

Adjustable Strap Skewed Hangers

MSHA series



USP's MSHA Series hanger offers the most flexible field solution for truss-to-truss connections accommodating a range of skews and challenging web-chord geometry often found in truss framing. Eliminating the need for special orders, the MSHA Series hanger provides economical solutions for 1-ply or 2-ply roof trusses and 1-ply floor trusses skewed between 22-1/2° to 75°. MSHA hangers can be installed in top-min, top-max, face-max or combination conditions as required.

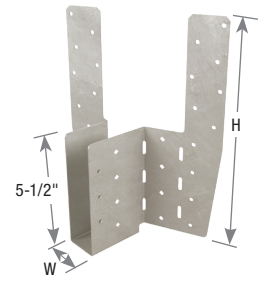
Materials: 16 gauge
Finish: G90 galvanizing

Features:

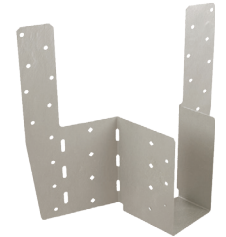
- Field adjustable straps that can be used straight or bent to accommodate web-chord geometry.
- A bend line makes field adjustments and installation quick and easy, especially for high skews.
- Eliminates the need for ordering special hangers.

Installation:

- Install the required number of fasteners according to the load table.
- Install fasteners into the carrying member at the locations described below based on the proper "Mounting Condition".
- Product is factory skewed 22-1/2° and may be field skewed from 22-1/2° to 75°. See installation sequence on next page for skews greater than 22-1/2°.
- Face-Max and Combination mounting conditions require a minimum chord or header height of 7-1/4". Top-Max and Top-Min mounting conditions require a minimum chord or header height of 5-1/2".



MSHA29L
Left Shown



MSHA29R-2
Right Shown

CONNECTION TO CARRYING MEMBER Mounting Conditions:

Face-Max

Fill the lowest four holes nearest each side of the bucket. For a 22-1/2° skew, fill the four diamond holes on one side and four round holes on the other. For skews greater than 22-1/2°, fill the four round holes on each side.

Add an equal amount of nails in each side of the hanger in any of the remaining nail holes to meet the minimum fastener requirements listed in the table on next page.



Typical MSHA
face-max installation

Top-Max

Field bend the strap over the supporting member. The bent strap must extend a minimum of 2 inches over the carrying member to allow for the four top flange nail holes to be filled.

Fill the lowest four nail holes nearest each side of the bucket. For a 22-1/2° skew, fill the four diamond holes on one side and four round holes on the other. For skews greater than 22-1/2°, fill the four round holes on each side.

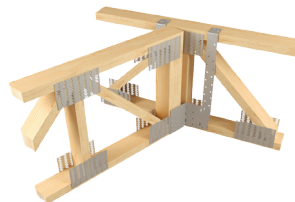


Typical MSHA
top-max installation

Top-Min

Field bend the strap over the supporting member. The bent strap must extend a minimum of 2 inches over the carrying member to allow for the four top flange nail holes to be filled.

Fill the four nail holes (two each strap) nearest the top of the carrying member.

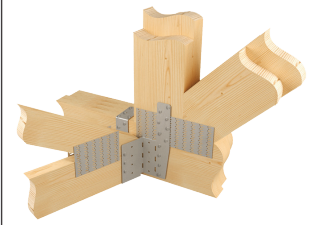


Typical MSHA
top-min installation

Combination Face-Max/Top Max

Follow the Face-Max installation for one side of the connector. Follow the Top-Max installation for the opposite side of the connector.

The Face-Max factored resistance apply to this type of installation.



Typical MSHA
combination installation

CONNECTION TO CARRIED MEMBER Mounting Conditions:

For the 22-1/2° skew installation, all round and diamond holes must be filled.
 For skews greater than 22-1/2°, only the diamond holes must be filled.



Installation Sequence for Skews > 22½°:

Step 1: Install acute side top and/or face header nails.

Step 2: Utilizing a piece of scrap fastened to the hanger on the obtuse side, bend the hanger to the desired angle.

Step 3: Bend the obtuse side of hanger back toward the header until the flange lies flat against the header, and install header top and/or face nails as noted below.

Step 4: Install carried truss and all required nails fasteners working from the bottom up.

| Joist Width | USP Stock No. | Ref. No. | Dimensions (in) | | Min H _{eff} ² (in) | Mounting Condition ³ | Skew Angle (degrees) | Fastener Schedule ⁴ | | | | DF Factored Resistance | | | | S-P-F Factored Resistance | | | | Ctn Qty | |
|--------------|---------------|-------------|-----------------|----------|--|---------------------------------|----------------------|--------------------------------|------|-------------|----------|------------------------|----------|---------------------|----------|---------------------------|----------|---------------------|------|---------|----|
| | | | Carrying Member | | | | | Carried Member | | Lbs | | kN | | Lbs | | kN | | | | | |
| | | | Top Qty | Face Qty | | | | Type | Qty | Type | Vertical | Uplift ¹ | Vertical | Uplift ¹ | Vertical | Uplift ¹ | Vertical | Uplift ¹ | | | |
| | | | 100% | 115% | | | | 100% | 115% | 100% | 115% | 100% | 115% | | | | | | | | |
| 2x Trusses | MSHA29L/R | THASR/L29 | 1-5/8 | 10-3/4 | 7-1/4 | face-max | 22-1/2 | -- | 12 | 10d | 7 | 10d x 1-1/2 | 2335 | 1625 | 10.39 | 7.23 | 2015 | 1400 | 8.96 | 6.23 | 25 |
| | | | | | | | 23 to 45 | -- | 12 | 10d | 4 | 10d x 1-1/2 | 2025 | 930 | 9.01 | 4.14 | 1590 | 805 | 7.07 | 3.58 | |
| | | | | | | | 46 to 75 | -- | 12 | 10d | 4 | 10d x 1-1/2 | 2025 | 930 | 9.01 | 4.14 | 1590 | 805 | 7.07 | 3.58 | |
| | | | 5-1/2 | top-max | 22-1/2 | 4 | 8 | 10d | 7 | 10d x 1-1/2 | 2870 | 1625 | 12.77 | 7.23 | 2260 | 1360 | 10.05 | 6.05 | | | |
| | | | | | 23 to 45 | 4 | 8 | 10d | 4 | 10d x 1-1/2 | 2435 | 930 | 10.83 | 4.14 | 1915 | 755 | 8.52 | 3.36 | | | |
| | | | | | 46 to 75 | 4 | 8 | 10d | 4 | 10d x 1-1/2 | 2190 | 930 | 9.74 | 4.14 | 1720 | 755 | 7.65 | 3.36 | | | |
| | | | | top-min | 22-1/2 | 4 | 4 | 10d | 7 | 10d x 1-1/2 | 1955 | -- | 8.70 | -- | 1685 | -- | 7.50 | -- | | | |
| | | | | | 23 to 45 | 4 | 4 | 10d | 4 | 10d x 1-1/2 | 1765 | -- | 7.85 | -- | 1385 | -- | 6.16 | -- | | | |
| | | | | | 46 to 75 | 4 | 4 | 10d | 4 | 10d x 1-1/2 | 950 | -- | 4.23 | -- | 745 | -- | 3.31 | -- | | | |
| 2-2x Trusses | MSHA29L/R-2 | THASR/L29-2 | 3-1/8 | 10-3/4 | 7-1/4 | face-max | 22-1/2 | -- | 12 | 10d | 7 | 10d | 2340 | 1630 | 10.41 | 7.25 | 1955 | 1360 | 8.70 | 6.05 | 25 |
| | | | | | | | 23 to 45 | -- | 12 | 10d | 4 | 10d | 1910 | 935 | 8.50 | 4.16 | 1495 | 755 | 6.65 | 3.36 | |
| | | | | | | | 46 to 75 | -- | 12 | 10d | 4 | 10d | 1910 | 935 | 8.50 | 4.16 | 1495 | 755 | 6.65 | 3.36 | |
| | | | 5-1/2 | top-max | 22-1/2 | 4 | 8 | 10d | 7 | 10d | 2880 | 1630 | 12.81 | 7.25 | 2260 | 1360 | 10.05 | 6.05 | | | |
| | | | | | 23 to 45 | 4 | 8 | 10d | 4 | 10d | 2470 | 935 | 10.99 | 4.16 | 1970 | 780 | 8.76 | 3.47 | | | |
| | | | | | 46 to 75 | 4 | 8 | 10d | 4 | 10d | 2125 | 935 | 9.45 | 4.16 | 1665 | 780 | 7.41 | 3.47 | | | |
| | | | | top-min | 22-1/2 | 4 | 4 | 10d | 7 | 10d | 1960 | -- | 8.72 | -- | 1685 | -- | 7.50 | -- | | | |
| | | | | | 23 to 45 | 4 | 4 | 10d | 4 | 10d | 1765 | -- | 7.85 | -- | 1385 | -- | 6.16 | -- | | | |
| | | | | | 46 to 75 | 4 | 4 | 10d | 4 | 10d | 950 | -- | 4.23 | -- | 745 | -- | 3.31 | -- | | | |
| 4x Trusses | MSHA422L/R | THASR/L422 | 3-5/8 | 22-1/8 | 7-1/4 | face-max | 22-1/2 | -- | 12 | 10d | 7 | 10d | 2320 | 1615 | 10.32 | 7.18 | 2015 | 1400 | 8.96 | 6.23 | 25 |
| | | | | | | | 23 to 45 | -- | 12 | 10d | 4 | 10d | 2025 | 925 | 9.01 | 4.11 | 1590 | 805 | 7.07 | 3.58 | |
| | | | | | | | 46 to 75 | -- | 12 | 10d | 4 | 10d | 2025 | 925 | 9.01 | 4.11 | 1590 | 805 | 7.07 | 3.58 | |
| | | | 5-1/2 | top-max | 22-1/2 | 4 | 8 | 10d | 7 | 10d | 2855 | 1615 | 12.70 | 7.18 | 2260 | 1360 | 10.05 | 6.05 | | | |
| | | | | | 23 to 45 | 4 | 8 | 10d | 4 | 10d | 2450 | 925 | 10.90 | 4.11 | 1970 | 780 | 8.76 | 3.47 | | | |
| | | | | | 46 to 75 | 4 | 8 | 10d | 4 | 10d | 2125 | 925 | 9.45 | 4.11 | 1665 | 780 | 7.41 | 3.47 | | | |
| | | | | top-min | 22-1/2 | 4 | 4 | 10d | 7 | 10d | 1940 | -- | 8.63 | -- | 1685 | -- | 7.50 | -- | | | |
| | | | | | 23 to 45 | 4 | 4 | 10d | 4 | 10d | 1765 | -- | 7.85 | -- | 1385 | -- | 6.16 | -- | | | |
| | | | | | 46 to 75 | 4 | 4 | 10d | 4 | 10d | 950 | -- | 4.23 | -- | 745 | -- | 3.31 | -- | | | |

1) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
2) H_{eff} is the minimum distance from the top of the hanger seat to the top of the carrying member.
3) For tabulated top-mount installation loads, the straps must be wrapped over the header a minimum of 2-in.
4) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.
Updated product information is designated in **blue font**.