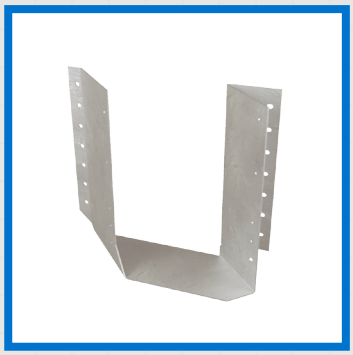
EWP PRODUCT GUIDE

For Use With Products Manufactured by

NORDIC STRUCTURES



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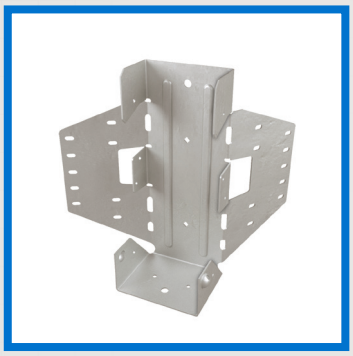


LSSH35

THFI2514

TFL25118

MiTek®

1-800-328-5934
MiTek-US.com

General Notes

MiTek®

Follow these instructions to ensure the proper installation of MiTek products.

- See current MiTek 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. Joist reaction should be checked by a qualified designer to ensure proper hanger selection.
- Uplift loads have been increased 60% 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 MiTek products is critical to connector performance. To achieve the factored resistances shown in this document, install with the fasteners specified for that particular product. 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 allowable 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 allowable loads shown in this document are based on Allowable Stress Design methodology (U.S. only).
- **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: ½:12 for seat bearing lengths of 2½" or less; ⅜:12 for bearing lengths between 2½" and 3½"; and ¼:12 for bearing lengths in excess of 3½".

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

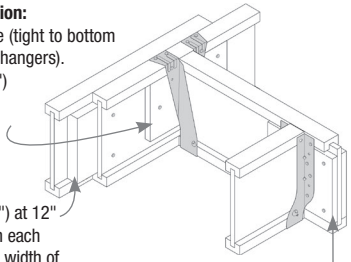
Flange Width (in)	Backer Block Material Thickness Required* (in)	Backer Block Minimum Depth** (in)	Filler Block Net Depth (in)	Filler Block Size (in)
2-1/2 x 1-1/2	1	5-1/2	9-1/2 11-7/8 14 16	2-1/8 to 2-1/4 x 6 2-1/8 to 2-1/4 x 8 2-1/8 to 2-1/4 x 10 2-1/8 to 2-1/4 x 12
3-1/2 x 1-1/2	1-1/2	7-1/4	9-1/2 11-7/8 14 16	3 x 6 3 x 8 3 x 10 3 x 12
3-1/2 x 2	1-1/2	7-1/4	11-7/8 14 16	3 x 7 3 x 9 3 x 11

* Minimum grade for backer block material shall be Utility grade S-P-F (south) or better for solid sawn lumber and Rated Sheathing grade for wood structural panels.
** For face-mount hangers, use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges, use net depth minus 4-1/4".

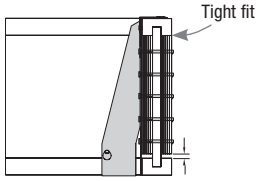
With top flange hangers, backer block required only for downward loads exceeding 250 lbs or for uplift conditions

Backer Block Installation:
Install tight to top flange (tight to bottom flange with face mount hangers). Attach with (12) 10d (3") box nails, clinched when possible.

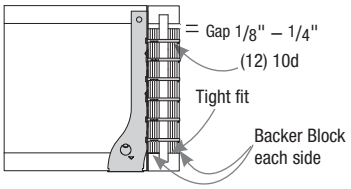
Filler Block Installation:
Nail with 2 rows of 10d nails (3") at 12" o.c. (clinched when possible) on each side of double I-joist. For flange width of 3-1/2", use 2 rows of 10d nails (3") at 6" o.c. on each side of the double I-joist. (total of 8 nails per foot.)



Backer Block required (only on the loaded side for top-mount hangers) (on both sides for face-mount hangers)



Typical **THO** (top mount) backer block installation



Typical **THF** (face mount) backer block installation

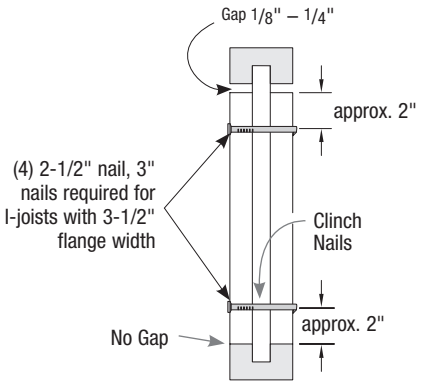
Web Stiffener Attachment

Web Stiffeners are optional except as noted below:

- A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.

Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

Stiffeners 1" thick are wood structural panels and stiffeners 1-1/2" thick are SPF lumber or denser.



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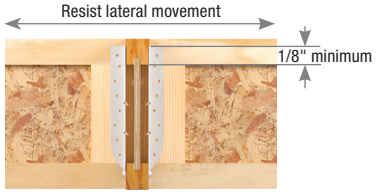
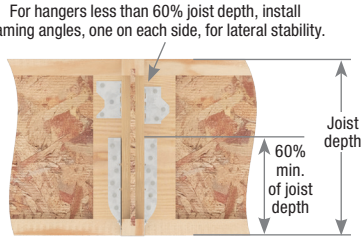
EWP Installation

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.

MiTek recommends that hangers for joist **with web stiffeners** should be 60% of the joist height for stability during construction. If this cannot be accomplished, potential joist rotation must be resolved by other means.





(Top flange support requirements can be verified in EWP Top Mount Hangers charts under Web stiffener Reqd. column) of MiTek's USP Product Catalog.

Nailer Installations

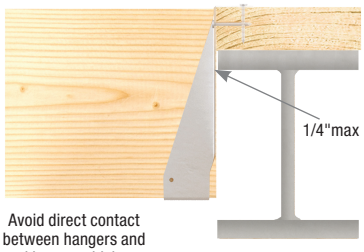
Correct Hanger Attachment to Nailer

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

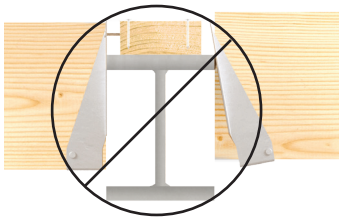
Top flange of hanger is fully supported and recommended nails have full penetration into nailer, resulting in a carried member hanging safely at the proper height.

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.



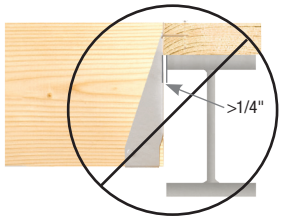
Avoid direct contact between hangers and steel beams which may cause squeaks

Wrong Nailer Size Causes Component Failure



Too Narrow

Top flange not fully supported can cause nail break-out. Or, by fully supporting top flange, hanger is tilted back, causing lifting of carried member which results in uneven surfaces and squeaky floors.



Too Wide

Loading can cause cross grain breaking of nailer. The recommended nailer overhang is 1/4" maximum per side.

Too Thin

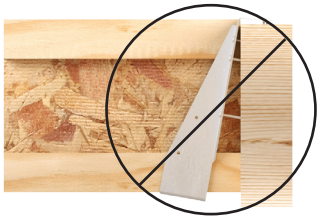
Top flange nailing cannot fully penetrate nailer, causing reduced allowable loads. Never use hangers which require multiple face nails since the allowable loads are dependent on all nail holes being used.

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

Single NI Joists – U.S. Allowable Load (Lbs)

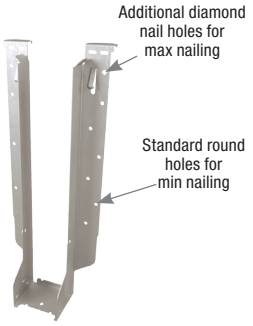
MiTek®

Joist Height	Top Mount Hangers[4,6]								Face Mount Hangers								
	USP Stock No.[1]	Length of Hanger Seat (in)	Fastener Schedule[5] Header Qty	Header Type	Joist Qty	Joist Type	Down[2] 100%	Uplift[3] 160%	USP Stock No.[1]	Length of Hanger Seat (in)	Min/ Max	Fastener Schedule[5] Header Qty	Header Type	Joist Qty	Joist Type	Down[2] 100%	Uplift[3] 160%
NI-20, NI-40x, NI-60 Series							**Joist Width = 2-1/2"**										
9-1/2	TFL2595	2	6	10d	2	10d x 1-1/2	1585	130	THFI2595	2-1/2	--	8	10d	--	--	960	120
11-7/8	TFL25118	2	6	10d	2	10d x 1-1/2	1585	130	THFI25118	2-1/2	--	10	10d	--	--	1200	120
14	TFL2514	2	6	10d	2	10d x 1-1/2	1585	130	THFI2514	2-1/2	Min	12	10d	--	--	1440	120
											Max	14				1680	
16	TFL2516	2	6	10d	2	10d x 1-1/2	1585	130	IHFL2516	2-1/2	Min	14	10d	--	--	1680	50
											Max	16				1920	
18	TFI318	2-1/2	6	16d	2	10d x 1-1/2	2715	215	IHFL2516	2-1/2	Min	14	10d	--	--	1680	50
											Max	16				1920	
NI-80, NI-90 Series							**Joist Width = 3-1/2"**										
9-1/2	TH035950	2-3/8	10	10d	2	10d x 1-1/2	2370	230	IHFL35925	2-1/2	--	10	10d	--	--	1200	50
11-7/8	TH035118	2-3/8	10	10d	2	10d x 1-1/2	2525	230	IHFL35112	2-1/2	Min	10	10d	--	--	1200	50
											Max	12				1440	
14	TH035140	2-3/8	12	10d	2	10d x 1-1/2	2400	230	IHFL3514	2-1/2	Min	12	10d	--	--	1440	50
											Max	14				1680	
16	TH035160	2-3/8	12	10d	2	10d x 1-1/2	2400	230	IHFL3516	2-1/2	Min	14	10d	--	--	1680	50
											Max	16				1920	
NI-80x Series							**Joist Width = 3-1/2"**										
18	TFI418	2-1/2	6	16d	2	10d x 1-1/2	2715	215	IHFL3516	2-1/2	Min	14	10d	--	--	1750	330
											Max	16				4410	
20	TFI420	2-1/2	6	16d	2	10d x 1-1/2	2715	215	IHFL3516	2-1/2	Min	14	10d	--	--	1750	330
											Max	16				4410	
22	TFI422	2-1/2	10	16d	2	10d x 1-1/2	2820	215	IHFL3516	2-1/2	Min	14	10d	--	--	1750	330
											Max	16				4410	
24	TFI424	2-1/2	10	16d	2	10d x 1-1/2	2820	215	IHFL3516	2-1/2	Min	14	10d	--	--	1750	330
											Max	16				4410	

1) Shaded hangers require web stiffeners at joist ends.
2) Loads listed are based on hanger attachment to a DF species solid sawn or NORDIC-LAM® LVL header.
3) Uplift loads have been increased 60% for wind and seismic loading; no further increase shall be permitted.
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 MiTek USP Product Catalog.
5) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.
6) For top mount hangers supported by I-Joist headers with a flange thickness less than 1-1/2", consult MiTek and Nordic for hanger limitations.

THO

TFL



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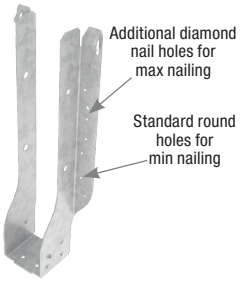

IHFL

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Single NI Joists – U.S. Allowable Load (Lbs)

MiTek®

Joist Height	Adjustable Height Hangers								Skewed 45° Hangers								
	USP Stock No.[1,5]	Length of Hanger Seat (in)	Fastener Schedule[4] Header Qty	Header Type	Joist Qty	Joist Type	Down[2] 100%	Uplift[3] 160%	USP Stock No.[1]	Length of Hanger Seat (in)	Min/ Max	Fastener Schedule[4] Header Qty	Header Type	Joist Qty	Joist Type	Down[2] 100%	Uplift[3] 160%
NI-20, NI-40x, NI-60 Series									**Joist Width = 2-1/2"**								
9-1/2	MSH322[5,8]	1-3/4	6	10d	4	10d x 1-1/2	2175	--	SKH2520L/R	1-7/8	--	14	10d	10	10d x 1-1/2	1650	1530
11-7/8	MSH322[5]	1-3/4	6	10d	4	10d x 1-1/2	2175	--	SKH2520L/R	1-7/8	--	14	10d	10	10d x 1-1/2	1650	1530
14	MSH322[5]	1-3/4	6	10d	4	10d x 1-1/2	2175	--	SKH2524L/R	1-7/8	--	16	10d	10	10d x 1-1/2	1890	1530
16	MSH322[5]	1-3/4	6	10d	4	10d x 1-1/2	2175	--	SKH2524L/R	1-7/8	--	16	10d	10	10d x 1-1/2	1890	1530
NI-80, NI-90 Series									**Joist Width = 3-1/2"**								
9-1/2	MSH422[5]	1-3/4	6	10d	6	10d	2355	--	HD410_SK45L/R_BV [6,7]	2-1/2	Min	14	16d	6	10d	2155	880
											Max	20		10		3080	1465
11-7/8	MSH422[5]	1-3/4	6	10d	6	10d	2355	--	HD410_SK45L/R_BV [6,7]	2-1/2	Min	14	16d	6	10d	2155	880
											Max	20		10		3080	1465
14	MSH422[5]	1-3/4	6	10d	6	10d	2355	--	HD414_SK45L/R_BV [6,7]	2-1/2	Min	18	16d	8	10d	2770	1165
											Max	26		12		4005	1755
16	MSH422[5]	1-3/4	6	10d	6	10d	2355	--	HD414_SK45L/R_BV [6,7]	2-1/2	Min	18	16d	8	10d	2770	1165
											Max	26		12		4005	1755
NI-80x Series									**Joist Width = 3-1/2"**								
18	MSH422[5,8]	1-3/4	6	10d	6	10d	2355	--	HD414_SK45L/R_BV [6,7]	2-1/2	Min	18	16d	8	10d	2770	1165
											Max	26		12		4005	1755
20	MSH422[5,8]	1-3/4	6	10d	6	10d	2355	--	HD414_SK45L/R_BV [6,7]	2-1/2	Min	18	16d	8	10d	2770	1165
											Max	26		12		4005	1755
22	MSH422[5,8]	1-3/4	6	10d	6	10d	2355	--	HD416_SK45L/R_BV [6,7]	2-1/2	Min	22	16d	10	10d	3390	1465
											Max	30		14		4620	1685
24	MSH422[5,8]	1-3/4	6	10d	6	10d	2355	--	HD416_SK45L/R_BV [6,7]	2-1/2	Min	22	16d	10	10d	3390	1465
											Max	30		14		4620	1685

1) Shaded hangers require web stiffeners at joist ends.
2) Loads listed are based on hanger attachment to a DF species solid sawn or NORDIC-LAM® LVL header.
3) Uplift loads have been increased 60% for wind and seismic loading; no further increase shall be permitted.
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, and 16d nails are 0.162" dia. x 3-1/2" long. 16d sinkers are 0.148" dia. x 3-1/4" long and may be used where 10d commons are specified.
5) MSH allowable loads 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 MiTek USP Product Catalog.
6) Bevel cut required on end of joist to achieve design loads.
7) Hangers are special order. Consult MiTek for pricing and lead times.
8) Flanges on the bucket of the hanger may extend above the top of the joist.

MSH

SKH_L
left shown

SKH_R
right shown

Double NI Joists – U.S. Allowable Load (Lbs)

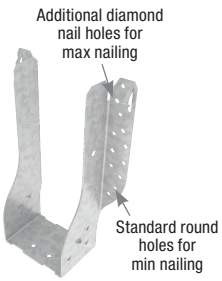
MiTek®

Joist Height	Top Mount Hangers[4,6]								Face Mount Hangers								
	USP Stock No.[1]	Length of Hanger Seat (in)	Fastener Schedule[5] Header Qty	Header Type	Joist Qty	Joist Type	Down[2] 100%	Uplift[3] 160%	USP Stock No.[1]	Length of Hanger Seat (in)	Min/ Max	Fastener Schedule[5] Header Qty	Header Type	Joist Qty	Joist Type	Down[2] 100%	Uplift[3] 160%
Double NI-20, NI-40x, NI-60 Series								**Joist Width = 5"**									
9-1/2	THO25950-2	3	10	16d	6	10d	3640	1145	IHF25925-2	2-1/2	Min	10	10d	2	10d x 1-1/2	1250	330
											Max	24	16d			3530	
11-7/8	THO25118-2	3	10	16d	6	10d	3640	1145	IHF25112-2	2-1/2	Min	10	10d	2	10d x 1-1/2	1250	330
											Max	24	16d			3530	
14	THO25140-2	3	12	16d	6	10d	4420	1145	THF25140-2	2-1/2	--	20	10d	6	10d	2660	1235
16	THO25160-2	3	12	16d	6	10d	4420	1145	THF25160-2	2-1/2	--	24	10d	6	10d	3190	1235
Double NI-80, NI-90 Series								**Joist Width = 7"**									
9-1/2	BPH7195	3	10	16d	6	10d	3100	1275	HD7100	2-1/2	Min	14	16d	6	16d	2155	1305
											Max	18		8		2770	1845
11-7/8	BPH71118	3	10	16d	6	10d	3075	1275	HD7120	2-1/2	Min	16	16d	6	16d	2465	1305
											Max	22		8		3390	1845
14	BPH7114	3	10	16d	6	10d	3075	1275	HD7140	2-1/2	Min	20	16d	8	16d	3080	1845
											Max	26		12		4005	2765
16	BPH7116	3	10	16d	6	10d	3075	1275	HD7160	2-1/2	--	24	16d	8	10d	3695	1560
Double NI-80x Series								**Joist Width = 7"**									
18	BPH7118	3	10	16d	6	10d	3075	1275	HD7160	2-1/2	--	24	16d	8	10d	3695	1560
20	BPH7120	3	10	16d	6	10d	3075	1275	HD7160	2-1/2	--	24	16d	8	10d	3695	1560
22	BPH7122	3	10	16d	6	10d	3075	1275	HD7160	2-1/2	--	24	16d	8	10d	3695	1560
24	BPH7124	3	10	16d	6	10d	3075	1275	HD7160	2-1/2	--	24	16d	8	10d	3695	1560

1) Shaded hangers require web stiffeners at joist ends.
2) Loads listed are based on hanger attachment to a DF species solid sawn or NORDIC-LAM® LVL header.
3) Uplift loads have been increased 60% for wind and seismic loading; no further increase shall be permitted.
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 MiTek USP Product Catalog.
5) **NAILS:** 10d nails are 0.148" dia. x 3" long, and 16d nails are 0.162" dia. x 3-1/2" long. 16d sinkers are 0.148" dia. x 3-1/4" long and may be used where 10d commons are specified.
6) For top mount hangers supported by I-Joist headers with a flange thickness less than 1-1/2", consult MiTek and Nordic for hanger limitations.

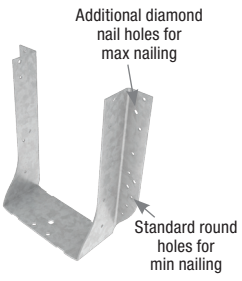
THO

BPH



IHF

THF



HD

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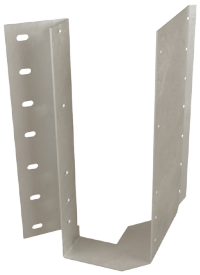
Double NI Joists – U.S. Allowable Load (Lbs)

MiTek®

Joist Height	Adjustable Height Hangers								Skewed 45° Hangers									
	USP Stock No.[1,5]	Length of Hanger Seat (in)	Fastener Schedule[4] Header Qty	Header Type	Joist Qty	Joist Type	Down[2] 100%	Uplift[3] 160%	USP Stock No.[1]	Length of Hanger Seat (in)	Min/ Max	Fastener Schedule[4] Header Qty	Header Type	Joist Qty	Joist Type	Down[2] 100%	Uplift[3] 160%
Double NI-20, NI-40x, NI-60 Series									**Joist Width = 5"**									
9-1/2	MSH2622-2[7]	1-3/4	6	10d	4	10d	2355	--	SKH2520L/R-2[6]	3-1/2	--	14	10d	10	10d	1710	1645
11-7/8	MSH2622-2[7]	1-3/4	6	10d	4	10d	2355	--	SKH2520L/R-2[6]	3-1/2	--	14	10d	10	10d	1710	1645
14	MSH2622-2[7]	1-3/4	6	10d	4	10d	2355	--	SKH2524L/R-2[6]	3-1/2	--	16	10d	10	10d	1950	1680
16	MSH2622-2[7]	1-3/4	6	10d	4	10d	2355	--	SKH2524L/R-2[6]	3-1/2	--	16	10d	10	10d	1950	1680
Double NI-80, NI-90 Series									**Joist Width = 7"**									
9-1/2	MSH422-2[7]	2	8	16d	6	16d	3740	--	HD7100-SK45L/R_BV[6,8]	2-1/2	Min	14	16d	6	16d	2155	980
											Max	18		8		2770	1385
11-7/8	MSH422-2[7]	2	8	16d	6	16d	3740	--	HD7120_SK45L/R_BV[6,8]	2-1/2	Min	16	16d	6	16d	2465	980
											Max	22		8		3390	1385
14	MSH422-2[7]	2	8	16d	6	16d	3740	--	HD7140_SK45L/R_BV[6,8]	2-1/2	Min	20	16d	8	16d	3080	1385
											Max	26		12		4005	2075
16	MSH422-2[7]	2	8	16d	6	16d	3740	--	HD7160_SK45L/R_BV[6,8]	2-1/2	--	24	16d	8	10d	3695	1170
Double NI-80x Series									**Joist Width = 7"**									
18	MSH422-2[7]	2	8	16d	6	16d	3740	--	HD7160_SK45L/R_BV[6,8]	2-1/2	--	24	16d	8	10d	3695	1170
20	MSH422-2[7]	2	8	16d	6	16d	3740	--	HD7160_SK45L/R_BV[6,8]	2-1/2	--	24	16d	8	10d	3695	1170
22	MSH422-2[7]	2	8	16d	6	16d	3740	--	HD7160_SK45L/R_BV[6,8]	2-1/2	--	24	16d	8	10d	3695	1170
24	MSH422-2[7]	2	8	16d	6	16d	3740	--	HD7160_SK45L/R_BV[6,8]	2-1/2	--	24	16d	8	10d	3695	1170

1) Shaded hangers require web stiffeners at joist ends.
2) Loads listed are based on hanger attachment to a DF species solid sawn or NORDIC-LAM® LVL header.
3) Uplift loads have been increased 60% for wind and seismic loading; no further increase shall be permitted.
4) **NAILS:** 10d nails are 0.148" dia. x 3" long, and 16d nails are 0.162" dia. x 3-1/2" long.
16d sinkers are 0.148" dia. 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 MiTek's USP Product Catalog.
6) Bevel cut required on end of joist to achieve design loads.
7) MSH allowable loads 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 MiTek USP Product Catalog.
8) Hangers are special order. Consult MiTek for pricing and lead times.

MSH



SKH_L
left shown

SKH_R
right shown

U.S. / Allowable Load (Lbs)

Joist Height	Top Mount Hangers[3] USP Stock No.	Length of Hanger Seat (in)	Fastener Schedule[4] Header Qty	Header Type	Joist Qty	Joist Type	Down[1] 100%	Uplift[2] 160%	Face Mount Hangers USP Stock No.	Length of Hanger Seat (in)	Min/ Max	Fastener Schedule[4] Header Qty	Header Type	Joist Qty	Joist Type	Down[1] 100%	Uplift[2] 160%
1-3/4" NORDIC-LAM																	
9-1/2	THO17950	2	6	10d	2	10d x 1-1/2	1235	230	HD17925	2-1/2	Min	18	16d	6	10d x 1-1/2	2770	1170
											Max	24		10		3695	1900
	PHXU1795	3-1/4	8	16d	6	10d x 1-1/2	4350	930	HUS179[5]	3	--	30	16d	10	16d	5580	4110
11-7/8	THO17118	2	6	10d	2	10d x 1-1/2	1235	230	HD17112	2-1/2	Min	22	16d	6	10d x 1-1/2	3390	1170
											Max	30		12		4320	1900
	PHXU17118	3-1/4	8	16d	6	10d x 1-1/2	4350	930	HUS179[5]	3	--	30	16d	10	16d	5580	4110
14	BPH1714	2-3/8	10	16d	4	10d x 1-1/2	2970	850	HD1714	2-1/2	Min	28	16d	8	10d x 1-1/2	3790	1550
											Max	36		14		4580	1900
	PHXU1714	3-1/4	8	16d	6	10d x 1-1/2	4350	930	HUS179[5]	3	--	30	16d	10	16d	5580	4110
2 Ply 1-3/4" NORDIC-LAM or 3-1/2" NORDIC-LAM																	
9-1/2	HBPH3595	3-1/2	22	16d	10	16d	6310	2705	THD410	3	--	38	16d	20	10d	5850	3905
	HLBH3595	6	15	NA16D-RS	6	16d	10045	1420	THDH410[5]	4	--	46	16d	12	16d	9020	4445
11-7/8	HBPH35118	3-1/2	22	16d	10	16d	6310	2705	THD410	3	--	38	16d	20	10d	5850	3905
	HLBH35118	6	15	NA16D-RS	6	16d	10045	1420	THDH412[5]	4	--	56	16d	14	16d	9710	5260
14	HBPH3514	3-1/2	22	16d	10	16d	6310	2705	THD410	3	--	38	16d	20	10d	5850	3905
	HLBH3514	6	15	NA16D-RS	6	16d	10045	1420	THDH414[5]	4	--	66	16d	16	16d	11760	5655
16	HBPH3516	3-1/2	22	16d	10	16d	6310	2705	THD412	3	--	48	16d	20	10d	7045	3905
	HLBH3516	6	15	NA16D-RS	6	16d	10045	1420	THDH414[5]	4	--	66	16d	16	16d	11760	5655
18	HBPH3518	3-1/2	22	16d	10	16d	6310	2705	THD412	3	--	48	16d	20	10d	7045	3905
	HLBH3518	6	15	NA16D-RS	6	16d	10045	1420	THDH414[5]	4	--	66	16d	16	16d	11760	5655
3 Ply 1-3/4" NORDIC-LAM or 5-1/2" NORDIC-LAM																	
9-1/2	HBPH5595	3-1/2	22	16d	10	16d	6235	2705	THD610	3	--	38	16d	20	10d	6535	4010
	HLBH5595	6	15	NA16D-RS	6	16d	10045	1580	THDH610[5]	4	--	46	16d	16	16d	9020	5260
11-7/8	HBPH55118	3-1/2	22	16d	10	16d	6235	2705	THD610	3	--	38	16d	20	10d	6535	4010
	HLBH55118	6	15	NA16D-RS	6	16d	10045	1580	THDH612[5]	4	--	56	16d	20	16d	9740	5260
14	HBPH5514	3-1/2	22	16d	10	16d	6235	2705	THD610	3	--	38	16d	20	10d	6535	4010
	HLBH5514	6	15	NA16D-RS	6	16d	10045	1580	THDH614[5]	4	--	66	16d	22	16d	11760	5655
16	HBPH5516	3-1/2	22	16d	10	16d	6235	2705	THD612	3	--	48	16d	20	10d	8255	4010
	HLBH5516	6	15	NA16D-RS	6	16d	10045	1580	THDH614[5]	4	--	66	16d	22	16d	11760	5655
18	HBPH5518	3-1/2	22	16d	10	16d	6235	2705	THD612	3	--	48	16d	20	10d	8255	4010
	HLBH5518	6	15	NA16D-RS	6	16d	10045	1580	THDH614[5]	4	--	66	16d	22	16d	11760	5655
4 Ply 1-3/4" NORDIC-LAM or 7" NORDIC-LAM																	
9-1/2	HBPH7195	3-1/2	22	16d	10	16d	6235	2705	THD7210	3	--	38	16d	20	10d	6535	4010
	HLBH7195	6	15	NA16D-RS	6	16d	10045	1580	THDH7210[5]	4	--	46	16d	12	16d	9020	4445
11-7/8	HBPH71118	3-1/2	22	16d	10	16d	6235	2705	THD7210	3	--	38	16d	20	10d	6535	4010
	HLBH71118	6	15	NA16D-RS	6	16d	10045	1580	THDH7212[5]	4	--	56	16d	14	16d	9020	5260
14	HBPH7114	3-1/2	22	16d	10	16d	6235	2705	THD7210	3	--	38	16d	20	10d	6535	4010
	HLBH7114	6	15	NA16D-RS	6	16d	10045	1580	THDH7214[5]	4	--	66	16d	16	16d	11760	5655
16	HBPH7116	3-1/2	22	16d	10	16d	6235	2705	HD7120	2-1/2	Min	16	16d	6	16d	2465	1305
											Max	22		8		3390	1845
	HLBH7116	6	15	NA16D-RS	6	16d	10045	1580	THDH7214[5]	4	--	66	16d	16	16d	11760	5655
18	HBPH7118	3-1/2	22	16d	10	16d	6235	2705	HD7140	2-1/2	Min	20	16d	8	16d	3080	1845
											Max	26		12		4005	2765
	HLBH7118	6	15	NA16D-RS	6	16d	10045	1580	THDH7214[5]	4	--	66	16d	16	16d	11760	5655

1) Loads listed are based on hanger attachment to a DF species solid sawn or NORDIC-LAM® LVL header.
2) Uplift loads have been increased 60% for wind and seismic loading; no further increase shall be permitted.
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 MiTek USP Product Catalog.
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, and 16d nails are 0.162" dia. x 3-1/2" long, NA16D-RS are 10d (0.148" dia.) x 3-1/2" long, ring shank nails. 16d sinkers are 0.148" dia. 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.

THO Double

BPH

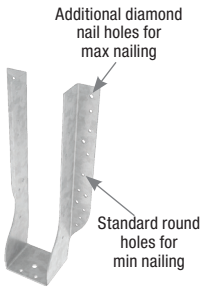
PHXU

HBPH

THDH

THD

HUS



HD

HLBH

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Slope/Skew Hangers – U.S. Allowable Load (Lbs)

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°.

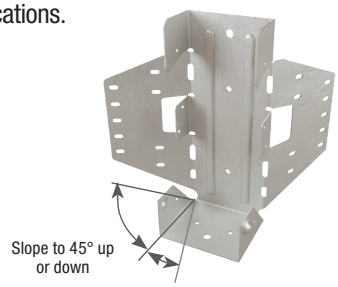
Installation:

- Use all specified fasteners.

Steps: (See LSSH Figure 1)

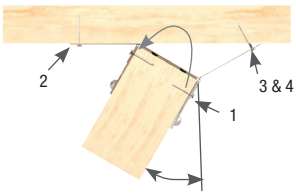
1. Position LSSH connector against plumb-cut end of joist. Fasten joist side flanges on both sides with 10d (0.148") x 1-1/2" nails. Bend seat up to fit against joist bottom and drive (1) 10d (0.148") x 1-1/2" nail through bottom seat into joist bottom flange. Drive (2) 10d (0.148") x 1-1/2" nails at 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.



LSSH

Typical LSSH installation



Skew to 45° maximum

LSSH Figure 1

Joist Height	USP Stock No.[1]	Length of Hanger Seat (in)	Installation Type	Fastener Schedule[4]				DF Allowable Loads (Lbs)	
				Header		Joist			
				Qty	Type	Qty	Type	Down 100%	Uplift[2] 160%
NI-20, NI-40x, NI-60 Series				**Joist Width = 2-1/2"**					
ALL	LSSH25[3]	3	Sloped Only	18	16d	12	10d x 1-1/2	2095	945
			Skewed Only or Sloped & Skewed	14	16d	12	10d x 1-1/2	1610	945
NI-80, NI-80x, NI-90 Series				**Joist Width = 3-1/2"**					
ALL	LSSH35[3]	3	Sloped Only	18	16d	12	10d x 1-1/2	2645	1310
			Skewed Only or Sloped & Skewed	14	16d	12	10d x 1-1/2	1610	1310

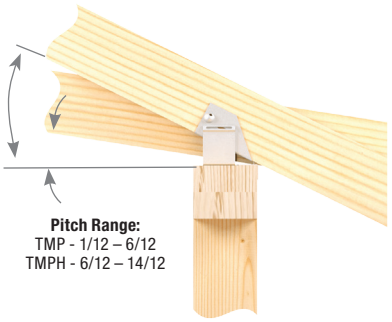
1) Shaded hangers require web stiffeners at joist ends.
2) Uplift loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
3) Supplemental lateral support connection recommended when hanger height is less than 60% of joist height.
4) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 16d nails are 0.162" dia. x 3-1/2" long.

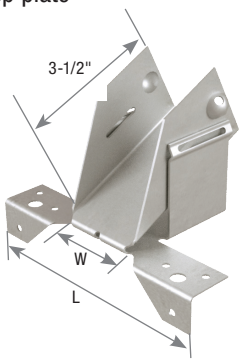
Variable Pitch Connectors – U.S. Allowable Load (Lbs)

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.

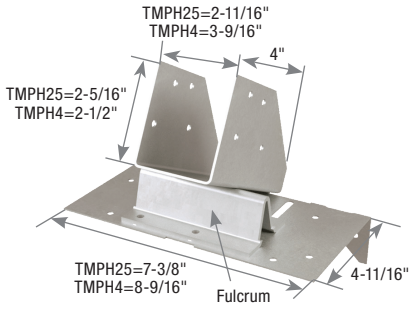




TMP

Typical TMP installation

Typical TMPH installation



TMPH

TMP Chart

Joist Height	USP Stock No.	Dimensions (in)		Fastener Schedule[3]				DF Allowable Loads (Lbs)	
				Header		Joist			
		W	L	Qty	Type	Qty	Type	Floor[1] 100%	Uplift[2] 115%
NI-20, NI-40x, NI-60 Series					**Joist Width = 2-1/2"**				
All	TMP25	2-11/16	6-3/8	6	10d	4	10d x 1-1/2	1705	250
NI-80, NI-80x NI-90 Series					**Joist Width = 3-1/2"**				
All	TMP4	3-9/16	7-5/16	6	10d	4	10d x 1-1/2	1705	250

1) Web stiffeners may be required for hangers by I-joist manufacturers.
2) Uplift loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

TMPH Chart

Joist Height	USP Stock No.	Fastener Schedule[3]				DF Allowable Loads (Lbs)									
		Plate		Rafter		According to Pitch									Uplift[2] 160%
		Qty	Type	Qty	Type	6/12	7/12	8/12	9/12	10/12	11/12	12/12	13/12	14/12	
NI-20, NI-40x, NI-60 Series					**Joist Width = 2-1/2"**										
All	TMPH25	10	10d	8	10d x 1-1/2	3190	3290	3390	3140	2900	2710	2520	2230	1950	260
NI-80, NI-80x NI-90 Series					**Joist Width = 3-1/2"**										
All	TMPH4	10	10d	8	10d x 1-1/2	3190	3290	3390	3140	2900	2710	2520	2230	1950	260

1) Web stiffeners are required for all Wood I-Joist installations.
2) Uplift loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
3) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

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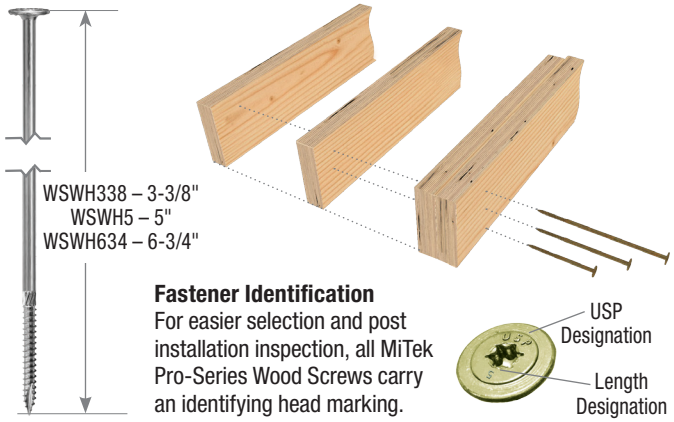
WSWH Series Washer Head Screw Applications - Joining 2, 3, or 4 Ply NORDIC-LAM® LVL Members

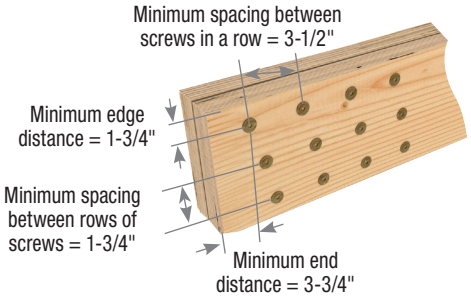
Installation:

- Using a standard 1/2" low speed/high torque drill, install screws into the side of the outermost ply. As the threads fully engage the final ply, allow the underside of the washer head to pull the plies firmly together. Washer head will install flush with the surface of the wood, but do not overdrive as this may damage the beam.
- Beams wider than 7" require special consideration by the design professional. The values in the table below do not apply.
- Excessively warped or curved LVL should never be forced into alignment by use of clamps, screws or bolts as splitting may occur, potentially decreasing the carrying capacity of the beam.
- A qualified designer or engineer should always be consulted for critical assemblies and fastening requirements.



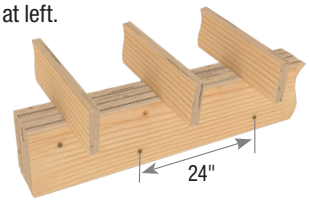
Fastener Identification
For easier selection and post installation inspection, all MiTek Pro-Series Wood Screws carry an identifying head marking.

Minimum Spacing Requirements:

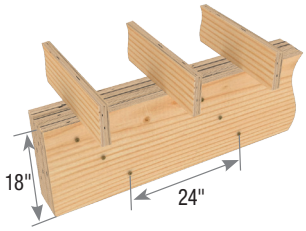


Top Loaded Beams

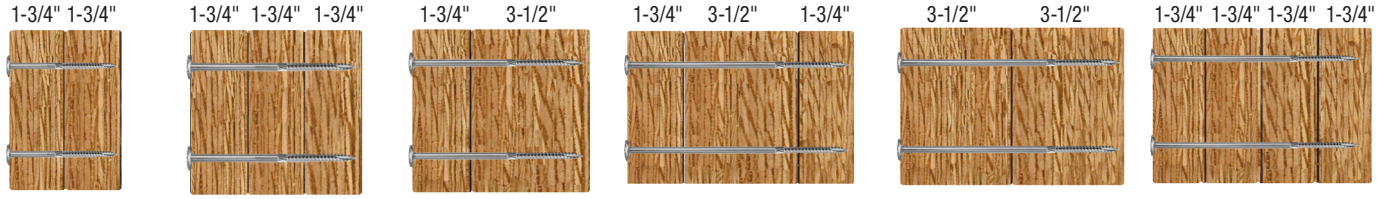
Where floor joists rest on all plies of the beam, WSWH screws should be installed in two staggered rows at 24" O.C. spacing. Maintain the minimum end and edge distance as indicated at left.



For beam depths of 18" or more, this pattern should be increased to three staggered rows of WSWH screws at 24" on center.



Fastener Size Selection by Assembly Type



A WSWH338 3-3/8" | **B** WSWH5 5" | **C** WSWH5 5" | **D** WSWH634 6-3/4" | **E** WSWH634 6-3/4" | **F** WSWH634 6-3/4"

Side Loaded Beams – Where floor joists are joined to the side of the beam (typically using a joist hanger), this load chart must be used to establish the proper pattern based on the design load as determined by the engineer and noted on the plans.

Length (in)	MiTek USP Stock No.	No. of Rows	Spacing Between Screws in a Row (in)	Allowable Side Loads by Assembly Type (lbs/lineal ft) (See Graphics) [1,2,3,4]					
				A	B	C	D	E	F
3-3/8	WSWH338	2	24	640	--	--	--	--	--
			19.2	800					
			16	955					
		3	24	955	--	--	--	--	--
			19.2	1195					
			16	1435					
5	WSWH5	2	24	--	535	535	--	--	--
			19.2		670	670			
			16		805	805			
		3	24	--	805	805	--	--	--
			19.2		1005	1005			
			16		1210	1210			
6-3/4	WSWH634	2	24	--	--	--	475	715	475
			19.2				595	895	595
			16				715	1075	715
		3	24	--	--	--	715	1075	715
			19.2				895	1345	895
			16				1075	1610	1075

1) Allowable loads are derived from tested fastener values as reported in ICC-ES ESR #2761. (Visit icc-es.org)
2) The uniform loads in this table relate only to the capacity of the fastener to transfer shear loads between plies. The capacity of the EWP beam may be less and should be checked against the manufacturer's literature.
3) Values listed reflect 100% load duration. (CD=1.0) The designer may apply adjustment factors to increase or decrease these loads per the National Design Specification for Wood (NDS) based on conditions for each assembly.
4) Load values depicted assume all uniform load is applied to the outermost ply or point of entry for the screw.
5) To minimize rotation, 7" wide beams shall be side loaded only when loads are applied to both sides of the beam with the lesser loaded side bearing at least 25% of the overall design load.

SPECIFICATION TOOLS

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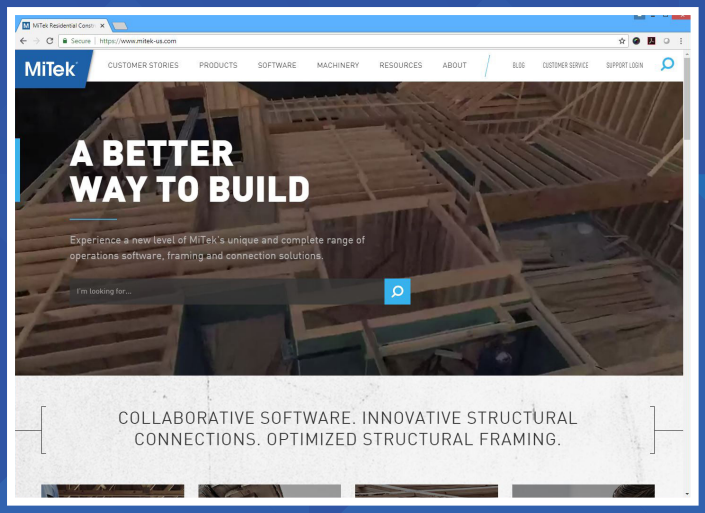

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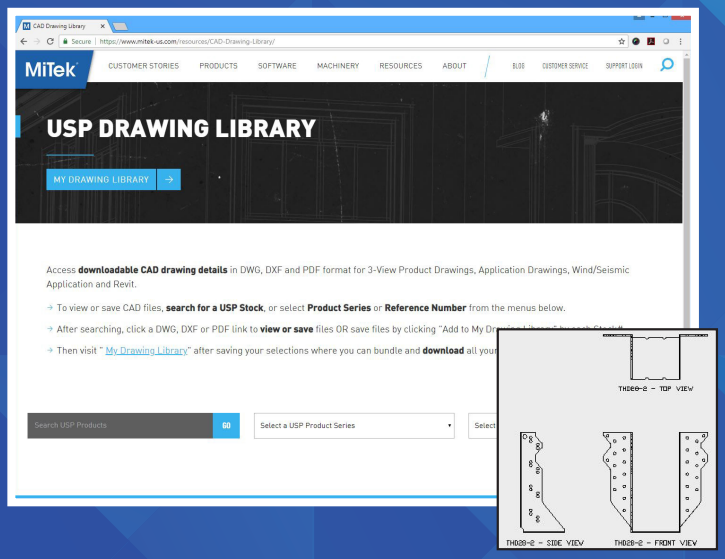

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