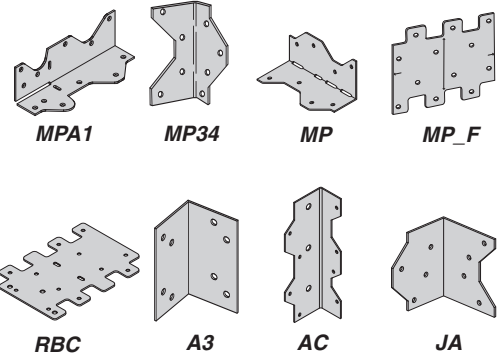


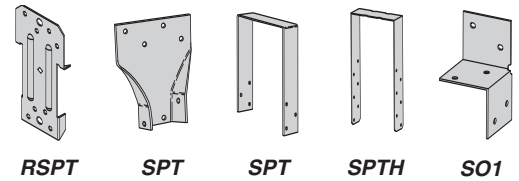
FRAMING PLATES & ANGLESPAGES 62-66

- **MPA Series**
Multi-purpose framing angles.
- **MP Series**
Field adjustable framing angle.
- **MP_F Series**
Multi-purpose framing plate.
- **RBC Series**
Reversed field adjustable framing.
- **A3 & AC Series**
Framing angles for joist support.
- **JA Series**
Heavier-capacity framing angle for joist support.



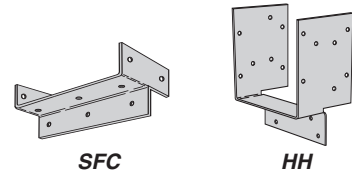
STUD PLATE TIESPAGES 67-68

- **RSPT Series**
Flat stud to plate connector.
- **SPT & SPTH Series**
U-shaped stud to plate connector.
- **SO1**
Light-capacity stud to plate connector.



FRAMING CLIPS & HEADER HANGERSPAGE 68

- **SFC Series**
Light-capacity header framing clip.
- **HH Series**
Heavy-capacity header hanger.



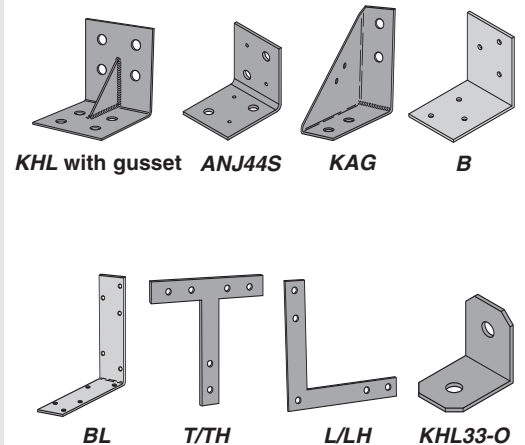
LATERAL JOIST CONNECTORS PAGE 69

- **LJC-TZ Series**
Sill plate to floor joist connectors.
- **LJQ Series**
Higher capacity sill plate to floor joist connector.



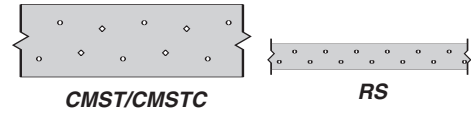
MISCELLANEOUSPAGES 70-72

- **KHL Series**
Heavy-capacity corner-framing angle.
- **ANJ44S**
Heavy-capacity corner-framing angle.
- **KAG Series**
Heavy-capacity load rated corner gusset.
- **B & BL Series**
L-shaped corner braces.
- **L, LH, & T, TH Series**
Medium and heavy-capacity L and T-shaped straps.
- **Ornamental Series**
Connectors with ornamental notching.



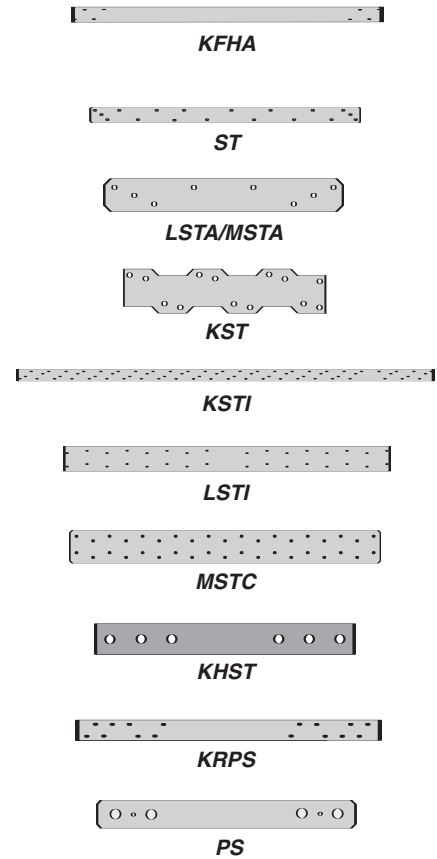
COILED STRAPPINGPAGE 73

- **CMST & CMSTC Series**
3" wide coiled strapping.
- **RS Series**
1 1/4" wide coiled strapping.



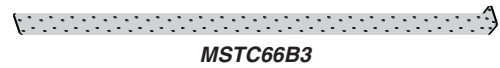
STRAPSPAGES 74-77

- **KFHA Series**
1 1/2" wide flat strap.
- **LSTA, MSTA, & ST Series**
1 1/4" wide flat strapping.
- **KST & KSTI Series**
2 1/16" wide flat strapping.
- **LSTI**
3 3/4" wide flat strapping for open web trusses.
- **MSTC Series**
3" wide flat strapping.
- **KHST Series**
Heavy-capacity bolted strap.
- **KRPS Series**
Protection strap for pipes placed in partitions.
- **PS Series**
Post to beam strap.



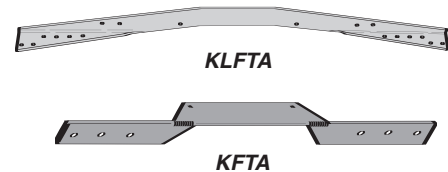
PRE-BENT STRAPSPAGE 78

- **MSTC66B3 Series**
Medium-capacity nail-on floor tie strap.



FLOOR TIE STRAPSPAGE 79

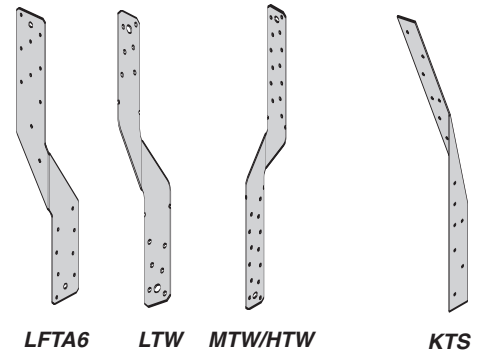
- **KLFTA Series**
Medium-capacity nail-on floor tie strap.
- **KFTA Series**
Heavy-capacity bolt-on floor tie strap.



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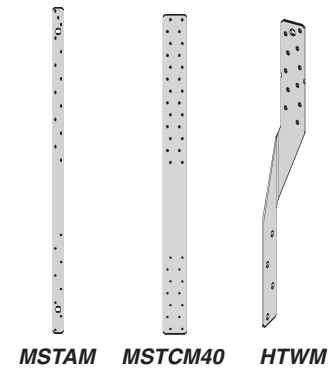
TWIST STRAPSPAGES 79-80

- **LFTA6**
Light-capacity twist strap.
- **LTW Series**
Light-capacity twist strap.
- **MTW Series**
Medium-capacity twist strap.
- **HTW Series**
Heavy-capacity twist strap.
- **KTS Series**
Medium-capacity angled twist strap.



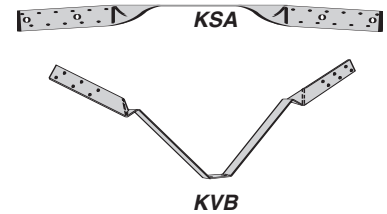
MASONRY STRAPSPAGES 81-82

- **MSTAM Series**
1/4" wide flat strapping.
- **MSTCM Series**
3" wide flat strapping.
- **HTWM Series**
Heavy-capacity twist strap connects to concrete or masonry walls



KNEE BRACES & CONNECTOR STRAPSPAGES 82-83

- **KHSA & KSA Series**
Seismic horizontal tension tie.
- **KVB & KVBI Series**
Knee brace for beam lateral stability.



PERMANENT WOOD FOUNDATION STRAPPAGE 84

- **PWFS24**
Transfers ground lateral loads to floor diaphragm.



MP34 – Framing angle without tabs.

MPA1 – Tabs enable two and three-way connections.

MP4F – Connects 2x framing with floor sheathing up to 5/8".

MP6F – Connects 3x framing with floor sheathing up to 3/4". Better choice for connections where floor sheathing is between sole plate and rim board.

Materials: See chart

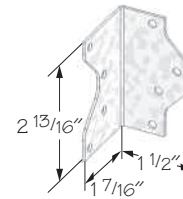
Finish: G90 galvanizing, MPA1-GC – Gold Coat.

Options: MPA1, MP34, & MP4F are available in Triple Zinc. To order, add **TZ** to stock number, as in **MPA1-TZ**. MPA1 & MP34 are available in Stainless Steel. To order, add **SS** to stock number, as in **MPA1-SS**.

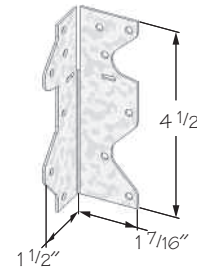
Codes: ESR-1781, FL816, FL570
Dade County FL 07-0419.01

Installation:

- Use all specified fasteners. See Product Notes, page 10.
- **Bend tabs only once.**
- MP4F connects 2x framing with floor sheathing up to 5/8".
- MP6F connects 3x framing with floor sheathing up to 3/4". Better choice for connections where floor sheathing is between sole plate and rim board.



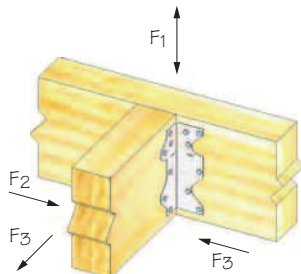
MP34



MPA1

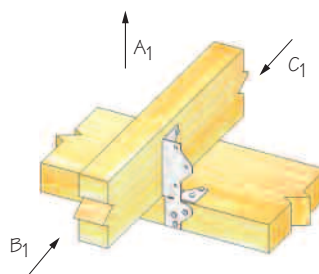
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Figure 1



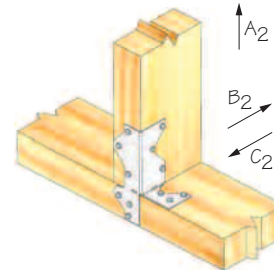
Typical MPA1 joist / header installation

Figure 2



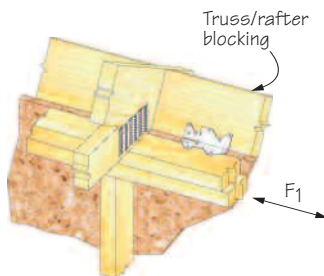
Typical MPA1 rafter / plate installation

Figure 3



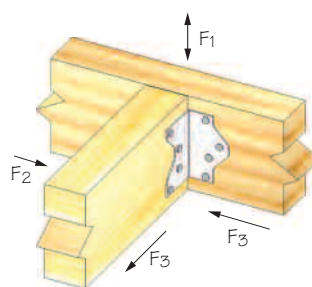
Typical MPA1 stud / plate installation

Figure 4



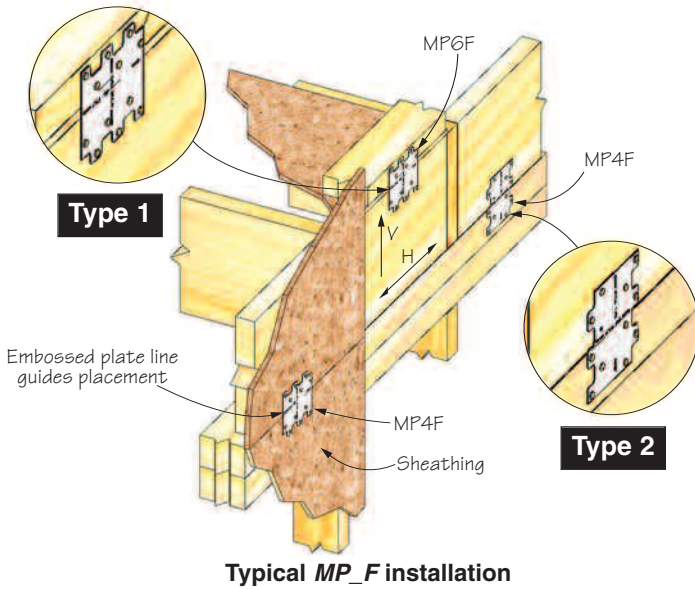
Typical MPA1 1" foamboard installation

Figure 5

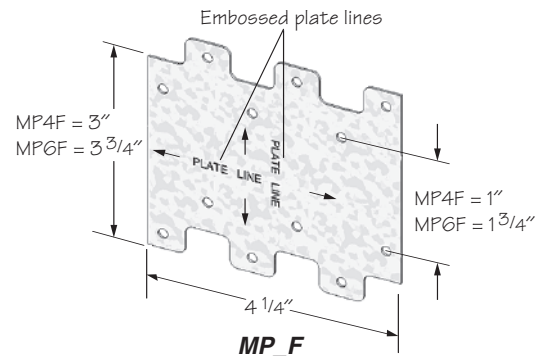


Typical MP34 joist / header installation

continued on next page



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Typical MP_F installation

MP_F

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USP Stock No.	Ref. No.	Steel Gauge	Installation Type ^{2,4}	Fastener Schedule ^{3,6}				Direction of Load ²	Allowable Loads (Lbs.) ^{1,5}								Code Ref.
				Header or Stud		Joist or Plate			DF-L / SP				S-P-F				
				Qty	Type	Qty	Type		100%	115%	125%	160%	100%	115%	125%	160%	
MPA1	A35	18	Figure 1	6	8d x 1-1/2	6	8d x 1-1/2	F1	570	655	680	680	490	565	570	570	5, F5, F11, D7
				6	8d x 1-1/2	6	8d x 1-1/2	F2	570	655	715	795	490	565	615	670	
				6	8d x 1-1/2	6	8d x 1-1/2	F3	280	320	350	445	180	205	225	290	
			Figure 2	6	8d x 1-1/2	3	8d x 1-1/2	A1	285	330	355	415	245	285	310	350	
				6	8d x 1-1/2	3	8d x 1-1/2	B1	285	330	350	350	245	285	295	295	
				6	8d x 1-1/2	3	8d x 1-1/2	C1	285	330	355	355	245	285	300	300	
			Figure 3	6	8d x 1-1/2	6	8d x 1-1/2	A2	505	505	505	505	425	425	425	425	
				6	8d x 1-1/2	6	8d x 1-1/2	B2	280	280	280	280	235	235	235	235	
				6	8d x 1-1/2	6	8d x 1-1/2	C2	375	375	375	375	315	315	315	315	
MPA1-GC	---	18	Figure 1	6	N8-GC	6	N8-GC	F1	570	655	680	680	490	565	570	570	5, F5, F11, D7
				6	N8-GC	6	N8-GC	F2	570	655	715	795	490	565	615	670	
				6	N8-GC	6	N8-GC	F3	280	320	350	445	180	205	225	290	
			Figure 2	6	N8-GC	3	N8-GC	A1	285	330	355	415	245	285	310	350	
				6	N8-GC	3	N8-GC	B1	285	330	350	350	245	285	295	295	
				6	N8-GC	3	N8-GC	C1	285	330	355	355	245	285	300	300	
			Figure 3	6	N8-GC	6	N8-GC	A2	505	505	505	505	425	425	425	425	
				6	N8-GC	6	N8-GC	B2	280	280	280	280	235	235	235	235	
				6	N8-GC	6	N8-GC	C2	375	375	375	375	315	315	315	315	
MP34	A34	18	Figure 6	4	8d x 1-1/2	4	8d x 1-1/2	F1	380	435	475	525	330	375	410	450	6, F15
				4	8d x 1-1/2	4	8d x 1-1/2	F2	380	435	475	610	330	375	410	525	
				4	8d x 1-1/2	4	8d x 1-1/2	F3	185	215	230	295	120	140	150	190	
MP4F	LTP4	20	Type 1	6	8d x 1-1/2	6	8d x 1-1/2	V	565	650	705	845	485	560	610	710	6, F15
				6	8d x 1-1/2	6	8d x 1-1/2	H	565	650	705	845	485	560	610	710	
			Type 2	6	8d x 1-1/2	6	8d x 1-1/2	V	565	650	705	845	485	555	555	555	
				6	8d x 1-1/2	6	8d x 1-1/2	H	565	650	660	660	485	555	555	555	
			Type 1	6	8d	6	8d	V	565	650	705	845	485	560	610	710	
				6	8d	6	8d	H	565	650	705	845	485	560	610	710	
			Type 2	6	8d	6	8d	V	565	650	705	845	485	560	610	710	
				6	8d	6	8d	H	565	650	660	660	485	555	555	555	
MP6F	LTP5	20	Type 1	6	8d x 1-1/2	6	8d x 1-1/2	V	565	605	605	605	485	510	510	510	6, F15
				6	8d x 1-1/2	6	8d x 1-1/2	H	565	605	605	605	485	510	510	510	
			Type 2	6	8d x 1-1/2	6	8d x 1-1/2	V	565	605	605	605	485	510	510	510	
				6	8d x 1-1/2	6	8d x 1-1/2	H	565	605	605	605	485	510	510	510	
			Type 1	6	8d	6	8d	V	565	605	605	605	485	510	510	510	
				6	8d	6	8d	H	565	605	605	605	485	510	510	510	
			Type 2	6	8d	6	8d	V	565	605	605	605	485	510	510	510	
				6	8d	6	8d	H	565	605	605	605	485	510	510	510	

- 1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
 - 2) Refer to drawings for installation type and definition of the various load directions.
 - 3) 8d x 1-1/2 and N8-GC nails are 11 gauge (0.131" diameter) by 1-1/2" long.
 - 4) If installing MPA1F, MP4F, or MP6F over plywood, use 8d common nails for 100% of table load.
 - 5) Loads are shown per angle. When using a single anchor, joist must be constrained from rotation.
 - 6) Minimum nail embedment shall be 1-5/16" for 8d nails.
- New products or updated product information are designated in red.

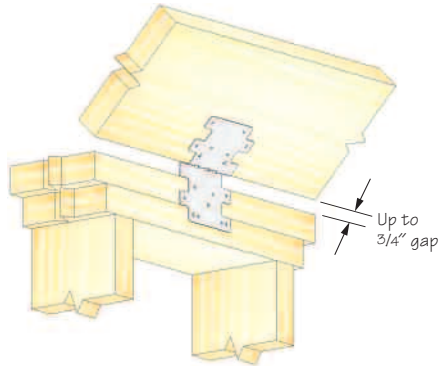
Angles & Straps

Framing plate designed to connect roof blocking to a wall top plate.

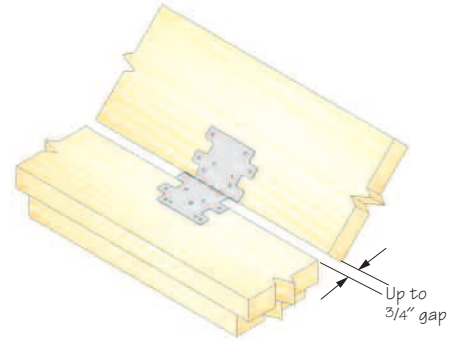
Materials: 20 gauge
Finish: G90 galvanizing

Installation:

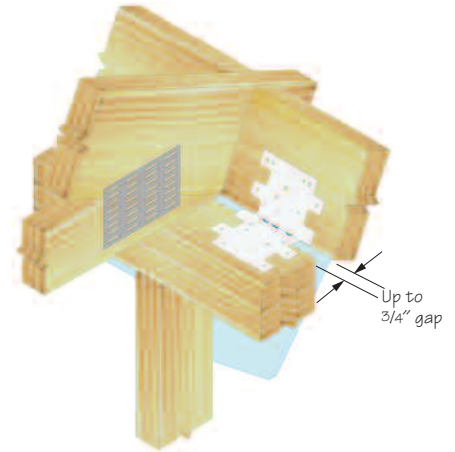
- Use all specified fasteners. See Product Notes, page 10
- Field adjustable from 0° to 90°.
- Bend angle only once.



Typical RBC Top-Plate to Outside of Blocking installation



Typical RBC Top-Plate to Inside of Blocking installation



Typical RBC 1" foamboard installation

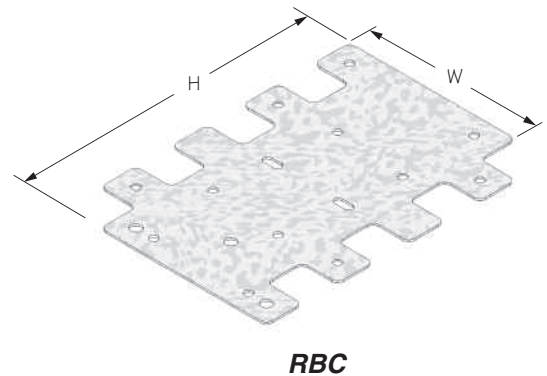
USP Stock No.	Ref. No.	Steel Gauge	Dimensions		Fastener Schedule ^{2,3}				Factored Resistance (Lbs)	
			W	H	Top Plate		Blocking		Lateral	
					Qty	Type ²	Qty	Type ²	DF-L	S-P-F
RBC	RBC	20	4-1/4	6	6	10d x 1-1/2	6	10d x 1-1/2	755	535

1) The factored resistances given above are for Limit States Design in accordance with the 2005 National Building Code of Canada. They have been soft converted from allowable working stresses developed using the 2001 National Design Specification and the ICC-ES (AC13) Joist Hangers And Similar Devices except where noted.

2) Loads shown are for a single roof boundary clip.

3) 10d x 1-1/2 nails are 9 gauge (0.148" diameter) by 1-1/2" long.

New products or updated product information are designated in red.



FRAMING ANGLES – A3, AC, JA, & MP SERIES



MP – Field adjustable from 0° to 135°.

A3 – 18 gauge. Eliminates toenailing and increases strength.

AC – 16 gauge. Features staggered nail patterns which reduces wood splitting and allows installation on both sides of the supported member.

Materials: See chart

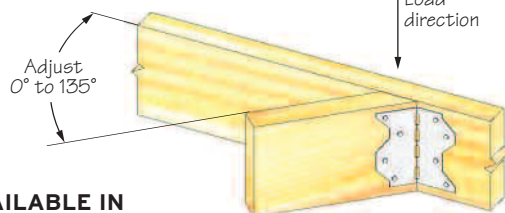
Finish: G90 galvanizing; AC7-GC, AC9-GC, MP7-GC, & MP9-GC – Gold Coat

Options: MP5, MP7, MP9, A3, AC5, AC7, AC9, & JA1 are available Triple Zinc. To order, add TZ to stock number, as in **MP5-TZ**. MP7 is available in Stainless Steel. To order, add SS to stock number, as in **MP7-SS**.

Codes: ESR-1831, ESR-2104, ESR-1781, L.A. City RR 25745, FL816, FL820, FL822, Dade County, FL 07-0419.01

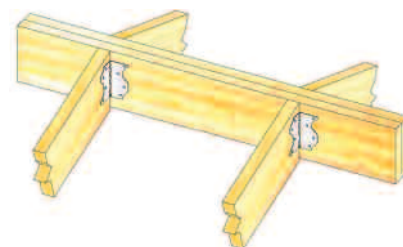
Installation:

- Use all specified fasteners. See Product Notes, page 10.
- MP Framing Angles are fabricated at 100° and may be field adjusted by hand from 0° to 135°. Bend angle only once.

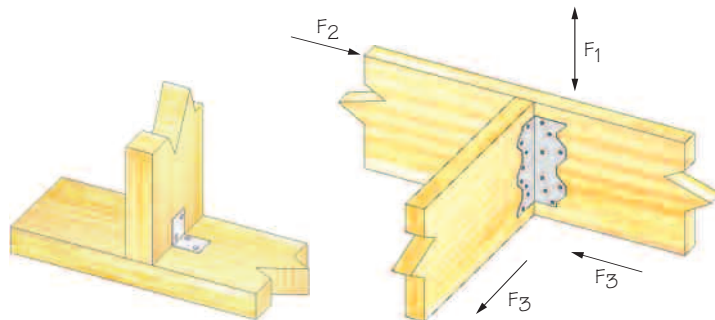


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Typical MP installation

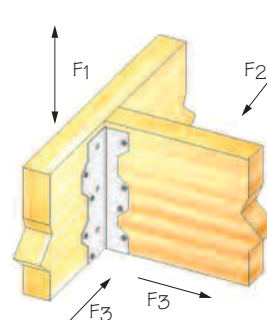


Typical MP Rafter Support installation

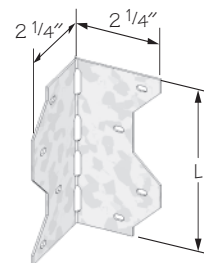


Typical JA1 installation

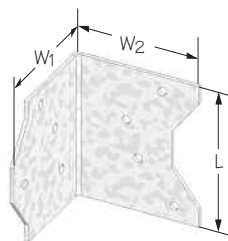
Typical JA7 installation



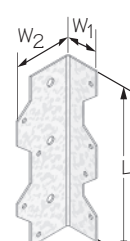
Typical AC installation



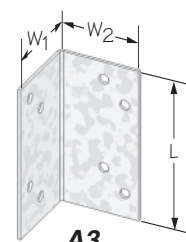
MP



JA3



AC



A3

USP Stock No.	Ref. No.	Steel Gauge	Dimensions			Fastener Schedule ^{2,4,5}				Allowable Loads (Lbs.) ^{1,3}								Code Ref.	
			W1	W2	L	Header		Joist		Direction of Load	DF-L / SP				S-P-F				
						Qty	Type	Qty	Type		100%	115%	125%	160%	100%	115%	125%		160%
A3	A23	18	1-7/16	1-7/16	2-3/4	4	10d x 1-1/2	4	10d x 1-1/2	F1	450	515	560	590	390	445	485	495	8, F14, R9
										F2	450	515	560	600	390	445	485	505	
										F3	210	240	260	335	135	155	170	215	
MP3	LS30	18	2-1/4	2-1/4	3-3/8	3	10d	3	10d	F1	340	395	430	485	295	340	370	470	10, F16
MP5	LS50	18	2-1/4	2-1/4	4-5/8	4	10d	4	10d	F1	455	525	570	730	390	450	490	625	
MP7	LS70	18	2-1/4	2-1/4	5-7/8	5	10d	5	10d	F1	570	655	715	910	490	565	615	785	
MP7-GC	---					5	N10C-GC	5	N10C-GC										
MP9	LS90					6	10d	6	10d										
MP9-GC	---					6	N10C-GC	6	N10C-GC										

continued on next page

USP Stock No.	Ref. No.	Steel Gauge	Dimensions			Fastener Schedule ^{2,4,5}				Allowable Loads (Lbs.) ^{1,3}					Code Ref.
			W1	W2	L	Header		Joist		Direction of Load	DF-L / SP				
						Qty	Type	Qty	Type		100%	115%	125%	160%	
AC3	L30	16	1-5/16	2-3/8	2-7/8	2	10d	2	10d	F1	225	260	285	285	8, F14, R9
										F2	225	260	285	320	
										F3	105	120	130	165	
						2	16d	2	16d	F1	255	285	285	285	
										F2	255	290	320	320	
										F3	120	135	145	190	
AC5	L50	16	1-5/16	2-3/8	4-7/8	3	10d	3	10d	F1	340	390	425	540	
										F2	340	390	425	540	
										F3	155	180	195	250	
						3	16d	3	16d	F1	380	440	475	610	
										F2	380	440	475	610	
										F3	175	205	220	280	
AC7	L70	16	1-5/16	2-3/8	6-15/16	4	10d	4	10d	F1	450	520	565	725	
										F2	450	520	565	725	
										F3	210	240	260	335	
						4	16d	4	16d	F1	510	585	635	770	
										F2	510	585	635	815	
										F3	235	270	295	375	
AC7-GC	---	16	1-5/16	2-3/8	6-15/16	4	N10C-GC	4	N10C-GC	F1	450	520	565	725	
										F2	450	520	565	725	
										F3	210	240	260	335	
						4	N16C-GC	4	N16C-GC	F1	510	585	635	770	
										F2	510	585	635	815	
										F3	235	270	295	375	
AC9	L90	16	1-5/16	2-3/8	8-7/8	5	10d	5	10d	F1	565	650	705	905	
										F2	565	650	705	905	
										F3	260	300	325	415	
						5	16d	5	16d	F1	635	730	795	1015	
										F2	635	730	795	920	
										F3	295	340	370	470	
AC9-GC	---	16	1-5/16	2-3/8	8-7/8	5	N10C-GC	5	N10C-GC	F1	565	650	705	905	
										F2	565	650	705	905	
										F3	260	300	325	415	
						5	N16C-GC	5	N16C-GC	F1	635	730	795	1015	
										F2	635	730	795	920	
										F3	295	340	370	470	
JA1	A21	16	1-1/2	1-1/2	1-1/4	2	10d x 1-1/2	2	10d x 1-1/2	F1	225	255	255	255	
										F2	---	---	---	345	
										F3	---	---	---	165	
JA3	---	14	2-1/2	2-1/2	3	4	16d	4	10d x 1-1/2	F1	455	525	570	590	
										F2	---	---	---	535	
										F3	---	---	---	330	
JA5	---	14	2-1/2	2-1/2	5	6	16d	6	10d x 1-1/2	F1	685	785	855	950	
										F2	---	---	---	1015	
										F3	---	---	---	495	
JA7	---	14	2-1/2	2-1/2	7	8	16d	8	10d x 1-1/2	F1	910	1050	1140	1460	
										F2	---	---	---	1625	
										F3	---	---	---	550	
JA9	---	14	2-1/2	2-1/2	9	10	16d	10	10d x 1-1/2	F1	1140	1310	1425	1825	
										F2	---	---	---	1645	
										F3	---	---	---	825	

1) Allowable loads have been increased 60% for wind and seismic loads; no further increase shall be permitted.
 2) Minimum nail embedment shall be 1-1/2" for 10d and N10C-GC nails; 1-5/8" for 16d and N16C-GC nails.
 3) Loads are shown per angle, and may be doubled if installed in pairs. When using a single angle, joist must be constrained from rotation.
 4) For 1-1/2" lumber, use 0.98 of table load for 10d nails and 0.92 for 16d nails.
 5) 10d x 1-1/2" nails are 9 gauge (0.148" diameter) by 1-1/2" long.
 New products or updated product information are designated in red.

STUD PLATE TIES – RSPT, SPT, & SPTH SERIES



RSPT – 18 or 20 gauge. Connects stud to single or double plates.

SPT – 20 gauge. Ties single and double plates to studs.

SPTH – Heavier 18 gauge version of SPT.

SPTHW – 18 gauge. Attaches plate to studs over 1/2" sheathing.

Materials: See chart

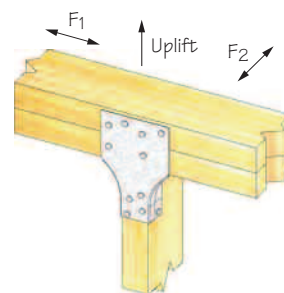
Finish: G90 galvanizing

Options: SPT4, SPT6, SPT22, SPT24, SPTH4, & SPTH6 are available in Triple Zinc. To order, add *TZ* to stock number, as in **SPTH4-TZ**.

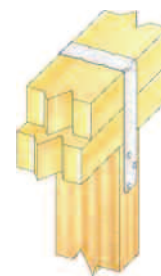
Codes: ESR-1881, ESR-2756, FL817, FL821

Installation:

- Use all specified fasteners. See Product Notes, page 10.



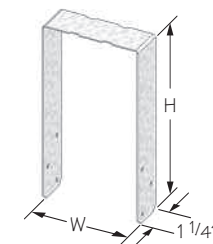
Typical **SPT24** installation



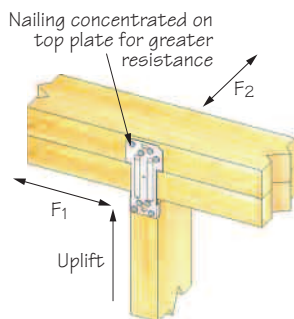
Typical **SPT4** installation



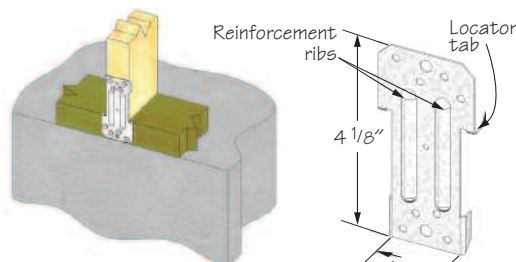
SPT22



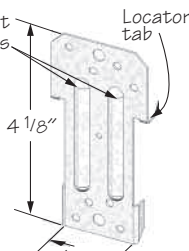
SPT



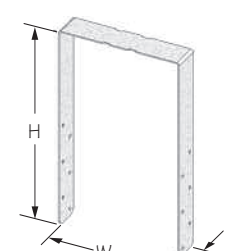
Typical **RSPT4** double plate installation



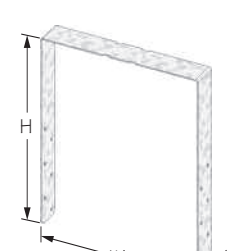
Typical **RSPT4** single plate installation



RSPT4



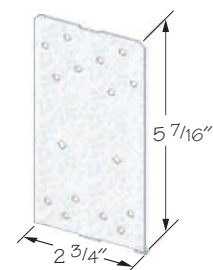
SPTH



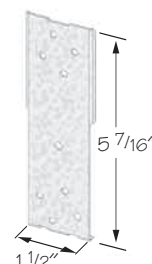
SPTHW

Stud Size	USP Stock No. ⁵	Ref. No.	Steel Gauge	Dimensions			Fastener Schedule ^{2,3,4}				Allowable Loads (Lbs.)			Code Ref.
				W	H	L	Stud		Plate		DF-L / SP			
							Qty	Type	Qty	Type	F1	F2	Uplift ¹	
2x	SPT22	SP1	20	1-9/16	4-3/8	3-1/2	4	10d	4	10d	560	260	685	11, F12
2x	SPT24	SP2	20	1-9/16	5-5/8	3-1/2	6	10d	6	10d	560	260	1030	11, F12
4x	SPT44	---	20	3-9/16	6-3/4	6-1/2	6	16d	6	16d	680	255	1305	11, F12
6x	SPT66	---	20	5-9/16	6-3/4	8-1/2	6	16d	6	16d	680	255	1305	11, F12
2x	RSPT4	RSP4	20	1-1/2	4-1/8	---	4	8d x 1-1/2	4	8d x 1-1/2	230	300	470	6, F15
							4	8d	4	8d	230	300	470	
							4	10d x 1-1/2	4	10d x 1-1/2	230	300	470	
							4	10d	4	10d	230	300	470	
2x	RSPT6	SSP	18	1-1/2	5-7/16	---	4	10d x 1-1/2	4	10d x 1-1/2	---	---	700	6
(2) 2x	RSPT6-2	DSP	18	2-3/4	5-7/16	---	8	10d x 1-1/2	6	10d x 1-1/2	---	---	955	6
4x	SPT4	SP4	20	3-9/16	6-7/8	---	6	10d x 1-1/2	---	---	---	---	945	6, F15
6x	SPT6	SP6	20	5-9/16	7-5/8	---	6	10d x 1-1/2	---	---	---	---	945	6, F15
8x	SPT8	SP8	20	7-5/16	8-1/2	---	6	10d x 1-1/2	---	---	---	---	945	6, F15
4x	SPTH4	SPH4	18	3-9/16	8-5/8	---	12	10d x 1-1/2	---	---	---	---	1730	6, F15
	SPTHW4	---	18	4-1/16	8-3/8	---	12	10d x 1-1/2	---	---	---	---	1290	6
6x	SPTH6	SPH6	18	5-9/16	9-3/8	---	12	10d x 1-1/2	---	---	---	---	1730	6, F15
	SPTHW6	---	18	6-1/16	9-1/8	---	12	10d x 1-1/2	---	---	---	---	1290	6
8x	SPTH8	SPH8	18	7-5/16	8-1/2	---	12	10d x 1-1/2	---	---	---	---	1730	6, F15

1) Uplift loads have been increased 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) 8d x 1-1/2 nails are 11 gauge (0.131" diameter) by 1-1/2" long.
 4) Minimum nail embedment shall be 1-5/16" for 8d nails, 1-1/2" for 10d nails, and 1-5/8" for 16d nails.
 5) SPT22, SPT24, SPT44, and SPT66: the two nails fastened to the wide face of the stud must be driven 30° from the perpendicular on the horizontal plane.
 New products or updated product information are designated in red.



RSPT6-2



RSPT6

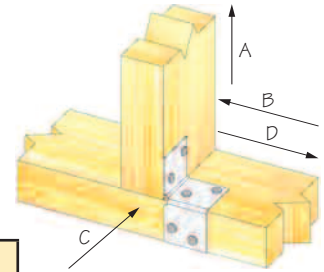
Angles & Straps

Engineered to anchor studs to mudsills or plates and also help position studs accurately.

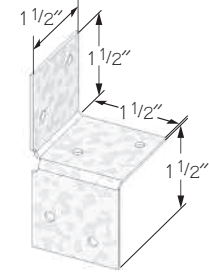
Materials: 18 gauge
Finish: G90 galvanizing
Codes: ESR-1781, FL816

Installation:

- Use all specified fasteners. See Product Notes, page 10.
- **Anchors are not reversible.**



Typical S01 installation



S01

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule ^{3,4}						Direction of Load	Allowable Loads (Lbs.) ^{1,2}		Code Ref.
			Top of Plate		Side of Plate		Side of Stud			DF-L / SP		
			Qty	Type	Qty	Type	Qty	Type		100%	160%	
S01	---	18	2	8d x 1-1/2	2	8d x 1-1/2	2	8d x 1-1/2	A	190	250	5, F11
									B	75	75	
									C	190	240	
									D	185	185	
			2	8d	2	8d	2	8d	A	190	250	
									B	75	75	
									C	190	240	
									D	185	185	

1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
 2) Loads shown are per anchor.
 3) 8d x 1-1/2 nails are 11 gauge (0.131" diameter) by 1-1/2" long.
 4) Minimum nail embedment shall be 1-5/16" for 8d nails.

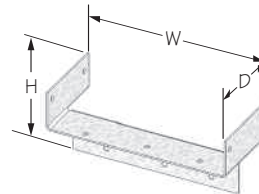
FRAMING CLIPS – SFC SERIES

Framing clips replace end cripples under window sills.

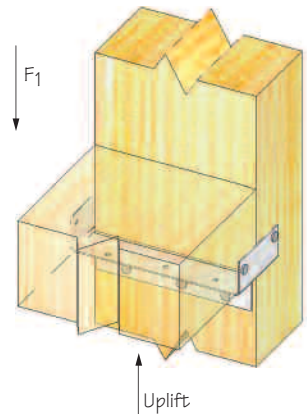
Materials: 16 gauge
Finish: G90 galvanizing
Codes: ESR-1280, FL11664, L.A. City RR 25749

Installation:

- Use all specified fasteners. See Product Notes, page 10.



SFC6



Typical SFC6 installation

USP Stock No.	Ref. No.	Steel Gauge	Dimensions			Fastener Schedule ²				Allowable Loads (Lbs.) ¹				Code Ref.
			W	H	D	Sill		Stud		DF-L / SP				
						Qty	Type	Qty	Type	F1	Uplift	100%	115%	
SFC4	FC4	16	3-9/16	2-1/2	2-1/2	4	16d	4	16d	550	635	690	645	2, F20, R12
SFC6	FC6	16	5-1/2	2-1/2	2-1/2	5	16d	5	16d	690	795	865	750	

1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
 2) Minimum nail embedment shall be 1-5/8" for 16d nails.
 New products or updated product information are designated in red.

HEADER HANGERS – HH SERIES

Header Hangers support headers in door and window framing. Helps to eliminate cracks in drywall, plaster, or stucco over windows and doors. These products also provide anchorage and support for heavy fence rails, struts, or gate post cross brackets.

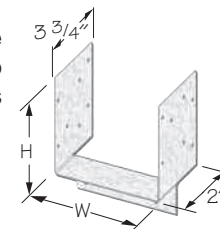
Materials: 16 gauge
Finish: G90 galvanizing
Codes: ESR-1280, FL11664, L.A. City RR 25749

Installation:

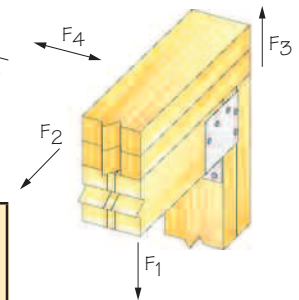
- Use all specified fasteners. See Product Notes, page 10.

USP Stock No.	Ref. No.	Steel Gauge	Dimensions		Fastener Schedule ²				Allowable Loads (Lbs.)						Code Ref.
			W	H	Header		Stud		DF-L / SP						
					Qty	Nail	Qty	Nail	F1		F2 ¹	F3 ¹	F4 ¹		
HH44	HH4	16	3-9/16	3-1/4	4	16d	9	16d	1240	1430	1500	885	685	1100	2, F20, R12
HH66	HH6	16	5-1/2	5-1/4	6	16d	12	16d	1655	1905	2070	1150	1325	1100	

1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
 2) Minimum nail embedment shall be 1-5/8" for 16d nails.



HH44



Typical HH44 installation

The LJC-TZ and LJQ-TZ Lateral Joist Connectors transfer lateral loads at the top foundation to the floor joists. The fastening patterns meet I-joist manufacturer recommendations.

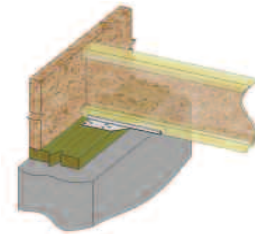
LJC-TZ – fastens the top side of the sill plate to the underside of the floor joist preventing splitting of the bottom chord flanges, and can be installed after the floor system has been installed. The product is load rated for use with dimension lumber floor joists as well as I-joist. It can also be used with cantilevered floor joists.

LJQ-TZ – is a higher capacity connector designed for higher loads. It is similar in design to a joist hanger with a seat for the floor joist to bear against and utilizes wood screws to fasten to the sill plate. USP's WS15-GC Wood Screws (included) provide quick installation without the need to pre-drill holes.

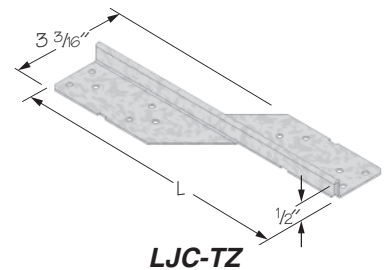
Materials: See chart
Finish: G-185 galvanizing

Installation:

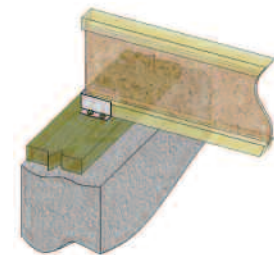
- Use all specified fasteners. See Product Notes, page 10.
- LJC-TZ – Installs after the floor joist has been placed with a minimum of (12) 8d x 1-1/2" HDG nails.
- LJQ-TZ – Installs with (4) USP WS15-GC Wood Screws. WS15-GC Wood Screws are 1/4" diameter x 1-1/2" long and are included with LJQ-TZ connectors.



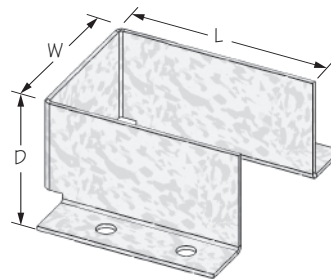
Typical **LJC-TZ** installation



LJC-TZ



Typical **LJQ-TZ** installation



LJQ-TZ

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (inches)			Fastener Schedule ^{1,2}		Allowable Loads (Lbs.) ³		Code Ref.
			W	L	D	Qty	Type	SP		
								2x	I-Joist	
LJC-TZ	---	18	3-3/16	8	---	12	8d x 1-1/2	445	515	130
LJQ15-TZ	---	16	1-9/16	3	1-1/2	4	WS15-GC	905	1145	
LJQ17-TZ	---	16	1-13/16	3	1-1/2	4	WS15-GC	905	1145	
LJQ20-TZ	---	16	2-1/8	3	1-1/2	4	WS15-GC	905	1145	
LJQ23-TZ	---	16	2-5/16	3	1-1/2	4	WS15-GC	905	1145	
LJQ25-TZ	---	16	2-9/16	3	1-1/2	4	WS15-GC	905	1145	
LJQ35-TZ	---	16	3-9/16	3	1-1/2	4	WS15-GC	905	1145	

1) WS15-GC wood screws are 1/4" x 1 1/2" and are included with LJQ-TZ connector.
2) 8d x 1-1/2 nails are 11 gauge (0.131" diameter) by 1-1/2" long.
3) Allowable loads are based on 2x6 SP sill plate. For 2x4 sill plate applications, New products or updated product information are designated in red.

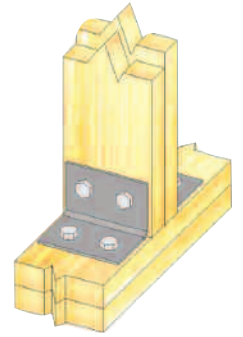
Designed for heavy-duty reinforcement of 90° framing intersections. The KHL models are also available with gussets for added strength.

Materials: See chart
Finish: USP primer

Installation:

- Use all specified fasteners. See Product Notes, page 10.
- Design loads shall be determined for each installation by a qualified designer.
- Design loads based on member species, size, and direction of grain.

Bolts must be ordered separately. See page 20 for available sizes.



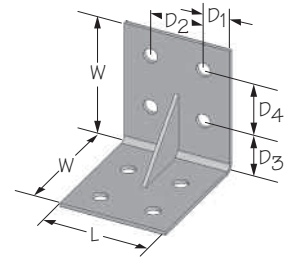
Typical KHL35 installation

USP Stock No. ¹	Ref. No.	Steel Gauge	Dimensions						Fastener Schedule			Code Ref.
			W	L	D1	D2	D3	D4	Bolts ²		Gussets	
									Qty	Dia.	Qty	
KHL33	HL33	7	3-1/4	2-1/2	1-1/4	---	2	---	2	5/8	---	120
KHL35	HL35	7	3-1/4	5	1-1/4	2-1/2	2	---	4	5/8	---	
KHL35G	HL35G	7	3-1/4	5	1-1/4	2-1/2	2	---	4	5/8	1	
KHL37	HL37	7	3-1/4	7-1/2	1-1/4	2-1/2	2	---	6	5/8	---	
KHL37G	---	7	3-1/4	7-1/2	1-1/4	2-1/2	2	---	6	5/8	2	
KHL43	HL43	3	4-1/4	3	1-1/2	---	2-3/4	---	2	3/4	---	
KHL46	HL46	3	4-1/4	6	1-1/2	3	2-3/4	---	4	3/4	---	
KHL46G	HL46G	3	4-1/4	6	1-1/2	3	2-3/4	---	4	3/4	1	
KHL49	HL49	3	4-1/4	9	1-1/2	3	2-3/4	---	6	3/4	---	
KHL49G	---	3	4-1/4	9	1-1/2	3	2-3/4	---	6	3/4	2	
KHL53	HL53	7	5-3/4	2-1/2	1-1/4	---	2	2-1/2	4	5/8	---	
KHL55	HL55	7	5-3/4	5	1-1/4	2-1/2	2	2-1/2	8	5/8	---	
KHL55G	HL55G	7	5-3/4	5	1-1/4	2-1/2	2	2-1/2	8	5/8	1	
KHL57	HL57	7	5-3/4	7-1/2	1-1/4	2-1/2	2	2-1/2	12	5/8	---	
KHL57G	---	7	5-3/4	7-1/2	1-1/4	2-1/2	2	2-1/2	12	5/8	2	
KHL73	HL73	3	7-1/4	3	1-1/2	---	2-3/4	3	4	3/4	---	
KHL76	HL76	3	7-1/4	6	1-1/2	3	2-3/4	3	8	3/4	---	
KHL76G	HL76G	3	7-1/4	6	1-1/2	3	2-3/4	3	8	3/4	1	
KHL79	HL79	3	7-1/4	9	1-1/2	3	2-3/4	3	12	3/4	---	
KHL79G	---	3	7-1/4	9	1-1/2	3	2-3/4	3	12	3/4	2	

1) Products listed with "G" suffixes feature gussets.
2 All bolts shall meet or exceed the specifications of ASTM A 307.



KHL33



KHL55G

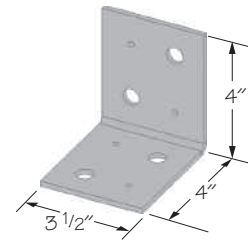
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HEAVY ANGLES – ANJ44S

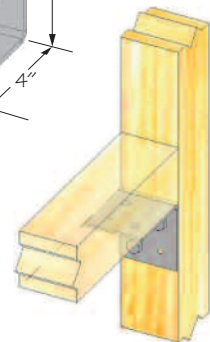
Materials: 7 gauge
Finish: USP primer

Installation:

- Install with (2) 1/2" x 2" lag screws into each leg.



ANJ44S



Typical ANJ44S installation

USP Stock No.	Ref. No.	Steel Gauge	Dimensions			Fastener Schedule ¹				Allowable Loads (Lbs.)			Code Ref.
			W	H	L	Header		Joist		DF-L / SP			
						Qty	Lag Screw	Qty	Lag Screw	100%	115%	125%	
ANJ44S	---	7	3-1/2	4	4	2	1/2"	2	1/2"	510	585	640	130

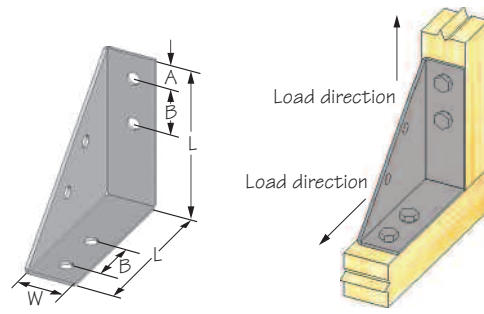
1) Loads based on use of (2) 1/2" x 2" lag screws, loaded parallel to grain, in Douglas Fir-Larch (G=50).

These angles are engineered for heavy-duty reinforcement of 90° wood-to-wood connections.

- Materials:** 7 or 3 gauge
- Finish:** USP primer
- Codes:** ESR-1280, FL11664, L.A. City RR 25749

Installation:

- Use all specified fasteners. See Product Notes, page 10.



KAG8

Typical KAG9 installation

USP Stock No.	Ref. No.	Steel Gauge	Dimensions				Bolt Schedule		Allowable Loads (Lbs.) ^{1,2,3}		Code Ref.
			W	L	A	B	Qty	Dia.	DF-L / SP		
									100%	160%	
KAG8	--	7	2-11/16	8-1/8	1-1/4	2-1/2	4	5/8	2215	2690	2, F20, R12
KAG9	--	3	3	9-3/4	1-7/16	3	4	3/4	2950	3750	

Bolts must be ordered separately. See page 20 for available sizes.

- 1) Load values are per KAG angle.
 - 2) Allowable loads have been increased 60% for wind and seismic loads; no further increase shall be permitted.
 - 3) Bolt values assume 3-1/2" wide x 3" thick member.
- New products or updated product information are designated in red.

CORNER BRACE – B & BL SERIES

These multi-purpose braces are designed to provide reinforcement for 90° wood-to-wood connections.

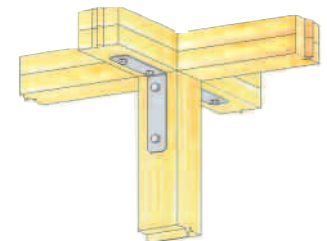
- Materials:** 12 gauge
- Finish:** G90 galvanizing

Installation:

- Use all specified fasteners. See Product Notes, page 10.



B66

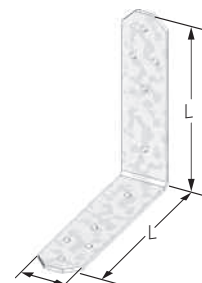


Typical B66 installation

Bolts must be ordered separately. See page 20 for available sizes.

USP Stock No.	Ref. No.	Steel Gauge	Dimensions		Fastener Schedule				Code Ref.
			W	L	Nails ¹		Bolts ²		
					Qty	Type	Qty	Type	
B22	--	12	2	1-3/4	4	16d	--	--	120
B23	--	12	2	2-5/8	6	16d	--	--	
B24	--	12	2	3-5/8	8	16d	--	--	
BL3	A33	12	1-1/4	3-1/16	8	16d	--	--	
BL4	A44	12	1-1/4	4-13/16	10	16d	--	--	
BL6	--	12	1-1/4	6-9/16	12	16d	--	--	
BL8	--	12	1-1/4	8-5/16	14	16d	--	--	
B66	A66	12	1-1/2	6	--	--	4	3/8	
B88	A88	12	2	8	--	--	6	3/8	

- 1) Minimum nail embedment shall be 1-5/8" for 16d nails.
- 2) Bolts shall conform to ASTM A 307 or better.



BL4



B23

Some model designs may vary from illustration shown

T & L – 14 gauge medium-duty straps fasten with either nails or bolts.

LH & TH – 7 gauge heavy-duty bolt-on strap.

Materials: See chart

Finish: T & L – G90 galvanizing; LH & TH – USP primer;
L6-GC & T6-GC – Gold Coat

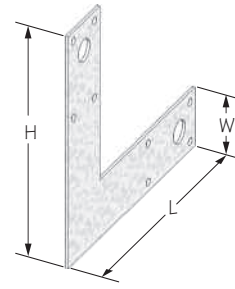
Options: L6 and T6 are available in Triple Zinc. To order, add TZ to stock number, as in **L6-TZ**.

Installation:

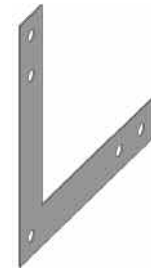
- Use all specified fasteners. See Product Notes, page 10.
- **Straps are not load rated.**

USP Stock No.	Ref. No.	Steel Gauge	Dimensions			Fastener Schedule ^{1,2}				Code Ref.
			W	H	L	Bolts		Nails		
						Qty	Dia.	Qty	Type	
T6	66T	14	1-1/2	5	6	3	1/2	12	16d	120
T6-GC	---	14	1-1/2	5	6	3	1/2	12	N16C-GC	
T8	---	14	2	8	8-1/2	3	1/2	12	16d	
T12	128T	14	2	8	12	3	1/2	12	16d	
T16	---	14	3	11	15-3/4	3	1/2	12	16d	
T1212	1212T	14	2	12	12	3	1/2	12	16d	
L6	66L	14	1-1/2	6	6	2	1/2	8	16d	
L6-GC	---	14	1-1/2	6	6	2	1/2	8	N16C-GC	
L8	88L	14	2	8	8	2	1/2	8	16d	
L12	1212L	14	2	12	12	4	1/2	12	16d	
TH12	1212HT	7	2-1/2	12	12	6	5/8	---	---	
TH16	1616HT	7	2-1/2	16	16-1/4	6	5/8	---	---	
LH12	1212HL	7	2-1/2	12	12	5	5/8	---	---	
LH16	1616HL	7	2-1/2	16	16	7	5/8	---	---	

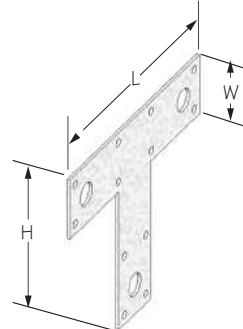
1) Minimum nail embedment is 1-5/8" for 16d and N16C-GC nails.
2) All bolts shall meet or exceed the specifications of ASTM A 307.



L6



LH12



T6



TH16

AVAILABLE IN
**GOLD
COAT**

Bolts must be ordered separately. See page 20 for available sizes.

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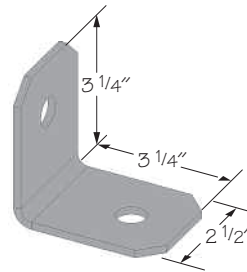
ORNAMENTAL SERIES

Ornamental notching provides architectural appearance for exposed applications.

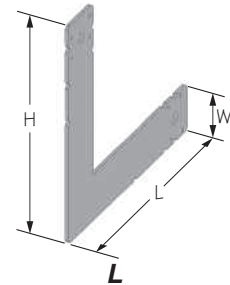
Materials: See chart
Finish: USP primer

Installation:

- Use all specified fasteners. See Product Notes, page 10.



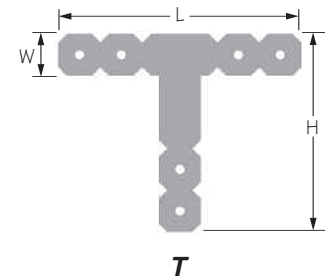
KHL33-O



USP Stock No.	Ref. No.	Steel Gauge	Description	Dimensions			Bolt Schedule ¹		Code Ref.
				W	H	L	Qty	Dia.	
KHL33-O	OHA33	7	Heavy Angle	3-1/4	---	2-1/2	2	5/8	120
KHL36-O	OHA36	7	Heavy Angle	3-1/4	---	6	4	5/8	
KHST12-O	---	7	Strap Tie	2-1/2	---	11-1/8	2	5/8	
KHST16-O	---	7	Strap Tie	2-1/2	---	16-1/8	4	5/8	
KHST64-O	---	7	Strap Tie	6	---	13-1/2	4	3/4	
KHST68-O	---	7	Strap Tie	6	---	19-1/2	8	3/4	
ST12-O	---	12	Strap Tie	2	---	12	4	1/2	
L12-O	---	12	'L' Strap	2-1/2	11-7/8	11-7/8	5	1/2	
LH12-O	---	7	'L' Strap	2-1/2	11-7/8	11-7/8	5	5/8	
T1212-O	---	12	'T' Strap	2-1/2	11-7/8	14-1/2	6	1/2	
TH12-O	---	7	'T' Strap	2-1/2	11-7/8	11-1/8	4	5/8	
TH16-O	---	7	'T' Strap	2-1/2	11-7/8	16-1/8	6	5/8	

1) All bolts shall meet or exceed the specifications of ASTM A 307.

Some model designs may vary from illustration shown



T

Bolts must be ordered separately. See page 20 for available sizes.

Coiled strapping enables cut-to-length convenience for a variety of immediate job site needs.

CMST – 3" wide strapping features diamond nail holes to provide nailing options and reduce wood splitting.

CMSTC – 3" wide strapping is designed for high load conditions. Engineered to reduce wood splitting.

RS – 1 1/4" wide strapping packaged in cartons containing 25-foot or longer coils.

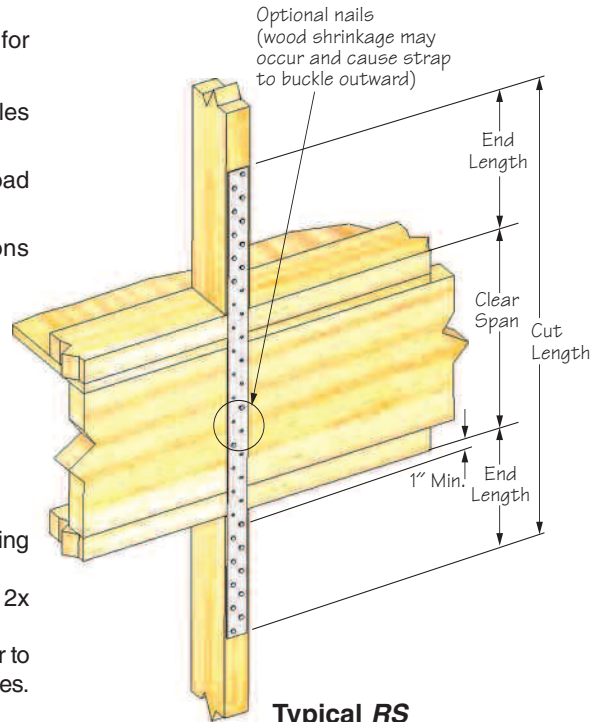
Materials: See chart

Finish: G90 galvanizing

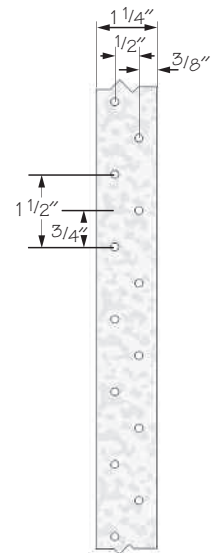
Codes: ESR-1881, ESR-2756, ESR-1831, FL817, FL821, FL822

Installation:

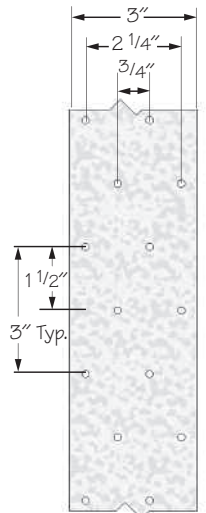
- Use all specified fasteners. See Product Notes, page 10.
- For safety, always wear gloves when handling or cutting coiled strapping.
- **CMST** installations: Install to a minimum 2 ply 2x edge. Increase nail spacing if wood begins to split.
- Designer may specify alternate nailing schedules. Refer to Nail Specification table on page 14 for nail shear values. Load values shall not exceed published allowable loads.



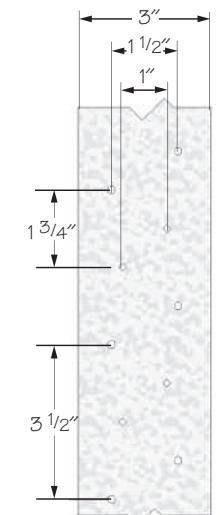
Typical RS rim joist installation CMST similar



RS



CMSTC 16



CMST

Angles & Straps

USP Stock No.	Ref. No.	Steel Gauge	Coil Length	DF-L / SP				S-P-F / Hem Fir				Nail Spacing O.C.	Allowable Tension (Lbs.) ¹	Code Ref.
				Rim Joist Installation		Fastener Schedule ^{3,4}		Rim Joist Installation		Fastener Schedule ^{3,4}				
				Cut Length	End Length	Min Qty. ²	Nails	Cut Length	End Length	Min Qty. ²	Nails			
CMSTC16	CMSTC16	16	54'	Clear Span + 46"	23"	60	10d	Clear Span + 58"	29"	74	10d	1-1/2"	4715	11, F12
		16	54'	Clear Span + 90"	45"	60	10d	Clear Span + 112"	56"	74	10d	3"		
		16	54'	Clear Span + 40"	20"	50	16d	Clear Span + 48"	24"	62	16d	1-1/2"		
CMST14	CMST14	14	52-1/2'	Clear Span + 58"	29"	64	16d	Clear Span + 72"	36"	80	16d	1-3/4"	6630	6, F15
		14	52-1/2'	Clear Span + 130"	65"	74	10d	Clear Span + 164"	82"	94	10d	3-1/2"		
		14	52-1/2'	Clear Span + 256"	128"	74	10d	Clear Span + 326"	163"	94	10d	7"		
CMST12	CMST12	12	40'	Clear Span + 74"	37"	82	16d	Clear Span + 90"	45"	102	16d	1-3/4"	9320	6, F15
		12	40'	Clear Span + 168"	84"	96	10d	Clear Span + 206"	103"	118	10d	3-1/2"		
		12	40'	Clear Span + 332"	166"	96	10d	Clear Span + 410"	205"	118	10d	7"		
RS300	CS22	22	300'	Clear Span + 12"	6"	12	10d	Clear Span + 14"	7"	16	10d	1-1/2"	945	10, F16
		22	300'	Clear Span + 12"	6"	14	8d	Clear Span + 16"	8"	18	8d	1-1/2"		
RS250	CS20	20	250'	Clear Span + 12"	6"	14	10d	Clear Span + 16"	8"	18	10d	1-1/2"	1095	10, F16
		20	250'	Clear Span + 14"	7"	16	8d	Clear Span + 18"	9"	20	8d	1-1/2"		
RS200	CS18	18	200'	Clear Span + 16"	8"	18	10d	Clear Span + 18"	9"	22	10d	1-1/2"	1430	10, F16
		18	200'	Clear Span + 18"	9"	22	8d	Clear Span + 22"	11"	26	8d	1-1/2"		
RS100	CS18S	18	100'	Clear Span + 16"	8"	18	10d	Clear Span + 18"	9"	22	10d	1-1/2"	1430	10, F16
		18	100'	Clear Span + 18"	9"	22	8d	Clear Span + 22"	11"	26	8d	1-1/2"		
RS150	CS16	16	150'	Clear Span + 18"	9"	22	10d	Clear Span + 24"	12"	28	10d	1-1/2"	1795	10, F16
		16	150'	Clear Span + 22"	11"	26	8d	Clear Span + 26"	13"	32	8d	1-1/2"		
RS14-100	CS14	14	100'	Clear Span + 24"	12"	28	10d	Clear Span + 30"	15"	36	10d	1-1/2"	2610	10
		14	100'	Clear Span + 28"	14"	34	8d	Clear Span + 34"	17"	42	8d	1-1/2"		
RS22-R	CS22-R	22	25'	Clear Span + 12"	6"	12	10d	Clear Span + 14"	7"	16	10d	1-1/2"	945	10, F16
		22	25'	Clear Span + 12"	6"	14	8d	Clear Span + 16"	8"	18	8d	1-1/2"		
RS20-R	CS20-R	20	25'	Clear Span + 12"	6"	14	10d	Clear Span + 16"	8"	18	10d	1-1/2"	1095	10, F16
		20	25'	Clear Span + 14"	7"	16	8d	Clear Span + 18"	9"	20	8d	1-1/2"		
RS18-R	CS18-R	18	25'	Clear Span + 16"	8"	18	10d	Clear Span + 18"	9"	22	10d	1-1/2"	1430	10, F16
		18	25'	Clear Span + 18"	9"	22	8d	Clear Span + 22"	11"	26	8d	1-1/2"		
RS16-R	CS16-R	16	25'	Clear Span + 18"	9"	22	10d	Clear Span + 24"	12"	28	10d	1-1/2"	1795	10, F16
		16	25'	Clear Span + 22"	11"	26	8d	Clear Span + 26"	13"	32	8d	1-1/2"		
RS14-R	CS14-R	14	25'	Clear Span + 24"	12"	28	10d	Clear Span + 30"	15"	36	10d	1-1/2"	2610	10
		14	25'	Clear Span + 28"	14"	34	8d	Clear Span + 34"	17"	42	8d	1-1/2"		

1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
 2) Minimum quantity of fasteners to be installed with equal fasteners at each end of the connection. Product may have additional nail holes not needed to meet published allowable load of product.
 3) 16d sinker nails may be substituted for 10d nails with no load reduction.
 4) Minimum nail embedment shall be 1-5/16" for 8d nails, 1-1/2" for 10d nails, and 1-5/8" for 16d nails.
 New products or updated product information are designated in red.

LSTA – 20 or 18 gauge, light-capacity 1 1/4" wide strapping.

LSTI – 3 3/4" wide strap ties provide tension load path for truss top chords. The nail pattern accommodates open web trusses with double top chord.

MSTA – 18 or 16 gauge, medium-capacity 1 1/4" wide strapping.

ST – 16 gauge, medium-capacity 1 1/4" wide strapping.

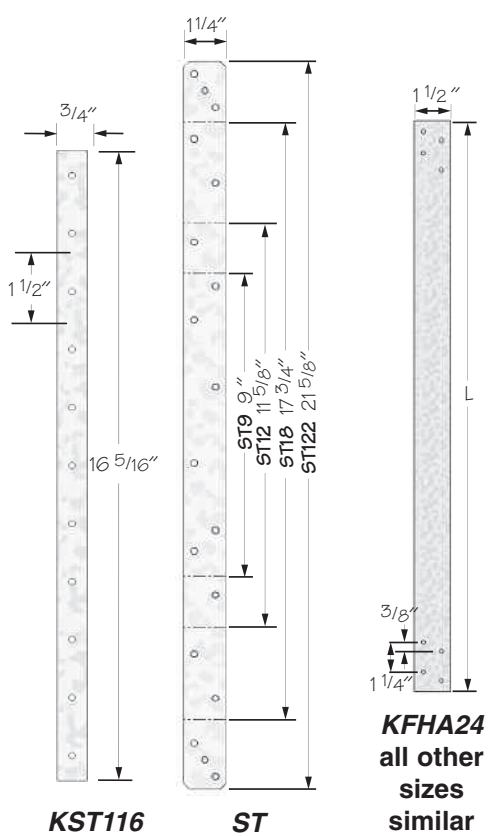
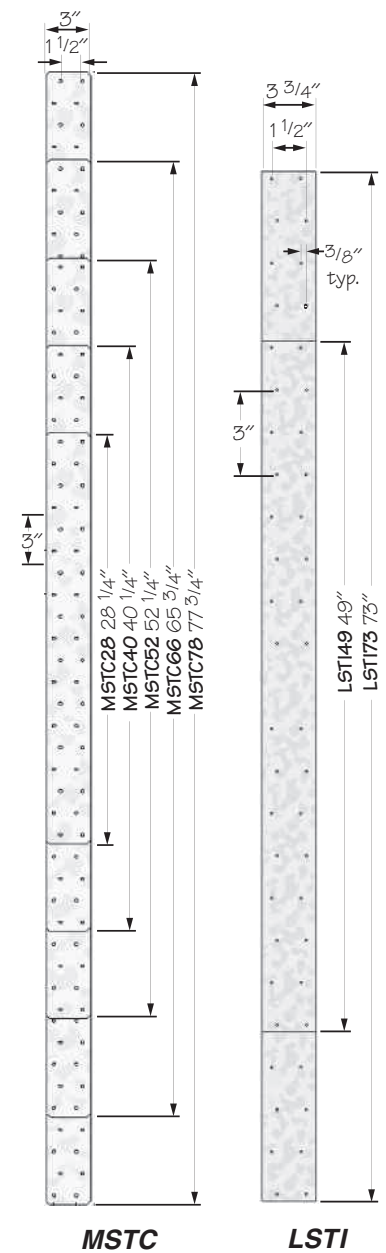
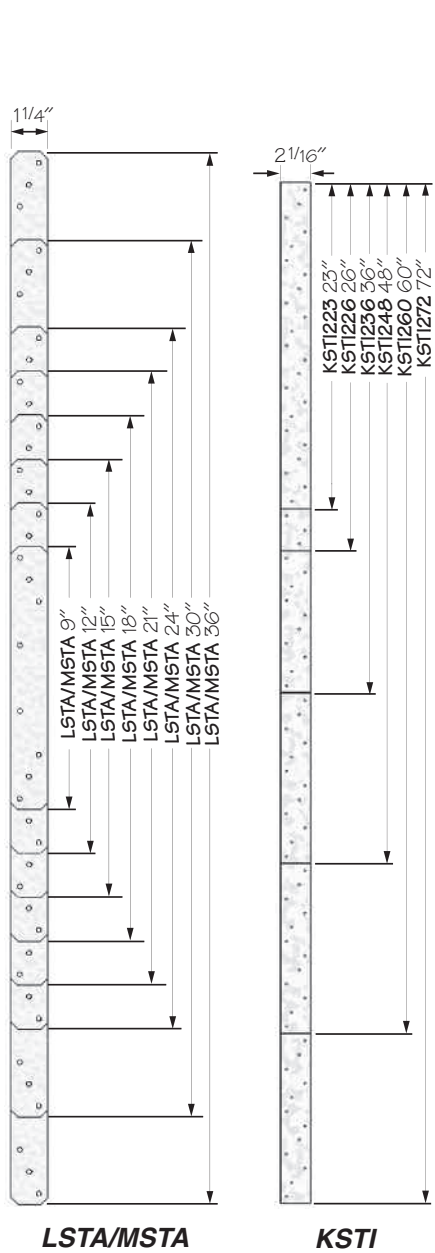
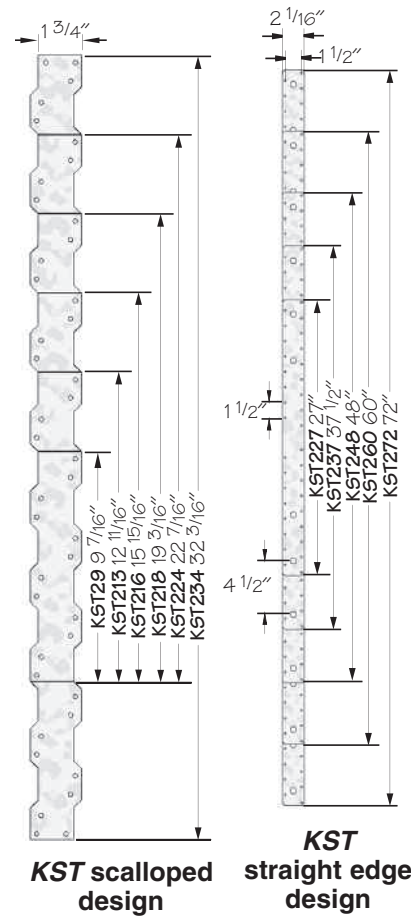
MSTC – 3" wide strapping. Slotted hole design allows for higher load capacities and reduce splitting of lumber when attached to multiple 2x members.

KFHA – 12 gauge, 1 1/2" wide flat strap.

KST – 2 1/16" wide strapping. Straps can be fastened using either nails or bolts. Some KST straps install only with nails.

KSTI – 2 1/16" wide strapping. Straps are designed for installation to wood I-Joist flanges.

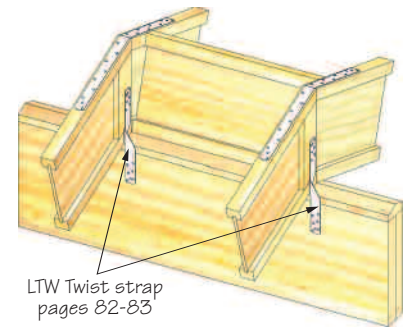
Some model designs may vary from illustration shown



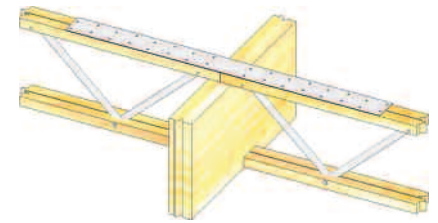
- Materials:** See chart
Finish: G90 galvanizing
Options: MSTA9, MSTA12, MSTA15, MSTA18, MSTA21, MSTA24, MSTA30, & MSTA36 are available in Triple Zinc. To order, add TZ to stock number, as in **MSTA9-TZ**. MSTA12, MSTA18, MSTA24 & MSTA36 are available in stainless steel. To order, add SS to stock number, as in **MSTA36-SS**.
Codes: ESR-1781, ESR-1280, ESR-1831, FL11664, FL816, FL822, L.A. City RR 25749

Installation:

- Use all specified fasteners. See Product Notes, page 10.
- Designer may specify alternate nailing schedules. Refer to Nail Specification table on page 14 for nail shear values. Load values shall not exceed published allowable loads. The quantity of nails installed shall be equally distributed to both ends of the strap.
- The quantity of nails installed shall be equally distributed to both ends of the strap.



Typical LSTA/MSTA I-Joist on Ridge Beam installation



Typical LSTI open web truss installation

USP Stock No. ⁸	Ref. No.	Steel Gauge	Dimensions		Fastener Schedule ^{3,6}			Allowable Loads (Lbs.) ^{1,2}		Code Ref.
			W	L	Total Qty ⁴	Nails		Uplift		
						Min Qty ⁵	Type	DF-L / SP 160%	P-F / Hem F 160%	
KST116	ST2115	20	3/4	16-5/16	10	8	16d	665	665	10, F16
LSTA9	LSTA9	20	1-1/4	9	8	8	10d	740	635	5, F11
LSTA12	LSTA12	20	1-1/4	12	10	10	10d	930	790	5, F11
LSTA15	LSTA15	20	1-1/4	15	12	12	10d	1115	950	5, F11
LSTA18	LSTA18	20	1-1/4	18	14	14	10d	1235	1110	5, F11
LSTA21	LSTA21	20	1-1/4	21	16	16	10d	1235	1235	5, F11
LSTA24	LSTA24	20	1-1/4	24	18	16	10d	1235	1235	5, F11
KST29	ST292	20	1-3/4	9-7/16	14	14	16d	1680	1320	10, F16
KST213	ST2122	20	1-3/4	12-11/16	18	18	16d	1785	1700	10, F16
KST216	ST2215	20	1-3/4	15-15/16	22	18	16d	1785	1700	10, F16
LSTA30	LSTA30	18	1-1/4	30	22	22	10d	1640	1640	5, F11
LSTA36	LSTA36	18	1-1/4	36	26	22	10d	1640	1640	5, F11
MSTA9	MSTA9	18	1-1/4	9	8	8	10d	750	645	5, F11
MSTA12	MSTA12	18	1-1/4	12	10	10	10d	935	810	5, F11
MSTA15	MSTA15	18	1-1/4	15	12	12	10d	1125	970	5, F11
MSTA18	MSTA18	18	1-1/4	18	14	14	10d	1310	1130	5, F11
MSTA21	MSTA21	18	1-1/4	21	16	16	10d	1500	1295	5, F11
MSTA24	MSTA24	18	1-1/4	24	18	18	10d	1640	1455	5, F11
KSTI223	--	18	2-1/16	23	23	22	10d x 1-1/2	2180	1725	10, F16
LSTI49	LSTI49	18	3-3/4	49	32	32	10d x 1-1/2	3175	2510	10
LSTI73	LSTI73	18	3-3/4	73	48	48	10d x 1-1/2	4340	3765	10
ST9	ST9	16	1-1/4	9	8	8	16d	885	760	10, F16
ST12	ST12	16	1-1/4	11-5/8	10	10	16d	1105	950	10, F16
ST18	ST18	16	1-1/4	17-3/4	14	14	16d	1395	1335	10, F16
ST22	ST22	16	1-1/4	21-5/8	18	18	16d	1395	1395	10, F16
MSTA30	MSTA30	16	1-1/4	30	22	22	10d	2065	1815	5, F11
MSTA36	MSTA36	16	1-1/4	36	26	26	10d	2065	2065	5, F11
MSTA48	MSTA49	16	1-1/4	48	32	26	10d	2045	2045	5, F11
KST218	ST6215	16	1-3/4	19-3/16	26	26	16d	2960	2540	10, F16
KST224	ST6224	16	1-3/4	22-7/16	30	30	16d	2960	2930	10, F16
MSTC28	MSTC28	16	3	28-1/4	36	36	10d	3455	2965	11, F12
					36	34	16d	3860	3320	11, F12
					52	52	10d	4715	4285	11, F12
MSTC40	MSTC40	16	3	40-1/4	52	46	16d	4715	4490	11, F12
					70	60	10d	4715	4715	11, F12
MSTC52	MSTC52	16	3	52-1/4	70	52	16d	4715	4715	11, F12
					70	52	16d	4715	4715	11, F12
KST234	ST6236	14	1-3/4	32-3/16	42	36	16d	3775	3660	10, F16
MSTC66	MSTC66	14	3	65-3/4	88	72	10d	6015	6015	11, F12
					88	62	16d	6015	6015	11, F12
					104	76	10d	6015	6015	11, F12
MSTC78	MSTC78	14	3	77-3/4	104	66	16d	6015	6015	11, F12
					104	66	16d	6015	6015	11, F12

1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
 2) Minimum nail embedment shall be 1-1/2" for 10d nails and 1-5/8" for 16d nails.
 3) Total number of nail and/or bolt holes provided in the strap.
 4) Minimum quantity of fasteners to be installed with equal fasteners at each end of the connection. Product may have additional nail holes not needed to meet published allowable load of product.
 5) 10d x 1-1/2 nails are 9 gauge (0.148" diameter) by 1-1/2" long.
 6) Allowable bolt loads are based on parallel-to-grain loading, minimum of 2-1/2" thick.
 7) For MSTC straps: 16d sinker nails may be substituted for 10d nails with no reduction in load.
 New products or updated product information are designated in red.

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Angles & Straps

continued on next page

USP Stock No.	Ref. No.	Steel Gauge	Dimensions		Fastener Schedule ^{3,6}						Allowable Uplift Loads (Lbs.) ^{1,2}				Code Ref.
			W	L	Total Qty ⁴	Nails		Bolts		DF-L / SP		S-P-F / Hem Fir			
						Min Qty ⁵	Type	Min Qty ⁵	Dia.	Nails	Bolts ⁸	Nails	Bolts ⁴		
										160%	160%	160%	160%		
KFHA6	---	12	1-1/2	6	8	8	16d	---	---	955	---	825	---	2, F20, R12	
KFHA9	---	12	1-1/2	9	8	8	16d	---	---	955	---	825	---	2, F20, R12	
KFHA12	---	12	1-1/2	12	8	8	16d	---	---	955	---	825	---	2, F20, R12	
KFHA18	---	12	1-1/2	18	8	8	16d	---	---	955	---	825	---	2, F20, R12	
KFHA24	---	12	1-1/2	24	8	8	16d	---	---	955	---	825	---	2, F20, R12	
KFHA30	---	12	1-1/2	30	8	8	16d	---	---	955	---	825	---	2, F20, R12	
KST227	MST27	12	2-1/16	27	34	34	16d	4	1/2	4570	2285	3645	2020	10, F16	
KST237	MST37	12	2-1/16	37-1/2	48	48	16d	6	1/2	5395	3240	5145	2875	10, F16	
KST248	MST48	12	2-1/16	48	62	54	16d	8	1/2	5395	3915	5395	3555	10, F16	
KSTI226	MSTI26	12	2-1/16	26	26	26	10d x 1-1/2	---	---	2830	---	2265	---	10, F16	
KSTI236	MSTI36	12	2-1/16	36	36	36	10d x 1-1/2	---	---	3915	---	3140	---	10, F16	
KSTI248	MSTI48	12	2-1/16	48	48	48	10d x 1-1/2	---	---	5220	---	4185	---	10, F16	
KSTI260	MSTI60	12	2-1/16	60	60	60	10d x 1-1/2	---	---	5395	---	5230	---	10, F16	
KSTI272	MSTI72	12	2-1/16	72	72	60	10d x 1-1/2	---	---	5395	---	5395	---	10, F16	
KST260	MST60	10	2-1/16	60	72	64	16d	10	1/2	7055	4910	7055	4425	10, F16	
KST272	MST72	10	2-1/16	72	72	64	16d	10	1/2	7055	4910	7055	4425	10, F16	

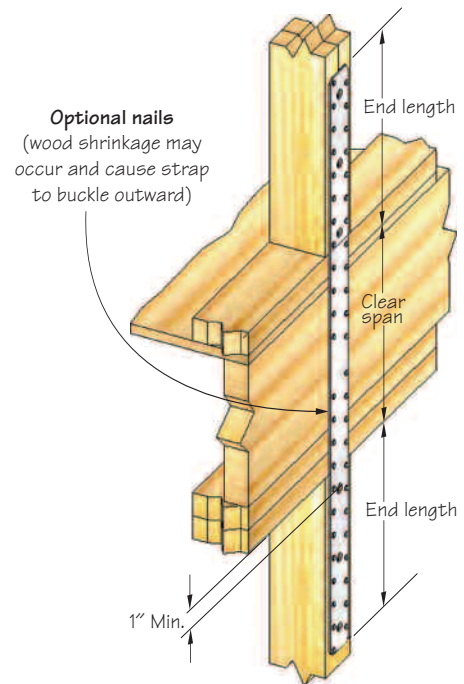
- 1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
 - 2) Allowable loads are based on the use of either nails or bolts; nail and bolt values cannot be combined.
 - 3) Minimum nail embedment shall be 1-5/8" for 16d nails.
 - 4) Total number of nail and/or bolt holes provided in the strap.
 - 5) Minimum quantity of fasteners to be installed with equal fasteners at each end of the connection. Product may have additional nail holes not needed to meet published allowable load of product.
 - 6) 10d x 1-1/2" nails are 9 gauge (0.148" diameter) by 1-1/2" long.
 - 7) Allowable bolt loads are based on parallel-to-grain loading, minimum of 2-1/2" thick.
- New products or updated product information are designated in red.

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Clear Span Chart

USP Stock No.	Ref. No.	Clear Span	10d x 1-1/2" Fasteners ³		10d Fasteners ²		16d Fasteners ²	
			Total ⁴ Qty	DF-L / SP	Total ⁴ Qty	DF-L / SP	Total ⁴ Qty	DF-L / SP
				Uplift 160% ¹		Uplift 160% ¹		Uplift 160% ¹
MSTC28	MSTC28	18	---	---	12	1150	12	1365
		16	---	---	16	1535	14	1590
MSTC40	MSTC40	18	---	---	28	2690	24	2725
		16	---	---	32	3070	30	3410
MSTC52	MSTC52	18	---	---	44	4225	38	4315
		16	---	---	48	4610	42	4715
MSTC66	MSTC66	18	---	---	62	6015	54	6015
		16	---	---	64	6015	54	6015
MSTC78	MSTC78	18	---	---	64	6015	54	6015
		16	---	---	66	6015	56	6015
KST237	MST37	18	---	---	---	---	20	2480
		16	---	---	---	---	22	2730
KST248	MST48	18	---	---	---	---	32	3970
		16	---	---	---	---	34	4215
KST260	MST60	18	---	---	---	---	46	6255
		16	---	---	---	---	48	6530
KST272	MST72	18	---	---	---	---	46	6255
		16	---	---	---	---	48	6530
KSTI236	MSTI36	18	14	1410	---	---	---	---
		16	16	1615	---	---	---	---
KSTI248	MSTI48	18	26	2620	---	---	---	---
		16	28	2820	---	---	---	---
KSTI260	MSTI60	18	38	3830	---	---	---	---
		16	40	4030	---	---	---	---
KSTI272	MSTI72	18	50	5040	---	---	---	---
		16	52	5240	---	---	---	---

- 1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
 - 2) Minimum nail embedment shall be 1-1/2" for 10d nails and 1-5/8" for 16d nails.
 - 3) 10d x 1-1/2" nails are 9 gauge (0.148" diameter) by 1-1/2" long.
 - 4) Total number of nail holes provided in the strap.
- New products or updated product information are designated in red.



Typical KST237 floor-to-floor installation

KRPS – Meets IBC, IRC, UBC, & L.A. City requirements for notched plates where plumbing, heating, or other pipes are placed in partitions.

PS – Piling Straps connect wood pilings to floor girders. Hot-dip galvanized for corrosion protection in coastal environments.

KHST – Heavy-capacity strap that utilizes bolts.

Materials: See chart

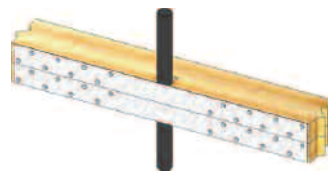
Finish: KHST – USP primer; KRPS – G90 galvanizing; PS – Hot-dip galvanized

Options: KRPS22 is available in Triple Zinc. To order, add TZ to stock number, as in **KRPS22-TZ**.

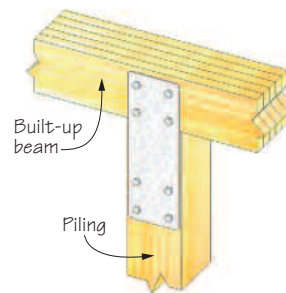
Codes: ESR-1280

Installation:

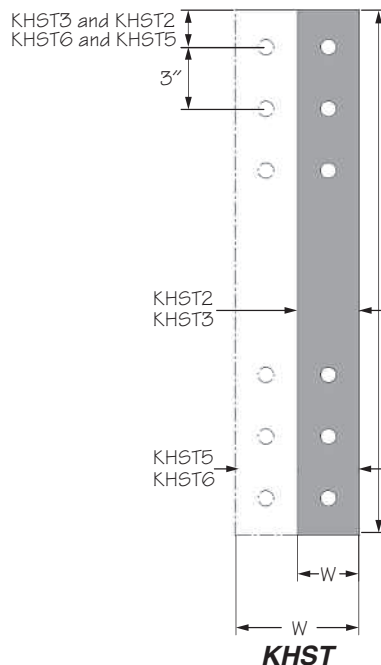
- Use all specified fasteners. See Product Notes, page 10.



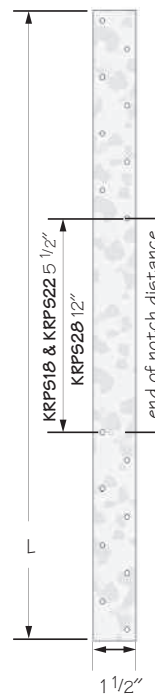
Typical KRPS installation



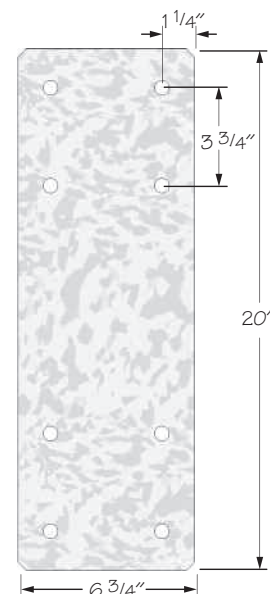
Typical PS720-HDG installation



KHST



KRPS



PS720-HDG



**PS218-HDG
PS418-HDG similar**

In some instances the codes require the use of a metal strap where sill or top plates are cut, notched, or drilled. **IRC R602.6.1, IBC 2308.9.8, UBC 2320.11.7.**

Bolts must be ordered separately. See page 20 for available sizes.

USP Stock No. ⁴	Ref. No.	Steel Gauge	Dimensions		Notch Width	Fastener Schedule ²				Allowable Uplift Loads (Lbs.) ^{1,3}		Code Ref.
			W	L		Nails		Bolts		DF-L/ SP		
						Qty	Type	Qty	Type	160%		
KHST2	HST2	7	2-1/2	21-1/4	---	---	---	6	5/8	5250		2, F20, R12
KHST3	HST3	3	3	25-1/2	---	---	---	6	3/4	7920		
KHST5	HST5	7	5	21-1/4	---	---	---	12	5/8	10635		
KHST6	HST6	3	6	25-1/2	---	---	---	12	3/4	15935		
PS218-HDG	PS218	7	2	18	---	---	---	4	5/8	---		120
PS418-HDG	PS418	7	4	18	---	---	---	4	5/8	---		
PS720-HDG	PS720	7	6-3/4	20	---	---	---	8	5/8	---		
KRPS18	RPS18	16	1-1/2	18-5/16	≤ 5-1/2"	12	16d	---	---	1325		130
KRPS22	RPS22	16	1-1/2	22-5/16	≤ 5-1/2"	16	16d	---	---	1720		
KRPS28	RPS28	16	1-1/2	28-5/16	≤ 12"	16	16d	---	---	1720		

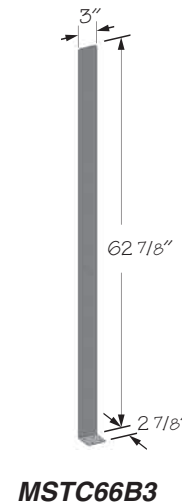
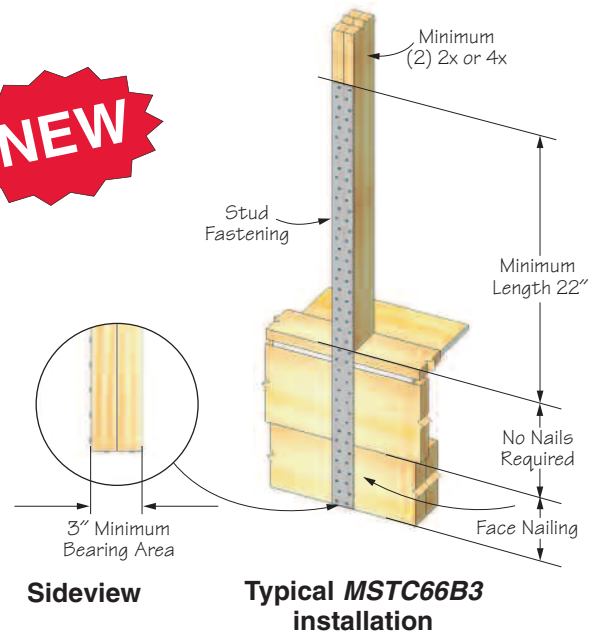
1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
 2) Minimum nail embedment shall be 1-5/8" for 16d nails.
 3) Allowable loads are based on single shear, parallel to grain loading with a 4" minimum member thickness for KHST2 and KHST5, and 4-1/2" minimum member thickness for KHST3 and KHST6.
 4) PS piling strap design loads must be determined for each installation. Bolts are installed perpendicular and parallel-to-grain.
 New products or updated product information are designated in red.

The MSTC66B3 Pre-Bent Strap is designed to fasten vertical studs to a beam or ridge beam member below where the beam depth will not allow complete fastener attachments with a standard product.

Materials: 14 gauge
Finish: G90 galvanizing

Installation:

- Use all specified fasteners. See Product Notes, page 10.



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USP Stock No.	Ref. No.	Steel Gauge	Strap Dimensions			Minimum Beam Dimensions		Fastener Schedule ²						Factored Resistance			
			W	L	B			Beam		Stud/Post ^{3,5,6}		Uplift					
						Qty	Type	Qty	Type	Qty	Type	DF-L		S-P-F			
			Lbs.	kN	Lbs.	kN											
MSTC66B3	MSTC66B3	14	3	62-7/8	2-7/8	3	11-1/4	14	10d	4	10d	28	10d	5030	22.4	4150	18.5

- 1) The factored resistances given above are for Limit States Design in accordance with the 2005 National Building Code of Canada. They have been soft converted from allowable working stresses developed using the 2001 National Design Specification and the ICC-ES (AC13) Joist Hangers And Similar Devices except where noted.
 - 2) Minimum nail embedment shall be 1-1/2" for 10d nails.
 - 3) Minimum strap length on stud/post for quantity of nails is 22".
 - 4) The 3" wide beam may be double for 2x members.
 - 5) Fewer fasteners in the stud/post than listed will reduce the capacity of the connection.
 - 6) Nails in the stud/post to be installed symmetrically in pairs starting a minimum of 1-1/2" from the end.
- New products or updated product information are designated in red.

KLFTA – Medium-duty nail-on strap provides stud-to-stud connecton across rim joist.

KFTA – Heavy-duty bolt-on strap.

Materials: See chart

Finish: KLFTA – G90 galvanizing; KFTA – USP primer

Codes: ESR-2756, FL817

Installation:

- Use all specified fasteners. See Product Notes, page 10.
- Nail holes in the center flange allow attachment to the rim joist and top and bottom plates.



Typical KLFTA installation

USP Stock No	Ref. No.	Steel Gauge	Dimensions		Fastener Schedule				Allowable Uplift Loads (Lbs.) ^{1,2}			Code Ref.
			W	L	Nails ⁴		Bolts		DF-L / SP			
					Qty	Type	Qty	Dia.	Thickness of Wood Member			
			1-1/2	3	4-1/2	160%	160%	160%				
KLFTA	LFTA	16	2-1/8	40-7/8	16	10d	---	---	1485	1485	1485	11, F12
KFTA2	FTA2	10	3	37-1/2	---	---	4	5/8	1915	3445	3430	
KFTA5	FTA5	10	3-1/2	45-1/2	---	---	4	3/4	2285	4440	4440	
KFTA7	FTA7	3	3-1/2	56	---	---	6	7/8	4235	7290	7290	

1) Allowable loads have been increased 60% for wind and seismic loads; no further increase shall be permitted.

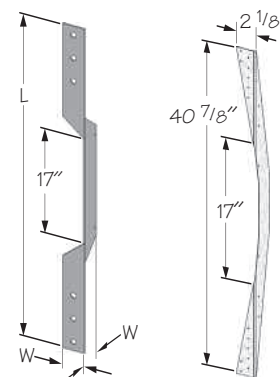
2) Design loads assume single shear bolt application, parallel to grain loading.

3) The designer shall determine adequacy of wood member to resist published loads.

4) Minimum nail embedment shall be 1-1/2" for 10d nails.

New products or updated product information are designated in red.

Bolts must be ordered separately. See page 20 for available sizes.



KFTA7

KLFTA

Twist Straps – HTW, KTS, LFTA6, LTW, & MTW SERIES

Twist straps tie framing members to resist tension forces.

LFTA6 – 16 gauge.

LTW – 18 gauge, light-capacity.

MTW – 16 gauge, medium-capacity.

HTW – 14 gauge, heavy-capacity.

KTS – 16 gauge, medium-capacity with angled twist.

Materials: See chart

Finish: G90 galvanizing

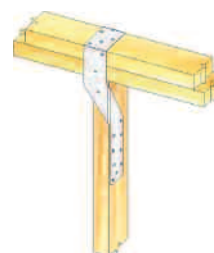
Options: LFTA6, MTW12, MTW16 & MTW20 are available in Triple Zinc. To order, add TZ to stock number, as in **MTW12-TZ**.

LTW12, LTW18 & MTW20 are available in Stainless Steel. To order, add SS to stock number, as in **LTW18-SS**.

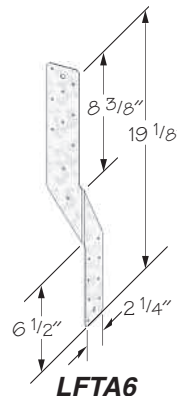
Codes: ESR-2104, FL11664, L.A. City RR 25745

Installation:

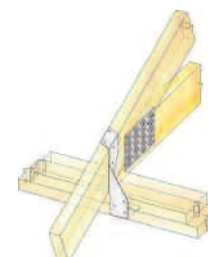
- Use all specified fasteners. See Product Notes, page 10.
- **KTS** models should be installed in pairs to reduce eccentricity.
- Consult I-Joist manufacturer for web stiffener requirements, and uplift limitations on joist and application.



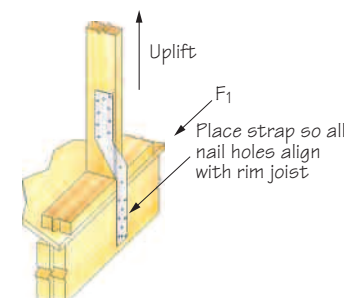
Typical LFTA6 stud-to-top plate installation



LFTA6

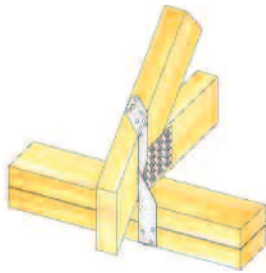


Typical LFTA6 truss-to-top plate installation

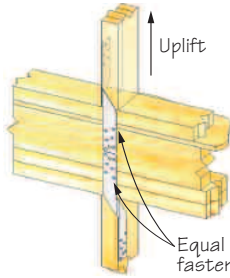


Typical LFTA6 stud-to-rim joist installation

continued on next page

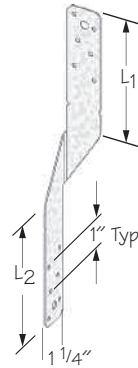


**Typical LTW12 / MTW12
Truss-to-top plate
installation**

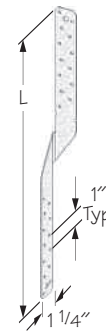


**Typical LTW12 / MTW12
Stud-to-rim joist
installation**

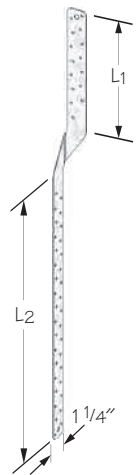
Equal number of specified fasteners at each end



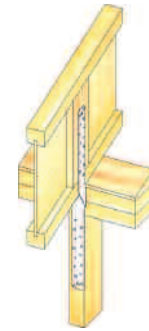
LTW12/MTW12



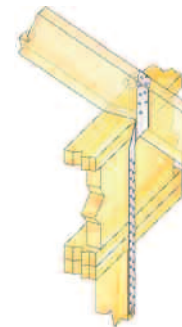
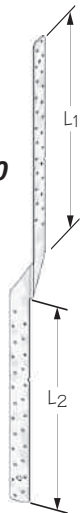
**LTW18/MTW18
other models similar**



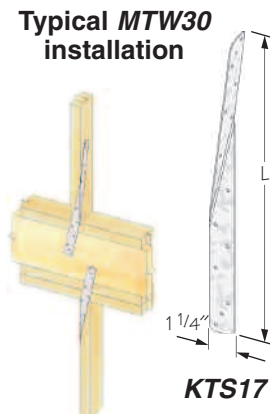
**MTW30/
HTW30**



**Typical MTW20
I-Joist Rafter
installation**



MTW30C



**Typical KTS17
installation**

USP Stock No. ⁷	Ref. No.	Steel Gauge	Dimensions				Fastener Schedule ^{2,3,4,5,6}		DF-L / SP Allowable Uplift Loads 160% ¹	Code Ref.
			W	L	L1	L2	Qty	Type		
LTW12	LTS12	18	1-1/4	12	4-1/2	4-1/2	12	10d x 1-1/2	775	8, F14, R9
							12	10d		
LTW16	LTS16	18	1-1/4	16	6-1/2	6-1/2	12	10d x 1-1/2	775	8, F14, R9
							12	10d		
LTW18	LTS18	18	1-1/4	18	7-1/2	7-1/2	12	10d x 1-1/2	775	8, F14, R9
							12	10d		
LTW20	LTS20	18	1-1/4	20	8-1/2	8-1/2	12	10d x 1-1/2	775	8, F14, R9
							12	10d		
KTS9	TS9	16	1-1/4	9	---	---	8	16d	785	2, F20, R12
KTS12	TS12	16	1-1/4	11-1/2	---	---	10	16d	1065	2, F20, R12
MTW12	MTS12	16	1-1/4	12	4-1/2	4-1/2	14	10d x 1-1/2	1195	8, F14, R9
							14	10d		
MTW16	MTS16	16	1-1/4	16	6-1/2	6-1/2	14	10d x 1-1/2	1195	8, F14, R9
							14	10d		
KTS17	TS18	16	1-1/4	17-1/2	---	---	14	16d	1100	2, F20, R12
MTW18	MTS18	16	1-1/4	18	7-1/2	7-1/2	14	10d x 1-1/2	1195	8, F14, R9
							14	10d		
LFTA6	H6	16	2-1/4	19-1/8	8-3/8	6-1/2	16	8d	1210	8, F14, R9
							16	8d x 1-1/2		
MTW20	MTS20	16	1-1/4	20	8-1/2	8-1/2	14	10d x 1-1/2	1195	8, F14, R9
							14	10d		
KTS24	TS22	16	1-1/4	21-3/4	---	---	18	16d	1395	2, F20, R12
MTW24C	MTS24C	16	1-1/4	24	10-7/16	10-7/16	14	10d x 1-1/2	1195	8, F14, R9
							14	10d		
MTW28C	MTS28C	16	1-1/4	28	12-7/16	12-7/16	14	10d x 1-1/2	1195	8, F14, R9
							14	10d		
MTW30	MTS30	16	1-1/4	30	8-5/16	18-9/16	14	10d x 1-1/2	1195	8, F14, R9
							14	10d		
MTW30C	MTS30C	16	1-1/4	30	13-7/16	13-7/16	14	10d x 1-1/2	1195	8, F14, R9
							14	10d		
HTW16	HTS16	14	1-1/4	16	5-1/8	5-1/8	16	10d x 1-1/2	1260	8, F14, R9
							16	10d		
HTW20	HTS20	14	1-1/4	20	7-1/8	7-1/8	24	10d x 1-1/2	1530	8, F14, R9
							20	10d		
HTW24	HTS24	14	1-1/4	24	9-1/8	9-1/8	24	10d x 1-1/2	1530	8, F14, R9
							20	10d		
HTW28	HTS28	14	1-1/4	28	11-1/8	11-1/8	24	10d x 1-1/2	1530	8, F14, R9
							20	10d		
HTW30	HTS30	14	1-1/4	30	7	17-1/4	24	10d x 1-1/2	1530	8, F14, R9
							20	10d		
HTW30C	HTS30C	14	1-1/4	30	12-1/8	12-1/8	24	10d x 1-1/2	1530	8, F14, R9
							20	10d		

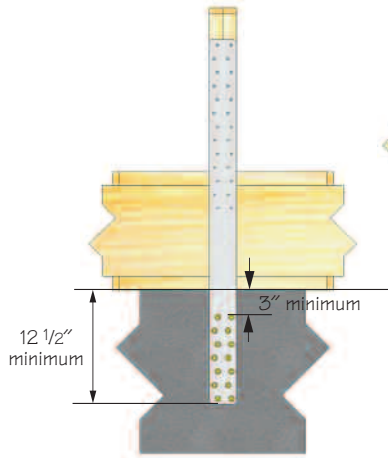
1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
 2) Minimum nail embedment shall be 1-5/16" for 8d nails, 1-1/2" for 10d nails, and 1-5/8" for 16d nails.
 3) 16d sinker nails may be substituted for 10d common nails with no reduction in load.
 4) For 1-1/2" lumber, use 0.84 of table load for 10d nails and 0.77 for 16d nails.
 5) 10d x 1-1/2" nails are 9 gauge (0.148" diameter) by 1-1/2" long.
 8d x 1-1/2" nails are 11 gauge (0.131" diameter) by 1-1/2" long.
 6) Fasteners shall be distributed equally on each end of the connection.
 7) C after the model number designates center twist as in MTW30C.
 8) LFTA6: F1 is 700 lbs. To achieve F1 lateral loads, three nails must be installed on each side on the strap located closest to the bend line.
 New products or updated product information are designated in red.

The MSTAM and MSTCM Strap Ties are designed to connect a wood structure above to a masonry wall below.

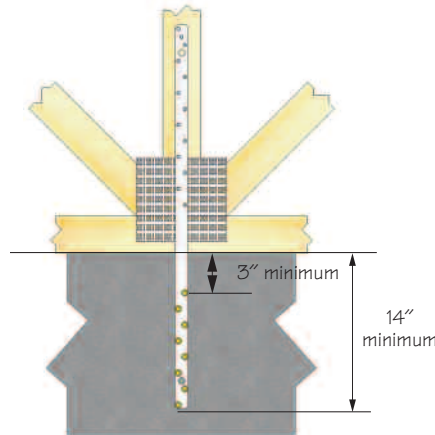
Materials: See chart
Finish: G90 galvanizing

Installation:

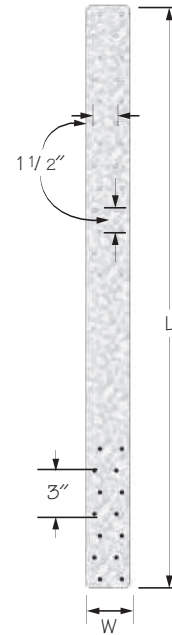
- Use all specified fasteners. See Product Notes, page 10.



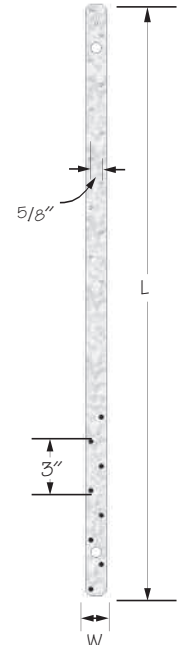
Typical MSTCM40 installation



Typical MSTAM36 installation



MSTCM40



MSTAM36

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USP Stock No.	Ref. No.	Steel Gauge	Dimensions		Fastener Schedule						Allowable Loads (Lbs.) ^{1,2}		Code Ref.	
			W	L	CMU ⁴		Concrete ⁴		Nails ³		Uplift			
					Qty	Type	Qty	Type	Qty	Type	DF-L / SP	S-P-F		
											160%	160%		
MSTAM24	MSTAM24	18	1-1/4	24	5	1/4" Tapcon	5	1/4" Tapcon	9	10d	1545	1455	130	
MSTAM36	MSTAM36	16	1-1/4	36	8	1/4" Tapcon	8	1/4" Tapcon	13	10d	1945	1945		
MSTCM40	MSTCM40	16	3	40-1/4	14	1/4" Tapcon	14	1/4" Tapcon	24	10d	3665	3665		
										20	16d			

- 1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
 - 2) Allowable loads are derived from tests performed using hollow C90 concrete block.
 - 3) Minimum nail embedment shall be 1-1/2" for 10d nails and 1-5/8" for 16d nails.
 - 4) Use ITW Buildex 1/4" x 2-1/4" Tapcon fasteners; or equal, installed in accordance with manufacturer's specification.
- New products or updated product information are designated in red.

Clear Span Chart

USP Stock No.	Clear Span	Fastener Schedule						Allowable Loads (Lbs.) ¹	
		CMU ³		Concrete ³		Nails ²		Uplift	
		Qty	Type	Qty	Type	Qty	Type	DF-L / SP	S-P-F
								160%	160%
MSTAM36	16	5	1/4" Tapcon	5	1/4" Tapcon	8	10d	1320	1320
	18	5	1/4" Tapcon	5	1/4" Tapcon	7	10d	1320	1155
MSTCM40	16	12	1/4" Tapcon	12	1/4" Tapcon	16	16d	3145	3125
	18	12	1/4" Tapcon	12	1/4" Tapcon	14	16d	3145	2735

- 1) Use ITW Buildex 1/4" x 2-1/4" Tapcon fasteners; or equal, installed in accordance with manufacturer's specification.
- 2) Minimum nail embedment shall be 1-1/2" for 10d nails and 1-5/8" for 16d nails.
- 3) Allowable loads are derived from tests performed using hollow C90 concrete block.

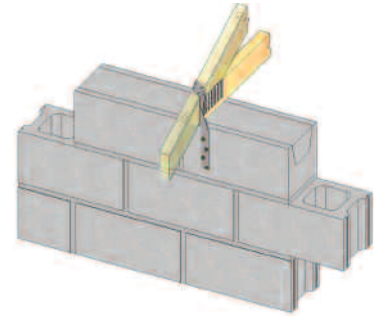
Angles & Straps

The HTWM Twist Straps are designed for truss to concrete or masonry connections. Offer uplift resistance with variable heel height and positioning applications.

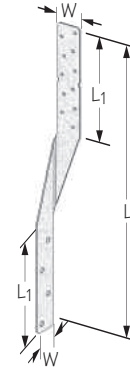
Materials: 14 gauge
Finish: G90 galvanizing

Installation Instructions:

- Use all specified fasteners. See Product Notes pages 10.
- Strap may be attached to either side of grouted masonry or concrete wall with a minimum of (1) #5 horizontal rebar.
- Drill hole in concrete or masonry with manufacturers prescribed 1/4" masonry drill. Install fasteners into concrete or masonry per manufacturer's specification.
- Grout or concrete compressive strength shall be 2,000 psi at 28 days.
- Twist straps do not have to be wrapped over the truss to achieve the allowable loads.
- Moisture barrier may be required.



Typical HTWM installation



HTWM

USP Stock No.	Ref. No.	Steel Gauge	Dimensions			Fastener Schedule						Allowable Loads (Lbs.) ¹		Code Ref.
			W	L	L1	CMU ³		Concrete ³		Truss/Rafter ²		Uplift		
						Qty	Wedge Bolts	Qty	Wedge Bolts	Qty	Nail Type	DF-L / SP	S-P-F	
HTWM16	HTSM16	14	1-1/4	16	5-3/4	4	1/4" x 1-3/4"	4	1/4" x 1-3/4"	8	10d x 1-1/2	1225	1145	130
HTWM20	HTSM20	14	1-1/4	20	7-3/4	4	1/4" x 1-3/4"	4	1/4" x 1-3/4"	8	10d x 1-1/2	1225	1145	

1) Allowable loads have been increased 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) Use Powers Fasteners 1/4" x 1-3/4" Wedge-Bolt®; or equal, installed in accordance with manufacturer's specification.

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CONNECTOR STRAPS – KHSA & KSA SERIES

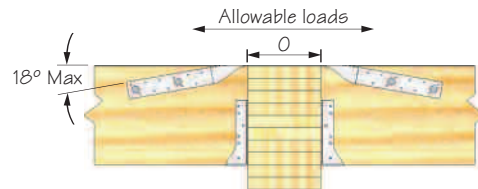
KSA – 7 or 12 gauge. KSA36 and KSA47 can be field adjusted for smaller beam widths. It installs with nails or bolts.

KHSA – 3 gauge. Designed for installation with bolts only.

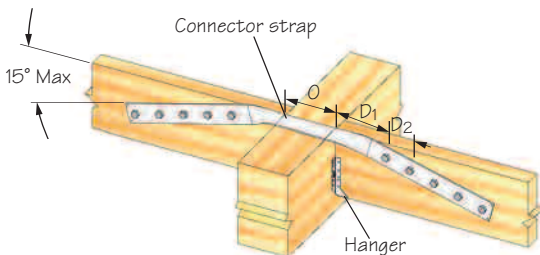
Materials: See chart
Finish: KSA – G90 galvanizing
KHSA – USP primer
Codes: ESR-1280, FL11664, L.A. City RR 25749

Installation:

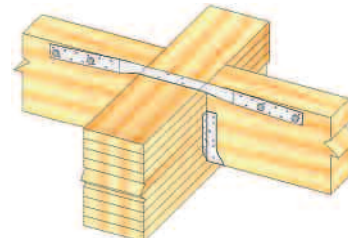
- Use all specified fasteners. See Product Notes, page 10.
- **KSA36** and **KSA47** can be field adjusted for smaller beam widths.



Typical KSA installation

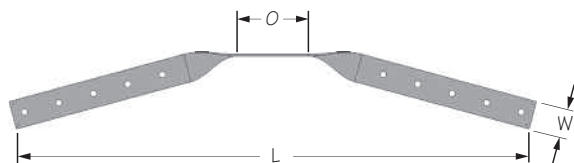


Typical KHSA4 installation

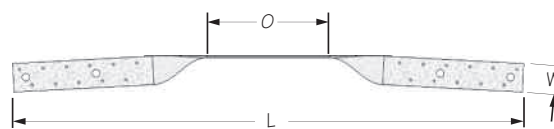


Typical KSA installation

Angles & Straps



KHSA5



KSA36

USP Stock No.	Ref. No.	Steel Gauge	Dimensions					Fastener Schedule				Allowable Tension Loads (Lbs.) ^{1,2}		Code Ref.
			W	L	O	D1	D2	Nails ³		Bolts ⁴		DF-L / SP		
								Qty	Type	Qty	Dia.	Nails	Bolts	
KSA34	---	7	2-1/16	34-3/8	9	6-11/16	4-1/2	---	---	4	3/4	---	4255	2, F20, R12
KSA36	SA36	12	2-1/16	37-7/8	9	6-11/16	4-1/2	22	16d	4	1/2	2620	2015	
KSA45	---	7	2-1/16	44-7/8	19-1/2	8-1/4	5-1/4	---	---	4	3/4	---	4255	
KSA47	---	12	2-1/16	48-3/8	19-1/2	8-1/4	5-1/4	22	16d	4	1/2	2620	2015	
KHSA1	HSA32	3	3	30	9	10	---	---	---	2	3/4	---	2435	
KHSA2	HSA41	3	3	38-1/2	9	10	4-1/2	---	---	4	3/4	---	4810	
KHSA3	HSA50	3	3	47	9	10	4-1/2	---	---	6	3/4	---	7005	
KHSA4	HSA59	3	3	56	9	10	4-1/2	---	---	8	3/4	---	8920	
KHSA5	HSA68	3	3-1/2	64-1/2	9	10	4-1/2	---	---	10	3/4	---	10785	

- 1) Allowable loads are based on the use of either nails or bolts; nail and bolt values cannot be combined.
- 2) Bolt values assume wood member thickness of 3-1/2" with bolts in single shear.
- 3) Minimum nail embedment shall be 1-5/8" for 16d nails.
- 4) Bolts shall be loaded parallel to grain.

New products or updated product information are designated in red.

Bolts must be ordered separately. See page 20 for available sizes.

KNEE BRACES – KVB & KVBI SERIES

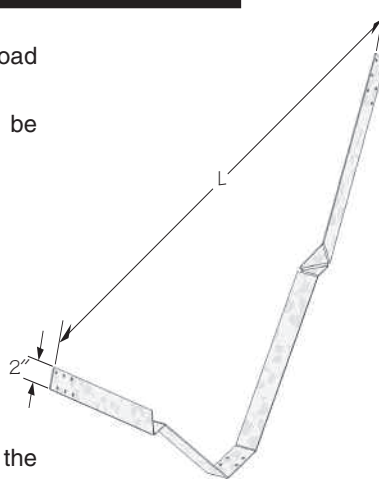
KVB – Installs with NA25 nails for higher load capacity. It can be retrofit into existing framing.

KVBI – Installs with common nails. Designed to be used with I-Joist purlins.

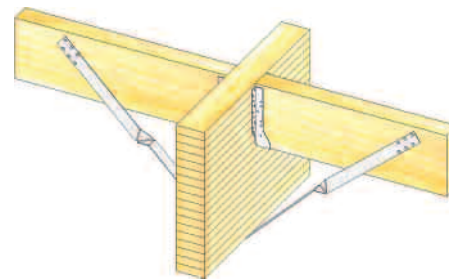
Materials: 12 gauge
Finish: G90 galvanizing
Codes: ESR-1280, FL11664, L.A. City RR 25749

Installation:

- Use all specified fasteners. See Product Notes, page 10.
- NA25 nails are included with KVB shipments.
- Install flanges at angles of 45° or more to the vertical plane to assure proper lateral resistance.



KVB5



Typical KVB7 installation

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (Inches)		Fastener Schedule ^{1,2}				Allowable Tension Loads (Lbs.)			Code Ref.
			Beam Depth	L	Beam		Joist		DF-L / SP			
					Qty	Type	Qty	Type	100%	125%	160%	
KVB5	VB5	12	10 - 15	60	4	NA25	12	NA25	1310	1635	1800	2, F20, R12
KVB7	VB7	12	15 - 22-1/2	84	4	NA25	12	NA25	1310	1635	1800	
KVB8	VB8	12	22-1/2 - 28-1/2	96	4	NA25	12	NA25	1310	1635	1800	
KVB10	VB10	12	28-1/2 - 36	120	4	NA25	12	NA25	1310	1635	1800	
KVB12	VB12	12	36 - 42	144	4	NA25	12	NA25	1310	1635	1800	
KVBI5	---	12	10 - 15	60	4	10d	12	10d	760	955	1220	
KVBI7	---	12	15 - 22-1/2	84	6	10d	12	10d	760	955	1220	
KVBI8	---	12	22-1/2 - 28-1/2	96	6	10d	12	10d	760	955	1220	
KVBI10	---	12	28-1/2 - 36	120	6	10d	12	10d	760	955	1220	
KVBI12	---	12	36 - 42	144	6	10d	12	10d	760	955	1220	

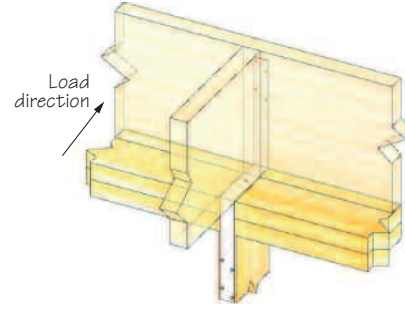
- 1) NA25 nails are 3 gauge (0.250" diameter) by 3" long and are included KVB models.
 - 2) Minimum nail embedment shall be 1-1/2" for 10d nails.
- New products or updated product information are designated in red.

Connects permanent wood foundation studs to rim joist to resist lateral loads produced from ground pressure. The high load values and positive placement nail gun installation make the PWFS24 practical for manufactured homes as well as site built homes.

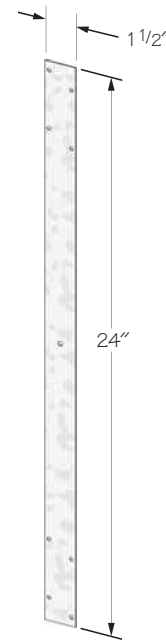
Materials: 20 gauge
Finish: G90 galvanizing

Installation:

- Use all specified fasteners. See Product Notes, page 10.
- Center strap on top plate over the stud.
- Attach center nail and bend inside end of strap downward.
- Install nails on inside of wall.
- Install floor system or place manufactured home on foundation.
- Form outside end of strap up the outside of rim and install nails.



Typical PWFS24 installation



PWFS24

USP Stock No.	Ref. No.	Steel Gauge	Dimensions		Fastener Schedule		Allowable Loads (Lbs.)		Code Ref.
			W	L	Qty	Type	DF-L / SP	S-P-F	
							100%	100%	
PWFS24	--	20	1-1/2	24	9	8d	775	645	130

1) Minimum nail embedment shall be 1-5/16" for 8d nails.
2) For installations where the strap does not fall behind joist, the designer shall be responsible to determine suitability of rim to resist the load.
New products or updated product information are designated in red