

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 to any pitch to 45° up or down and skews up to 45° right or left.

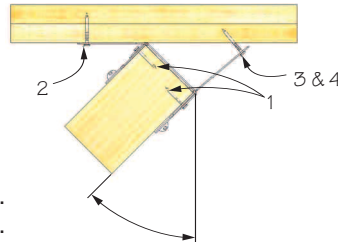
- Materials:** See chart
Finish: G90 galvanizing
Options: LSSH210 and LSSH31 are available in Triple Zinc. To order, add TZ to stock number, as in **LSSH210-TZ**.
Codes: NER 505, L.A. City 25303, FL816
Patents: #5,217,317

Installation:

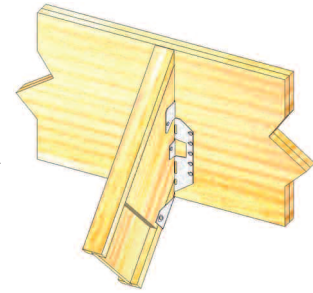
- Use all specified fasteners. See Product Notes, page 16.

Steps:

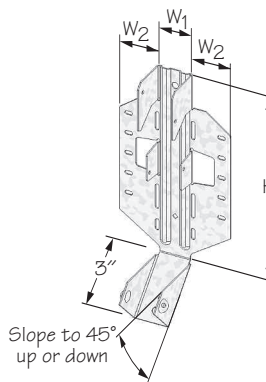
1. Position LSSH connector against plumb-cut end of joist. Fasten joist side flanges on both sides with 10d x 1 1/2" nails. Bend seat up to fit against joist bottom and drive (1) 10d x 1 1/2" nail through bottom seat into rafter bottom. Drive (2) 10d x 1 1/2" nails at downward angle through dimpled nailing guides.
 2. Lean connector and rafter end against ridge beam at desired position. Install 10d or 16d 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 or 16d 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.



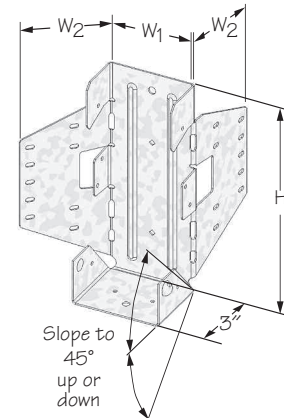
skew to 45° maximum



Typical LSSH179 installation



LSSH210



LSSH35

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See ANSI/TPI section for truss chord applications page 193

Rafter Width	USP Stock No.	Ref. No.	Steel Gauge	Dimensions			Fastener Schedule ^{2,3}		Allowable Loads (Lbs.)									
				W1	W2	H	Header	Rafter	DF-L / SP					S-P-F				
									Floor	Roof	Uplift ¹	Floor	Roof	Uplift ¹				
100%	115%	125%	133%	160%	100%	115%	125%	133%	160%									
SLOPED ONLY HANGERS																		
1-1/2	LSSH15-TZ	LSU26Z	18	1-9/16	5-3/16	8-13/16	(6) 10d	(7) 10d x 1-1/2	685	785	855	740	740	590	675	735	625	625
1-1/2	LSSH210	LSSU210	18	1-9/16	1-3/4	8-13/16	(10) 10d	(7) 10d x 1-1/2	1140	1310	1425	1065	1065	980	1125	1225	915	1065
1-3/4	LSSH179	LSSU125	18	1-13/16	1-5/8	8-13/16	(10) 10d	(7) 10d x 1-1/2	1140	1310	1425	1065	1065	980	1125	1225	915	1065
2 - 2-1/8	LSSH20	LSSU12.06, LSSU2.1	18	2-1/8	2-1/2	8-13/16	(10) 10d	(7) 10d x 1-1/2	1140	1310	1425	980	980	980	1125	1225	915	980
2-1/4 - 2-5/16	LSSH23	LSSU135	18	2-5/16	2-3/8	8-13/16	(10) 10d	(7) 10d x 1-1/2	1140	1310	1425	980	980	980	1125	1225	915	980
2-1/2	LSSH25	LSSUH310	16	2-9/16	2-3/4	8-13/16	(18) 16d	(12) 10d x 1-1/2	2485	2600	2600	1195	1195	2140	2465	2600	1195	1195
2-5/8	LSSH26	LSSUIH2.68	16	2-11/16	2-5/8	8-13/16	(18) 16d	(12) 10d x 1-1/2	2485	2600	2600	1195	1195	2140	2465	2600	1195	1195
3	LSSH31	LSSU210-2	16	3-1/8	3-3/4	8-13/16	(18) 16d	(12) 10d x 1-1/2	2485	2855	3105	1585	1585	2140	2465	2680	1585	1585
3-1/2	LSSH35	LSSU410	16	3-9/16	3-1/2	8-13/16	(18) 16d	(12) 10d x 1-1/2	2485	2855	3105	1585	1585	2140	2465	2680	1585	1585
SKEWED HANGERS or SLOPED & SKEWED HANGERS																		
1-1/2	LSSH15-TZ	LSU26Z	18	1-9/16	5-3/16	8-13/16	(6) 10d	(7) 10d x 1-1/2	685	785	815	740	740	590	675	685	625	625
1-1/2	LSSH210	LSSU210	18	1-9/16	1-3/4	8-13/16	(10) 10d	(7) 10d x 1-1/2	1140	1310	1425	1065	1065	980	1125	1225	915	1065
1-3/4	LSSH179	LSSU125	18	1-13/16	1-5/8	8-13/16	(10) 10d	(7) 10d x 1-1/2	1140	1310	1425	1065	1065	980	1125	1225	915	1065
2 - 2-1/8	LSSH20	LSSU12.06, LSSU2.1	18	2-1/8	2-1/2	8-13/16	(10) 10d	(7) 10d x 1-1/2	1140	1310	1425	980	980	980	1125	1225	915	980
2-1/4 - 2-5/16	LSSH23	LSSU135	18	2-5/16	2-3/8	8-13/16	(10) 10d	(7) 10d x 1-1/2	1140	1310	1425	980	980	980	1125	1225	915	980
2-1/2	LSSH25	LSSUH310	16	2-9/16	2-3/4	8-13/16	(14) 16d	(12) 10d x 1-1/2	1825	1825	1825	1195	1195	1665	1825	1825	1195	1195
2-5/8	LSSH26	LSSUIH2.68	16	2-11/16	2-5/8	8-13/16	(14) 16d	(12) 10d x 1-1/2	1825	1825	1825	1195	1195	1665	1825	1825	1195	1195
3	LSSH31	LSSU210-2	16	3-1/8	3-3/4	8-13/16	(14) 16d	(12) 10d x 1-1/2	1920	1920	1920	1585	1585	1665	1915	1920	1585	1585
3-1/2	LSSH35	LSSU410	16	3-9/16	3-1/2	8-13/16	(14) 16d	(12) 10d x 1-1/2	1920	1920	1920	1585	1585	1665	1915	1920	1585	1585

1) Uplift loads have been increased 33-1/3% or 60% for wind or seismic loads; no further increase shall be permitted.

2) 10d x 1-1/2 nails are 9 gauge (0.148" diameter) by 1-1/2" long.

3) Minimum nail penetration shall be 1-1/2" for 10d nails and 1-5/8" for 16d nails.

New products or updated product information are designated in red.

USP Series	Width	Skewed (Maximum)	Sloped Seat (Maximum)	Sloped / Skewed	Sloped Top Flange (Maximum)	Top Flange Offset	Saddle Hanger	Ridge Hanger (Maximum)	Inverted Flange	Uplift	Weldability	USP Series Catalog Page Reference
BPH	all	50°	45°	•	45°					•	•	126, 130-146
GHF	all	50°	45°	•					width ≥ 4-1/2"	•		149
HD ¹	1-3/4" or less > 1-3/4"	67-1/2° 50°	45°	•					width ≥ 2-1/4"	•		92-99, 121, 123-125
HDO	1-3/4" or less > 1-3/4"	67-1/2° 50°	45°	•					width ≥ 3-1/8"	•		101, 103-105
HHDO	all	50°	45°	•					width ≥ 4-1/2"	•		101, 103-105
HJC	all	30°	60°									182
HLBH	all	50°	45°	•	45°	•	•	45°		•	•	127, 130-146
HUS	all								width ≥ 2-1/4"	•		92, 94-99, 122-123
HWUH	all	45°	45°	•		•	•			•		112-112
KB	all									•	•	101, 103-105
KEG	all	45°	45°			•				•		150
KGB	all									•	•	151
KGH	all	45°					•					39
KGLS	all	50°	45°	•	30°	•	•			•	•	155
KGLST	all									•	•	155
KGLT	all	50°	45°	•	45°	•	•			•	•	152
KHB	all									•	•	101, 103-105
KHGB	all									•	•	151
KHGLS	all	50°	45°		30°	•	•			•	•	155
KHGLST	all									•	•	155
KHGLT	all	50°	45°	•	45°	•	•			•	•	152
KHHB	all									•	•	101, 103-105, 151
KHW	all	84°	45°	•	35°	•	•	45°		•	•	102-105
KLB	all									•	•	101, 103
KLEG	all	45°	45°			•				•		150
KMEG	all	45°	45°			•				•		150
LBH	all	50°	45°	•	45°	•	•	45°		•	•	127, 130-146
LSSH	all	45°	45°	•						•		148
MPH ¹	all	60°	45°	•		•						113-114, 128-146
NFM	all	45°								•		115
PH ¹	all	84°	45°	•	35°	•	•	45°		•		128-146
PHI ¹	all	84°	45°	•	35°	•	•	45°		•		128-146
PHM ¹	all	84°	45°	•	35°	•	•	45°		•		128-146
PHX ¹	all	84°	45°	•	35°	•	•	45°		•		128-146
PHXU ¹	all	60°	45°	•	35°	•	•			•	•	128-146
SKH	all	45°								•		107-108
SKHH	all	45°								•		107-108
SUH	1-3/4" or less > 1-3/4"	67-1/2° 50°	45°	•						•		91, 94-99
SW ¹	all	84°	45°	•	35°	•	•	45°		•		102-105
SWH ¹	all	84°	45°	•	35°	•	•	45°		•		102-105
THD	all	45°	45°	•					one flange width ≥ 3"	•		122-125, 172
THDH	all	45°	45°	•						•		122-125, 173
THF	1-3/4" or less > 1-3/4"	67-1/2° 50°	45°	•					width ≥ 2-1/4"	•		121, 123-125

The information listed only applies to hangers manufactured by USP Structural Connectors® and installed according to the instructions listed in this catalog. Some of the options listed may not have been evaluated on a single hanger. The designer must always evaluate each connection, including the joist and header capacities, before specifying a specialty connector. USP sloped hangers are manufactured with the plumb cut of the joist already calculated. If a hanger with a different height is needed, it must be specified at the time of ordering.

Materials: Steel gauge may vary from that specified depending on the specialty option and manufacturing process used. Some formed hangers may be welded when modifying the hanger. Hanger configurations, fastener schedules, and height may vary from the tables depending on the joist size, skew, and slope.

Finish: See specific hanger option tables. Welded hangers are painted with USP gray primer. Non-catalog hangers available in Hot-dip galvanized, use **HDG** after product number.

Allowable Loads: For multiple options for the same connector, use the most conservative reduction to give the lowest design load.

Installation:

- Fill all nail holes with fasteners specified in the tables.
- Fastener quantities may increase from the amount listed in the tables depending on hanger option.
- NA16D-RS, NA20D, and NA25D nails are supplied with hangers.
- For type A skewed hangers, the end of joist must be bevel cut; for type B skewed hangers, the end of joist must be butt-cut.

Codes: Modified hangers are not code evaluated due to their numerous variations.

1) Skews greater than 45° will have square (butt) cut joist with back plate. Refer to Typical PH hanger skewed, left shown, Type B illustration on page 208.

See the Specialty Options Chart for each hanger series for load reductions and hanger maximum range of skew, slope, etc.

Skewed Hanger:

- Consider SKH or SKHH hangers for 45° skews.
- Joist nails may be located on obtuse side to ensure proper nailing.
- Specify skew angle, type (A or B), and direction when ordering.

Sloped Seat Hanger:

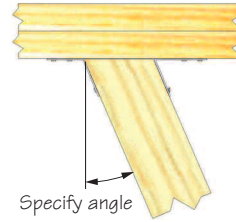
- Consider LSSH series for sloped applications.
- Additional nail holes may be added to joist flanges.
- Specify slope angle and direction when ordering.

Sloped/Skewed Hanger:

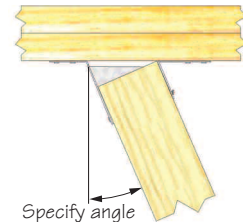
- See nailing notes for both skewed and sloped hangers.
- Specify skew and slope angles as well as skew/slope directions and skew type (A or B) when ordering.

Inverted Flange Hanger:

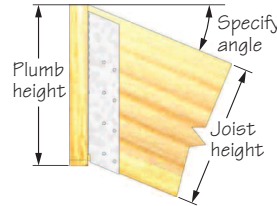
- For skewed-only hangers, the flange on the cut side can be inverted at 100% of the table load. Consult USP for skew limitations.
- When nailing into the carrying member's end grain, the allowable load is 0.65 of the table load.
- Hangers with one flange inverted achieve 100% of listed table load.
- Specify right or left flange when inverting only one flange.



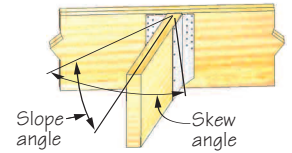
Typical SUH hanger skewed, right shown Type A (bevel cut required)



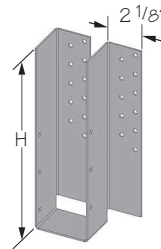
Typical SUH formed hanger skewed, right shown Type B



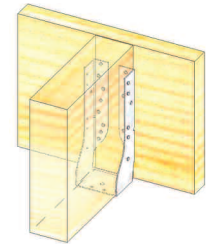
Typical HD hanger sloped seat, down shown



Typical HD hanger sloped down, skewed left shown



Typical GHF hanger one flange inverted, left shown



Typical HD hanger inverted flange



USP Stock No.	Triple Zinc (TZ)	Hot-Dip Galvanized (HDG)	Stainless Steel (SS)	Gold Coat (GC)
Fasteners / Anchors				
AB1212-HDG		X		
AB1218-HDG		X		
AB126-HDG		X		
AB128-HDG		X		
AB5817-HDG		X		
BP1		X		
BP12		X		
BP34		X		
BP58		X		
BP582		X		
BP583		X		
BP78		X		
HBPS12		X		
HBPS34		X		
LBP12-TZ	X			
LBP34-TZ	X			
LBP58-TZ	X			
LBPS12-TZ	X			
LBPS58-TZ	X			
N8-GC				X
N8C-GC				X
N10-GC				X
N10C-GC				X
N16C-GC				X
NA11		X	X	
NA16D		X		
NA20D		X		
NA21		X		
NA25		X		
NA250		X		
NA9D		X		
STB16		X		
STB20		X		
STB24		X		
STB28		X		
STB34		X		
STB36		X		
STBL16		X		
STBL20		X		
STBL24		X		
STBL28		X		
STBL34		X		
WS15-GC				X
Holdowns / Foundation Anchors				
FA3	X			
HPA35		X		
PA18	X			
PA23	X			
PA28	X			
PA35	X			
ST1-TZ	X			
ST2-TZ	X			
TA51	X			
TA71	X			
TDL5	X			
TDL10	X			
TDX2	X	X		
TDX6		X		
TDX8		X		
Embedded Truss Anchors				
H1A20	X			
HTA24	X			
TA20	X			
TA24	X			

USP Stock No.	Triple Zinc (TZ)	Hot-Dip Galvanized (HDG)	Stainless Steel (SS)	Gold Coat (GC)
Stud Plate Ties				
RSPT4	X			
RSPT6	X			
RSPT6-2	X			
SPT4	X			
SPT6	X			
SPT22	X			
SPT24	X			
SPTH4	X			
SPTH6	X			
Column / Post Bases				
CBS44		X		
CBS66		X		
CBSQ44-TZ	X			
CBSQ46-TZ	X			
CBSQ66-TZ	X			
D44	X			
D46	X			
D66	X			
EBG44	X			
EPB4408		X		
KCB44		X		
KCB46		X		
KCB48		X		
KCB66		X		
KCB68		X		
KCB88		X		
KCB1010		X		
KCB1212		X		
PA44	X			
PA44E	X			X
PA46	X			
PA46E	X			X
PA66	X			
PA66E	X			X
PAU44	X			
PAU46	X			
PAU66	X			
PAU88	X			
WAS44	X			
WAS46	X			
WAS66	X			
WE44	X			
WE46	X			
WE66	X			
Column / Post Caps				
C44	X			
C46	X			
C66	X			
EPCM4416	X			
EPCM4616	X			
KCC44		X		
KCC46		X		
KCC64		X		
KCC66		X		
KECC44		X		
KECC46		X		
KECC64		X		
KECC66		X		
PB44-6	X			X
PB66-6	X			X
PBC44-TZ	X			
PBC66-TZ	X			

USP Stock No.	Triple Zinc (TZ)	Hot-Dip Galvanized (HDG)	Stainless Steel (SS)	Gold Coat (GC)
Column / Post Caps				
PBES44	X			
PBES66	X			
PBS44	X			
PBS66	X			
PCM44	X			
PCM4416	X			
PCM46	X			
PCM4616	X			
PCM66	X			
PCM6616	X			
Joist Hangers				
HUS26	X			
HUS28	X			
HUS28-2IF	X			
HUS210	X			
HUS210-2IF	X			
JUS24	X		X	X
JUS26	X		X	X
JUS26-2	X		X	X
JUS28	X		X	
JUS28-2	X			
JUS28-3	X			
JUS210	X		X	X
JUS210-2	X		X	X
JUS210-3	X			
JUS44	X			
JUS46	X			
JUS48	X			
JUS410	X			
JUS414	X			
LSSH15-TZ	X			
LSSH210	X			
LSSH31	X			
SKH26R/L	X			X
SKH28R/L	X			
SKH210R/L	X			X
TMU26	X			
Hurricane / Seismic Anchors				
HHCP2	X			
LFTA6	X			
RT3A	X			
RT4	X		X	
RT5	X		X	
RT7	X		X	
RT7A	X			X
RT10	X		X	
RT15	X		X	X
RT16	X		X	
RT16-2	X			
RT20	X			
Truss Hangers				
HJH28L/R		X		
MSH418	X			
MSH422	X			
THD26	X			
THD26-2	X			
THD210-2	X			

USP Stock No.	Triple Zinc (TZ)	Hot-Dip Galvanized (HDG)	Stainless Steel (SS)	Gold Coat (GC)
Framing Plates & Angles				
A3	X			
AC5	X			
AC7	X			X
AC9	X			X
JA1	X			
MP3	X			
MP34	X		X	
MP4F	X			
MP5	X			
MP7	X			X
MP9	X			X
MPA1	X		X	X
MPA1F	X			
Straps				
KRPS18	X			
KRPS22	X			
L6	X			X
LSTA24			X	
MSTA9	X			
MSTA12	X		X	
MSTA15	X		X	
MSTA18	X		X	
MSTA21	X			
MSTA24	X			
MSTA30	X			
MSTA36	X			
PS218-HDG		X		
PS418-HDG		X		
PS720-HDG		X		
RS150	X			
RT24F	X			
T6	X			X
Twist Straps				
LTW12	X		X	
LTW18	X		X	
LTW20			X	
MTW12	X			
MTW16	X			
MTW20	X			
MTW30	X			
RT16T	X			
RT24T	X			
Miscellaneous				
ANJ44S		X		
DC50-TZ	X			
CSH-TZ	X			
ERB24-TZ	X			
FB14-TZ	X			
FB16-TZ	X			
FB23-TZ	X			
FB240-TZ	X			
FRB24-TZ	X			
ICPL58	X			
ICPL516-TZ	X			
PRT2-TZ	X			
SCA9-TZ	X			X
SCA10-TZ	X			X
SDJT14-TZ	X			
SDPT5-TZ	X			
SDPT7-TZ	X			