	Type				
STC24	TC24	12	2 x 4 top plate	3-9/16	1-5/8	5	10d x 1-1/2	6	10d x 1-1/2	1525	550	1085	390
										6.78	2.45	4.83	1.73
STC26	TC26	12	2 x 6 top plate	5-1/2	1-5/8	5	10d x 1-1/2	6	10d x 1-1/2	1525	550	1085	390
										6.78	2.45	4.83	1.73
STC28	TC28	12	2 x 8 top plate	7-1/4	1-5/8	5	10d x 1-1/2	6	10d x 1-1/2	1525	550	1085	390
										6.78	2.45	4.83	1.73

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long.

**TR** Roof Truss Ties

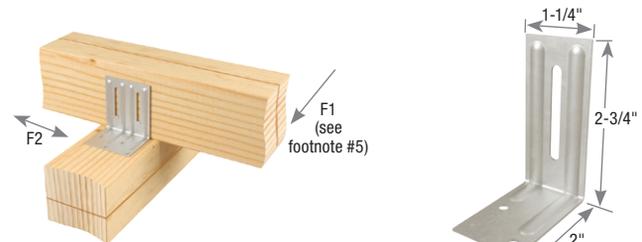
Slotted design allows truss to deflect without imposing load on wall below.

**Materials:** See chart

**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Do not fully set nails.
- Locate nails into the center of slots.
- **Due to the potential for squeaks, the TR series products are not recommended for floor applications.**

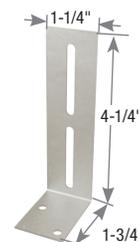


Typical TR2 installation

TR1



TR2



TR1T

Description	USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>6</sup>			Unit	DF Factored Resistance						S-P-F Factored Resistance					
				Truss Qty	Plate Qty	Type		Without Gap <sup>2</sup>		With 1/4" Gap <sup>3</sup>		With 1/2" Gap <sup>4</sup>		Without Gap <sup>2</sup>		With 1/4" Gap <sup>3</sup>		With 1/2" Gap <sup>4</sup>	
								F1 <sup>5</sup>	F2	F1 <sup>5</sup>	F2	F1 <sup>5</sup>	F2	F1 <sup>5</sup>	F2	F1 <sup>5</sup>	F2	F1 <sup>5</sup>	F2
Single slot	TR1	STC	18	1	2	8d	Lbs	105	60	45	45	---	---	90	50	35	35	---	---
	TR1T	STCT	16	1	2	8d	kN	0.47	0.27	0.20	0.20	---	---	0.40	0.22	0.16	0.16	---	---
Double slot	TR2	DTC	18	2	4	8d	Lbs	155	260	105	170	---	---	130	220	90	140	---	---
							kN	0.69	1.16	0.47	0.76	---	---	0.58	0.98	0.40	0.62	---	---

1) Factored resistances have been increased for short-term loading; no further increase is allowed.  
2) Truss must be bearing on top plate to achieve the factored resistances under "Without Gap".  
3) Installed with maximum 1/4" space between rafter or truss and top plate under "With 1/4" Gap". Space is not limited to 1/4", where resistances are not required.  
4) Installed with maximum 1/2" space between rafter or truss and top plate under "With 1/2" Gap". Space is not limited to 1/2", where resistances are not required.  
5) To achieve F1 loads in both directions, clips must be installed on both sides of the truss and staggered to avoid nail interference.  
6) **NAILS:** 8d nails are 0.131" dia. x 2-1/2" long.  
New products or updated product information are designated in blue font.

# HTC Heavy Truss Deflection Clip

Slotted design allows truss to deflect without imposing load on wall below.

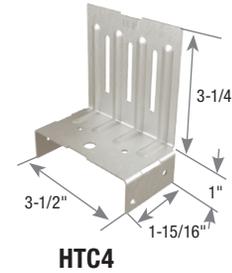
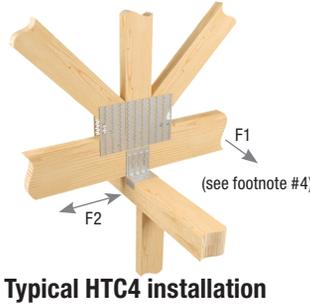
**Materials:** 16 gauge

**Finish:** G90 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Do not fully set nails.



Typical HTC4 installation

HTC4

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>5</sup>				Unit	DF Factored Resistance <sup>1</sup>				S-P-F Factored Resistance <sup>1</sup>			
			Plate		Truss/Rafter Qty	Type		Without Gap <sup>2</sup>		With 1-1/4" Gap <sup>3</sup>		Without Gap <sup>2</sup>		With 1-1/4" Gap <sup>3</sup>	
			Top Qty	Side Qty				F1 115% <sup>4</sup>	F2 115% <sup>4</sup>	F1 115% <sup>4</sup>	F2 115% <sup>4</sup>	F1 115% <sup>4</sup>	F2 115% <sup>4</sup>	F1 115% <sup>4</sup>	F2 115% <sup>4</sup>
HTC4	HTC4	16	2	4	3	10d x 1-1/2	Lbs	265	545	55	305	230	470	45	260
							kN	1.18	2.42	0.24	1.36	1.02	2.09	0.20	1.16

- 1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
  - 2) Truss/Rafter must be bearing on top plate to achieve the allowable loads under "Without Gap".
  - 3) When installed with maximum 1-1/4" space between truss/rafter and top plate, use loads under "With 1-1/4" Gap".
  - 4) To achieve F1 loads in both directions, clips must be installed on both sides of the truss and staggered to avoid nail interference.
  - 5) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long.
- New products or updated product information are designated in **blue font**.

Plated Truss

## ZC Blocking Supports

ZC clips secure blocking between joists or trusses which provides support for drywall or sheathing.

**Materials:** See chart

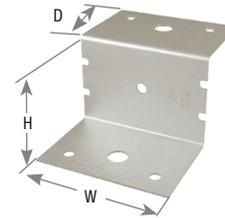
**Finish:** G90 galvanizing

**Installation:**

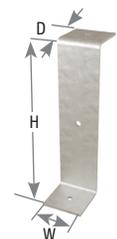
- Use all specified fasteners. See Product Notes, page 15.



Typical ZC installation



ZC2



ZC4

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2</sup>				Unit	DF	S-P-F
			W	H	D	Header		Blocking			Factored Resistance <sup>1</sup>	Factored Resistance <sup>1</sup>
						Qty	Type	Qty	Type		Vertical 100%	Vertical 100%
ZC2	Z2	20	2-1/4	1-9/16	1-1/2	2	10d x 1-1/2	2	10d x 1-1/2	Lbs	670	475
										kN	2.98	2.11
ZC4	Z4	12	1-1/2	3-9/16	1-3/8	2	10d x 1-1/2	1	10d x 1-1/2	Lbs	460	385
										kN	2.05	1.71
ZC24	Z28	28	2-9/32	1-9/16	1-3/8	10d x 1-1/2		10d x 1-1/2		Lbs	---	---
										kN	---	---
ZC34	Z38	28	2-9/32	2-9/16	1-5/16	10d x 1-1/2		10d x 1-1/2		Lbs	---	---
										kN	---	---

- 1) Factored resistance shall not be increased for other load duration factors.
  - 2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long.
- New products or updated product information are designated in **blue font**.

Deck Tie Back reinforces the connection of rail posts to a deck. Also provides lateral strength of deck-to-ledger attachment by securing deck to house framing.

**Materials:** 14 gauge

**Finish:** G-185 galvanizing

**Options:** See chart for Corrosion Finish Options

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

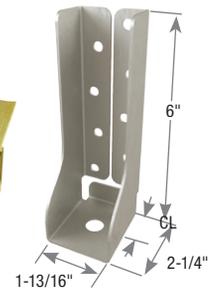
- Use all specified fasteners. See Product Notes, page 15.
- Install with USP's THR 1/2" threaded rod or equivalent.
- Drive WS15-HDG wood screws into joist.
- Re-install threaded rod or anchor bolt. Secure with washer and nut.
- Tighten anchor bolt nuts finger tight snug to base plus 1/3 to 1/2 additional turns with wrench.



Typical DTB-TZ installation



Typical DTB-TZ Deck to ledger installation



DTB-TZ

USP Stock No.	Ref. No.	Steel Gauge	Rod / Bolt Anchor Dia. (in)	CL (in)	Fastener Schedule <sup>2</sup>		DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish
					Qty	Wood Screws	Lbs		kN		Lbs		kN		
							100%	115% <sup>1</sup>	100%	115% <sup>1</sup>	100%	115% <sup>1</sup>	100%	115% <sup>1</sup>	
DTB-TZ	DTT2Z, FSC	14	1/2	1-1/8	8	WS15-HDG	2640	2640	11.74	11.74	2220	2220	9.88	9.88	Green/Blue

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) WS15-HDG Wood Screws are 1/4" dia. x 1-1/2" long and are included with DTB-TZ Deck Tie-Backs. New products or updated product information are designated in blue font.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

## SDPT Strap Post Ties

Connects 2 x 4 stair posts and 4 x 4 posts to deck rim joist or stair stringers.

**Materials:** 14 gauge

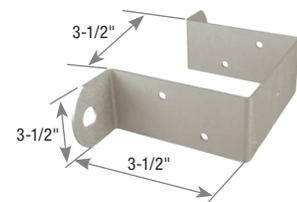
**Finish:** G-185 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Install units in pairs on 2x4 (SDPT5-TZ) or 4x4 (SDPT7-TZ) post. Space the connectors 5" apart from center to center on the post. Use through bolts to fasten connectors to rim joist or stringer. Do not use lag bolts. Fasten to post with specified nails (see chart).



Typical SDPT7-TZ installation

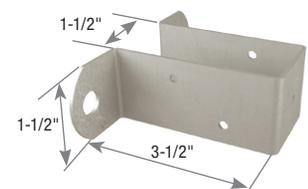


SDPT7-TZ

Post Size	USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>1,2</sup>			Corrosion Finish	
				Qty	Type	Qty		
2 x 4	SDPT5-TZ	DPT5Z	14	5	10d x 1-1/2 HDG	2	3/8 HDG	Green
4 x 4	SDPT7-TZ	DPT7Z	14	5	10d x 1-1/2 HDG	2	3/8 HDG	Green

1) Bolts shall conform to ASTM A 307 or better.  
 2) NAILS: 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc



SDPT5-TZ

# CSH Concealed Stringer Hanger

The CSH-TZ concealed stringer hanger provides a method of connecting a stair stringer with a hidden hanger. The seat of the hanger is adjustable to match the slope of the stair stringer.

The reversible design allows the connector to be used on the left, right, or interior stringers. The CSH-TZ may be used with USP's SCA Stair Angles for a complete, easy-to-use stair framing solution.

**Materials:** 18 gauge

**Finish:** G-185 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

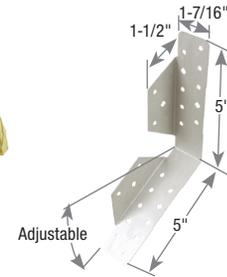
- Use all specified fasteners. See Product Notes, page 15.
- **Bend angle only once.**

**Steps:**

1. Attach CSH-TZ to header with tabs positioned towards the inside of the stringer member.
2. Adjust the seat of the CSH-TZ to match the slope of the stringer member.  
Diamond shaped holes in the connector allow temporary installation of wood screws to aid in installation of the CSH-TZ.
3. Install 10d x 1-1/2" nails into the stringer and header members.



Typical CSH-TZ installation



CSH-TZ

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>2</sup>				DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish
			Rim Joist		Stringer		Lbs		kN		Lbs		kN		
			Qty	Type	Qty	Type	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	Vertical	Uplift <sup>1</sup>	
CSH-TZ	LSCZ	18	8	10d x 1-1/2 HDG	5	10d x 1-1/2 HDG	1455	545	6.47	2.42	1030	385	4.58	1.71	Green

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase is allowed.

2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

# SDJT Joist Tie

Secures 2x joists to posts.

**Materials:** 14 gauge

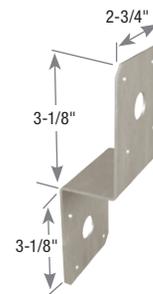
**Finish:** G-185 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Use with 2x lumber for joists (minimum height is 2x4). Install with either specified nails or through bolts. Do not use lag bolts. To ease installation, attach to 4x4 post first.



Typical SDJT14-TZ installation



SDJT14-TZ

Post Size	USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>1,2</sup>		Unit	DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish
				Qty	Type		100%	100%	100%	100%	
4 x 4	SDJT14-TZ	DJT14Z	14	8	16d HDG	Lbs	1615	1355	Green		
						kN	7.18	6.03			
				2	3/8 HDG	Lbs	2015	1695			
						kN	8.96	7.54			

1) Bolts shall conform to ASTM A 307 or better.

2) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

Stair angles simplify stair construction. There is no need to calculate and notch stair stringers. Stronger and safer than wood blocking, and the angle and fasteners are hidden from view.

**Materials:** 12 gauge

**Finish:** G-185 galvanizing

**Codes:** Load values are derived from data submitted to various North American building code evaluators.

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Use the SCA9-TZ for single 2x10 stair treads. Use the SCA10-TZ for double 2 x 6 stair treads.
- To calculate stair construction do the following:
  1. Find the number of steps needed by taking the vertical drop from the deck surface to grade. Divide by 7. Round off to the nearest whole number. (Ex: Vertical drop of 39" divided by 7 equals 5.57" rounded off is 6")
  2. Find the step rise by dividing the vertical drop by the number of steps (39" divided by 6 = 6.5")
  3. Find the step run by measuring the depth of your tread board (Ex: (2) 2x6s have a run of 11-1/4")
  4. Find the stairway span by multiplying the run by the number of treads minus one (Ex: 11-1/4" x 5 = 56-1/4")
- Using the above calculations, mark stair angle locations on each stringer. Attach a stair angle to the inside of each stringer at the marked locations. Attach stringers to deck rim joist and railing posts. Position treadboards on angles and fasten from below.



**Typical SCA9-TZ installation**



**SCA9-TZ**



**Typical SCA10-TZ installation**

AVAILABLE IN  
**GOLD COAT**

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule	DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish		
			w	L		Qty	Screws	Down 100% <sup>1</sup>			Down 100% <sup>1</sup>	
								Lbs	kN		Lbs	kN
SCA9-TZ	TA9Z	12	1-3/8	9	6	1/4" x 1-1/2" HDG	1925	8.56	1365	6.07	HDG	
SCA10-TZ	TA10Z	12	1-3/8	10	8	1/4" x 1-1/2" HDG	1925	8.56	1365	6.07	HDG	

1) Loads assume rise over run of 7/11.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

Connects deck boards to joists without face nails or screws. Eliminates rust stains on decks, as well as splintering or wood rot caused by screw or nail "craters". The DC50-TZ works like tongue-in-groove flooring and is easy to install. Raised dimples on the clip provide consistent spacing between deck boards.

**Materials:** 20 gauge

**Finish:** G-185 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Fits 1-1/8" or thicker decking.
- Fasten the first deck board onto the joists by toenailing up through the joist below into the deck board. Be sure no sharp points protrude above the deck surface. For subsequent deck board rows, nail DC50-TZ's onto the deck board edge, positioned 2" from each joist. Slide the deck board along the joist until the DC50-TZ "lip" is under the previously laid deck board. Toenail the deck board's exposed edge to the joist. Repeat until decking is completed. The last deck board will require toenailing up from below to secure the outside edge.



**Typical DC50-TZ installation**



**DC50-TZ**

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>1,2</sup>		Corrosion Finish
			Qty	Type	
DC50-TZ	DBT1Z	20	1	8d x 1-1/2 HDG	Green

1) Use with 1-1/8" minimum thickness decking.

2) **NAILS:** 8d x 1-1/2 nails are 0.131" dia. x 1-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

## ML Angles

ML angles are multi-purpose angles that install easily with USP's WS15 wood screws. The staggered fastener pattern allows for back-to-back installations.

**Materials:** 12 gauge

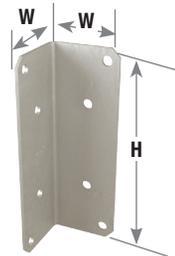
**Finish:** G-185 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- USP WS15 (1/4" x 1-1/2") are not supplied with ML angles.



**Typical ML26-TZ installation**  
(ML24-TZ similar)



**ML26-TZ**  
(ML24-TZ similar)

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule <sup>2,3</sup>				Unit	DF		S-P-F		Corrosion Finish
			W	H	Header		Joist			Factored Resistance <sup>1</sup>		Factored Resistance <sup>1</sup>		
					Qty	Type	Qty	Type		100%	115%	100%	115%	
ML24-TZ	ML24Z	12	2	4	3	WS15	3	WS15	Lbs	1100	1265	780	900	Green
									kN	4.89	5.63	3.47	4.00	
ML26-TZ	ML26Z	12	2	6	4	WS15	4	WS15	Lbs	1890	2175	1340	1545	Green
									kN	8.41	9.68	5.96	6.87	

1) Factored resistances have been increased 15% for short-term, duration loading; no further increase allowed.

2) USP's WS15 Wood Screws are 1/4" diameter x 1-1/2" long and are not included with angles.

3) For exterior applications use WS15-HDG screws with the hot-dip galvanized finish.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

**PRT15-TZ** – is for 1-5/8" vertical pipe posts (1-7/8" outside pipe diameter). Can be field bent 90° for outside corner installations.

**PRT2-TZ / PRT2H-TZ** – is for 2" vertical pipe posts (2-3/8" outside pipe diameter). Can be field bent 90° for outside corner installations.

**PR TIC2-TZ** – is for inside corner installations. For 2" vertical pipe posts (2-3/8" outside pipe diameter).

**Materials:** See chart

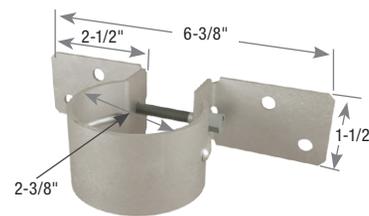
**Finish:** G-185 galvanizing

**Installation:**

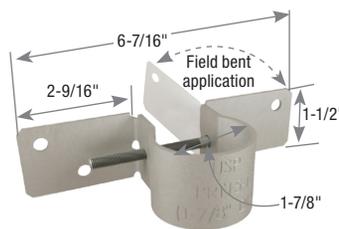
- Use all specified fasteners. See Product Notes, page 15.
- PRT15-TZ, PRT2H-TZ and PR TIC2-TZ - 1/4" Self Tapping Bolts are supplied with PRT models.
- Install self tapping bolts with 3/8" socket in pre-drilled holes.
- PRT2-TZ fastens with (1) 1/4" carriage bolt and nut (included) for tightening PRT2-TZ to pipe and (4) 1/4" lag bolts for attaching tie to rail.
- Install 3 to 4 PRT's per pipe.
- PRT15-TZ, PRT2-TZ and PRT2H-TZ may be bent once to fit corner and angled conditions.



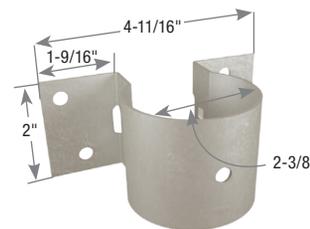
**Typical PRT2H-TZ installation**  
PRT15-TZ & PRT2-TZ similar



**PRT2H-TZ**



**PRT15-TZ**



**PRT2-TZ**



**Typical PR TIC2-TZ installation**



**PR TIC2-TZ**

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>1</sup>				Corrosion Finish
			Pipe		Rail		
			Qty	Type	Qty	Type	
PRT15-TZ	PGT1.5Z-R	12	1	1/4" Self Tapping Bolt	4	1/4" Lag Bolt	Green
PRT2-TZ	PGT2E	16	1	1/4" HDG Carriage Bolt	4	1/4" Lag Bolt	Green
PRT2H-TZ	PGT2Z-R, PGT2A	12	1	1/4" Self Tapping Bolt	4	1/4" Lag Bolt	Green
PR TIC2-TZ	PGTIC2Z-R	12	2	1/4" Self Tapping Bolt	4	1/4" Lag Bolt	Green

1) WS15 wood screws can be substituted for specified lag bolts.  
 2) Install self tapping bolts (included) with 3/8" socket in predrilled holes.  
 3) Install 3 to 4 PRT's per pipe.  
 4) PRT15, PRT2 and PRT2H Pipe Rail Ties may be bent once to fit corner and angled conditions.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

**ERB24** – Designed to mount prefabricated fence sections and works with 2x4 horizontal section rails.

**FB26** – Secures 2x6 rails to wood posts.

**FRB24** – Secures continuous 2x4 rails to wood posts. Pre-punched holes allow installers to splice 2x4 rail ends within the bracket.

**Materials:** See chart

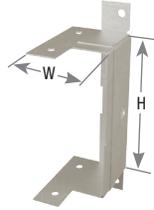
**Finish:** G-185 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.



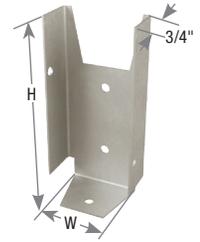
**Typical ERB24-TZ installation**



**ERB24-TZ**



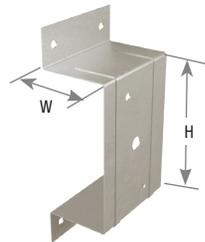
**Typical FB24-TZ installation**



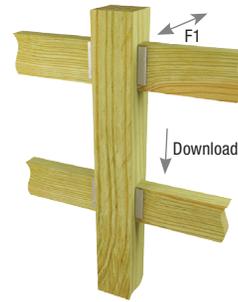
**FB24-TZ**



**Typical FRB24-TZ installation**



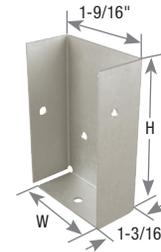
**FRB24-TZ**



**Typical FB26-TZ installation**



**FB26-TZ**



**FB23-TZ**



**FB14-TZ**

Rail Size	USP Stock No.	Ref. No	Steel Gauge	Dimensions (in)			Fastener Schedule <sup>2</sup>				Unit	DF Factored Resistance <sup>1</sup>		S-P-F Factored Resistance <sup>1</sup>		Corrosion Finish
				W	H	Qty	Rail	Qty	Post	Down		F1	Down	F1		
1 x 4	FB14-TZ	---	20	3/4	3-1/2	3	14 ga. x 3/4 HDG	2	8d x 1-1/2 HDG	---	---	---	---	---	---	---
2 x 3	FB23-TZ	---	20	1-9/16	2-3/8	3	8d x 1-1/2 HDG	4	8d x 1-1/2 HDG	---	---	---	---	---	---	---
	ERB24-TZ	---	18	1-1/2	3-9/16	4	8d HDG	3	8d HDG	---	---	---	---	---	---	---
2 x 4	<b>FB24-TZ</b>	FB24Z, FBR24, FBR24Z	20	1-9/16	3-3/8	2	8d HDG	2	8d HDG	---	---	---	---	---	---	---
	FRB24-TZ	---	18	1-9/16	3-9/16	2	10d x 1-1/2 HDG	4	10d HDG	---	---	---	---	---	---	---
2 x 6	FB26-TZ	FB26	18	1-9/16	5	4	10d x 1-1/2 HDG	4	10d x 1-1/2 HDG	Lbs	550	700	390	495	---	
										kN	2.45	3.11	1.73	2.20		
						4	LL915	4	LL915	Lbs	780	715	550	505		
										kN	3.47	3.18	2.45	2.25		

1) Factored resistances have been increased 15% for short-term loading such as wind and earthquake; no further increase is permitted.

2) **NAILS:** 6d nails are 0.120" dia. x 2" long, 8d x 1-1/2 nails are 0.131" dia. x 1-1/2" long, 8d nails are 0.131" dia. x 2-1/2" long,

10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long, LL915 denotes a USP LumberLok Screw, #9 x 1-3/8" long.

New products or updated product information are designated in **blue font**.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

# FPH Fence Rail Hanger

The FPH24-TZ attaches 2 x 4 fence rails to wood posts. The Triple Zinc (G-185) galvanized finish offers superior corrosion resistance in outdoor applications and/or with treated wood.

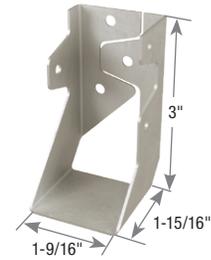
**Materials:** 18 gauge  
**Finish:** G-185 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Fasteners need to be Hot-Dip Galvanized for outdoor applications and for use with preservative treated wood.



Typical FPH24-TZ installation



FPH24-TZ

Joist Size	USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>2</sup>				DF Factored Resistance				S-P-F Factored Resistance				Corrosion Finish
				Header		Joist		Lbs		kN		Lbs		kN		
				Qty	Type	Qty	Type	Bearing	Uplift <sup>1</sup>	Bearing	Uplift <sup>1</sup>	Bearing	Uplift <sup>1</sup>	Bearing	Uplift <sup>1</sup>	
2 x 4	FPH24-TZ	-- --	18	3	8d x 1-1/2 HDG	3	8d x 1-1/2 HDG	410	545	1.82	2.42	350	465	1.56	2.07	Green
				3	10d x 1-1/2 HDG	3	10d x 1-1/2 HDG	485	560	2.16	2.49	420	485	1.87	2.16	

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.  
 2) **NAILS:** 8d x 1-1/2 nails are 0.131" dia. x 1-1/2" long, 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

# PCP Plastic Post Caps

These seamless caps keep water off post tops, protecting wood from moisture damage. The PCP's plastic construction is corrosion-proof and paintable. Not available in rough or full lumber sizes.

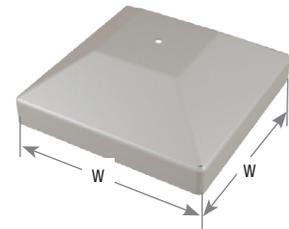
**Materials:** Hi-impact plastic  
**Finish:** Gray

**Installation:**

- Fasten cap to post top with (1) 8d HDG or 10d HDG nail.



Typical PCP44 installation



PCP66

Post/Column Size <sup>1</sup>	USP Stock No.	Ref. No.	Dimension (in)	Color
			W	
4 x 4	PCP44	DPPC4BK	3-5/8	Gray
6 x 6	PCP66	DPPC6BK	5-5/8	Gray

1) Not available in rough or full lumber sizes.

Take the work out of fence post installation and repair with the Speedpost, SFP30, and Speedmender, SMP. The Speedpost is used to install 4 x 4 fence posts without digging post holes or pouring concrete. The Speedmender plates act as reinforcement brackets for rotted or damaged 4 x 4 fence posts.

**SFP30** – For 6' nominally-sized 4 x 4 fence posts.

**SMP** – For nominally-sized 4 x 4 posts.

**Materials:** 13 gauge

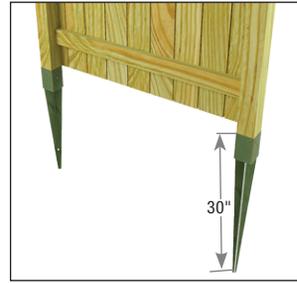
**Finish:** Paint

**Installation:**

- Step-by-step installation instructions are labeled onto each product.

Post Size	USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>1,2</sup>	
				Qty	Type
4 x 4	SFP30	FPBS44	13	3	1/4" HDG Lag Bolts
	SMP	FPBM44E	13	20	10d HDG

- 1) Fastener schedule is per pair of SMP's.
- 2) **NAILS:** 10d nails are 0.148" dia. x 3" long.



**Typical SFP30 installation**



**SFP30**



**Typical SMP installation**



**SMP**

**BD** Bolt Down

Anchors 4 x 4 post to wood or concrete surfaces.

**Materials:** 13 gauge

**Finish:** Paint

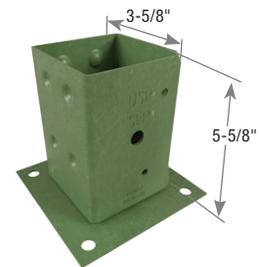
**Installation:**

- Use all specified fasteners. See Product Notes, page 15.

Post Size	USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule	
				Qty	Lag Bolts
4 x 4	BD	FPBB44	13	3	1/4" x 1-1/2" HDG



**Typical BD installation**



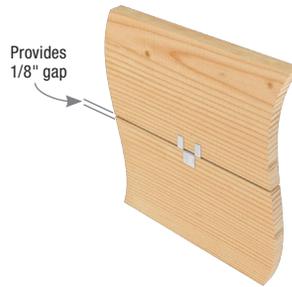
**BD**

# RC Plywood Clips

Steel plywood clips. All models feature embossed dimples to provide 1/8" gap.

**Materials:** 18 gauge  
**Finish:** G90 galvanizing

USP Stock No.	Ref. No.	Steel Gauge	Plywood Thickness (in)
RC38	PSCL3/8	18	3/8
RC716	PSCL7/16, PSCA7/16	18	7/16
RC1532	PSCL15/32, PSCA15/32	18	15/32
RC12	PSCL1/2	18	1/2
RC58	PSCL5/8	18	5/8



Typical RC installation



RC

# DC Drywall Clip

Drywall clips or "stops" help support drywall or wood paneling and reduce wood blocking on top plates, end walls, and corners.

**Materials:** 20 gauge  
**Finish:** G90 galvanizing

**Installation:**

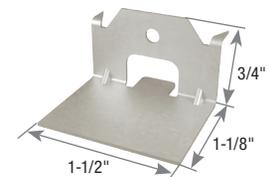
- Use 8d nails to install DC1, 16" on-center or less.

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule <sup>1</sup>	
			Qty	Type
DC1	DS	20	1	8d

1) **NAILS:** 8d nails are 0.131" dia. x 2-1/2" long.



Typical DC1 installation



DC1

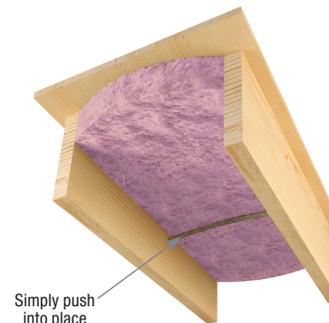
# IS Insulation Supports

Insulation supports secure batt-type insulation in place between joists. Chisel-cut ends dig into joists for permanent holding. Easy to install in hard-to-reach crawl spaces.

**Materials:** 13 gauge carbon steel wire  
**Finish:** None

**Installation:**

- Use IS16 for joist spaced 16" O.C. and IS24 for 24" O.C. spacing.
- Position insulation batt in place between joists. Hold IS unit at the center and push into place.
- Wear gloves and safety glasses during installation.



Typical IS installation

USP Stock No.	Ref. No.	Steel Gauge	Joist Spacing (in)	Dimensions (in)
				Overall Length
IS16	IS16-R100	13	16" O. C.	15-1/2
IS24	IS24-R100	13	24" O. C.	23-1/2

Connectors for home owner /D.I.Y. projects.

**TTA12-TZ** - an angle connects two 1x wood members at 90° angles.

**TTA2-TZ** - an angle connects two 2x wood members at 90° angles.

**TTB22-TZ** - a bracket connects two intersecting 2x wood members at 90° angles.

**TTC24-TZ** - a corner tie connects 2x wood members at 90° to the corner of a 2x4 post. Mirror design allows for post to be oriented in either direction.

**TTC42-TZ** - a corner tie connects 2x wood members at 90° to the corner of a 4x4 post.

**TTF22-TZ** - a bracket connects 2x wood members to opposite sides of a 2x4 or 4x4 post.

**TTR-TZ** - a clip connects a 2x wood member to the face of another wood member.

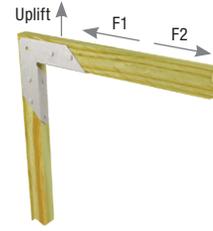
**TTU2-TZ** - a U-clip connects 2x wood members crossing at 90°.

**Materials:** See chart

**Finish:** G-185 galvanizing

**Installation:**

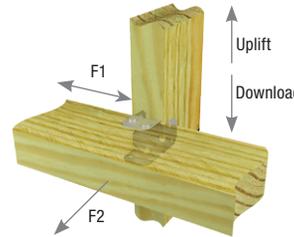
- Use all specified fasteners. See Product Notes, page 15.
- USP LumberLok LL915 (#9 x 1-3/8" long) wood screws are not supplied with connectors.



**Typical TTA12-TZ installation**



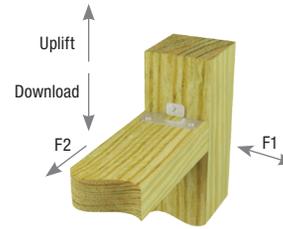
**TTA12-TZ (TTA2-TZ Similar)**



**Typical TTB22-TZ installation**



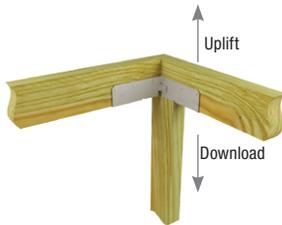
**TTB22-TZ**



**Typical TTR-TZ installation**



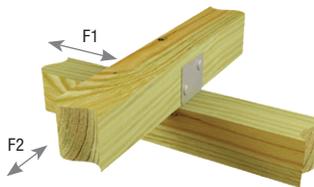
**TTR-TZ**



**Typical TTC24-TZ installation**



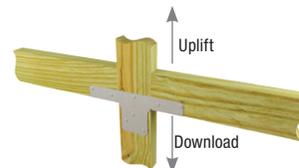
**TTC24-TZ (TTC42-TZ Similar)**



**Typical TTU2-TZ installation**



**TTU2-TZ**



**Typical TTF22-TZ installation**



**TTF22-TZ**

USP Stock No.	Ref. No.	Steel Gauge	Post Size	Joist Size	Fastener Schedule <sup>1</sup>				Unit	DF Factored Resistance <sup>2,3,4</sup>				S-P-F Factored Resistance <sup>2,3,4</sup>				Corrosion Finish
					Post		Joist (Total)			Download	Uplift	F1	F2	Download	Uplift	F1	F2	
					Qty	Type	Qty	Type										
TTA12-TZ	RTA12	18	1x	1x	4	LL915	4	LL915	Lbs	---	355	330	355	---	255	235	255	Green
									kN	---	1.58	1.47	1.58	---	1.13	1.05	1.13	
TTA2-TZ	RTA2Z	16	2x	2x	4	LL915	4	LL915	Lbs	---	315	440	315	---	225	315	225	Green
									kN	---	1.40	1.96	1.40	---	1.00	1.40	1.00	
TTB22-TZ	RTB22	20	2x	2x	4	LL915	4	LL915	Lbs	610	610	610	425	435	435	435	300	Green
									kN	2.71	2.71	2.71	1.89	1.93	1.93	1.93	1.33	
TTC24-TZ	RTC24Z	18	2 x 4	2x	9	LL915	8	LL915	Lbs	1125	715	---	---	800	505	---	---	Green
									kN	5.00	3.18	---	---	3.56	2.25	---	---	
TTF22-TZ	RTF2Z	18	2 x 4	2x	4	LL915	8	LL915	Lbs	1075	430	---	---	765	305	---	---	Green
									kN	4.78	1.91	---	---	3.40	1.36	---	---	
TTC42-TZ	RTC42, RTC42Z	18	4 x 4	2x	14	LL915	8	LL915	Lbs	1400	750	---	---	995	530	---	---	Green
									kN	6.23	3.34	---	---	4.43	2.36	---	---	
TTR-TZ	RTR	20	2x	2x	2	LL915	4	LL915	Lbs	545	545	490	235	390	390	350	170	Green
									kN	2.42	2.42	2.18	1.05	1.73	1.73	1.56	0.76	
TTU2-TZ	RTU2	18	2x	2x	2	LL915	4	LL915	Lbs	---	---	550	565	---	---	390	400	Green
									kN	---	---	2.45	2.51	---	---	1.73	1.78	

- 1) LL915 denotes a USP LumberLok Screw, #9 x 1-3/8" long.
- 2) Factored resistances have been increased 15% for short duration loading. No further increase is permitted.
- 3) TTF22-TZ: Factored resistances must be equally distributed on both joists.
- 4) TTC24-TZ and TTC42-TZ: Factored resistances listed in this table are for each joist being carried by the post.

**Corrosion Finish**

- Stainless Steel
- Gold Coat
- HDG
- Triple Zinc

Easy-to-install plates protect plumbing and power/communication wiring from nail or screw penetration.

**ICPL58** – Installs with nails.

**KNS1 / PL4** – Prongs allow for quick installation.

**Materials:** 16 gauge

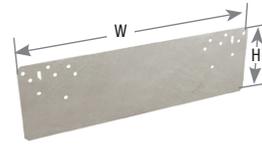
**Finish:** ICPL516-TZ – G-185 galvanizing;

All others – G90 galvanizing

**Options:** See chart for Corrosion Finish Options



Typical ICPL516-TZ installation



ICPL516-TZ



Typical ICPL58 installation



ICPL58

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.



Typical KNS1 & PL4 installation



KNS1



PL4

USP Stock No.	Ref. No.	Steel Thickness	Dimensions (in)		Fastener Schedule <sup>2</sup>		Installation Type	DF Factored Resistance		S-P-F Factored Resistance		Corrosion Finish
			W	H	Qty	Type		Uplift 115% <sup>1</sup>		Uplift 115% <sup>1</sup>		
								Lbs	kN	Lbs	kN	
KNS1	NS1	1/16	1-1/2	3	---	prongs	---	---	---	---	---	
PL4	NS2	1/16	2	5	---	prongs	---	---	---	---	---	
ICPL58	---	1/16	8-1/16	5	4	8d or prongs	---	---	---	---	---	
ICPL516-TZ	PSPN516Z	1/16	16	5	12	16d HDG + prongs	Sill Plate	1405	6.25	1205	5.36	
					16	16d HDG + prongs	Double Top Plate	1870	8.32	1600	7.12	

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.

2) **NAILS:** 8d nails are 0.131" dia. x 2-1/2" long, 16d nails are 0.162" dia. x 3-1/2" long.

**Corrosion Finish** ■ Stainless Steel ■ Gold Coat ■ HDG ■ Triple Zinc

## STS Stud Shoes

Stud shoes reinforce joists, plates, studs, or rafters which have been drilled or notched during construction.

**Materials:** 16 gauge

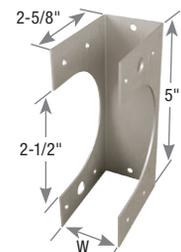
**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- **STS units are not structurally rated and should not be used as a total member replacement in structural applications.**
- For use with 2" O.D. pipe.



Typical STS1 installation



STS

USP Stock No.	Ref. No.	Steel Gauge	Description	Dimension (in)	Fastener Schedule <sup>1,2</sup>	
				W	Qty	Type
STS1	SS1.5	16	Single Stud	1-9/16	10	10d x 1-1/2
STS2	SS3	16	Double Stud	3-1/16	12	10d
STS3	SS4.5	16	Triple Stud	4-9/16	14	10d

1) Maximum hole size = 2".

2) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

**O** – The O series spans three joists in under/over installation. Prong teeth in the center help reduce nailing.

**N** – The N series spans two joists per unit. Can be used for bridging or bracing I-Joists. See chart.

**Materials:** See chart

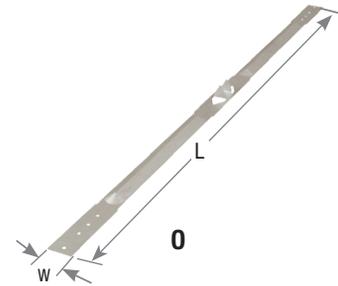
**Finish:** G90 galvanizing

**Installation:**

- Use specified fasteners in models with fastener requirements.
- Install prior to subfloor sheathing. Use (2) 8d x 1-1/2" nails at each end. Fully seat nails to avoid any movement against the bridging and subsequent floor noise.



Typical O installation



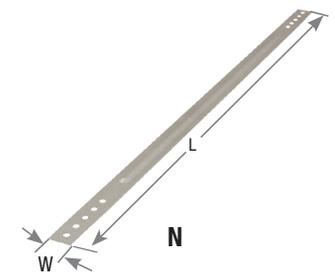
Typical N installation

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule <sup>3</sup>		Joist Spacing O.C. (in) <sup>1,2</sup>
			W	L	Qty	Type	
N16	LTB20, TB20	22	3/4	19-3/4	4	8d x 1-1/2	16
O40	LTB40	22	3/4	39-3/4	4	8d x 1-1/2	16
O16	---	18	1	44	4	8d x 1-1/2	16
N27	TB27	20	3/4	26-13/16	4	8d x 1-1/2	---
N30	TB30	20	3/4	29-13/16	4	8d x 1-1/2	---
N36	TB36	20	3/4	35-13/16	4	8d x 1-1/2	---
N42	TB42	20	3/4	42	4	8d x 1-1/2	---
N48	TB48	20	3/4	48	4	8d x 1-1/2	---
N54	TB54	20	3/4	54	4	8d x 1-1/2	---
N56	TB56	20	1	56	4	8d x 1-1/2	---
N60	TB60	20	1	60	4	8d x 1-1/2	---

- 1) For joist spacing, refer to the Joist Installation chart.
- 2) Joist spacing is based on a 1-1/2" joist. Consult USP regarding wider joist applications.
- 3) **NAILS:** 8d x 1-1/2 nails are 0.131" dia. x 1-1/2" long.

**Joist Installations**

Sized for Joist-to-Joist X Bridging									
I-Beam Height	Joist Spacing <sup>1</sup>								
	12"	16"	19.2"	24"	30"	32"	36"	42"	48"
7-1/4	---	N16/O16 /O40	---	---	---	---	---	---	---
9-1/4	N16	N16/O16 /O40	N27	N27/N30	N36	N36/N42	N42	N48	N54/N56
9-1/2	N16	N16	N27	N27/N30	N36	N36/N42	N42	N48	N54/N56
10	N16	N16	N27	N27/N30	N36	N36/N42	N42	N48	N54/N56
11-1/4	N16	N16	N27	N30	N36	N36/N42	N42	N48	N54/N56
11-7/8	N16	N27	N27	N30	N36	N36/N42	N42	N48	N54/N56
12	N16	N27	N27	N30	N36	N36/N42	N42	N48	N54/N56
14	N16	N27	N27/N30	N30	N36/N42	N36/N42	N42	N48	N54/N56
16	N27	N27	N27/N30	N30	N36/N42	N42	N42/N48	N48/N54	N54/N56
18	N27	N27/N30	N30	N36	N36/N42	N42	N42/N48	N48/N54	N54/N56
20	N27/N30	N27/N30	N30	N36	N42	N42	N42/N48	N48/N54	N54/N56/N60
22	N27/N30	N30	N36	N36/N42	N42	N42/N48	N48	N54/N56	N54/N56/N60
24	N30	N36	N36	N36/N42	N42	N42/N48	N48	N54/N56	N56/N60
26	N30/N36	N36	N36/N42	N42	N42/N48	N48	N48/N54	N54/N56	N56/N60
28	N36	N36/N42	N36/N42	N42	N42/N48	N48	N48/N54	N54/N56	N60
30	N36/N42	N36/N42	N42	N42/N48	N48	N48	N48/N54/N56	N54/N56/N60	N60
32	N36/N42	N42	N42	N42/N48	N48	N48/N54	N54/N56	N54/N56/N60	N60



- All models require (2) 8d x 1-1/2 nails at each end.  
 1) Based on 1-1/2" joist. Consult USP for suitable product for wider joists.

**MBG** – Grip tooth bridging. Features special teeth which grip joists and provide easy single-nail installation. Can be installed after subfloor is in place.

**MB16** – Snap-on, no-nail bridging can be placed in existing floor systems where joist movement is suspected. Two-piece construction creates a solid diagonal brace against joist movement.

**Materials:** See chart

**Finish:** G90 galvanizing

**Installation:**

- Use specified fasteners in models with fastener requirements.
- **MBG** – May be installed before or after sheathing. Position the unbent end of the bridging unit near the top of the joist and drive prongs into wood with a hammer blow to the heel of the bent end. Wedge bent end near the lower edge of the opposite joist, set teeth into wood with hammer blow. Nail holes are provided at the bent end if prongs are damaged during installation. Fully seat nails to avoid any movement against the bridging and subsequent floor noise.
- **MB16** – Two-piece unit is shipped as one piece. Bend unit in center up and down to break into two pieces. Slide narrower piece inside wider piece, setting the end tab into slot appropriate for joist spacing. Setting one prong end near the top of one joist and the opposite prong end near the bottom of the opposite joist, pull down on the center of the bridging until the wider piece snaps into place over the narrow piece and creates a rigid, one-piece bridging unit. Wear gloves during installation.



**MB16**



**Typical MB16 installation**



**Step 1**



**Step 2**

**Typical MBG installation**

Joist Size	Joist Spacing O.C. (in) <sup>1</sup>	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule <sup>2</sup>	
					W	L	Qty	Type
2 x 8	12	MBG812	NCA2X8-12	22	15/16	11-3/4	1	8d x 1-1/2
2 x 10	12	MBG1012	NCA2X10-12	22	15/16	12-3/4	1	8d x 1-1/2
2 x 12	12	MBG1212	NCA2X12-12	22	15/16	14	1	8d x 1-1/2
2 x 14	12	MBG1412	-- --	22	15/16	16	1	8d x 1-1/2
2 x 16	12	MBG1612	-- --	22	15/16	17	1	8d x 1-1/2
2 x 8-12	16	MB16	-- --	22	11/16	-- --	-- --	-- --
2 x 8	16	MBG816	NCA2X8-16	22	15/16	15-9/16	1	8d x 1-1/2
2 x 10	16	MBG1016	NCA2X10-16	22	15/16	16-5/16	1	8d x 1-1/2
2 x 12	16	MBG1216	NCA2X12-16	22	15/16	17-1/4	1	8d x 1-1/2
2 x 14	16	MBG1416	-- --	22	15/16	18-7/16	1	8d x 1-1/2
2 x 16	16	MBG1616	-- --	22	15/16	19-5/8	1	8d x 1-1/2
2 x 8	24	MBG824	-- --	22	1-5/16	23-1/2	1	8d x 1-1/2
2 x 10	24	MBG1024	-- --	22	1-5/16	24	1	8d x 1-1/2
2 x 12	24	MBG1224	-- --	22	1-5/16	24-3/4	1	8d x 1-1/2
2 x 14	24	MBG1424	-- --	22	1-5/16	25-5/8	1	8d x 1-1/2
2 x 16	24	MBG1624	-- --	22	15/16	26-5/8	1	8d x 1-1/2



**MBG**

1) Joist spacing is based on a 1-1/2" joist, consult USP regarding wider joist applications.  
 2) **NAILS:** 8d x 1-1/2 nails are 0.131" dia. x 1-1/2" long.

**RWB** – Flat bracing conveniently packaged in a handy roll out dispenser. Perfect for unexpected job site shortages. The 35-pound dispenser pack fits easily into a truck bed for transport. Pre-embossed snap-off points can be broken off by hand (wear gloves for safety).

**WB** – A flat style bracing engineered to easily nail to studs. No cutting or fitting needed.

**WBC** – L-shaped design for additional strength and rigidity.

**WBT** – Rolled edges and T-style design gives the WBT strength, rigidity, and eliminates sharp, sheared edges.

**Materials:** See chart

**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- Bracing is a framing aid, not a substitute for structural shearwall components.
- **RWB / WB** – Use with 16" or 24" o.c. studs. Install in pairs forming an "X" or opposing "V" at each end of a maximum 25-foot long wall panel.

**Steps:** Square the panel. Straighten any kinks in bracing caused by handling. Lay bracing on the panel flush to the top of top plate and flush to the bottom of the bottom plate. Secure bracing to the top plate and bottom plate using 16d nails (WB) or 8d nails (RWB). Position second bracing at an angle opposite to the first brace to form an "X" and secure to top and bottom plate as with the first bracing. Using 8d nails, secure bracing to all intersecting studs.

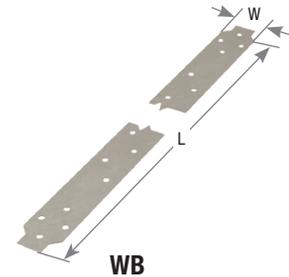
- **WBC / WBT** – Use with 16" o.c. studs. Install one brace at each end of wall section, not exceeding 25 feet, in an opposing "V" pattern. Use the web portion of a length of bracing as a straight edge to mark studs. Cut a saw kerf 5/8" deep (1" deep for WBC). Insert the bracing web into the saw kerf, and drive one nail into the top plate. Raise the wall section into place and plumb. Finish fastening according to the nail schedule.



**RWB pre-embossed snap-off points**



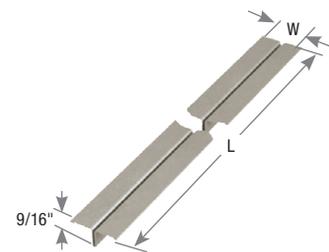
**Typical RWB/WB installation**



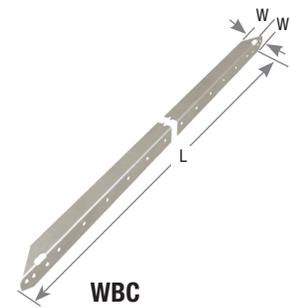
**WB**



**Typical WBC/WBT installation**



**WBT**



**WBC**

USP Stock No. <sup>1</sup>	Ref. No.	Steel Gauge	Dimensions (in)		Pieces Per Roll	Wall Height	Install Angle	Fastener Schedule <sup>2,3</sup>			
			W	L (ft - in)				Each Plate		Each Stud	
								Qty	Type	Qty	Type
RWB96	WB106C	16	1-1/4	9' 6"	15	8'	60°	4	8d	1	8d
RWB114	WB126C	16	1-1/4	11' 4-3/8"	12	8'	45°	4	8d	1	8d
RWB143	WB143C	16	1-1/4	14' 3"	10	10'	45°	4	8d	1	8d
WBC10	RCWB10	18	15/16	9' 5-3/4"	---	8'	60°	2	16d	1	8d
WBC12	RCWB12	18	15/16	11' 4-3/8"	---	8'	45°	2	16d	1	8d
WBT10	TWB10	22	1-3/8	9' 3"	---	8'	60°	4	8d	1	8d
WBT12	TWB12	22	1-3/8	11' 4"	---	8'	45°	4	8d	1	8d
WBT14	RCWB14, TWB14	22	1-3/8	14' 2"	---	10'	45°	4	8d	1	8d
WB106	WB106	16	1-1/4	9' 5-1/2"	---	8'	60°	3	16d	1	8d
WB126	WB126	16	1-1/4	11' 4-1/4"	---	8'	45°	3	16d	1	8d

1) These products substitute for code prescribed 1 x 4 let-in bracing.  
 2) **NAILS:** 8d nails are 0.131" dia. x 2-1/2" long, 16d nails are 0.162" dia. x 3-1/2" long.

# SF Step Flashing

Pre-sized, ready to install, versatile flashing unit. Ideal for roof applications.

**Materials:** 28 gauge

**Finish:** G90 galvanizing

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		
			W	H	L
SF8	-- --	28	3-1/2	3-1/2	8



Typical SF8 installation



SF8

# RR Ridge Rafter Hanger

The RR Ridge Rafter supports rafter pitches up to 7:12 (30°). Nesting top flange for installation on 2x support beams.

**Materials:** 18 gauge

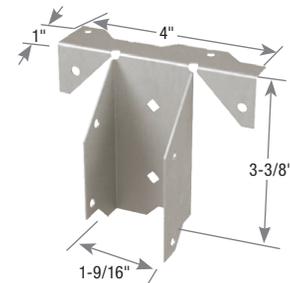
**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners. See Product Notes, page 15.
- The rafter end at the ridge must be plumb cut to achieve published loads.
- Optional diamond nail holes can be used to fasten RR to end of rafter before setting rafter into place.



Typical RR installation



RR

USP Stock No.	Ref. No.	Steel Gauge	Min Rafter Size	Fastener Schedule <sup>2</sup>				Unit	DF		S-P-F	
				Header		Rafter			Factored Resistance <sup>1</sup>		Factored Resistance <sup>1</sup>	
				Qty	Type	Qty	Type		Download 100%	Uplift 115%	Download 100%	Uplift 115%
RR	RR	18	2 x 6	4	10d x 1-1/2	4	10d x 1-1/2	Lbs	590	380	465	300
								kN	2.67	1.80	1.89	1.29
				4	LL915	4	LL915	Lbs	705	345	500	245
								kN	3.14	1.53	2.22	1.09

1) Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.

2) **Nails:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, LL915 denotes a USP LumberLok Screw, #9 x 1-3/8" long.

New products or updated product information are designated in **blue font**.

# KSCT Corner Tie

The Corner Tie secures three-way wood-to-wood connections. Handy for building workbenches, utility tables, or shelving using 2x4 lumber.

**Materials:** 14 gauge

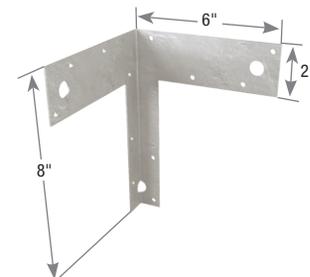
**Finish:** G90 galvanizing

**Installation:**

- Use (12) #10 panhead screws to fasten the KSCT68 to wood framing.



Typical KSCT68 installation



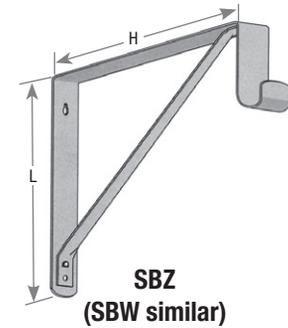
KSCT68

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule	
			Qty	Screws
KSCT68	-- --	14	12	#10 panhead

This shelf bracket combines shelving capabilities and closet rod support in a one-piece design.

**Materials:** 13 gauge cold rolled steel

**Finish:** SBZ – Zinc plated; SBW – Electro-static powdered coat (white)



**SBZ**  
(SBW similar)

Finish	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)	
				H	L
Zinc Plated	SBZ	---	13	11	11
White Powder Coat	SBW	---	13	11	11

## CRZP / CRWP Closet Rods

These adjustable Closet Rods are available in various lengths which attach easily to wall studs or shelf support strapping (see diagram).

**Materials:** 20 gauge cold rolled steel

**Finish:** CRZP – Zinc plated; CRWP – Electro-static powdered coat (white)



Typical CRZP installation  
(CRWP similar)



**CRZP**  
(CRWP similar)

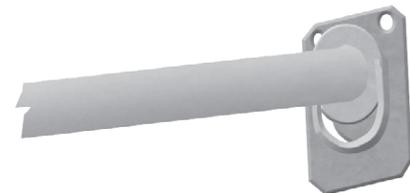
Finish	USP Stock No.	Ref. No.	Steel Gauge	Adjustable Size (in)
Zinc Plated	CRZP1830	---	20	18 - 30
	CRZP3048	---	20	30 - 48
	CRZP4872	---	20	48 - 72
	CRZP7296	---	20	72 - 96
	CRZP96120	---	20	96 - 120
White Powder Coat	CRWP1830	---	20	18 - 30
	CRWP3048	---	20	30 - 48
	CRWP4872	---	20	48 - 72
	CRWP7296	---	20	72 - 96
	CRWP96120	---	20	96 - 120

## CRZFP / CRWFP Fluted Closet Rods

These adjustable Fluted Closet Rods are a two-piece design which consists of separate end brackets to be installed prior to inserting the closet rods into place.

**Materials:** 20 gauge cold rolled steel

**Finish:** CRZFP – Zinc plated; CRWFP – Electro-static powdered coat (white)



**CRZFP**  
(CRWFP similar)

Finish	USP Stock No.	Ref. No.	Steel Gauge	Adjustable Size (in)
Zinc Plated	CRZFP1830	---	20	18 - 30
	CRZFP3048	---	20	30 - 48
	CRZFP4872	---	20	48 - 72
	CRZFP7296	---	20	72 - 96
	CRZFP96120	---	20	120 - 144
White Powder Coat	CRWFP1830	---	20	18 - 30
	CRWFP3048	---	20	30 - 48
	CRWFP4872	---	20	48 - 72
	CRWFP7296	---	20	72 - 96
	CRWFP96120	---	20	96 - 120

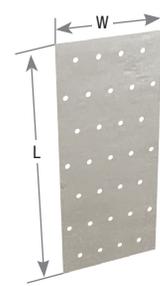
**Materials:** 20 gauge  
**Finish:** G90 galvanizing

**Installation:**

- Use nails appropriate for intended use. Holes are sized for 8d common or 8d x 1-1/2" nails.
- The designer shall determine appropriate load values.



Typical nail plate installation



NP

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Number of Nail Holes
			W	L	
NP15	TP15	20	1-13/16	5	12
NP35	TP35	20	3-1/8	5	22
NP37	TP37	20	3-1/8	7	31
NP39	TP39	20	3-1/8	9	40
NP311	TP311	20	3-1/8	11	49
NP45	TP45	20	4-1/8	5	30
NP47	TP47	20	4-1/8	7	42
NP49	TP49	20	4-1/8	9	54
NP411	TP411	20	4-1/8	11	66
NP57	TP57	20	5-3/4	7	59

**JNP / TPP** Mending Plates

**TPP** – Prong plates with straight prongs.  
**JNP** – Prong plates with angled, hammer-in prongs.

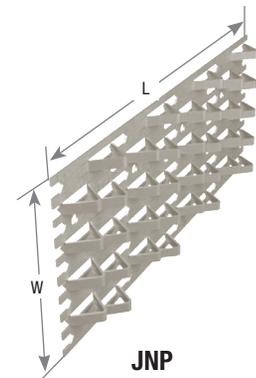
**Materials:** See chart  
**Finish:** G90 galvanizing

**Installation:**

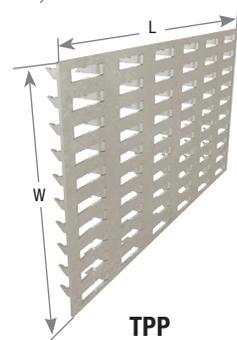
- **These products are not intended for structural use. No load ratings are assigned. These plates are not intended for use in truss assembly.**



Typical mending plate installation



JNP



TPP

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)	
			W	L
JNP24	-- --	18	1-1/2	4
JNP26	-- --	18	1-1/2	6
JNP46	-- --	18	3-3/16	6
JNP48	-- --	18	3-3/16	8
TPP14	MP14	22	13/16	3-1/2
TPP24	MP24	22	1-11/16	3-1/2
TPP36	MP36	22	2-3/4	5-1/4
TPP58	-- --	22	4-3/16	7-13/16

The information listed only applies to hangers manufactured by USP Structural Connectors® and installed according to the instructions listed in this catalog. Some of the options listed may not have been evaluated on a single hanger. The designer must always evaluate each connection, including the joist and header capacities, before specifying a specialty connector. USP sloped hangers are manufactured with the plumb cut of the joist already calculated. If a hanger with a different height is needed, it must be specified at the time of ordering.

**Materials:** Steel gauge may vary from that specified depending on the specialty option and manufacturing process used. Some formed hangers may be welded when modifying the hanger. Hanger configurations, fastener schedules, and height may vary from the tables depending on the joist size, skew, and slope.

**Finish:** See specific hanger option tables. Welded hangers are painted with USP gray primer. Non-catalog hangers available in Hot-dip galvanized, use HDG after product number.

**Factored Resistance:** For multiple options for the same connector, use the most conservative reduction to give the lowest design load.

**Installation:**

- Fill all nail holes with fasteners specified in the tables.
- Fastener quantities may increase from the amount listed in the tables depending on hanger option.
- NA16D-RS and NA20D nails are supplied with hangers.
- For type A skewed hangers, the end of joist must be bevel cut; for type B skewed hangers, the end of joist must be square cut.

**Codes:** Modified hangers are not code evaluated due to their numerous variations.

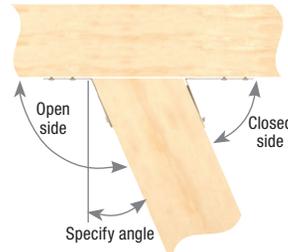
USP Series	Width	Skewed (Maximum)	Sloped Seat (Maximum)	Sloped / Skewed	Sloped Top Flange (Maximum)	Top Flange Offset	Saddle Hanger	Ridge Hanger (Maximum)	Inverted Flange	Uplift	Weldability	USP Series Catalog Page Reference
BPH	all	50°	45°	•	45°					•	•	138, 141-142, 144-148, 150-154
<b>FWH</b>	all	45°								•		109-110
GHF	all	50°	45°	•					• width > 4-1/2"	•		158-159
HBPH	all	50°	45°	•	45°					•	•	138, 145-148, 150-154
HD <sup>1</sup>	1-3/4" or less > 1-3/4"	67-1/2° 50°	45°	•					• width > 2-1/4"	•		96-103, 130, 134-136
HDO	1-3/4" or less > 1-3/4"	67-1/2° 50°	45°	•					• width > 3-1/8"	•		104, 106-108
HDQIF	all								•			96, 98-103, 130, 135-136
HGU	all	45°							• one flange width > 5-1/4"	•		157-158
HJC	all	60°								•		189-190
HLBH	all	50°	45°	•	45°	•	•	45°		•	•	139, 144-147, 150-154
HUS	all								• width > 2-1/4"	•		95, 97-99, 101-102, 130, 135, 178
HWUH	all	45°	45°	•		•	•			•		120-121
KB	all									•	•	104, 107-108
KEG	all	45°	45°			•				•		160
KGB	all									•	•	161
<b>KGH</b>	all	45°					•					41
KGLS	all	50°	45°	•	30°	•	•			•	•	163-164
KGLST	all						•			•	•	163-164
KGLT	all	50°	45°	•	45°	•	•			•	•	162-163
KHGB	all									•	•	161
KHGLS	all	50°	45°		30°	•	•			•	•	163-164
KHGLST	all						•			•	•	163-164
KHGLT	all	50°	45°	•	45°	•	•			•	•	162-163
KHGB	all									•	•	161
KHGLS	all	50°	45°		30°	•	•			•	•	163-164
KHGLST	all						•			•	•	163-164
KHGLT	all	50°	45°	•	45°	•	•			•	•	162-163
KHGB	all									•	•	161
KHW	all	84°	45°	•	35°	•	•	45°				105-108
KLB	all										•	104, 106
KLEG	all	45°	45°			•				•		160
KMEG	all	45°	45°			•				•		160
LGU	all	45°							• one flange width > 3-5/8"	•		157-158
LSSH	all	45°	45°	•						•		156
MGU	all	45°							• one flange width > 5-1/4"	•		157-158
MPH <sup>1</sup>	all	60°	45°	•		•						122-123
<b>MSHA</b>	all	75°								•		186-187
MSHL/R	all	45°								•		185
PHM <sup>1</sup>	all	84°	45°	•	35°	•	•	45°			•	140-143, 145-154
PHXU <sup>1</sup>	all	60°	45°	•	35°	•	•			•	•	140-142, 144-148, 150-154
SKH	all	45°								•		113-115
SKHH	all	45°								•		113, 115
SUH	1-3/4" or less > 1-3/4"	67-1/2° 50°	45°	•						•		94, 97-103
SW <sup>1</sup>	all	84°	45°	•	35°	•	•	45°			•	105-107
SWH <sup>1</sup>	all	84°	45°	•	35°	•	•	45°			•	105-108
THD	all	45°	45°	•					• one flange width > 3"	•		131, 135-136, 179
THDH	all	45°	45°	•						•		131, 135-136, 180-181
THF	1-3/4" or less > 1-3/4"	67-1/2° 50°	45°	•					• width > 2-1/4"	•		129, 132-134

1) Skews greater than 45° will have square cut joist with back plate.  
Refer to Typical PHXU hanger skewed, left shown, Type B illustration on page 222.  
New products or updated product information are designated in blue font.

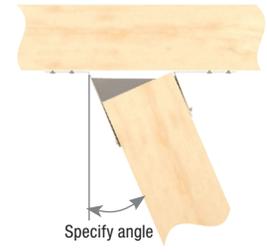
See the Specialty Options Chart for each hanger series for load reductions and hanger maximum range of skew, slope, etc.

**Skewed Hanger:**

- Consider SKH or SKHH hangers for 45° skews.
- Joist nails on the closed side may be relocated to the open side to ensure proper nailing.
- Specify skew angle, type (square cut or bevel cut), and direction when ordering.



**Typical SUH hanger skewed, right shown (bevel cut)**



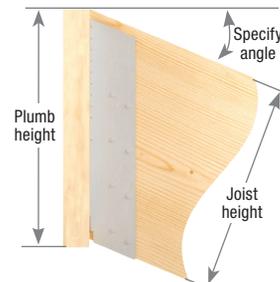
**Typical SUH formed hanger skewed, right shown (square cut)**

**Sloped Seat Hanger:**

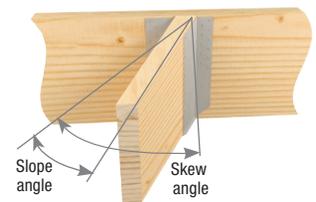
- Consider LSSH series for sloped applications.
- Additional nail holes may be added to joist flanges.
- Specify slope angle and direction when ordering.

**Sloped/Skewed Hanger:**

- See nailing notes for both skewed and sloped hangers.
- Specify skew and slope angles as well as skew/slope directions and skew type (square cut or bevel cut) when ordering.



**Typical HD hanger sloped seat, down shown**



**Typical HD hanger sloped down, skewed left shown**

**Inverted Flange Hanger:**

- When nailing into the carrying member's end grain, the factored resistance is 0.65 of the table load.
- Hangers with one flange inverted achieve 100% of listed table load.
- Specify right or left flange when inverting only one flange.



**Typical GHF hanger one flange inverted, left shown**



**Typical HD hanger inverted flange**

# OPEN TOP FLANGE HANGER SPECIALTY DETAILS

See Specialty Options Chart for each hanger series for load reductions and hanger maximum range of skew, slope, etc.

**Skewed Hanger:**

- Joist nails may be located on obtuse side to ensure proper nailing.
- Specify skew angle, type (square cut or bevel cut), and direction when ordering.

**Sloped Seat Hanger:**

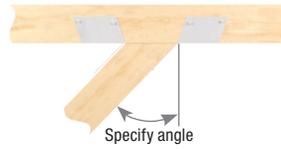
- Additional nail holes may be added to joist flanges.
- Specify slope angle, direction, and joist height when ordering.

**Sloped/Skewed Hanger:**

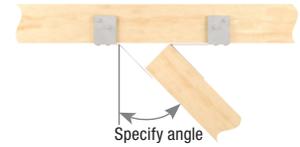
- See nailing notes for both skewed and sloped hangers.
- Specify skew and slope angles as well as skew/slope directions, and skew type (square cut or bevel cut) when ordering.
- Similar to face mount skewed/sloped hanger, refer to illustration on page 221: Typical HD hanger sloped down, skewed left shown.
- Specify if hanger is to be high side flush, low side flush, or center flush.

**Sloped/Skewed/Sloped Top Flange Hanger:**

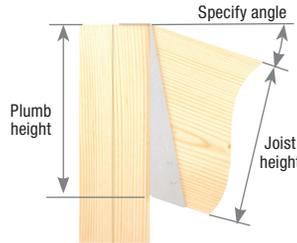
- See nailing notes for both skewed and sloped hangers.
- Specify skew, slope, and top flange slope angles as well as skew/slope and top flange slope directions when ordering.
- Hangers may be galvanized or painted.
- Hangers may be made with solid top flange.



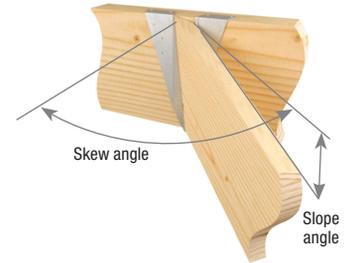
**Typical BPH hanger skewed, left shown (bevel cut)**



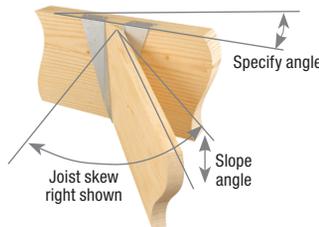
**Typical HDO hanger skewed, right shown (square cut)**



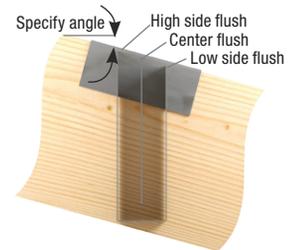
**Typical BPH hanger sloped seat, down shown**



**Typical BPH hanger sloped down, skewed right, high side flush shown**



**Typical BPH hanger skewed right, sloped down, top flange sloped**



**Typical BPH hanger sloped top flange right shown (this configuration will not be open back)**

# SOLID TOP FLANGE HANGER SPECIALTY DETAILS

See Specialty Options Chart for each hanger series for load reductions and hanger maximum range of skew, slope, etc.

**Skewed Hanger:**

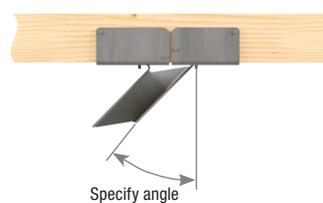
- Joist nails may be located on obtuse side to ensure proper nailing.
- Specify skew angle, type (square cut or bevel cut), and direction when ordering.

**Sloped Seat Hanger:**

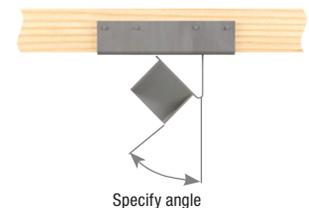
- Additional nail holes may be added to joist flanges.
- Specify slope angle, direction, and joist height when ordering.

**Sloped/Skewed Hanger:**

- See nailing notes for both skewed and sloped hangers.
- Specify skew and slope angles as well as skew/slope directions, and skew type (square cut or bevel cut) when ordering.
- Specify if hanger is to be high side flush, low side flush, or center flush.



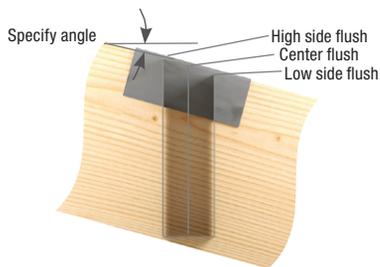
**Typical PHXU hanger skewed, left shown (bevel cut)**



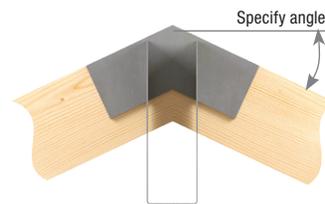
**Typical PHXU hanger skewed, left shown (square cut)**

**Sloped Top Flange Hanger:**

- Additional nail holes may be added to top angle.
- Specify top flange slope and direction when ordering.
- Specify if hanger is to be high side flush, low side flush, or center flush.



**Typical HLBH hanger sloped top flange, right shown**



**Typical HLBH hanger ridge, top flange slope**

**Ridge Hanger:**

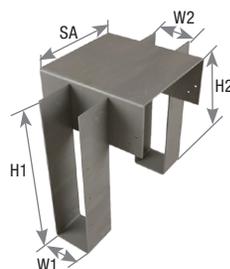
- Specify flush top of beam at center, right side, or left side.
- Specify angle of slope when ordering.

**Top Flange Offset Hanger:**

- Specify offset, left (L) or right (R), when ordering.

**Saddle Hanger:**

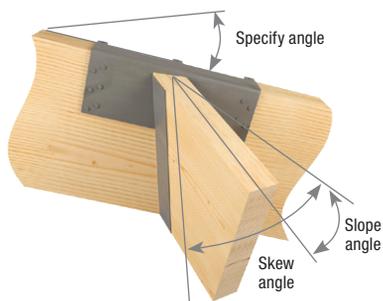
- Specify saddle width, "SA" when ordering. Allow clearance for saddled member.



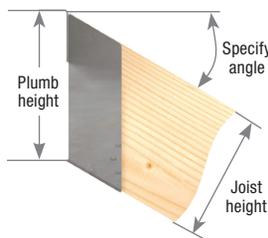
**Typical PHXU hanger saddle option**



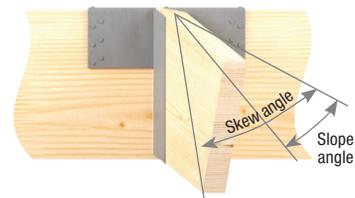
**Typical HLBH hanger top flange offset, right shown**



**Typical HLBH hanger skewed right, sloped down, top flange sloped**



**Typical HLBH hanger sloped seat, down shown**



**Typical HLBH hanger sloped down, skewed right, center flush shown**

# WELDED TOP FLANGE

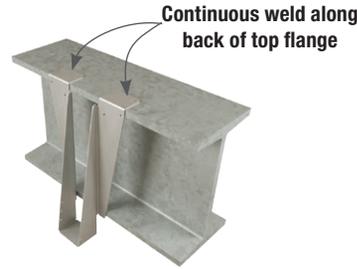
- Weld sizes and lengths shown on chart.
- Weld-on applications produce maximum factored resistance listed.  
**Uplift loads do not apply to this application.**

### Top Angle Weld Length Chart

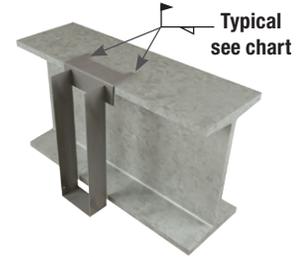
USP Welded Hanger Series	Weld Length
SW	3"
BPH, HBPH, PHM, SWH	4"
KLB, KHW, PHXU	6"
KB, KGB, KHGB, KHHB, KGLS, KGLST, KGLT, KHGLS, KHGLST	8"
HLBH, KHGLT	10"

Top Angle Steel Gauge	Weld Size
10 gauge or lighter	1/8"
7 gauge	3/16"
3 gauge	1/4"

Weld shall be distributed evenly.



Typical top flange welded installation



Typical top angle welded installation

## PART NUMBER SYSTEM

Part Numbers assigned to TFL, THO, and THF I-Joist hangers reveal the I-Joist sizes to be used with the specific hanger. This guide will teach you how to recognize I-Joist dimensions in the part numbers.

1st, 3rd, and sometimes 4th digits are whole numbers  
(This example denotes 2 and 11)  
4th digit may be part of a decimal –



2nd and 5th digits are decimals  
(see guide below)  
(This example denotes .3125 [5/16] and .875 [7/8])  
5th digit may be (0) or dropped if height is even

#### Part Number Guide for Decimals

1 = .125	or	1/8 inch
2 or 25 = .25	or	1/4 inch
3 = .3125	or	5/16 inch
5 = .5	or	1/2 inch
6 = .625	or	5/8 inch
7 = .75	or	3/4 inch
8 = .875	or	7/8 inch

# THO35925-2

**THO**  
Letters refer to Hanger Series  
ex.: THO

**35**  
First (2) Digits refer to Member Width  
ex.: 3.5 inches

**925**  
Last (2) or (3) Digits refer to Member Height  
ex.: 9.25 inches

**-2**  
Digits after Dash refer to Number of Ply  
ex.: 2 ply

#### Some Examples:

THO15950 ..... 1-1/2" x 9-1/2"

THF17925 ..... 1-3/4" x 9-1/4"

THO16925-2 ..... double 1-5/8" x 9-1/4"

THF23140-2 ..... double 2-5/16" x 14"

**Note:** USP's Product Catalog lists a range of heights for THF hangers. Face mount hangers can usually accommodate more than one I-Joist height. The hanger height must be tall enough to support the top chord of the I-Joist to eliminate web stiffener requirements for lateral support. The THF hanger must be a minimum of 60% of the joist height.

Hardy Frame is the industry leading pre-fabricated shear wall system. Building Design Professionals specify the Hardy Frame System not only to resist wind and earthquake loads but to also maximize wall openings economically.

The Hardy Frame Kit product line includes Panels, Brace Frames and Accessories.

## Hardy Frame<sup>®</sup>

### HFX-Series Panels

- Panels are available in 9, 12, 15, 18, 21 and 24 inch widths
- Standard Heights range from 78 inches for portal applications to 20 feet for Balloon Walls
- Custom heights are manufactured routinely
- With proper detailing and anchorage "Back to Back" installations provide two times the factored shear value without increasing the wall width

## Hardy Frame<sup>®</sup>

### HFX-Series Brace Frames

- Brace Frames are available in 32 and 44 inch widths
- Standard Heights range from nominal 8 to 13 feet
- Custom heights are manufactured routinely
- For a given shear load, installing a wider shear wall results in reduced overturning

## Template Kit (HFXTK & HFXTK-HS)

Includes:

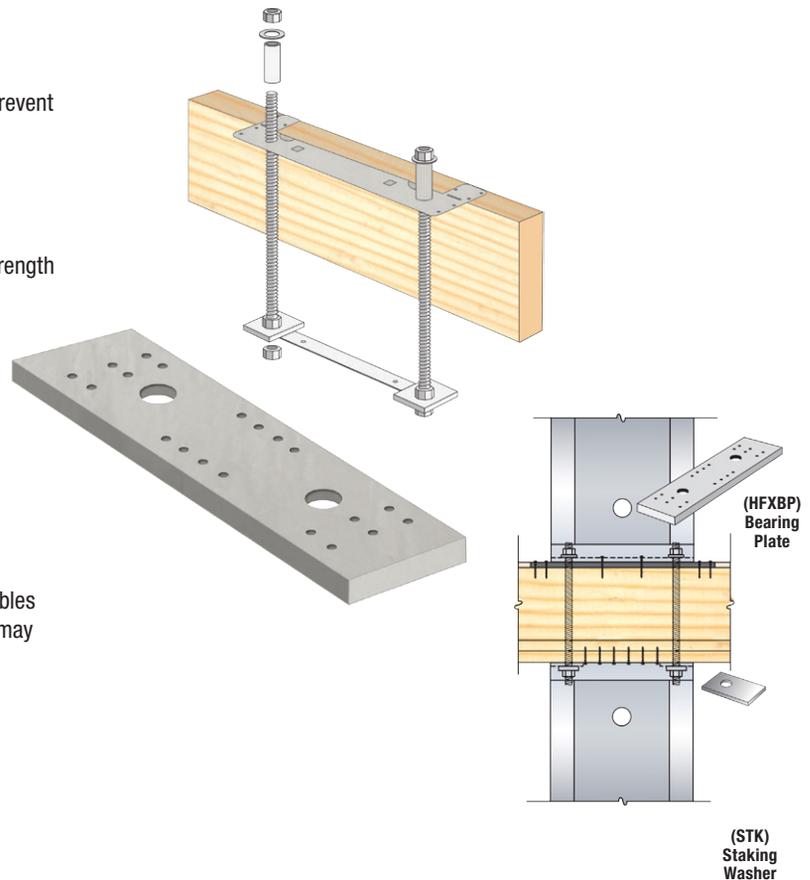
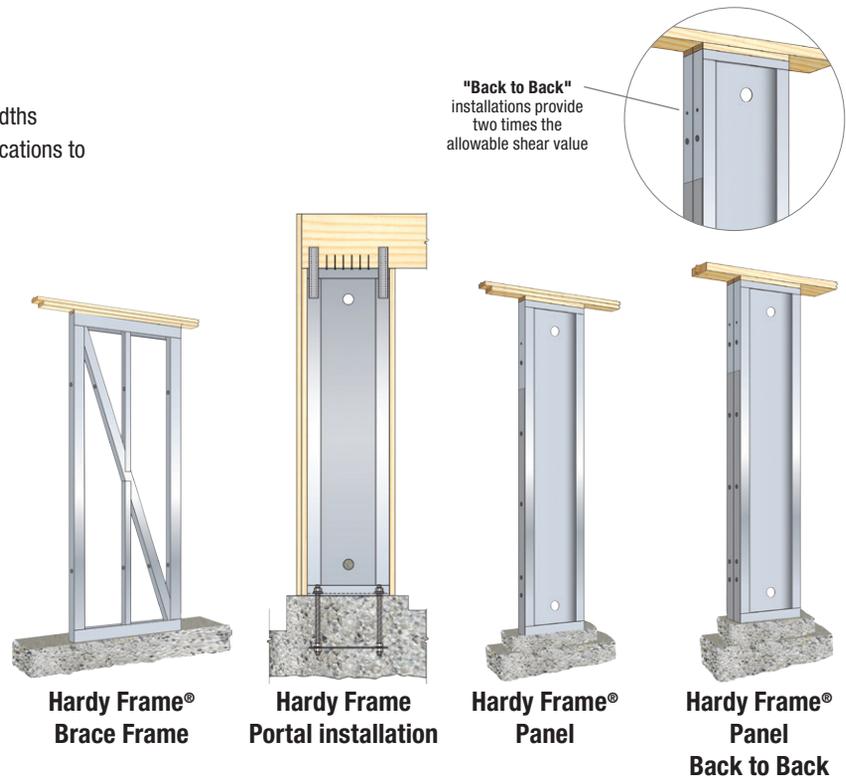
- One Template for accurate anchor spacing and alignment
- One Bolt Brace for installation at embed end of anchors to prevent independent sway while pouring concrete
- Two 1-1/8 inch diameter hold down anchors
- Six Grade 8 hex nuts
- Two hardened round washers
- Two 1/2" x 3" x 3" plate washers are included when high strength (HS) anchors are specified

## Hardy Frame<sup>®</sup>

### Bearing Plate (HFXBP)

- 3/4" thick x 3-1/2" wide ASTM A36 steel
  - Length extends 3" beyond Panel edges. **Check for outside corner conditions!**
  - Reduces wood deformation from overturning forces
  - Reduces effects of shrinkage by eliminating bottom plate
- Note:** The allowable values in raised floor and upper floor tables assume installation of HFXBP. Installation without a HFXBP may result in a reduction of allowable loads.

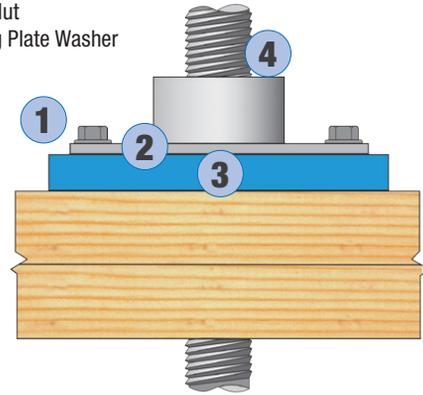
"Back to Back" installations provide two times the allowable shear value



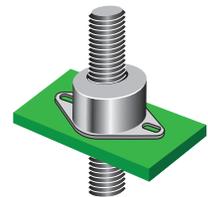
Z4 Tie-Down Systems utilize Z4 CNX-Series Cinch Nuts to compensate for wood shrinkage and building settlement that cause connections to loosen over time. The Cinch Nut uses a self-ratcheting action that permits movement or an internal “travel” perpetually in one direction along the length of a threaded rod. Cinch nuts are available for installation with threaded rods that are 3/8 inch through 1-1/2 inch diameter in 1/8 inch increments.

- Place the specified Bearing Plate Washer onto the bottom plate of a wood framed wall.
- With the “wings” oriented downward, place Cinch Nut over the Z-Rod extending from below and push down until it seats firmly on the Bearing Plate Washer.
- Install 1/4 inch diameter USP WS-Series screws through the wings, penetrating 1-1/2 inches (minimum) into the wood bottom plate.
- Model numbers BPW5 and BPW6 fit in-between the screws fastening the wings.
- Model numbers BPW7 (3-1/4 x 4-3/8) and larger are provided with two screw holes. Align the wing and the Bearing Plate Washer screw holes to allow installation of 1/4 inch diameter WS-Series screws.

1. USP WS-Screws
2. Cinch Nut
3. Bearing Plate Washer
4. Z-Rod



BPW5, BPW6 installation

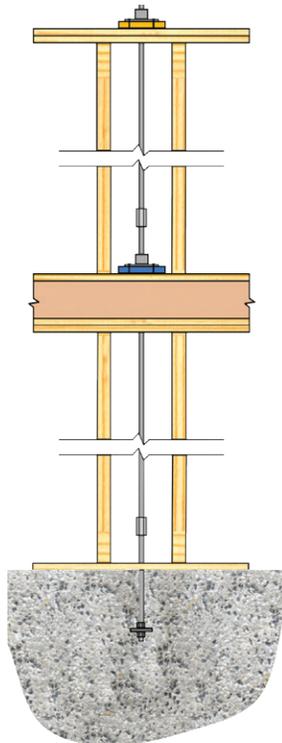


BPW7 and larger installation

## INSTALLATION

### Z4 Tie-Down System for Lateral Loads

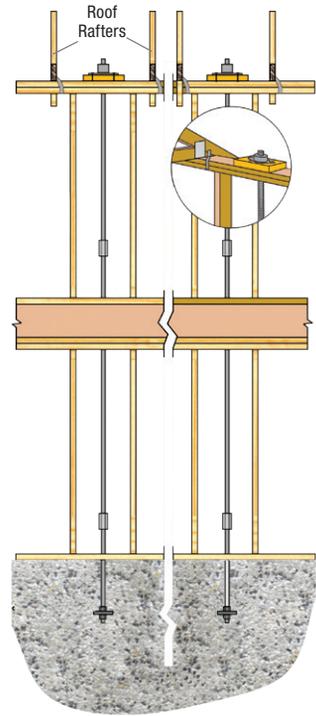
To resist tension loads due to overturning moments in multi-story buildings the CNX Cinch Nut is installed over a Bearing Plate Washer at each level in a fast and easy application. At the upper-most level a Cinch Nut is installed over a Bearing Plate Washer above the top plates. At walls below that bear on wood floor systems, the Cinch Nut and Bearing Plate Washer are installed over the bottom plate. Tension loads are gathered at each level and transferred into the foundation through a continuous system of Cinch Nuts, Bearing Plate Washers, Z-Rods/ATRs and Couplers all available from **MiTek® Builder Products**.



For Lateral Loads

### Z4 Tie-Down System for Wind Uplift

For resisting roof uplift loads resulting from wind the Z4 Cinch Nut is installed over a Bearing Plate Washer above the top plates with roof framing above to create a tie-down system. Uplift forces are transferred into a continuous system of Z-Rods / ATRs and Couplers that form a load path to the foundation.



For Wind Uplift Loads

# Let our reliability carry your load.

At MiTek, our knowledge and experience is integrated into every product we manufacture. Each product is engineered, tested, analyzed and retested to provide the most efficient design to safely support structural loads.

Our professional engineers, drafters and test lab technicians are united in creating innovative solutions to challenges, old and new. When you specify and use USP connectors, you can be confident you're getting products thoughtfully designed and rigorously tested to meet the latest code requirements.

USP engineers provide support to all involved in the building industry. To contact an engineer:

**CA:** 855-633-2725 Email: [mbp-orders@mittek.ca](mailto:mbp-orders@mittek.ca)

**US:** 800-328-5934 Email: [uspcustomerservice.com](mailto:uspcustomerservice.com)





## Made in North America. Designed to Last.

USP Structural Connectors are manufactured and distributed in 8 strategic locations in North America. We are proud of our quality products and the service we offer our valued customers.

### **CUSTOMER SERVICE:**

Phone: 1-800-268-3434

Fax: 1-905-952-2903

Email: [mbp-orders@mittek.ca](mailto:mbp-orders@mittek.ca)

Websites: [MiTek.ca](http://MiTek.ca)

[MiTekBuilderProducts.com](http://MiTekBuilderProducts.com)

## Distribution and Manufacturing

### **Ontario**

221 Racco Parkway  
Thornhill, ON L4J 8X9

### **British Columbia**

2455 – 192nd Street  
Suite 102  
Surrey, BC V3Z 3X1

### **Alberta**

c/o Fastfrate  
11440 – 54th Street SE  
Calgary, AB T2C 4Y6

### **Alberta**

c/o Landtran Logistics Inc.  
4819 – 90A Avenue NW  
Edmonton, AB T6B 2Y3

### **Québec**

2952, Joseph-A. Bombardier  
Laval, QC H7P 6E3

### **New Brunswick**

c/o Atlantic Open Joist  
55 Maxime Drive  
Dieppe, NB E1A 9B5

### **United States**

#### **Minnesota**

703 Rogers Drive  
Montgomery, MN 56069

#### **Arizona**

7890 W Lincoln Street  
Phoenix, AZ 85353

