

EWP Product Guide

USPconnectors.com

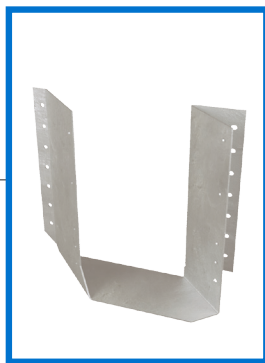
For Use With Products Manufactured by

NORDIC

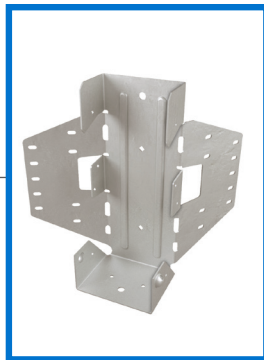
STRUCTURES



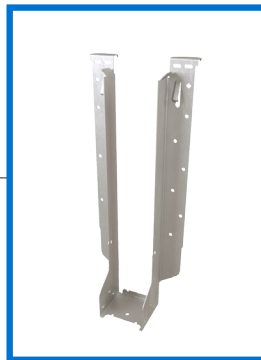
LIMIT
STATES
DESIGN



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 SPF header material, refer to the current USP Product 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 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 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

Flange Width	Backer Block Material Thickness Required*	Backer Block Minimum Depth**	Filler Block Net Depth	Filler Block Size
2-1/2" x 1-1/2"	1"	5-1/2"	9-1/2" 11-7/8" 14" 16"	2-1/8" x 6" 2-1/8" x 8" 2-1/8" x 10" 2-1/8" 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"

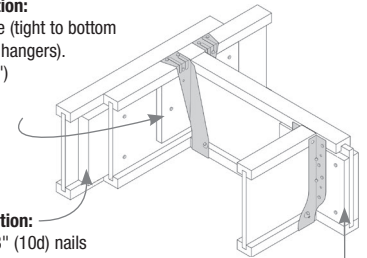
* Minimum grade for backer block material shall be SPF No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA 0325 or CAN/CSA 0437 standard.

** 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 factored downward loads exceeding 360 lbs or for uplift conditions

Backer Block Installation:

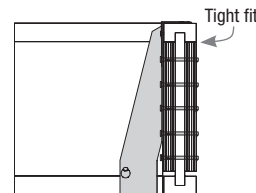
Install tight to top flange (tight to bottom flange with face mount hangers). Attach with (12) 10d (3") box nails, clinched when possible.



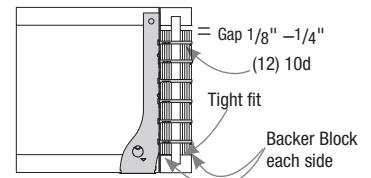
Filler Block Installation:

Nail with 2 rows of 3" (10d) nails at 12" o.c. (clinched when possible) on each side of double I-joist.

Backer Block required (both sides for face-mount hangers)



Typical THO (top mount) backer block installation



Typical THF (face mount) backer block installation

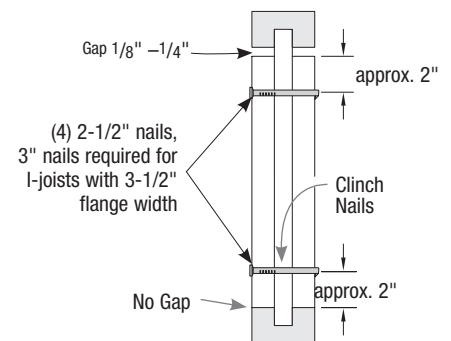
Web Stiffener Attachment

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

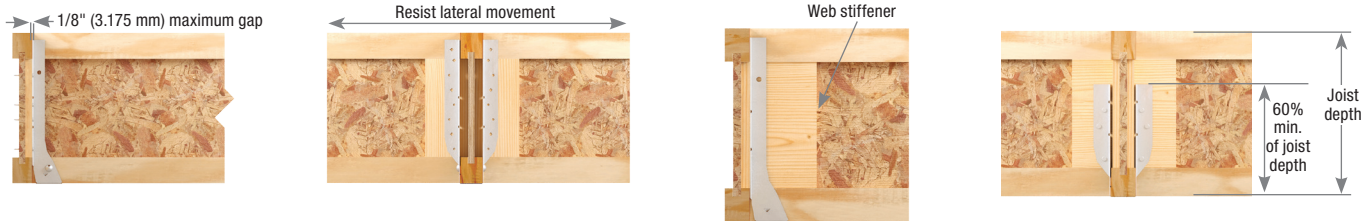
Stiffeners 1" thick are wood structural panels and stiffeners, 1-1/2" thick are SPF lumber or denser.



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

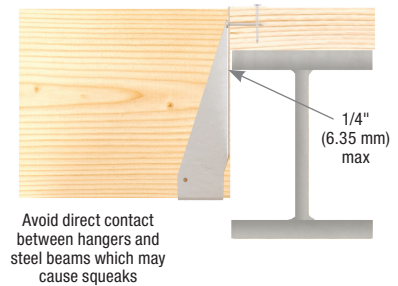
Correct Hanger Attachment to Nailer

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.

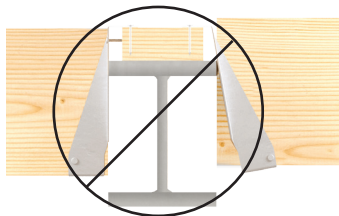
Nailer Sized Correctly

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.

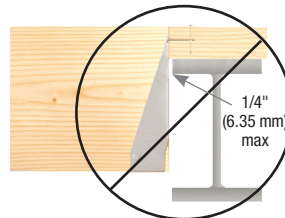


Wrong Nailer Size Causes Component Failure



⚠ 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

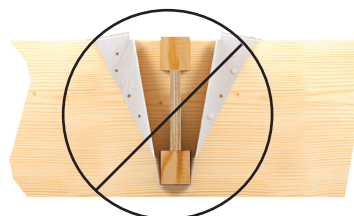
Top flange nailing cannot fully penetrate nailer, causing reduced factored resistance. Never use hangers which require multiple face nails with a nailer or sill plate since the factored resistance are dependent on all nail holes being used.

Top Flange Hangers

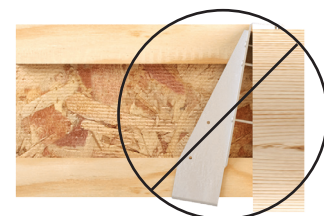
The thickness of the hanger metal and nail heads on top mount hangers must be evaluated for the effect on subsequent sheathing. Ensure the top mount hanger is installed so the flanges of the hanger are not *over-spread* which tends to elevate the supported I-Joist, causing uneven floor surfaces and squeaking. 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

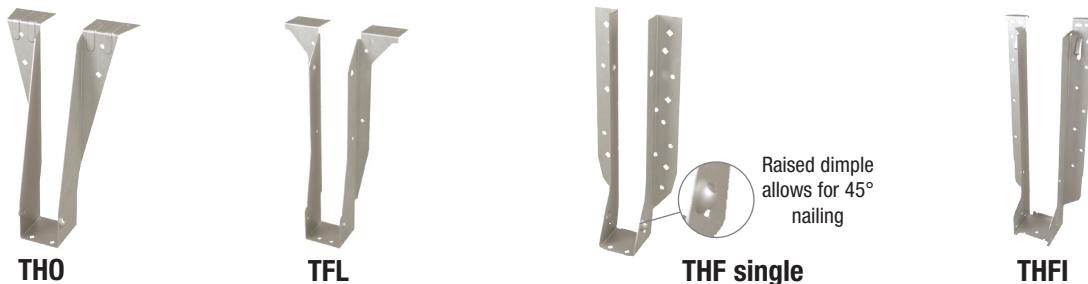


⚠ Hanger not plumb

Hanger Factored Resistance (Lbs)

Joist Height	Top Mount Hangers ^{4,6}								Face Mount Hangers							
	USP Stock No. ¹	Length of Hanger Seat (in)	Fastener Schedule ⁵				Down ² 100%	Uplift ³ 115%	USP Stock No. ¹	Length of Hanger Seat (in)	Fastener Schedule ⁵				Down ² 100%	Uplift ³ 115%
			Header		Joist						Header		Joist			
			Qty	Type	Qty	Type					Qty	Type	Qty	Type		
NI-20, NI-40, NI-40x, NI-60 Series																
Joist Width = 2-1/2"																
9-1/2	TFL2595	2	6	10d	2	10d x 1-1/2	2370	265	THF2595	2	8	10d	--	--	2345	235
11-7/8	TFL25118	2	6	10d	2	10d x 1-1/2	2370	265	THF25118	2	10	10d	--	--	2345	235
14	TFL2514	2	6	10d	2	10d x 1-1/2	2370	265	THF2514	2	12	10d	--	--	4605	235
16	TFL2516	2	6	10d	2	10d x 1-1/2	2370	265	THF26160	2-1/2	22	10d	2	10d x 1-1/2	4405	690
NI-70, NI-80, NI-80x, NI-90 Series																
Joist Width = 3-1/2"																
9-1/2	TH035950	2-3/8	10	10d	2	10d x 1-1/2	2950	485	THF35925	2-1/2	12	10d	2	10d x 1-1/2	5075	445
11-7/8	TH035118	2-3/8	10	10d	2	10d x 1-1/2	2950	485	THF35112	2-1/2	16	10d	2	10d x 1-1/2	5075	445
14	TH035140	2-3/8	12	10d	2	10d x 1-1/2	3910	485	THF35140	2-1/2	20	10d	2	10d x 1-1/2	6680	445
16	TH035160	2-3/8	12	10d	2	10d x 1-1/2	3910	485	THF35157	2-1/2	22	10d	2	10d x 1-1/2	6680	445
NI-90x Series																
Joist Width = 3-1/2"																
11-7/8	TH035118	2-3/8	10	10d	2	10d x 1-1/2	2950	485	THF35112	2-1/2	16	10d	2	10d x 1-1/2	5075	445
14	TH035140	2-3/8	12	10d	2	10d x 1-1/2	3910	485	THF35140	2-1/2	20	10d	2	10d x 1-1/2	6680	445
16	TH035160	2-3/8	12	10d	2	10d x 1-1/2	3910	485	THF35157	2-1/2	22	10d	2	10d x 1-1/2	6680	445

- 1) Web stiffeners may be required by I-joist manufacturers.
- 2) Factored resistance is based on hanger attachment to a DF species solid sawn, or NORDIC-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" 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.
- 6) For top mount hangers supported by I-Joist headers with a flange thickness less than 1-1/2", consult USP and Nordic for hanger limitations.



Hanger Factored Resistance (Lbs)

Joist Height	Adjustable Height Hangers								Skewed 45° Hangers							
	USP Stock No. ^{1,5}	Length of Hanger Seat (in)	Fastener Schedule ⁴				Down ² 100%	Uplift ³ 115%	USP Stock No. ¹	Length of Hanger Seat (in)	Fastener Schedule ⁴				Down ² 100%	Uplift ³ 115%
			Header		Joist						Header		Joist			
			Qty	Type	Qty	Type					Qty	Type	Qty	Type		
NI-20, NI-40, NI-40x, NI-60 Series								Joist Width = 2-1/2"								
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	3440	2855
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	3440	2855
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	4640	2855
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	4640	2855
NI-70, NI-80, NI-80x, NI-90 Series								Joist Width = 3-1/2"								
9-1/2	MSH422	1-3/4	6	10d	6	10d	3215	--	SKH410L/R ⁶	2-1/2	16	16d	10	16d	4130	2855
11-7/8	MSH422	1-3/4	6	10d	6	10d	3215	--	SKH410L/R ⁶	2-1/2	16	16d	10	16d	4130	2855
14	MSH422	1-3/4	6	10d	6	10d	3215	--	SKH414L/R ⁶	2-1/2	22	16d	10	16d	8720	2855
16	MSH422	1-3/4	6	10d	6	10d	3215	--	SKH414L/R ⁶	2-1/2	22	16d	10	16d	8720	2855
NI-90x Series								Joist Width = 3-1/2"								
11-7/8	MSH422	1-3/4	6	10d	6	10d	3215	--	HD410_SK45L/R_BV ^{6,7}	2-1/2	18	16d	10	10d	7485	3325
14	MSH422	1-3/4	6	10d	6	10d	3215	--	HD414_SK45L/R_BV ^{6,7}	2-1/2	24	16d	10	10d	8250	3220
16	MSH422	1-3/4	6	10d	6	10d	3215	--	HD414_SK45L/R_BV ^{6,7}	2-1/2	24	16d	10	10d	8250	3220

- 1) Shaded hangers require web stiffeners at joist ends.
- 2) Factored resistance is based on hanger attachment to a DF species solid sawn, or NORDIC-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, 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 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.
- 6) Bevel cut required on end of joist to achieve design loads.
- 7) Hangers are special order. Consult USP for pricing and lead times.



MSH



SKH_L
left shown



SKH_R
right shown

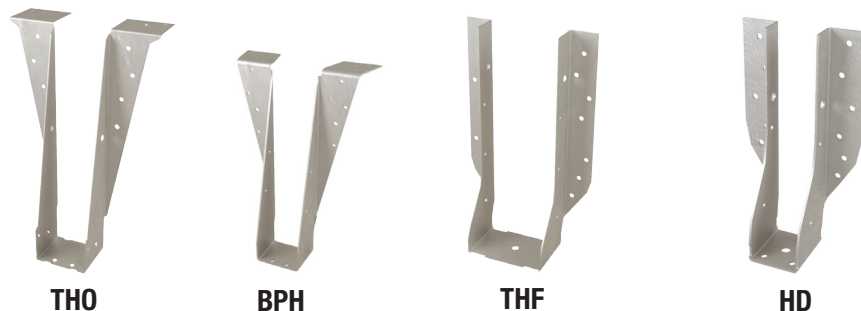


HD

Hanger Factored Resistance (Lbs)

Joist Height	Top Mount Hangers ^{4,6}								Face Mount Hangers							
	USP Stock No. ¹	Length of Hanger Seat (in)	Fastener Schedule ⁵				Down ² 100%	Uplift ³ 115%	USP Stock No. ¹	Length of Hanger Seat (in)	Fastener Schedule ⁵				Down ² 100%	Uplift ³ 115%
			Header		Joist						Header		Joist			
			Qty	Type	Qty	Type					Qty	Type	Qty	Type		
Double NI-20, NI-40, NI-40x, NI-60 Series								Joist Width = 5"								
9-1/2	TH025950-2	3	10	16d	6	10d	5090	2140	THF25925-2	2-1/2	12	10d	6	10d	5075	3185
11-7/8	TH025118-2	3	10	16d	6	10d	5090	2140	THF25112-2	2-1/2	16	10d	6	10d	5075	3185
14	TH025140-2	3	12	16d	6	10d	5090	2140	THF25140-2	2-1/2	20	10d	6	10d	6680	3185
16	TH025160-2	3	12	16d	6	10d	5090	2140	THF25160-2	2-1/2	24	10d	6	10d	6680	3185
Double NI-70, NI-80, NI-80x, NI-90 Series								Joist Width = 7"								
9-1/2	BPH7195	3	10	16d	6	10d	5300	2935	HD7100	2-1/2	12	16d	6	10d	4920	2685
11-7/8	BPH71118	3	10	16d	6	10d	5300	2935	HD7120	2-1/2	16	16d	6	10d	4675	2685
14	BPH7114	3	10	16d	6	10d	5300	2935	HD7140	2-1/2	20	16d	8	10d	7485	2685
16	BPH7116	3	10	16d	6	10d	5300	2935	HD7160	2-1/2	24	16d	8	10d	8250	2685
Double NI-90x Series								Joist Width = 7"								
11-7/8	BPH71118	3	10	16d	6	10d	5300	2935	HD7120	2-1/2	16	16d	6	10d	4675	2685
14	BPH7114	3	10	16d	6	10d	5300	2935	HD7140	2-1/2	20	16d	8	10d	7485	2685
16	BPH7116	3	10	16d	6	10d	5300	2935	HD7160	2-1/2	24	16d	8	10d	8250	2685

- 1) Shaded hangers require web stiffeners at joist ends.
- 2) Factored resistance is based on hanger attachment to a DF species solid sawn, or NORDIC-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.
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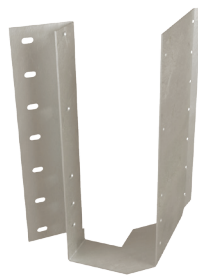
Hanger Factored Resistance (Lbs)

Joist Height	Adjustable Height Hangers								Skewed 45° Hangers							
	USP Stock No. ^{1,5}	Length of Hanger Seat (in)	Fastener Schedule ⁴				Down ² 100%	Uplift ³ 115%	USP Stock No. ¹	Length of Hanger Seat (in)	Fastener Schedule ⁴				Down ² 100%	Uplift ³ 115%
			Header		Joist						Header		Joist			
			Qty	Type	Qty	Type					Qty	Type	Qty	Type		
Double NI-20, NI-40, NI-40x, NI-60 Series										Joist Width = 5"						
9-1/2	See current USP Product Catalog for specialty hanger options								SKH2520L/R-2 ⁶	3-1/2	14	10d	10	10d	5320	3490
11-7/8									SKH2520L/R-2 ⁶	3-1/2	14	10d	10	10d	5320	3490
14									SKH2524L/R-2 ⁶	3-1/2	16	10d	10	10d	4950	3485
16									SKH2524L/R-2 ⁶	3-1/2	16	10d	10	10d	4950	3485
Double NI-70, NI-80, NI-80x, NI-90 Series										Joist Width = 7"						
9-1/2	MSH422-2 ⁷	2	8	16d	6	16d	6665	--	HD7100_SK45L/R_BV ^{6,8}	2-1/2	12	16d	6	10d	4920	2015
11-7/8	MSH422-2 ⁷	2	8	16d	6	16d	6665	--	HD7120_SK45L/R_BV ^{6,8}	2-1/2	16	16d	6	10d	4675	2015
14	MSH422-2 ⁷	2	8	16d	6	16d	6665	--	HD7140_SK45L/R_BV ^{6,8}	2-1/2	20	16d	8	10d	7485	2015
16	MSH422-2 ⁷	2	8	16d	6	16d	6665	--	HD7160_SK45L/R_BV ^{6,8}	2-1/2	24	16d	8	10d	8250	2015
Double NI-90x Series										Joist Width = 7"						
11-7/8	See current USP Product Catalog for specialty hanger options								HD7120_SK45L/R_BV ^{6,8}	2-1/2	16	16d	6	10d	4675	2015
14									HD7140_SK45L/R_BV ^{6,8}	2-1/2	20	16d	8	10d	7485	2015
16									HD7160_SK45L/R_BV ^{6,8}	2-1/2	24	16d	8	10d	8250	2015

- 1) Shaded hangers require web stiffeners at joist ends.
- 2) Factored resistance is based on hanger attachment to a DF species solid sawn, or NORDIC-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" 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 USP's Product Catalog.
- 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 4 - 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.



MSH



SKH_L
left shown



SKH_R
right shown



HD

NORDIC-LAM® LVL Beams & Headers



Hanger Factored Resistance (Lbs)

Joist Height	Top Mount Hangers ³								Face Mount Hangers							
	USP Stock No.	Length of Hanger Seat (in)	Fastener Schedule ⁴				Down ¹ 100%	Uplift ² 115%	USP Stock No.	Length of Hanger Seat (in)	Fastener Schedule ⁴				Down ¹ 100%	Uplift ² 115%
			Header		Joist						Header		Joist			
			Qty	Type	Qty	Type					Qty	Type	Qty	Type		
1-3/4" NORDIC-LAM																
9-1/2	BPH1795	2-3/8	10	16d	4	10d x 1-1/2	4890	1140	HD17925	2	18	16d	6	10d x 1-1/2	5710	2005
	PHXU1795	3-1/4	8	16d	6	10d x 1-1/2	6370	1890	HUS179 ⁵	3	30	16d	10	16d	9030	6035
11-7/8	BPH17118	2-3/8	10	16d	4	10d x 1-1/2	4890	1140	HD17112	2	22	16d	6	10d x 1-1/2	5915	2185
	PHXU17118	3-1/4	8	16d	6	10d x 1-1/2	6370	1890	HUS179 ⁵	3	30	16d	10	16d	9030	6035
14	BPH1714	2-3/8	10	16d	4	10d x 1-1/2	4890	1140	HD1714	2	26	16d	8	10d x 1-1/2	5925	3190
	PHXU1714	3-1/4	8	16d	6	10d x 1-1/2	6370	1890	HUS179 ⁵	3	30	16d	10	16d	9030	6035
2 Ply 1-3/4" NORDIC-LAM or 3-1/2" NORDIC-LAM																
9-1/2	HBPH3595	3-1/2	22	16d	10	16d	11005	5530	THD410	3	38	16d	20	10d	11540	8375
	HLBH3595	6	15	NA16D-RS	6	16d	14940	2530	THDH410 ⁵	4	46	16d	12	16d	14760	8210
11-7/8	HBPH35118	3-1/2	22	16d	10	16d	11005	5530	THD410	3	38	16d	20	10d	11540	8375
	HLBH35118	6	15	NA16D-RS	6	16d	14940	2530	THDH412 ⁵	4	56	16d	14	16d	16130	9845
14	HBPH3514	3-1/2	22	16d	10	16d	11005	5530	THD410	3	38	16d	20	10d	11540	8375
	HLBH3514	6	15	NA16D-RS	6	16d	14940	2530	THDH414 ⁵	4	66	16d	16	16d	17570	11335
16	HBPH3516	3-1/2	22	16d	10	16d	11005	5530	THD412	3	48	16d	20	10d	11540	8375
	HLBH3516	6	15	NA16D-RS	6	16d	14940	2530	THDH414 ⁵	4	66	16d	16	16d	17570	11335
18	HBPH3518	3-1/2	22	16d	10	16d	11005	5530	THD412	3	48	16d	20	10d	11540	8375
	HLBH3518	6	15	NA16D-RS	6	16d	14940	2530	THDH414 ⁵	4	66	16d	16	16d	17570	11335
3 Ply 1-3/4" NORDIC-LAM or 5-1/2" NORDIC-LAM																
9-1/2	HBPH5595	3-1/2	22	16d	10	16d	10405	5620	THD610	3	38	16d	20	10d	12455	6425
	HLBH5595	6	15	NA16D-RS	6	16d	14940	2860	THDH610 ⁵	4	46	16d	16	16d	12645	10140
11-7/8	HBPH55118	3-1/2	22	16d	10	16d	10405	5620	THD610	3	38	16d	20	10d	12455	6425
	HLBH55118	6	15	NA16D-RS	6	16d	14940	2860	THDH612 ⁵	4	56	16d	20	16d	15465	10140
14	HBPH5514	3-1/2	22	16d	10	16d	10405	5620	THD610	3	38	16d	20	10d	12455	6425
	HLBH5514	6	15	NA16D-RS	6	16d	14940	2860	THDH614 ⁵	4	66	16d	22	16d	17570	11335
16	HBPH5516	3-1/2	22	16d	10	16d	10405	5620	THD612	3	48	16d	20	10d	13785	9850
	HLBH5516	6	15	NA16D-RS	6	16d	14940	2860	THDH614 ⁵	4	66	16d	22	16d	17570	11335
18	HBPH5518	3-1/2	22	16d	10	16d	10405	5620	THD612	3	48	16d	20	10d	13785	9850
	HLBH5518	6	15	NA16D-RS	6	16d	14940	2860	THDH614 ⁵	4	66	16d	22	16d	17570	11335
4 Ply 1-3/4" NORDIC-LAM or 7" NORDIC-LAM																
9-1/2	HBPH7195	3-1/2	22	16d	10	16d	10405	5620	THD7210	3	38	16d	20	10d	12455	6425
	HLBH7195	6	15	NA16D-RS	6	16d	14940	2860	THDH7210 ⁵	4	46	16d	12	16d	12645	8210
11-7/8	HBPH71118	3-1/2	22	16d	10	16d	10405	5620	THD7210	3	38	16d	20	10d	12455	6425
	HLBH71118	6	15	NA16D-RS	6	16d	14940	2860	THDH7212 ⁵	4	56	16d	14	16d	12645	9845
14	HBPH7114	3-1/2	22	16d	10	16d	10405	5620	THD7210	3	38	16d	20	10d	12455	6425
	HLBH7114	6	15	NA16D-RS	6	16d	14940	2860	THDH7214 ⁵	4	66	16d	16	16d	17570	11335
16	HBPH7116	3-1/2	22	16d	10	16d	10405	5620	HD7120	2-1/2	16	16d	6	10d	4675	2685
	HLBH7116	6	15	NA16D-RS	6	16d	14940	2860	THDH7214 ⁵	4	66	16d	16	16d	17570	11335
18	HBPH7118	3-1/2	22	16d	10	16d	10405	5620	HD7140	2-1/2	20	16d	8	10d	7485	2685
	HLBH7118	6	15	NA16D-RS	6	16d	14940	2860	THDH7214 ⁵	4	66	16d	16	16d	17570	11335



BPH



HBPH



HLBH



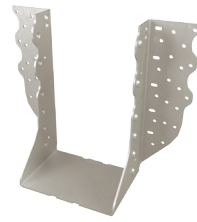
PHXU



HD



HUS



THDH



THD

- 1) Factored resistance is 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" dia. x 1-1/2" long, 16d 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.

Field Slope/Skew Hangers

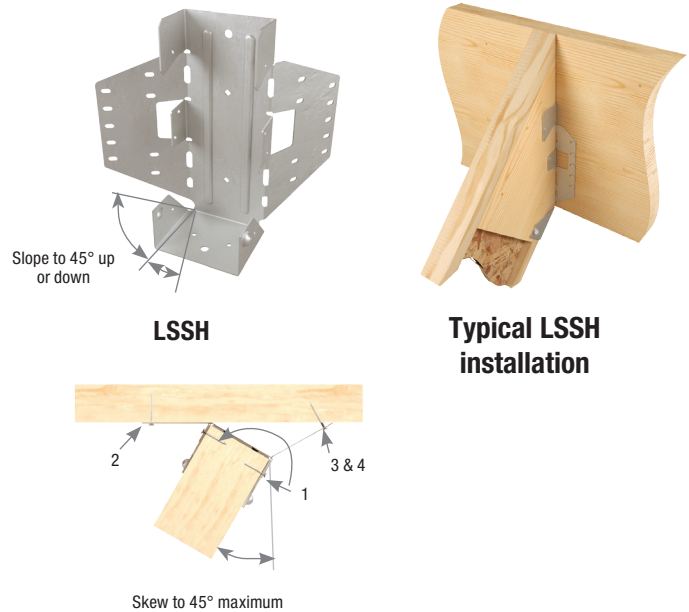
The LSSH series connects rafters to ridge beams in vaulted roof structures. This series is field adjustable to meet a variety of skew and/or slope applications. Slopes and skews 0° to 45°.

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" 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.



Hanger Factored Resistance (Lbs)

Joist Height	USP Stock No. ¹	Length of Hanger Seat (in)	Installation Type	Fastener Schedule ⁴				DF		S-P-F	
				Header		Joist		Uplift ² 115%	Down 100%	Uplift ² 115%	Down 100%
				Qty	Type	Qty	Type				
NI-20, NI-40, NI-40x, NI-60 Series				Joist Width = 2-1/2"							
ALL	LSSH25 ³	3	Sloped Only	18	16d	12	10d x 1-1/2	1895	4125	1490	3240
			Skewed Only <u>or</u> Sloped & Skewed	14	16d	12	10d x 1-1/2	1895	2895	1490	2270
NI-70, NI-80, NI-80x, NI-90, NI-90x Series				Joist Width = 3-1/2"							
ALL	LSSH35 ³	3	Sloped Only	18	16d	12	10d x 1-1/2	2515	5065	1975	3980
			Skewed Only <u>or</u> Sloped & Skewed	14	16d	12	10d x 1-1/2	2515	3045	1975	2390

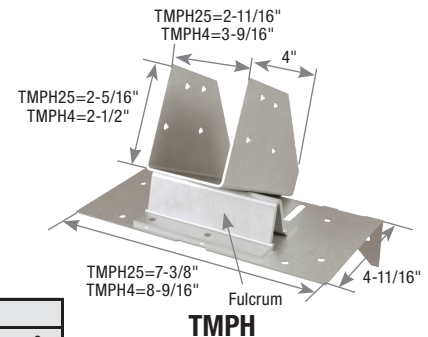
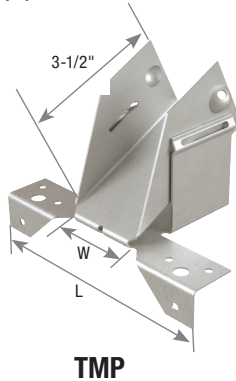
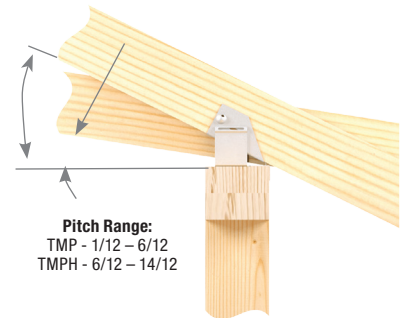
- 1) Shaded hangers require web stiffeners at joist ends.
- 2) Factored uplift resistances have been increased 15% for short-term loads such as wind and earthquake; reduce for other load durations in accordance with the code.
- 3) Supplemental lateral support connection recommended when hanger height 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

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.	Dimensions (in)		Fastener Schedule ³				DF		S-P-F	
		W	L	Header		Joist		Vertical 100%	Uplift ² 115%	Vertical 100%	Uplift ² 115%
NI-20, NI-40, 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	2770	400	2175	315
NI-70, NI-80, NI-80x NI-90, NI-90x Series											
Joist Width = 3-1/2"											
All	TMP4	3-9/16	7-5/16	6	10d	4	10d x 1-1/2	2770	400	2175	315

- 1) Web stiffeners may be required for hangers by I-joist manufacturers.
- 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) **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 Hanger Factored Resistance (Lbs)

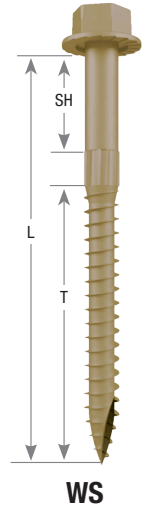
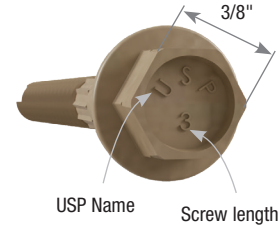
Joist Height	USP Stock No.	Fastener Schedule ³			DF										S-P-F										
		Plate Qty	Rafter Type	Type	According to Pitch										According to Pitch										
NI-20, NI-40, NI-40x, NI-60 Series																									
Joist Width = 2-1/2"																									
All	TMPH25	10	10d	8	10d x 1-1/2	5220	5385	5540	5005	4470	4305	4120	3655	3185	375	4100	4225	4350	3930	3510	3380	3235	2870	2500	295
NI-70, NI-80, NI-80x NI-90, NI-90x Series																									
Joist Width = 3-1/2"																									
All	TMPH4	10	10d	8	10d x 1-1/2	5220	5385	5540	5005	4470	4305	4120	3655	2605	375	4100	4225	4350	3930	3510	3380	3235	2870	2500	295

- 1) Web stiffeners are required for all Wood I-Joist installations.
- 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) **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.

WS Series Wood Screw Applications - Joining 2, 3, or 4 Ply NORDIC-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

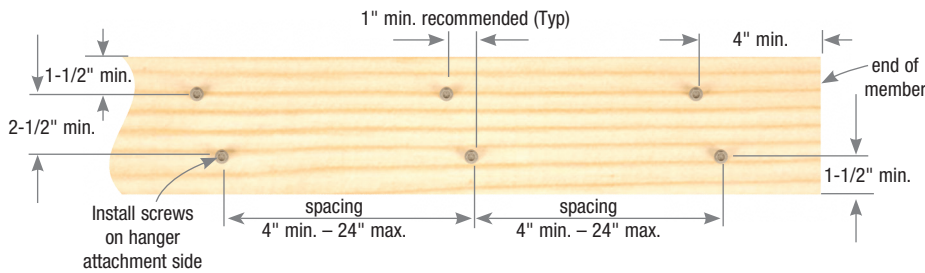


Figure 1



WS35 installed in (2) 1-3/4" Ply

Figure 2



WS35 installed in (3) 1-3/4" Ply

Figure 3



WS6 installed in (4) 1-3/4" Ply

Figure 4



WS35 installed in (1) 1-3/4", (1) 3-1/2" Ply

Figure 5



WS35 installed in (2) 1-3/4", (1) 3-1/2" Ply

Figure 6



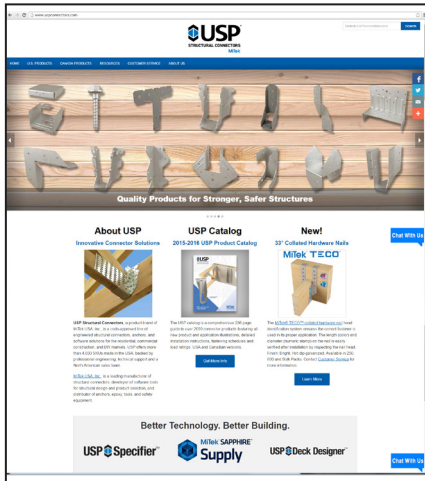
WS6 installed in (2) 3-1/2" Ply

Size (in)	USP Stock No.	Dimensions (in)			Multiple Members Installation Figure ^{3,7,9,10}	Maximum Factored Uniform Loads that can be applied to either outside member ^{1,2,3,4,5,6}											
		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 ⁸	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.

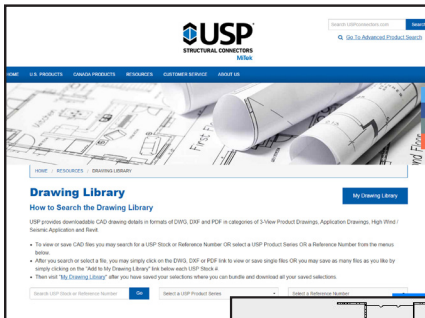
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All available on our Web Site
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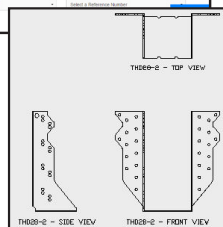
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