

# EWP Product Guide

USPconnectors.com

For Use With Products Manufactured by

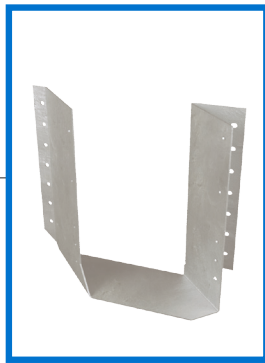


**Boise Cascade**  
*Engineered Wood Products*

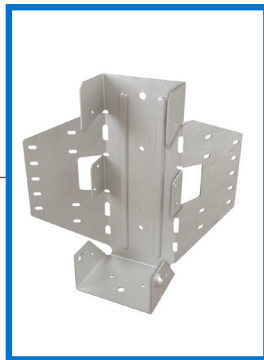
**BCI® I-Joists**



LIMIT  
STATES  
DESIGN



SKH2520R-2 ●



LSSH35 ●



THFI2514 ●



TFL25118 ●

# MiTek

## Canadian Specifiers Guide

Bradford • Thornhill • Surrey • Calgary • Edmonton • Laval • Dieppe

## Follow these instructions to ensure the proper installation of USP products.

- See current USP Product Catalog for General Notes, Warranty, and installation information for hanger models, joist sizes, and header situations not shown.
- Loads listed address hanger/header/fastener limitations as well as joist/hanger limitations assuming header material is Douglas Fir (DF) or LVL. For S-P-F header material, refer to the current USP catalog. Joist reaction should be checked by a qualified designer to ensure proper hanger selection.
- Uplift loads have been increased 15% for wind or seismic loads and no further increase shall be permitted. Reduce loads according to code for normal duration loading such as cantilever construction.
- If hanger height is less than 60% of joist height, joist rotation may occur, therefore supplemental lateral restraints are required, see page 3.
- The type and quantity of fasteners used to install USP products is critical to connector performance. To achieve the factored resistances shown in this document, install with the fasteners specified for that particular prod-

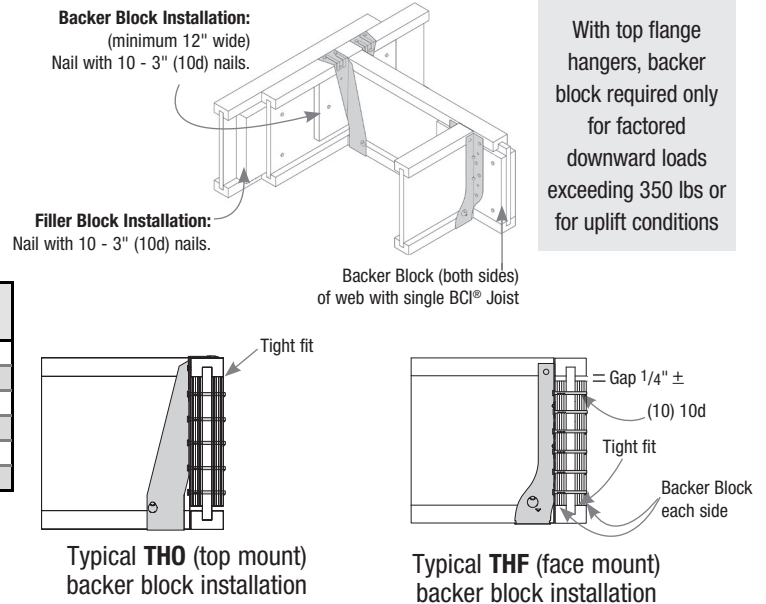
- uct. All specified fasteners must be properly installed prior to applying load of any kind to the connection.
- Throughout this document, dimensions are expressed in inches and loads in pounds, unless specifically noted otherwise.
- Load values for 10d and 16d designations in the fastener schedules throughout this document refer to common wire nails, unless noted otherwise.
- The factored resistances shown in this document are based on Limit States Design methodology.
- **Multiple 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.
- **Sloped Joists:** Use slope 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".

**Backer Blocks** — Pattern the nails used to install backer blocks or web stiffeners in wood 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 Joists 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 a Joist header must penetrate through the web and into the backer block on the opposite side.

### Filler and Backer Block sizes

| BCI® Joist Series    | Backer Block Thickness         | Filler Block Thickness           |
|----------------------|--------------------------------|----------------------------------|
| 4500s 1.8            | 5/8" or 3/4" wood panels       | Two 5/8" wood panels or 2 x _    |
| 5000 1.7 / 5000s 1.8 | 3/4" or 7/8" wood panels       | Two 3/4" wood panels or 2 x _    |
| 6000 1.8 / 6000s 1.8 | 1-1/8" or two 1/2" wood panels | 2 x _ + 7/16" or 1/2" wood panel |
| 6500 1.8 / 6500s 1.8 | 1-1/8" or two 5/8" wood panels | 2 x _ + 5/8" or 3/4" wood panel  |
| 60 2.0 / 60 2.0s     | 1-1/8" or two 1/2" wood panels | 2 x _ + 7/16" or 1/2" wood panel |
| 90 2.0 / 90s 2.0     | 2x _ lumber                    | Double 2 x _ lumber              |

- Cut backer and filler blocks to a maximum depth equal to the web depth minus 1/4" to avoid a forced fit.



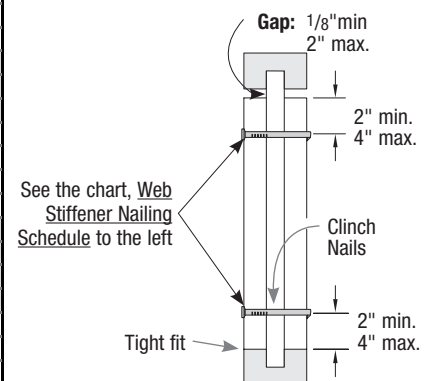
## Web Stiffener Attachment

Web Stiffeners are optional except as noted below:

- Web stiffeners required at bearing locations for 18" & 20" deep joists.
- Web stiffeners are always required in hangers that do not extend up to support the top flange of the I-joist. Web stiffeners may be required with certain sloped or skewed hangers or to achieve uplift values. Refer to USP's installation requirements.

| Web Stiffener Specifications |                                      |                             |               |
|------------------------------|--------------------------------------|-----------------------------|---------------|
| BCI® Joist Series            | For Structural Capacity (Min. Thick) | Lateral Restraint in Hanger | Minimum Width |
| 4500s 1.8                    | 5/8"                                 | 5/8"                        | 2-5/16"       |
| 5000 1.7 / 5000s 1.8         | 5/8"                                 | 3/4"                        | 2-5/16"       |
| 6000 1.8 / 6000s 1.8         | 3/4"                                 | 7/8"                        | 2-5/16"       |
| 6500 1.8 / 6500s 1.8         | 3/4"                                 | 1" or 1-1/8"                | 2-5/16"       |
| 60 2.0 / 60s 2.0             | 3/4"                                 | 7/8"                        | 2-5/16"       |
| 90 2.0 / 90s 2.0             | 2x4 lumber (vertical)                |                             |               |

| Web Stiffener Nailing Schedule |             |                  |                  |
|--------------------------------|-------------|------------------|------------------|
| BCI® Joist Series              | Joist Depth | Bearing Location |                  |
|                                |             | End              | Intermediate     |
| 4500s 1.8                      | 9-1/2"      | (2) 2-1/2" (8d)  | (2) 2-1/2" (8d)  |
|                                | 11-7/8"     | (2) 2-1/2" (8d)  | (3) 2-1/2" (8d)  |
|                                | 14"         | (2) 2-1/2" (8d)  | (5) 2-1/2" (8d)  |
|                                | 16"         | (2) 2-1/2" (8d)  | (6) 2-1/2" (8d)  |
| 5000 1.7 / 5000s 1.8           | 9-1/2"      | (2) 2-1/2" (8d)  | (2) 2-1/2" (8d)  |
|                                | 11-7/8"     | (2) 2-1/2" (8d)  | (3) 2-1/2" (8d)  |
|                                | 14"         | (2) 2-1/2" (8d)  | (5) 2-1/2" (8d)  |
| 6000 1.8 / 6000s 1.8           | 9-1/2"      | (2) 2-1/2" (8d)  | (2) 2-1/2" (8d)  |
|                                | 11-7/8"     | (2) 2-1/2" (8d)  | (3) 2-1/2" (8d)  |
|                                | 14"         | (2) 2-1/2" (8d)  | (5) 2-1/2" (8d)  |
|                                | 16"         | (2) 2-1/2" (8d)  | (6) 2-1/2" (8d)  |
| 6500 1.8 / 6500s 1.8           | 9-1/2"      | (2) 2-1/2" (8d)  | (2) 2-1/2" (8d)  |
|                                | 11-7/8"     | (2) 2-1/2" (8d)  | (3) 2-1/2" (8d)  |
|                                | 14"         | (2) 2-1/2" (8d)  | (5) 2-1/2" (8d)  |
| 60 2.0 / 60s 2.0               | 11-7/8"     | (2) 2-1/2" (8d)  | (2) 2-1/2" (8d)  |
|                                | 14"         | (2) 2-1/2" (8d)  | (5) 2-1/2" (8d)  |
|                                | 16"         | (2) 2-1/2" (8d)  | (6) 2-1/2" (8d)  |
| 90 2.0 / 90s 2.0               | 11-7/8"     | (3) 3-1/2" (16d) | (3) 3-1/2" (16d) |
|                                | 14"         | (5) 3-1/2" (16d) | (5) 3-1/2" (16d) |
|                                | 16"         | (6) 3-1/2" (16d) | (6) 3-1/2" (16d) |
|                                | 18"         | (7) 3-1/2" (16d) | (7) 3-1/2" (16d) |
|                                | 20"         | (8) 3-1/2" (16d) | (8) 3-1/2" (16d) |



## Support Height & Lateral Stability

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 *EWP Top Mount Hangers* charts under the *Web Stiffener Req.* column of USP's *Product Catalog*.)

## Nailer Installations

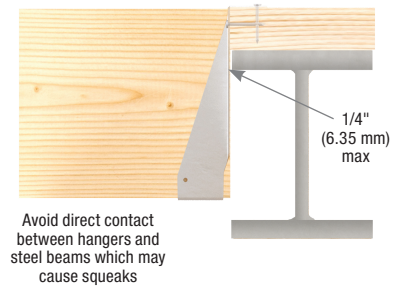
### Correct Hanger Attachment to Nailer

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 type of support unsuitable for nailing which is used as a nailing surface for top mount hangers to hold beams or joists.

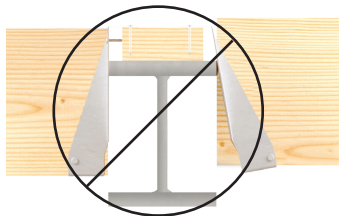
### Nailer Sized Correctly

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.

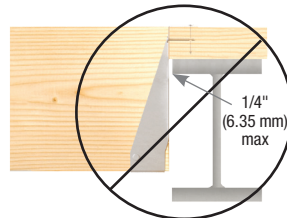


## Wrong Nailer Size Causes Component Failure



### ⚠ 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" (6.35mm) maximum per side.



### ⚠ Too Thin

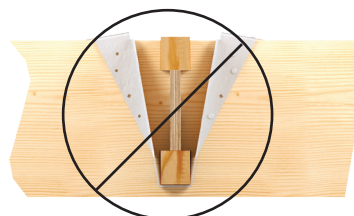
Top flange nailing cannot fully penetrate nailer, causing reduced allowable loads. Never use hangers which require multiple face nails with a nailer or sill plate since the factored resistance are dependent on all nail holes being used.

## 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 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 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

## Hanger Factored Resistance (Lbs)

| Joist Height  | Top Mount Hangers <sup>4,7</sup> |                            |                                |      |       |             |                          |                        | Face Mount Hangers         |                            |                          |                                |             |       |      |                          |                        |
|---|----------------------------------|----------------------------|--------------------------------|------|-------|-------------|--------------------------|------------------------|----------------------------|----------------------------|--------------------------|--------------------------------|-------------|-------|------|--------------------------|------------------------|
|   | USP Stock No. <sup>1</sup>       | Length of Hanger Seat (in) | Fastener Schedule <sup>5</sup> |      |       |             | Uplift <sup>3</sup> 115% | Down <sup>2</sup> 100% | USP Stock No. <sup>1</sup> | Length of Hanger Seat (in) | Min / Max                | Fastener Schedule <sup>5</sup> |             |       |      | Uplift <sup>3</sup> 115% | Down <sup>2</sup> 100% |
|   |                                  |                            | Header                         |      | Joist |             |                          |                        |                            |                            |                          | Header                         |             | Joist |      |                          |                        |
|   |                                  |                            | Qty                            | Type | Qty   | Type        |                          |                        |                            |                            |                          | Qty                            | Type        | Qty   | Type |                          |                        |
| <b>BCI® 4500s Series</b> Joist Width = 1-3/4"               |                                  |                            |                                |      |       |             |                          |                        |                            |                            |                          |                                |             |       |      |                          |                        |
| 9-1/2   | THO17950                         | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 490                      | 1935                   | THF17925                   | 2                          | Min 8 10d<br>Max 12 10d  | 2                              | 10d x 1-1/2 | 500   | 2920 |                          |                        |
| 11-7/8  | THO17118                         | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 490                      | 1935                   | THF17112                   | 2                          | Min 8 10d<br>Max 16 10d  | 2                              | 10d x 1-1/2 | 500   | 2920 |                          |                        |
| 14  | TFL1714                          | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF17140                   | 2                          | Min 12 10d<br>Max 20 10d | 2                              | 10d x 1-1/2 | 500   | 3655 |                          |                        |
| 16  | TFL1716                          | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF17157                   | 3-1/2                      | -- 24 10d                | 2                              | 10d x 1-1/2 | 500   | 5195 |                          |                        |
| <b>BCI® 5000 1.7/5000s 1.8 Series</b> Joist Width = 2"      |                                  |                            |                                |      |       |             |                          |                        |                            |                            |                          |                                |             |       |      |                          |                        |
| 9-1/2   | TFL2095                          | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF20925                   | 2                          | Min 8 10d<br>Max 12 10d  | 2                              | 10d x 1-1/2 | 500   | 2920 |                          |                        |
| 11-7/8  | TFL20118                         | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF20112                   | 2                          | Min 8 10d<br>Max 16 10d  | 2                              | 10d x 1-1/2 | 500   | 2920 |                          |                        |
| 14  | TFL2014                          | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF20140                   | 2                          | Min 12 10d<br>Max 20 10d | 2                              | 10d x 1-1/2 | 500   | 3655 |                          |                        |
| 16  | TFL2016                          | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF20157                   | 3-3/8                      | -- 24 10d                | 2                              | 10d x 1-1/2 | 500   | 5195 |                          |                        |
| <b>BCI® 6000 1.8/6000s 1.8 Series</b> Joist Width = 2-5/16" |                                  |                            |                                |      |       |             |                          |                        |                            |                            |                          |                                |             |       |      |                          |                        |
| 9-1/2   | TFL2395                          | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF23925                   | 2-1/2                      | -- 12 10d                | 2                              | 10d x 1-1/2 | 320   | 3310 |                          |                        |
| 11-7/8  | TFL23118                         | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF23118                   | 2-1/2                      | -- 14 10d                | 2                              | 10d x 1-1/2 | 690   | 3310 |                          |                        |
| 14  | TFL2314                          | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF23140                   | 2-1/2                      | -- 18 10d                | 2                              | 10d x 1-1/2 | 690   | 4405 |                          |                        |
| 16  | TFL2316                          | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF23160                   | 2-1/2                      | -- 22 10d                | 2                              | 10d x 1-1/2 | 690   | 4405 |                          |                        |
| <b>BCI® 60 2.0/60s 2.0</b> Joist Width = 2-5/16"            |                                  |                            |                                |      |       |             |                          |                        |                            |                            |                          |                                |             |       |      |                          |                        |
| 11-7/8  | TFL23118                         | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF23118                   | 2-1/2                      | -- 14 10d                | 2                              | 10d x 1-1/2 | 690   | 3310 |                          |                        |
| 14  | TFL2314                          | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF23140                   | 2-1/2                      | -- 18 10d                | 2                              | 10d x 1-1/2 | 690   | 4405 |                          |                        |
| 16  | TFL2316                          | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF23160                   | 2-1/2                      | -- 22 10d                | 2                              | 10d x 1-1/2 | 690   | 4405 |                          |                        |
| <b>BCI® 6500 1.8/6500s 1.8 Series</b> Joist Width = 2-9/16" |                                  |                            |                                |      |       |             |                          |                        |                            |                            |                          |                                |             |       |      |                          |                        |
| 9-1/2   | TFL2595                          | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF2595                    | 2                          | -- 8 10d                 | --                             | --          | 235   | 2345 |                          |                        |
| 11-7/8  | TFL25118                         | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF25118                   | 2                          | -- 10 10d                | --                             | --          | 235   | 2345 |                          |                        |
| 14  | TFL2514                          | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF2514                    | 2                          | -- 12 10d                | --                             | --          | 235   | 4605 |                          |                        |
| 16  | TFL2516                          | 2                          | 6                              | 10d  | 2     | 10d x 1-1/2 | 265                      | 2370                   | THF26160                   | 2-1/2                      | -- 22 10d                | 2                              | 10d x 1-1/2 | 690   | 4405 |                          |                        |
| <b>BCI® 90 2.0/90s 2.0 Series</b> Joist Width = 3-1/2"      |                                  |                            |                                |      |       |             |                          |                        |                            |                            |                          |                                |             |       |      |                          |                        |
| 11-7/8  | THO35118                         | 2-3/8                      | 10                             | 10d  | 2     | 10d x 1-1/2 | 485                      | 2950                   | THF35112                   | 2-1/2                      | -- 16 10d                | 2                              | 10d x 1-1/2 | 445   | 5075 |                          |                        |
| 14  | THO35140                         | 2-3/8                      | 12                             | 10d  | 2     | 10d x 1-1/2 | 485                      | 3910                   | THF35140                   | 2-1/2                      | -- 20 10d                | 2                              | 10d x 1-1/2 | 445   | 6680 |                          |                        |
| 16  | THO35160                         | 2-3/8                      | 12                             | 10d  | 2     | 10d x 1-1/2 | 485                      | 3910                   | THF35157                   | 2-1/2                      | -- 22 10d                | 2                              | 10d x 1-1/2 | 445   | 6680 |                          |                        |
| 18  | TFI418                           | 2-1/2                      | 6                              | 16d  | 2     | 10d x 1-1/2 | 505                      | 3685                   | THF35165                   | 2-1/2                      | -- 24 10d                | 8                              | 10d x 1-1/2 | 2335  | 6680 |                          |                        |
| 20  | TFI420                           | 2-1/2                      | 6                              | 16d  | 2     | 10d x 1-1/2 | 505                      | 3685                   | THF35165                   | 2-1/2                      | -- 24 10d                | 8                              | 10d x 1-1/2 | 2335  | 6680 |                          |                        |

- 1) Shaded hangers require web stiffeners at joist ends. Web stiffeners may be required for non-shaded hangers by I-joist manufacturers.
- 2) Factored resistances listed are based on hanger attachment to a DF species solid sawn, or VERSA-LAM® LVL header.
- 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.
- 4) Top Mount Hangers assume supporting headers to have a minimum height of 5-1/2" and a minimum thickness of the length of the header nails or the depth of the top flange, whichever is greater. For wood nailer options or header materials not included in this table, refer to the current USP Product Catalog.
- 5) 10d x 1-1/2 nails are 0.148" diameter x 1-1/2" long, 10d nails are 0.148" diameter x 3" long, and 16d nails are 0.162" diameter x 3-1/2" long. 16d sinkers are 0.148" diameter x 3-1/4" long and may be used where 10d commons are specified.
- 6) Hangers utilizing 16d nails are not compatible with BCI® joists.
- 7) For top mount hangers supported by I-Joist headers with a flange thickness less than 1-1/2", consult USP and Boise for hanger limitations.



## Hanger Factored Resistance (Lbs)

| Joist Height  | Adjustable Height Hangers    |                            |                                |      |       |             |                          |                        | Skewed 45° Hangers              |                            |                                |      |       |             |                          |                        |
|---|------------------------------|----------------------------|--------------------------------|------|-------|-------------|--------------------------|------------------------|---------------------------------|----------------------------|--------------------------------|------|-------|-------------|--------------------------|------------------------|
|   | USP Stock No. <sup>1,7</sup> | Length of Hanger Seat (in) | Fastener Schedule <sup>4</sup> |      |       |             | Uplift <sup>3</sup> 115% | Down <sup>2</sup> 100% | USP Stock No. <sup>1</sup>      | Length of Hanger Seat (in) | Fastener Schedule <sup>4</sup> |      |       |             | Uplift <sup>3</sup> 115% | Down <sup>2</sup> 100% |
|   |                              |                            | Header                         |      | Joist |             |                          |                        |                                 |                            | Header                         |      | Joist |             |                          |                        |
|   |                              |                            | Qty                            | Type | Qty   | Type        |                          |                        |                                 |                            | Qty                            | Type | Qty   | Type        |                          |                        |
| <b>BCI® 4500s Series</b> Joist Width = 1-3/4"               |                              |                            |                                |      |       |             |                          |                        |                                 |                            |                                |      |       |             |                          |                        |
| 9-1/2   | MSH1722                      | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH1720L/R                      | 1-7/8                      | 14                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 3440                   |
| 11-7/8  | MSH1722                      | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH1720L/R                      | 1-7/8                      | 14                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 3440                   |
| 14  | MSH1722                      | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH1724L/R                      | 1-7/8                      | 16                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 4640                   |
| 16  | MSH1722                      | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH1724L/R                      | 1-7/8                      | 16                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 4640                   |
| <b>BCI® 5000 1.7/5000s 1.8 Series</b> Joist Width = 2"      |                              |                            |                                |      |       |             |                          |                        |                                 |                            |                                |      |       |             |                          |                        |
| 9-1/2   | MSH2022                      | 1-3/4                      | 6                              | 10d  | 4     | 10d         | --                       | 3370                   | SKH2020L/R                      | 1-7/8                      | 14                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 3440                   |
| 11-7/8  | MSH2022                      | 1-3/4                      | 6                              | 10d  | 4     | 10d         | --                       | 3370                   | SKH2020L/R                      | 1-7/8                      | 14                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 3440                   |
| 14  | MSH2022                      | 1-3/4                      | 6                              | 10d  | 4     | 10d         | --                       | 3370                   | SKH2024L/R                      | 1-7/8                      | 16                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 4640                   |
| 16  | MSH2022                      | 1-3/4                      | 6                              | 10d  | 4     | 10d         | --                       | 3370                   | SKH2024L/R                      | 1-7/8                      | 16                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 4640                   |
| <b>BCI® 6000 1.8/6000s 1.8 Series</b> Joist Width = 2-5/16" |                              |                            |                                |      |       |             |                          |                        |                                 |                            |                                |      |       |             |                          |                        |
| 9-1/2   | MSH2322                      | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH2320L/R                      | 1-7/8                      | 14                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 3440                   |
| 11-7/8  | MSH2322                      | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH2320L/R                      | 1-7/8                      | 14                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 3440                   |
| 14  | MSH2322                      | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH2324L/R                      | 1-7/8                      | 16                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 4640                   |
| 16  | MSH2322                      | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH2324L/R                      | 1-7/8                      | 16                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 4640                   |
| <b>BCI® 60 2.0/60s 2.0</b> Joist Width = 2-5/16"            |                              |                            |                                |      |       |             |                          |                        |                                 |                            |                                |      |       |             |                          |                        |
| 11-7/8  | MSH2322                      | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH2320L/R                      | 1-7/8                      | 14                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 3440                   |
| 14  | MSH2322                      | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH2324L/R                      | 1-7/8                      | 16                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 4640                   |
| 16  | MSH2322                      | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH2324L/R                      | 1-7/8                      | 16                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 4640                   |
| <b>BCI® 6500 1.8/6500s 1.8 Series</b> Joist Width = 2-9/16" |                              |                            |                                |      |       |             |                          |                        |                                 |                            |                                |      |       |             |                          |                        |
| 9-1/2   | MSH322                       | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH2520L/R                      | 1-7/8                      | 14                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 3440                   |
| 11-7/8  | MSH322                       | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH2520L/R                      | 1-7/8                      | 14                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 3440                   |
| 14  | MSH322                       | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH2524L/R                      | 1-7/8                      | 16                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 4640                   |
| 16  | MSH322                       | 1-3/4                      | 6                              | 10d  | 4     | 10d x 1-1/2 | --                       | 3370                   | SKH2524L/R                      | 1-7/8                      | 16                             | 10d  | 10    | 10d x 1-1/2 | 2855                     | 4640                   |
| <b>BCI® 90 2.0/90s 2.0 Series</b> Joist Width = 3-1/2"      |                              |                            |                                |      |       |             |                          |                        |                                 |                            |                                |      |       |             |                          |                        |
| 11-7/8  | MSH422                       | 1-3/4                      | 6                              | 10d  | 6     | 10d         | --                       | 3215                   | HD410_SK45L/R_BV <sup>6,8</sup> | 2-1/2                      | 18                             | 16d  | 10    | 10d         | 3325                     | 7485                   |
| 14  | MSH422                       | 1-3/4                      | 6                              | 10d  | 6     | 10d         | --                       | 3215                   | HD414_SK45L/R_BV <sup>6,8</sup> | 2-1/2                      | 24                             | 16d  | 10    | 10d         | 3220                     | 8250                   |
| 16  | MSH422                       | 1-3/4                      | 6                              | 10d  | 6     | 10d         | --                       | 3215                   | HD414_SK45L/R_BV <sup>6,8</sup> | 2-1/2                      | 24                             | 16d  | 10    | 10d         | 3220                     | 8250                   |
| 18  | MSH422                       | 1-3/4                      | 6                              | 10d  | 6     | 10d         | --                       | 3215                   | HD414_SK45L/R_BV <sup>6,8</sup> | 2-1/2                      | 24                             | 16d  | 10    | 10d         | 3220                     | 8250                   |
| 20  | MSH426                       | 1-3/4                      | 6                              | 10d  | 6     | 10d         | --                       | 4340                   | HD414_SK45L/R_BV <sup>6,8</sup> | 2-1/2                      | 24                             | 16d  | 10    | 10d         | 3220                     | 8250                   |

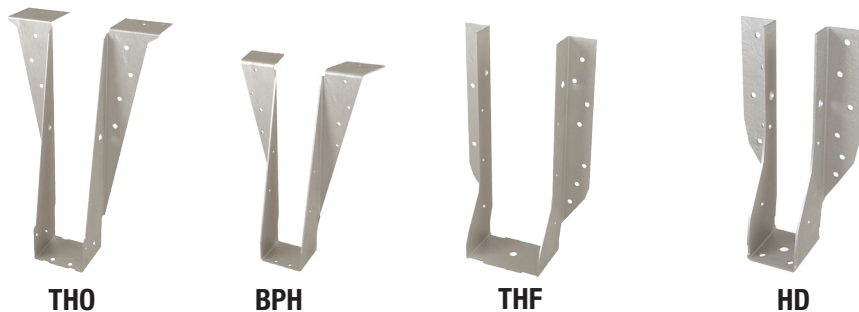
- 1) Shaded hangers require web stiffeners at joist ends.
- 2) Factored resistances listed are based on hanger attachment to a DF species solid sawn, or VERSA-LAM® LVL header.
- 3) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 4) 10d x 1-1/2 nails are 0.148" diameter x 1-1/2" long, 10d nails are 0.148" diameter x 3" long, and 16d nails are 0.162" diameter x 3-1/2" long. 16d sinkers are 0.148" diameter x 3-1/4" long and may be used where 10d commons are specified.
- 5) Hangers utilizing 16d nails are not compatible with BCI® joists.
- 6) Bevel cut required on end of joist to achieve design loads.
- 7) MSH factored resistances listed in this table assume Top-Min mounting condition installed with 4 - 10d top nails and 2 - 10d face nails. For MSH Face-Max and Top-Max mounting conditions not included in this table, refer to the current USP Product Catalog.
- 8) Hangers are special order. Consult USP for pricing and lead times.



## Hanger Factored Resistance (Lbs)

| Joist Height  | Top Mount Hangers <sup>4,7</sup> |                            |                                |      |       |             |                          |                        | Face Mount Hangers         |                            |                                |      |       |             |                          |                        |
|---|----------------------------------|----------------------------|--------------------------------|------|-------|-------------|--------------------------|------------------------|----------------------------|----------------------------|--------------------------------|------|-------|-------------|--------------------------|------------------------|
|   | USP Stock No. <sup>1</sup>       | Length of Hanger Seat (in) | Fastener Schedule <sup>5</sup> |      |       |             | Uplift <sup>3</sup> 115% | Down <sup>2</sup> 100% | USP Stock No. <sup>1</sup> | Length of Hanger Seat (in) | Fastener Schedule <sup>5</sup> |      |       |             | Uplift <sup>3</sup> 115% | Down <sup>2</sup> 100% |
|   |                                  |                            | Header                         |      | Joist |             |                          |                        |                            |                            | Header                         |      | Joist |             |                          |                        |
|   |                                  |                            | Qty                            | Type | Qty   | Type        |                          |                        |                            |                            | Qty                            | Type | Qty   | Type        |                          |                        |
| <b>Double BCI® 4500s Series</b> Joist Width = 3-1/2"              |                                  |                            |                                |      |       |             |                          |                        |                            |                            |                                |      |       |             |                          |                        |
| 9-1/2   | THO35950                         | 2-3/8                      | 10                             | 10d  | 2     | 10d x 1-1/2 | 485                      | 2950                   | THF35925                   | 2-1/2                      | 12                             | 10d  | 2     | 10d x 1-1/2 | 445                      | 5075                   |
| 11-7/8  | THO35118                         | 2-3/8                      | 10                             | 10d  | 2     | 10d x 1-1/2 | 485                      | 2950                   | THF35112                   | 2-1/2                      | 12                             | 10d  | 2     | 10d x 1-1/2 | 445                      | 5075                   |
| 14  | THO35140                         | 2-3/8                      | 12                             | 10d  | 2     | 10d x 1-1/2 | 485                      | 3910                   | THF35140                   | 2-1/2                      | 16                             | 10d  | 2     | 10d x 1-1/2 | 445                      | 6680                   |
| 16  | THO35160                         | 2-3/8                      | 12                             | 10d  | 2     | 10d x 1-1/2 | 485                      | 3910                   | THF35157                   | 2-1/2                      | 20                             | 10d  | 2     | 10d x 1-1/2 | 445                      | 6680                   |
| <b>Double BCI® 5000 1.7/5000s 1.8 Series</b> Joist Width = 4"     |                                  |                            |                                |      |       |             |                          |                        |                            |                            |                                |      |       |             |                          |                        |
| 9-1/2   | THO20950-2                       | 3                          | 10                             | 16d  | 6     | 10d         | 2140                     | 3355                   | THF20925-2                 | 2-1/2                      | 12                             | 10d  | 6     | 10d         | 3185                     | 5035                   |
| 11-7/8  | THO20118-2                       | 3                          | 10                             | 16d  | 6     | 10d         | 2140                     | 3355                   | THF20112-2                 | 2-1/2                      | 16                             | 10d  | 6     | 10d         | 3185                     | 5350                   |
| 14  | THO20140-2                       | 3                          | 10                             | 16d  | 6     | 10d         | 2140                     | 3355                   | THF20140-2                 | 2-1/2                      | 20                             | 10d  | 6     | 10d         | 3185                     | 6735                   |
| 16  | THO20160-2                       | 3                          | 10                             | 16d  | 6     | 10d         | 2140                     | 3355                   | THF20140-2                 | 2-1/2                      | 20                             | 10d  | 6     | 10d         | 3185                     | 6735                   |
| <b>Double BCI® 6000 1.8/6000s 1.8 Series</b> Joist Width = 4-5/8" |                                  |                            |                                |      |       |             |                          |                        |                            |                            |                                |      |       |             |                          |                        |
| 9-1/2   | THO23950-2                       | 3                          | 10                             | 16d  | 6     | 10d         | 2140                     | 5090                   | THF23925-2                 | 2-1/2                      | 14                             | 10d  | 6     | 10d         | 3185                     | 5075                   |
| 11-7/8  | THO23118-2                       | 3                          | 10                             | 16d  | 6     | 10d         | 2140                     | 5090                   | THF23118-2                 | 2-1/2                      | 16                             | 10d  | 6     | 10d         | 3185                     | 6855                   |
| 14  | THO23140-2                       | 3                          | 12                             | 16d  | 6     | 10d         | 2140                     | 5090                   | THF23140-2                 | 2-1/2                      | 20                             | 10d  | 6     | 10d         | 3185                     | 6680                   |
| 16  | THO23160-2                       | 3                          | 12                             | 16d  | 6     | 10d         | 2140                     | 5090                   | THF23160-2                 | 2-1/2                      | 24                             | 10d  | 6     | 10d         | 3185                     | 6680                   |
| <b>Double BCI® 60 2.0/60s 2.0</b> Joist Width = 4-5/8"            |                                  |                            |                                |      |       |             |                          |                        |                            |                            |                                |      |       |             |                          |                        |
| 11-7/8  | THO23118-2                       | 3                          | 10                             | 16d  | 6     | 10d         | 2140                     | 5090                   | THF23118-2                 | 2-1/2                      | 16                             | 10d  | 6     | 10d         | 3185                     | 6855                   |
| 14  | THO23140-2                       | 3                          | 12                             | 16d  | 6     | 10d         | 2140                     | 5090                   | THF23140-2                 | 2-1/2                      | 20                             | 10d  | 6     | 10d         | 3185                     | 6680                   |
| 16  | THO23160-2                       | 3                          | 12                             | 16d  | 6     | 10d         | 2140                     | 5090                   | THF23160-2                 | 2-1/2                      | 24                             | 10d  | 6     | 10d         | 3185                     | 6680                   |
| <b>Double BCI® 6500 1.8/6500s 1.8 Series</b> Joist Width = 5-1/8" |                                  |                            |                                |      |       |             |                          |                        |                            |                            |                                |      |       |             |                          |                        |
| 9-1/2   | THO25950-2                       | 3                          | 10                             | 16d  | 6     | 10d         | 2140                     | 5090                   | THF25925-2                 | 2-1/2                      | 12                             | 10d  | 6     | 10d         | 3185                     | 5075                   |
| 11-7/8  | THO25118-2                       | 3                          | 10                             | 16d  | 6     | 10d         | 2140                     | 5090                   | THF25112-2                 | 2-1/2                      | 16                             | 10d  | 6     | 10d         | 3185                     | 5075                   |
| 14  | THO25140-2                       | 3                          | 12                             | 16d  | 6     | 10d         | 2140                     | 5090                   | THF25140-2                 | 2-1/2                      | 20                             | 10d  | 6     | 10d         | 3185                     | 6680                   |
| 16  | THO25160-2                       | 3                          | 12                             | 16d  | 6     | 10d         | 2140                     | 5090                   | THF25160-2                 | 2-1/2                      | 24                             | 10d  | 6     | 10d         | 3185                     | 6680                   |
| <b>Double BCI® 90 2.0/90s 2.0 Series</b> Joist Width = 7"         |                                  |                            |                                |      |       |             |                          |                        |                            |                            |                                |      |       |             |                          |                        |
| 11-7/8  | BPH71118                         | 3                          | 10                             | 16d  | 6     | 10d         | 2935                     | 5300                   | HD7120                     | 2-1/2                      | 16                             | 16d  | 6     | 10d         | 2685                     | 4675                   |
| 14  | BPH7114                          | 3                          | 10                             | 16d  | 6     | 10d         | 2935                     | 5300                   | HD7140                     | 2-1/2                      | 20                             | 16d  | 8     | 10d         | 2685                     | 7485                   |
| 16  | BPH7116                          | 3                          | 10                             | 16d  | 6     | 10d         | 2935                     | 5300                   | HD7160                     | 2-1/2                      | 24                             | 16d  | 8     | 10d         | 2685                     | 8250                   |
| 18  | BPH7118                          | 3                          | 10                             | 16d  | 6     | 10d         | 2935                     | 5300                   | HD7180                     | 2-1/2                      | 28                             | 16d  | 8     | 10d         | 2685                     | 8250                   |
| 20  | BPH7120                          | 3                          | 10                             | 16d  | 6     | 10d         | 2935                     | 5300                   | HD7180                     | 2-1/2                      | 28                             | 16d  | 8     | 10d         | 2685                     | 8250                   |

- 1) Shaded hangers require web stiffeners at joist ends. Web stiffeners may be required for non-shaded hangers by I-joist manufacturers.
- 2) Factored resistances listed are based on hanger attachment to a DF species solid sawn, or VERSA-LAM® LVL header.
- 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.
- 4) Top Mount Hangers assume supporting headers to have a minimum height of 5-1/2" and a minimum thickness of the length of the header nails or the depth of the top flange, whichever is greater. For wood nailer options or header materials not included in this table, refer to the current USP Product Catalog.
- 5) 10d x 1-1/2 nails are 0.148" diameter x 1-1/2" long, 10d nails are 0.148" diameter x 3" long, and 16d nails are 0.162" diameter x 3-1/2" long. 16d sinkers are 0.148" diameter x 3-1/4" long and may be used where 10d commons are specified.
- 6) Hangers utilizing 16d nails are not compatible with BCI® joists.
- 7) For top mount hangers supported by I-Joist headers with a flange thickness less than 1-1/2", consult USP and Boise for hanger limitations.



THO

BPH

THF

HD

## Hanger Factored Resistance (Lbs)

| Joist Height  | Adjustable Height Hangers  |                            |                                |      |       |      |                          |                        | Skewed 45° Hangers               |                            |                                |      |       |      |                          |                        |
|---|--|----------------------------|--------------------------------|------|-------|------|--------------------------|------------------------|----------------------------------|----------------------------|--------------------------------|------|-------|------|--------------------------|------------------------|
|   | USP Stock No. <sup>1,5,9</sup>   | Length of Hanger Seat (in) | Fastener Schedule <sup>4</sup> |      |       |      | Uplift <sup>3</sup> 115% | Down <sup>2</sup> 100% | USP Stock No. <sup>1</sup>       | Length of Hanger Seat (in) | Fastener Schedule <sup>4</sup> |      |       |      | Uplift <sup>3</sup> 115% | Down <sup>2</sup> 100% |
|   |  |                            | Header                         |      | Joist |      |                          |                        |                                  |                            | Header                         |      | Joist |      |                          |                        |
|   |  |                            | Qty                            | Type | Qty   | Type |                          |                        |                                  |                            | Qty                            | Type | Qty   | Type |                          |                        |
| <b>Double BCI® 4500s Series</b> Joist Width = 3-1/2"              |  |                            |                                |      |       |      |                          |                        |                                  |                            |                                |      |       |      |                          |                        |
| 9-1/2   | MSH422   | 1-3/4                      | 6                              | 10d  | 6     | 10d  | --                       | 3215                   | HD410_SK45L/R_BV <sup>6,8</sup>  | 2-1/2                      | 18                             | 16d  | 10    | 10d  | 3325                     | 7485                   |
| 11-7/8  | MSH422   | 1-3/4                      | 6                              | 10d  | 6     | 10d  | --                       | 3215                   | HD410_SK45L/R_BV <sup>6,8</sup>  | 2-1/2                      | 18                             | 16d  | 10    | 10d  | 3325                     | 7485                   |
| 14  | MSH422   | 1-3/4                      | 6                              | 10d  | 6     | 10d  | --                       | 3215                   | HD414_SK45L/R_BV <sup>6,8</sup>  | 2-1/2                      | 24                             | 16d  | 10    | 10d  | 3220                     | 8250                   |
| 16  | MSH422   | 1-3/4                      | 6                              | 10d  | 6     | 10d  | --                       | 3215                   | HD414_SK45L/R_BV <sup>6,8</sup>  | 2-1/2                      | 24                             | 16d  | 10    | 10d  | 3220                     | 8250                   |
| <b>Double BCI® 5000 1.7/5000s 1.8 Series</b> Joist Width = 4"     |  |                            |                                |      |       |      |                          |                        |                                  |                            |                                |      |       |      |                          |                        |
| 9-1/2   | See current USP Product Catalog or BC Framers for specialty hanger options |                            |                                |      |       |      |                          |                        | SKH2020L/R-2 <sup>6</sup>        | 3-1/2                      | 14                             | 10d  | 10    | 10d  | 3490                     | 5320                   |
| 11-7/8  |  |                            |                                |      |       |      |                          |                        | SKH2020L/R-2 <sup>6</sup>        | 3-1/2                      | 14                             | 10d  | 10    | 10d  | 3490                     | 5320                   |
| 14  |  |                            |                                |      |       |      |                          |                        | SKH2024L/R-2 <sup>6</sup>        | 3-1/2                      | 16                             | 10d  | 10    | 10d  | 3485                     | 4950                   |
| 16  |  |                            |                                |      |       |      |                          |                        | SKH2024L/R-2 <sup>6</sup>        | 3-1/2                      | 16                             | 10d  | 10    | 10d  | 3485                     | 4950                   |
| <b>Double BCI® 6000 1.8/6000s 1.8 Series</b> Joist Width = 4-5/8" |  |                            |                                |      |       |      |                          |                        |                                  |                            |                                |      |       |      |                          |                        |
| 9-1/2   | MSH2322-2  | 1-3/4                      | 6                              | 10d  | 4     | 10d  | --                       | 3475                   | SKH2320L/R-2 <sup>6</sup>        | 3-1/2                      | 14                             | 10d  | 10    | 10d  | 3490                     | 5320                   |
| 11-7/8  | MSH2322-2  | 1-3/4                      | 6                              | 10d  | 4     | 10d  | --                       | 3475                   | SKH2320L/R-2 <sup>6</sup>        | 3-1/2                      | 14                             | 10d  | 10    | 10d  | 3490                     | 5320                   |
| 14  | MSH2322-2  | 1-3/4                      | 6                              | 10d  | 4     | 10d  | --                       | 3475                   | SKH2324L/R-2 <sup>6</sup>        | 3-1/2                      | 16                             | 10d  | 10    | 10d  | 3485                     | 4950                   |
| 16  | MSH2322-2  | 1-3/4                      | 6                              | 10d  | 4     | 10d  | --                       | 3475                   | SKH2324L/R-2 <sup>6</sup>        | 3-1/2                      | 16                             | 10d  | 10    | 10d  | 3485                     | 4950                   |
| <b>Double BCI® 60 2.0/60s 2.0</b> Joist Width = 4-5/8"            |  |                            |                                |      |       |      |                          |                        |                                  |                            |                                |      |       |      |                          |                        |
| 11-7/8  | MSH2322-2  | 1-3/4                      | 6                              | 10d  | 4     | 10d  | --                       | 3475                   | SKH2320L/R-2 <sup>6</sup>        | 3-1/2                      | 14                             | 10d  | 10    | 10d  | 3490                     | 5320                   |
| 14  | MSH2322-2  | 1-3/4                      | 6                              | 10d  | 4     | 10d  | --                       | 3475                   | SKH2324L/R-2 <sup>6</sup>        | 3-1/2                      | 16                             | 10d  | 10    | 10d  | 3485                     | 4950                   |
| 16  | MSH2322-2  | 1-3/4                      | 6                              | 10d  | 4     | 10d  | --                       | 3475                   | SKH2324L/R-2 <sup>6</sup>        | 3-1/2                      | 16                             | 10d  | 10    | 10d  | 3485                     | 4950                   |
| <b>Double BCI® 6500 1.8/6500s 1.8 Series</b> Joist Width = 5-1/8" |  |                            |                                |      |       |      |                          |                        |                                  |                            |                                |      |       |      |                          |                        |
| 9-1/2   | See current USP Product Catalog or BC Framers for specialty hanger options |                            |                                |      |       |      |                          |                        | SKH2520L/R-2 <sup>6</sup>        | 3-1/2                      | 14                             | 10d  | 10    | 10d  | 3490                     | 5320                   |
| 11-7/8  |  |                            |                                |      |       |      |                          |                        | SKH2520L/R-2 <sup>6</sup>        | 3-1/2                      | 14                             | 10d  | 10    | 10d  | 3490                     | 5320                   |
| 14  |  |                            |                                |      |       |      |                          |                        | SKH2524L/R-2 <sup>6</sup>        | 3-1/2                      | 16                             | 10d  | 10    | 10d  | 3485                     | 4950                   |
| 16  |  |                            |                                |      |       |      |                          |                        | SKH2524L/R-2 <sup>6</sup>        | 3-1/2                      | 16                             | 10d  | 10    | 10d  | 3485                     | 4950                   |
| <b>Double BCI® 90 2.0/90s 2.0 Series</b> Joist Width = 7"         |  |                            |                                |      |       |      |                          |                        |                                  |                            |                                |      |       |      |                          |                        |
| 11-7/8  | See current USP Product Catalog or BC Framers for specialty hanger options |                            |                                |      |       |      |                          |                        | HD7120_SK45L/R_BV <sup>6,8</sup> | 2-1/2                      | 16                             | 16d  | 6     | 10d  | 2015                     | 4675                   |
| 14  |  |                            |                                |      |       |      |                          |                        | HD7140_SK45L/R_BV <sup>6,8</sup> | 2-1/2                      | 20                             | 16d  | 8     | 10d  | 2015                     | 7485                   |
| 16  |  |                            |                                |      |       |      |                          |                        | HD7160_SK45L/R_BV <sup>6,8</sup> | 2-1/2                      | 24                             | 16d  | 8     | 10d  | 2015                     | 8250                   |
| 18  |  |                            |                                |      |       |      |                          |                        | HD7180_SK45L/R_BV <sup>6,8</sup> | 2-1/2                      | 28                             | 16d  | 8     | 10d  | 2015                     | 8250                   |
| 20  |  |                            |                                |      |       |      |                          |                        | HD7180_SK45L/R_BV <sup>6,8</sup> | 2-1/2                      | 28                             | 16d  | 8     | 10d  | 2015                     | 8250                   |

- 1) Shaded hangers require web stiffeners at joist ends.
- 2) Factored resistances listed are based on hanger attachment to a DF species solid sawn, or VERSA-LAM® LVL header.
- 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.
- 4) 10d nails are 0.148" diameter x 3" long, and 16d nails are 0.162" diameter x 3-1/2" long.  
16d sinkers are 0.148" diameter x 3-1/4" long and may be used where 10d commons are specified.
- 5) For additional sizes, stock numbers, and modifications not shown, refer to USP's Product Catalog.
- 6) Bevel cut required on end of joist to achieve design loads.
- 7) Hangers utilizing 16d nails are not compatible with BCI® joists.
- 8) Hangers are special order. Consult USP for pricing and lead times.
- 9) MSH factored resistances listed in this table assume Top-Min mounting condition installed with 4 - 10d top nails and 2 - 10d face nails.  
For MSH Face-Max and Top-Max mounting conditions not included in this table, refer to the current USP Product Catalog.



MSH



SKH\_L  
left shown



SKH\_R  
right shown



HD

# Versa-Lam LVL Beams & Headers



## Hanger Factored Resistance (Lbs)

| Joist Height  | Top Mount Hangers <sup>3</sup> |                            |                                |          |       |             |                          |                        | Face Mount Hangers   |                            |                                |      |       |             |                          |                        |
|---|--------------------------------|----------------------------|--------------------------------|----------|-------|-------------|--------------------------|------------------------|----------------------|----------------------------|--------------------------------|------|-------|-------------|--------------------------|------------------------|
|   | USP Stock No.                  | Length of Hanger Seat (in) | Fastener Schedule <sup>4</sup> |          |       |             | Uplift <sup>2</sup> 115% | Down <sup>1</sup> 100% | USP Stock No.        | Length of Hanger Seat (in) | Fastener Schedule <sup>4</sup> |      |       |             | Uplift <sup>2</sup> 115% | Down <sup>1</sup> 100% |
|   |                                |                            | Header                         |          | Joist |             |                          |                        |                      |                            | Header                         |      | Joist |             |                          |                        |
|   |                                |                            | Qty                            | Type     | Qty   | Type        |                          |                        |                      |                            | Qty                            | Type | Qty   | Type        |                          |                        |
| <b>1-3/4" VERSA-LAM® LVL</b>                                |                                |                            |                                |          |       |             |                          |                        |                      |                            |                                |      |       |             |                          |                        |
| 7-1/4   | PHXU17725                      | 3-1/4                      | 8                              | 16d      | 6     | 10d x 1-1/2 | 1890                     | 6370                   | HD1770               | 2                          | 14                             | 16d  | 4     | 10d x 1-1/2 | 1555                     | 3820                   |
| 9-1/4   | BPH17925                       | 2-3/8                      | 10                             | 16d      | 4     | 10d x 1-1/2 | 1140                     | 4890                   | HD17925              | 2                          | 18                             | 16d  | 6     | 10d x 1-1/2 | 2005                     | 5710                   |
|   | PHXU17925                      | 3-1/4                      | 8                              | 16d      | 6     | 10d x 1-1/2 | 1890                     | 6370                   | HUS179 <sup>5</sup>  | 3                          | 30                             | 16d  | 10    | 16d         | 6035                     | 9030                   |
| 9-1/2   | BPH1795                        | 2-3/8                      | 10                             | 16d      | 4     | 10d x 1-1/2 | 1140                     | 4890                   | HD17925              | 2                          | 18                             | 16d  | 6     | 10d x 1-1/2 | 2005                     | 5710                   |
|   | PHXU1795                       | 3-1/4                      | 8                              | 16d      | 6     | 10d x 1-1/2 | 1890                     | 6370                   | HUS179 <sup>5</sup>  | 3                          | 30                             | 16d  | 10    | 16d         | 6035                     | 9030                   |
| 11-1/4  | BPH17112                       | 2-3/8                      | 10                             | 16d      | 4     | 10d x 1-1/2 | 1140                     | 4890                   | HD17112              | 2                          | 22                             | 16d  | 6     | 10d x 1-1/2 | 2185                     | 5915                   |
|   | PHXU17112                      | 3-1/4                      | 8                              | 16d      | 6     | 10d x 1-1/2 | 1890                     | 6370                   | HUS179 <sup>5</sup>  | 3                          | 30                             | 16d  | 10    | 16d         | 6035                     | 9030                   |
| 11-7/8  | BPH17118                       | 2-3/8                      | 10                             | 16d      | 4     | 10d x 1-1/2 | 1140                     | 4890                   | HD17112              | 2                          | 22                             | 16d  | 6     | 10d x 1-1/2 | 2185                     | 5915                   |
|   | PHXU17118                      | 3-1/4                      | 8                              | 16d      | 6     | 10d x 1-1/2 | 1890                     | 6370                   | HUS179 <sup>5</sup>  | 3                          | 30                             | 16d  | 10    | 16d         | 6035                     | 9030                   |
| 14  | BPH1714                        | 2-3/8                      | 10                             | 16d      | 4     | 10d x 1-1/2 | 1140                     | 4890                   | HD1714               | 2                          | 26                             | 16d  | 8     | 10d x 1-1/2 | 3190                     | 5925                   |
|   | PHXU1714                       | 3-1/4                      | 8                              | 16d      | 6     | 10d x 1-1/2 | 1890                     | 6370                   | HUS179 <sup>5</sup>  | 3                          | 30                             | 16d  | 10    | 16d         | 6035                     | 9030                   |
| <b>2 Ply 1-3/4" VERSA-LAM® LVL or 3-1/2" VERSA-LAM® LVL</b> |                                |                            |                                |          |       |             |                          |                        |                      |                            |                                |      |       |             |                          |                        |
| 7-1/4   | PHXU35725                      | 3-1/4                      | 8                              | 16d      | 6     | 10d         | 2355                     | 9575                   | THD48                | 3                          | 28                             | 16d  | 16    | 10d         | 4885                     | 8195                   |
| 9-1/4   | HBPH35925                      | 3-1/2                      | 22                             | 16d      | 10    | 16d         | 5530                     | 11005                  | THD410               | 3                          | 38                             | 16d  | 20    | 10d         | 8375                     | 11540                  |
|   | HLBH35925                      | 6                          | 15                             | NA16D-RS | 6     | 16d         | 2530                     | 14940                  | THDH410 <sup>5</sup> | 4                          | 46                             | 16d  | 12    | 16d         | 8210                     | 14760                  |
| 9-1/2   | HBPH3595                       | 3-1/2                      | 22                             | 16d      | 10    | 16d         | 5530                     | 11005                  | THD410               | 3                          | 38                             | 16d  | 20    | 10d         | 8375                     | 11540                  |
|   | HLBH3595                       | 6                          | 15                             | NA16D-RS | 6     | 16d         | 2530                     | 14940                  | THDH410 <sup>5</sup> | 4                          | 46                             | 16d  | 12    | 16d         | 8210                     | 14760                  |
| 11-1/4  | HBPH35112                      | 3-1/2                      | 22                             | 16d      | 10    | 16d         | 5530                     | 11005                  | THD410               | 3                          | 38                             | 16d  | 20    | 10d         | 8375                     | 11540                  |
|   | HLBH35112                      | 6                          | 15                             | NA16D-RS | 6     | 16d         | 2530                     | 14940                  | THDH412 <sup>5</sup> | 4                          | 56                             | 16d  | 14    | 16d         | 9845                     | 16130                  |
| 11-7/8  | HBPH35118                      | 3-1/2                      | 22                             | 16d      | 10    | 16d         | 5530                     | 11005                  | THD410               | 3                          | 38                             | 16d  | 20    | 10d         | 8375                     | 11540                  |
|   | HLBH35118                      | 6                          | 15                             | NA16D-RS | 6     | 16d         | 2530                     | 14940                  | THDH412 <sup>5</sup> | 4                          | 56                             | 16d  | 14    | 16d         | 9845                     | 16130                  |
| 14  | HBPH3514                       | 3-1/2                      | 22                             | 16d      | 10    | 16d         | 5530                     | 11005                  | THD410               | 3                          | 38                             | 16d  | 20    | 10d         | 8375                     | 11540                  |
|   | HLBH3514                       | 6                          | 15                             | NA16D-RS | 6     | 16d         | 2530                     | 14940                  | THDH414 <sup>5</sup> | 4                          | 66                             | 16d  | 16    | 16d         | 11335                    | 17570                  |
| 16  | HBPH3516                       | 3-1/2                      | 22                             | 16d      | 10    | 16d         | 5530                     | 11005                  | THD412               | 3                          | 48                             | 16d  | 20    | 10d         | 8375                     | 11540                  |
|   | HLBH3516                       | 6                          | 15                             | NA16D-RS | 6     | 16d         | 2530                     | 14940                  | THDH414 <sup>5</sup> | 4                          | 66                             | 16d  | 16    | 16d         | 11335                    | 17570                  |
| 18  | HBPH3518                       | 3-1/2                      | 22                             | 16d      | 10    | 16d         | 5530                     | 11005                  | THD412               | 3                          | 48                             | 16d  | 20    | 10d         | 8375                     | 11540                  |
|   | HLBH3518                       | 6                          | 15                             | NA16D-RS | 6     | 16d         | 2530                     | 14940                  | THDH414 <sup>5</sup> | 4                          | 66                             | 16d  | 16    | 16d         | 11335                    | 17570                  |
| 20  | HBPH3520                       | 3-1/2                      | 22                             | 16d      | 10    | 16d         | 5530                     | 11005                  | THD414               | 3                          | 58                             | 16d  | 20    | 10d         | 8375                     | 11540                  |
|   | HLBH3520                       | 6                          | 15                             | NA16D-RS | 6     | 16d         | 2530                     | 14940                  | THDH414 <sup>5</sup> | 4                          | 66                             | 16d  | 16    | 16d         | 11335                    | 17570                  |
| 22  | PHXU3522                       | 3-1/4                      | 8                              | 16d      | 6     | 10d         | 2355                     | 9575                   | HD418                | 2-1/2                      | 28                             | 16d  | 8     | 10d         | 2685                     | 8250                   |
|   | HBPH3522                       | 3-1/2                      | 22                             | 16d      | 10    | 16d         | 5530                     | 11005                  | THDH414 <sup>5</sup> | 4                          | 66                             | 16d  | 16    | 16d         | 11335                    | 17570                  |
| 24  | PHXU3524                       | 3-1/4                      | 8                              | 16d      | 6     | 10d         | 2355                     | 9575                   | HD418                | 2-1/2                      | 28                             | 16d  | 8     | 10d         | 2685                     | 8250                   |



BPH



PHXU



HBPH



HLBH



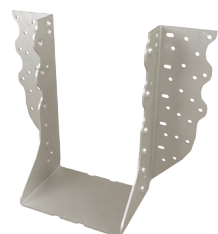
HD



HUS



THD



THDH

- 1) Factored resistances listed are based on hanger attachment to a DF species LVL header.
- 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) Top Mount Hangers assume supporting headers to have a minimum height of 5-1/2" and a minimum thickness of the length of the header nails or the depth of the top flange, whichever is greater. For wood nailer options or header materials not included in this table, refer to the current USP Product Catalog.
- 4) 10d x 1-1/2 nails are 0.148" diameter x 1-1/2" long, 10d nails are 0.148" diameter x 3" long, and 16d nails are 0.162" diameter x 3-1/2" long, NA16D-RS are 16d (0.148" diameter) x 3-1/2" long ring shank nails. 16d sinkers are 0.148" diameter x 3-1/4" long and may be used where 10d commons are specified.
- 5) Joist nails need to be toe nailed at a 30° to 45° angle to achieve listed loads for THDH and HUS models.
- 6) Supplemental lateral support connection recommended when hanger height is less than 60% of joist height.



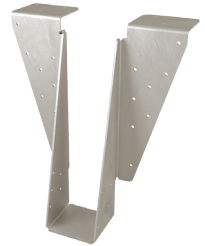
# Versa-Lam LVL Beams & Headers

## Hanger Factored Resistance (Lbs)

| Joist Height  | Top Mount Hangers <sup>3</sup> |                            |                                |          |       |      |                          |                        |                            |                            | Face Mount Hangers             |      |       |      |                          |                        |
|---|--------------------------------|----------------------------|--------------------------------|----------|-------|------|--------------------------|------------------------|----------------------------|----------------------------|--------------------------------|------|-------|------|--------------------------|------------------------|
|   | USP Stock No. <sup>6</sup>     | Length of Hanger Seat (in) | Fastener Schedule <sup>4</sup> |          |       |      | Uplift <sup>2</sup> 115% | Down <sup>1</sup> 100% | USP Stock No. <sup>6</sup> | Length of Hanger Seat (in) | Fastener Schedule <sup>4</sup> |      |       |      | Uplift <sup>2</sup> 115% | Down <sup>1</sup> 100% |
|   |                                |                            | Header                         |          | Joist |      |                          |                        |                            |                            | Header                         |      | Joist |      |                          |                        |
|   |                                |                            | Qty                            | Type     | Qty   | Type |                          |                        |                            |                            | Qty                            | Type | Qty   | Type |                          |                        |
| <b>3 Ply 1-3/4" VERSA-LAM® LVL or 5-1/4" VERSA-LAM® LVL</b> |                                |                            |                                |          |       |      |                          |                        |                            |                            |                                |      |       |      |                          |                        |
| 7-1/4   | BPH55725                       | 2-1/4                      | 10                             | 16d      | 6     | 10d  | 2935                     | 5300                   | --                         | --                         | --                             | --   | --    | --   | --                       |                        |
| 9-1/4   | HBPH55925                      | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | THD610                     | 3                          | 38                             | 16d  | 20    | 10d  | 6425                     | 12455                  |
|   | HLBH55925                      | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH610 <sup>5</sup>       | 4                          | 46                             | 16d  | 16    | 16d  | 10140                    | 12645                  |
| 9-1/2   | HBPH5595                       | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | THD610                     | 3                          | 38                             | 16d  | 20    | 10d  | 6425                     | 12455                  |
|   | HLBH5595                       | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH610 <sup>5</sup>       | 4                          | 46                             | 16d  | 16    | 16d  | 10140                    | 12645                  |
| 11-1/4  | HBPH55112                      | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | THD610                     | 3                          | 38                             | 16d  | 20    | 10d  | 6425                     | 12455                  |
|   | HLBH55112                      | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH612 <sup>5</sup>       | 4                          | 56                             | 16d  | 20    | 16d  | 10140                    | 15465                  |
| 11-7/8  | HBPH55118                      | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | THD610                     | 3                          | 38                             | 16d  | 20    | 10d  | 6425                     | 12455                  |
|   | HLBH55118                      | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH612 <sup>5</sup>       | 4                          | 56                             | 16d  | 20    | 16d  | 10140                    | 15465                  |
| 14  | HBPH5514                       | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | THD610                     | 3                          | 38                             | 16d  | 20    | 10d  | 6425                     | 12455                  |
|   | HLBH5514                       | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH614 <sup>5</sup>       | 4                          | 66                             | 16d  | 22    | 16d  | 11335                    | 17570                  |
| 16  | HBPH5516                       | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | THD612                     | 3                          | 48                             | 16d  | 20    | 10d  | 9850                     | 13785                  |
|   | HLBH5516                       | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH614 <sup>5</sup>       | 4                          | 66                             | 16d  | 22    | 16d  | 11335                    | 17570                  |
| 18  | HBPH5518                       | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | THD612                     | 3                          | 48                             | 16d  | 20    | 10d  | 9850                     | 13785                  |
|   | HLBH5518                       | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH614 <sup>5</sup>       | 4                          | 66                             | 16d  | 22    | 16d  | 11335                    | 17570                  |
| 20  | HBPH5520                       | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | THD614                     | 3                          | 58                             | 16d  | 20    | 10d  | 9850                     | 13785                  |
|   | HLBH5520                       | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH614 <sup>5</sup>       | 4                          | 66                             | 16d  | 22    | 16d  | 11335                    | 17570                  |
| 22  | XHLBH5522 <sup>7</sup>         | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THD614                     | 3                          | 58                             | 16d  | 20    | 10d  | 9850                     | 13785                  |
|   | --                             | --                         | --                             | --       | --    | --   | --                       | --                     | THDH614 <sup>5</sup>       | 4                          | 66                             | 16d  | 22    | 16d  | 11335                    | 17570                  |
| 24  | XHLBH5524 <sup>7</sup>         | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THD614                     | 3                          | 58                             | 16d  | 20    | 10d  | 9850                     | 13785                  |
|   | --                             | --                         | --                             | --       | --    | --   | --                       | --                     | THDH614 <sup>5</sup>       | 4                          | 66                             | 16d  | 22    | 16d  | 11335                    | 17570                  |
| <b>4 Ply 1-3/4" VERSA-LAM® LVL or 7" VERSA-LAM® LVL</b>     |                                |                            |                                |          |       |      |                          |                        |                            |                            |                                |      |       |      |                          |                        |
| 9-1/4   | HBPH71925                      | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | THD7210                    | 3                          | 38                             | 16d  | 20    | 10d  | 6425                     | 12455                  |
|   | HLBH71925                      | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH7210 <sup>5</sup>      | 4                          | 46                             | 16d  | 12    | 16d  | 8210                     | 12645                  |
| 9-1/2   | HBPH7195                       | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | THD7210                    | 3                          | 38                             | 16d  | 20    | 10d  | 6425                     | 12455                  |
|   | HLBH7195                       | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH7210 <sup>5</sup>      | 4                          | 46                             | 16d  | 12    | 16d  | 8210                     | 12645                  |
| 11-1/4  | HBPH71112                      | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | THD7210                    | 3                          | 38                             | 16d  | 20    | 10d  | 6425                     | 12455                  |
|   | HLBH71112                      | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH7212 <sup>5</sup>      | 4                          | 56                             | 16d  | 14    | 16d  | 9845                     | 12645                  |
| 11-7/8  | HBPH71118                      | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | THD7210                    | 3                          | 38                             | 16d  | 20    | 10d  | 6425                     | 12455                  |
|   | HLBH71118                      | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH7212 <sup>5</sup>      | 4                          | 56                             | 16d  | 14    | 16d  | 9845                     | 12645                  |
| 14  | HBPH7114                       | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | THD7210                    | 3                          | 38                             | 16d  | 20    | 10d  | 6425                     | 12455                  |
|   | HLBH7114                       | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH7214 <sup>5</sup>      | 4                          | 66                             | 16d  | 16    | 16d  | 11335                    | 17570                  |
| 16  | HBPH7116                       | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | HD7120                     | 2-1/2                      | 16                             | 16d  | 6     | 10d  | 2685                     | 4675                   |
|   | HLBH7116                       | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH7214 <sup>5</sup>      | 4                          | 66                             | 16d  | 16    | 16d  | 11335                    | 17570                  |
| 18  | HBPH7118                       | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | HD7140                     | 2-1/2                      | 20                             | 16d  | 8     | 10d  | 2685                     | 7485                   |
|   | HLBH7118                       | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH7214 <sup>5</sup>      | 4                          | 66                             | 16d  | 16    | 16d  | 11335                    | 17570                  |
| 20  | HBPH7120                       | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | HD7140                     | 2-1/2                      | 20                             | 16d  | 8     | 10d  | 2685                     | 7485                   |
|   | HLBH7120                       | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH7214 <sup>5</sup>      | 4                          | 66                             | 16d  | 16    | 16d  | 11335                    | 17570                  |
| 22  | HBPH7122                       | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | HD7180                     | 2-1/2                      | 28                             | 16d  | 8     | 10d  | 2685                     | 8250                   |
|   | HLBH7122                       | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH7214 <sup>5</sup>      | 4                          | 66                             | 16d  | 16    | 16d  | 11335                    | 17570                  |
| 24  | HBPH7124                       | 3-1/2                      | 22                             | 16d      | 10    | 16d  | 5620                     | 10405                  | HD7180                     | 2-1/2                      | 28                             | 16d  | 8     | 10d  | 2685                     | 8250                   |
|   | HLBH7124                       | 6                          | 15                             | NA16D-RS | 6     | 16d  | 2860                     | 14940                  | THDH7214 <sup>5</sup>      | 4                          | 66                             | 16d  | 16    | 16d  | 11335                    | 17570                  |



BPH



HBPH



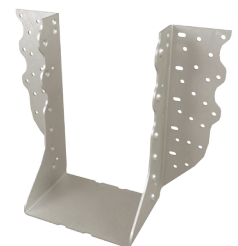
HLBH



THD



HD



THDH

- Factored resistances listed are based on hanger attachment to a DF species LVL header.
- 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.
- Top Mount Hangers assume supporting headers to have a minimum height of 5-1/2" and a minimum thickness of the length of the header nails or the depth of the top flange, whichever is greater. For wood nailer options or header materials not included in this table, refer to the current USP Product Catalog.
- 10d nails are 0.148" diameter x 3" long, and 16d nails are 0.162" diameter x 3-1/2" long, NA16D-RS are 16d (0.148" diameter) x 3-1/2" long ring shank nails.  
16d sinkers are 0.148" diameter x 3-1/4" long and may be used where 10d commons are specified.
- Joist nails need to be toe nailed at a 30° to 45° angle to achieve listed loads for THDH models.
- For additional sizes, stock numbers, and modifications not shown, refer to USP's Product Catalog.
- Hangers are special order. Consult USP for pricing and lead times.
- Supplemental lateral support connection recommended when hanger height is less than 60% of joist height.

# Slope/Skew Hangers

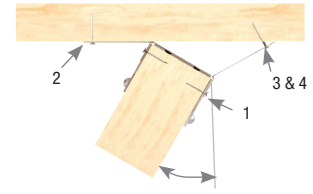
The LSSH series connects rafters to ridge beams in vaulted roof structures. This series is field adjustable to meet a variety of skew and/or slope applications. Slopes and skews 0° to 45°.

### Installation:

- Use all specified fasteners.

### Steps:

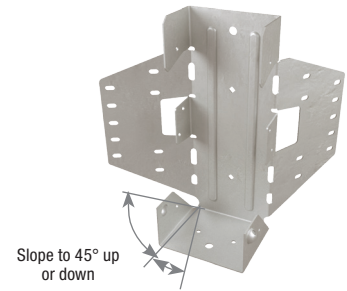
1. Position LSSH connector against plumb-cut end of joist. Fasten joist side flanges on both sides with 10d (0.148") x 1-1/2" nails. Bend seat up to fit against joist bottom and drive (1) 10d (0.148") x 1-1/2" nail through bottom seat into joist bottom flange. Drive (2) 10d (0.148") x 1-1/2" nail at downward angle through dimpled nailing guides.
  2. Lean connector and rafter end against ridge beam at desired position. Install 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 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.



Skew to 45° maximum



Typical LSSH installation



Slope to 45° up or down

LSSH

## Hanger Factored Resistance (Lbs)

| Joist Height                          | USP Stock No. <sup>1,6</sup> | Length of Hanger Seat (in) | Installation Type              | Fastener Schedule <sup>4</sup> |      |       |             | DF                       |                        |
|---------------------------------------|------------------------------|----------------------------|--------------------------------|--------------------------------|------|-------|-------------|--------------------------|------------------------|
|                                       |                              |                            |                                | Header                         |      | Joist |             | Uplift <sup>3</sup> 115% | Down <sup>2</sup> 100% |
|                                       |                              |                            |                                | Qty                            | Type | Qty   | Type        |                          |                        |
| <b>BCI® 4500s 1.8 Series</b>          |                              |                            |                                |                                |      |       |             |                          |                        |
| <b>Joist Width = 1-3/4"</b>           |                              |                            |                                |                                |      |       |             |                          |                        |
| 9-1/2 – 16                            | LSSH179                      | 3                          | Sloped Only                    | 10                             | 10d  | 7     | 10d x 1-1/2 | 1695                     | 2685                   |
|                                       |                              |                            | Skewed Only or Sloped & Skewed | 10                             | 10d  | 7     | 10d x 1-1/2 | 1695                     | 2685                   |
| <b>BCI® 5000 1.7/5000s 1.8 Series</b> |                              |                            |                                |                                |      |       |             |                          |                        |
| <b>Joist Width = 2"</b>               |                              |                            |                                |                                |      |       |             |                          |                        |
| 9-1/2 – 16                            | LSSH20                       | 3                          | Sloped Only                    | 10                             | 10d  | 7     | 10d x 1-1/2 | 1555                     | 2535                   |
|                                       |                              |                            | Skewed Only or Sloped & Skewed | 10                             | 10d  | 7     | 10d x 1-1/2 | 1555                     | 2535                   |
| <b>BCI® 6000 1.8/6000s 1.8 Series</b> |                              |                            |                                |                                |      |       |             |                          |                        |
| <b>Joist Width = 2-5/16"</b>          |                              |                            |                                |                                |      |       |             |                          |                        |
| 9-1/2 – 16                            | LSSH23                       | 3                          | Sloped Only                    | 10                             | 10d  | 7     | 10d x 1-1/2 | 1555                     | 2535                   |
|                                       |                              |                            | Skewed Only or Sloped & Skewed | 10                             | 10d  | 7     | 10d x 1-1/2 | 1555                     | 2535                   |
| <b>BCI® 60 2.0/60s 2.0 Series</b>     |                              |                            |                                |                                |      |       |             |                          |                        |
| <b>Joist Width = 2-5/16"</b>          |                              |                            |                                |                                |      |       |             |                          |                        |
| 11-7/8 – 16                           | LSSH23                       | 3                          | Sloped Only                    | 10                             | 10d  | 7     | 10d x 1-1/2 | 1555                     | 2535                   |
|                                       |                              |                            | Skewed Only or Sloped & Skewed | 10                             | 10d  | 7     | 10d x 1-1/2 | 1555                     | 2535                   |
| <b>BCI® 6500 1.8/6500s 1.8 Series</b> |                              |                            |                                |                                |      |       |             |                          |                        |
| <b>Joist Width = 2-9/16"</b>          |                              |                            |                                |                                |      |       |             |                          |                        |
| 9-1/2 – 16                            | LSSH25                       | 3                          | Sloped Only                    | 18                             | 16d  | 12    | 10d x 1-1/2 | 1895                     | 4125                   |
|                                       |                              |                            | Skewed Only or Sloped & Skewed | 14                             | 16d  | 12    | 10d x 1-1/2 | 1895                     | 2895                   |
| <b>BCI® 90 2.0/90s 2.0 Series</b>     |                              |                            |                                |                                |      |       |             |                          |                        |
| <b>Joist Width = 3-1/2"</b>           |                              |                            |                                |                                |      |       |             |                          |                        |
| 11-7/8 – 20                           | LSSH35                       | 3                          | Sloped Only                    | 18                             | 16d  | 12    | 10d x 1-1/2 | 2515                     | 5065                   |
|                                       |                              |                            | Skewed Only or Sloped & Skewed | 14                             | 16d  | 12    | 10d x 1-1/2 | 2515                     | 3045                   |

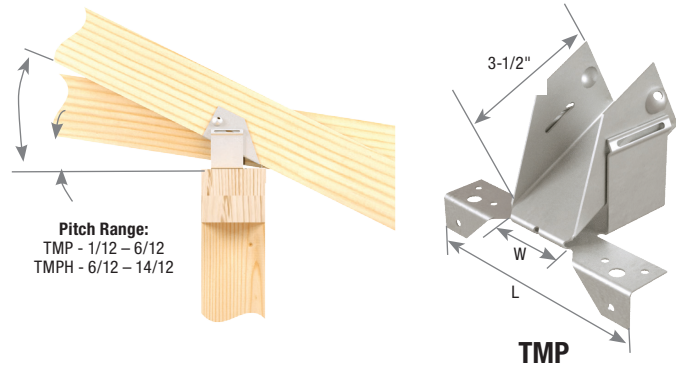
- 1) Shaded hangers require web stiffeners at joist ends.
- 2) Factored resistance is based on hanger attachment to a DF species solid sawn, or VERSA-LAM® LVL header.
- 3) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 4) 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.
- 5) Hangers utilizing 16d nails are not compatible with BCI® joists.
- 6) Supplemental lateral support connection recommended when hanger height is less than 60% of joist height.

# Variable Pitch Connectors

The TMP and TMPH are designed to make rafter-to-plate connections and eliminate time-consuming bird's-mouth notching or bevel plate installation.

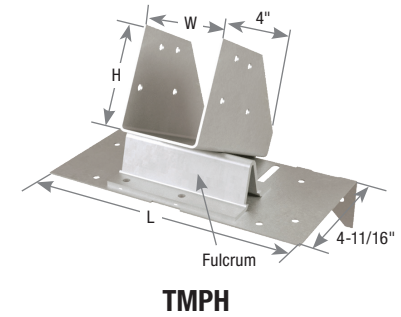
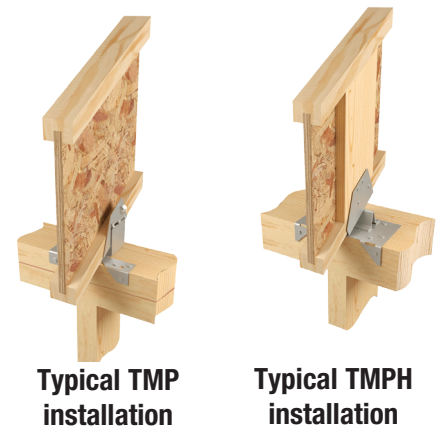
### Installation:

- Use all specified fasteners.
- 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. For **TMP**: drive specified nails through the opposing slots in the pocket. For **TMPH**: slide the fulcrum until it supports the pocket at the desired pitch and drive nails down through the fulcrum base into the top plate to lock the fulcrum into position.



### TMP Hanger Factored Resistance (Lbs)

| Joist Height                                     | USP Stock No. <sup>1</sup> | Dimensions (in)       |        | Fastener Schedule <sup>4</sup> |     |       |             | DF                       |                        |  |  |
|--|----------------------------|-----------------------|--------|--------------------------------|-----|-------|-------------|--------------------------|------------------------|--|--|
|  |                            | W                     | L      | Header                         |     | Joist |             | Uplift <sup>3</sup> 115% | Down <sup>2</sup> 100% |  |  |
| <b>BCI<sup>®</sup> 4500s 1.8 Series</b>          |                            | Joist Width = 1-3/4"  |        |                                |     |       |             |                          |                        |  |  |
| All  | TMP175                     | 1-13/16               | 5-9/16 | 6                              | 10d | 4     | 10d x 1-1/2 | 400                      | 1620                   |  |  |
| <b>BCI<sup>®</sup> 5000 1.7/5000s 1.8 Series</b> |                            | Joist Width = 2"      |        |                                |     |       |             |                          |                        |  |  |
| All  | TMP21                      | 2-1/8                 | 6-3/8  | 6                              | 10d | 4     | 10d x 1-1/2 | 400                      | 1815                   |  |  |
| <b>BCI<sup>®</sup> 6000 1.8/6000s 1.8 Series</b> |                            | Joist Width = 2-5/16" |        |                                |     |       |             |                          |                        |  |  |
| All  | TMP23                      | 2-3/8                 | 6-3/8  | 6                              | 10d | 4     | 10d x 1-1/2 | 400                      | 2770                   |  |  |
| <b>BCI<sup>®</sup> 60 2.0/60s 2.0 Series</b>     |                            | Joist Width = 2-5/16" |        |                                |     |       |             |                          |                        |  |  |
| All  | TMP23                      | 2-3/8                 | 6-3/8  | 6                              | 10d | 4     | 10d x 1-1/2 | 400                      | 2770                   |  |  |
| <b>BCI<sup>®</sup> 6500 1.8/6500s 1.8 Series</b> |                            | Joist Width = 2-9/16" |        |                                |     |       |             |                          |                        |  |  |
| All  | TMP25                      | 2-11/16               | 6-3/8  | 6                              | 10d | 4     | 10d x 1-1/2 | 400                      | 2770                   |  |  |
| <b>BCI<sup>®</sup> 90 2.0/90s 2.0 Series</b>     |                            | Joist Width = 3-1/2"  |        |                                |     |       |             |                          |                        |  |  |
| All  | TMP4                       | 3-9/16                | 7-5/16 | 6                              | 10d | 4     | 10d x 1-1/2 | 400                      | 2770                   |  |  |



- 1) Web stiffeners may be required for hangers by I-joist manufacturers.
- 2) Factored resistance is based on hanger attachment to a DF species solid sawn, or VERSA-LAM<sup>®</sup> LVL header.
- 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.
- 4) 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

### TMPH Hanger Factored Resistance (Lbs)

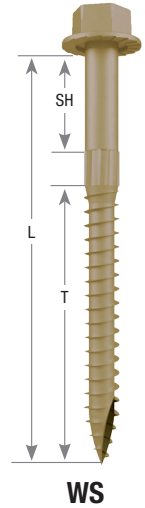
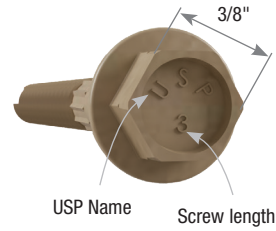
| Joist Height                                     | USP Stock No. <sup>1</sup> | Dimensions (in)       |        |        | Fastener Schedule <sup>4</sup> |     |       |             | DF                              |      |      |      |      |      |      |      |                          |     |
|--|----------------------------|-----------------------|--------|--------|--------------------------------|-----|-------|-------------|---------------------------------|------|------|------|------|------|------|------|--------------------------|-----|
|  |                            | W                     | H      | L      | Header                         |     | Joist |             | According to Pitch <sup>2</sup> |      |      |      |      |      |      |      | Uplift <sup>3</sup> 115% |     |
| <b>BCI<sup>®</sup> 4500s 1.8 Series</b>          |                            | Joist Width = 1-3/4"  |        |        |                                |     |       |             |                                 |      |      |      |      |      |      |      |                          |     |
| All  | TMPH175                    | 1-13/16               | 2-3/8  | 6-9/16 | 10                             | 10d | 8     | 10d x 1-1/2 | 5220                            | 5385 | 5540 | 5005 | 4470 | 4305 | 4120 | 3655 | 3185                     | 375 |
| <b>BCI<sup>®</sup> 5000 1.7/5000s 1.8 Series</b> |                            | Joist Width = 2"      |        |        |                                |     |       |             |                                 |      |      |      |      |      |      |      |                          |     |
| All  | TMPH21                     | 2-1/8                 | 2-5/8  | 7-3/8  | 10                             | 10d | 8     | 10d x 1-1/2 | 5220                            | 5385 | 5540 | 5005 | 4470 | 4305 | 4120 | 3655 | 3185                     | 375 |
| <b>BCI<sup>®</sup> 6000 1.8/6000s 1.8 Series</b> |                            | Joist Width = 2-5/16" |        |        |                                |     |       |             |                                 |      |      |      |      |      |      |      |                          |     |
| All  | TMPH23                     | 2-3/8                 | 2-1/2  | 7-3/8  | 10                             | 10d | 8     | 10d x 1-1/2 | 5220                            | 5385 | 5540 | 5005 | 4470 | 4305 | 4120 | 3655 | 3185                     | 375 |
| <b>BCI<sup>®</sup> 60 2.0/60s 2.0 Series</b>     |                            | Joist Width = 2-5/16" |        |        |                                |     |       |             |                                 |      |      |      |      |      |      |      |                          |     |
| All  | TMPH23                     | 2-3/8                 | 2-1/2  | 7-3/8  | 10                             | 10d | 8     | 10d x 1-1/2 | 5220                            | 5385 | 5540 | 5005 | 4470 | 4305 | 4120 | 3655 | 3185                     | 375 |
| <b>BCI<sup>®</sup> 6500 1.8/6500s 1.8 Series</b> |                            | Joist Width = 2-9/16" |        |        |                                |     |       |             |                                 |      |      |      |      |      |      |      |                          |     |
| All  | TMPH25                     | 2-11/16               | 2-5/16 | 7-3/8  | 10                             | 10d | 8     | 10d x 1-1/2 | 5220                            | 5385 | 5540 | 5005 | 4470 | 4305 | 4120 | 3655 | 3185                     | 375 |
| <b>BCI<sup>®</sup> 90 2.0/90s 2.0 Series</b>     |                            | Joist Width = 3-1/2"  |        |        |                                |     |       |             |                                 |      |      |      |      |      |      |      |                          |     |
| All  | TMPH4                      | 3-9/16                | 2-1/2  | 8-9/16 | 10                             | 10d | 8     | 10d x 1-1/2 | 5220                            | 5385 | 5540 | 5005 | 4470 | 4305 | 4120 | 3655 | 2605                     | 375 |

- 1) Web stiffeners are required for all Wood I-Joist installations.
- 2) Factored resistance is based on hanger attachment to a DF species solid sawn, or VERSA-LAM<sup>®</sup> LVL header.
- 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.
- 4) 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

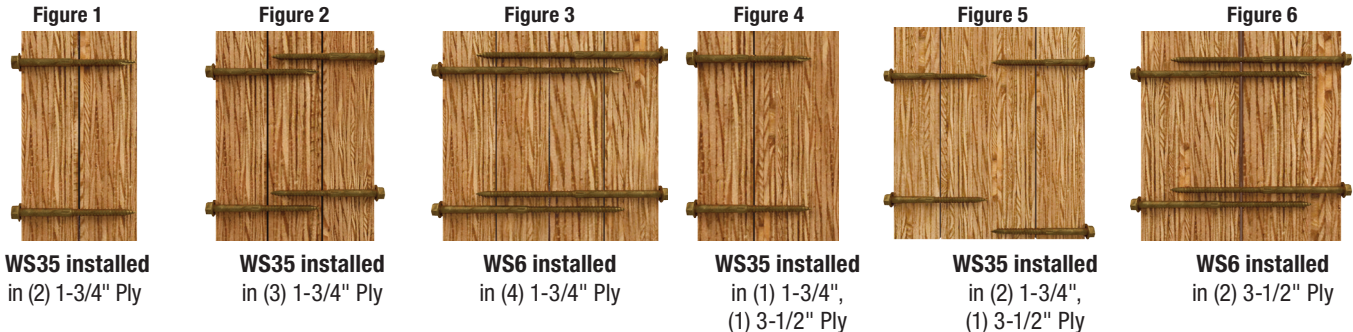
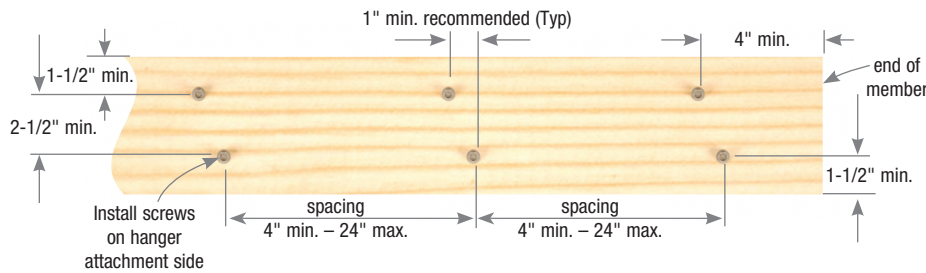
## WS Series Wood Screw Applications - Joining 2, 3, or 4 Ply VERSA-LAM® LVL Members

### 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.
- 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 screw 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 5-1/2" and deeper.



### Recommended Row Guidelines

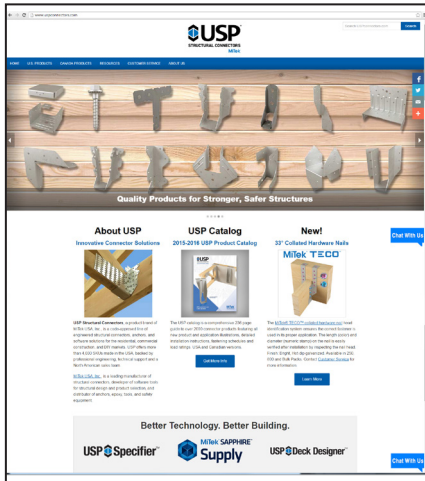


| Size (in)   | USP Stock No.    | Dimensions (in) |       |        | Multiple Members Installation Figure <sup>3,7,9,10</sup> | Maximum Factored Uniform Loads that can be applied to either outside member <sup>1,2,3,4,5,6</sup> |        |            |        |            |        |      |       |      |       |      |       |
|-------------|------------------|-----------------|-------|--------|--|--|--------|------------|--------|------------|--------|------|-------|------|-------|------|-------|
|             |                  | 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   | 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 O86-14 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.

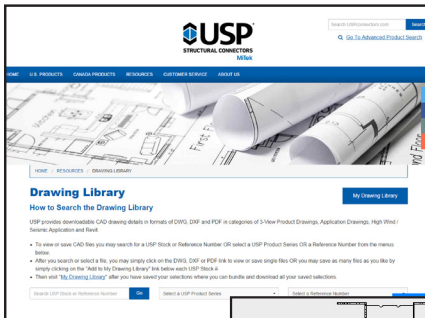
# Specification Tools

All available on our Web Site  
@ USPconnectors.com



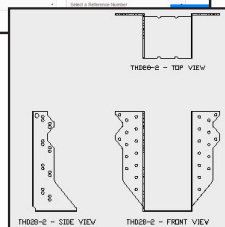
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