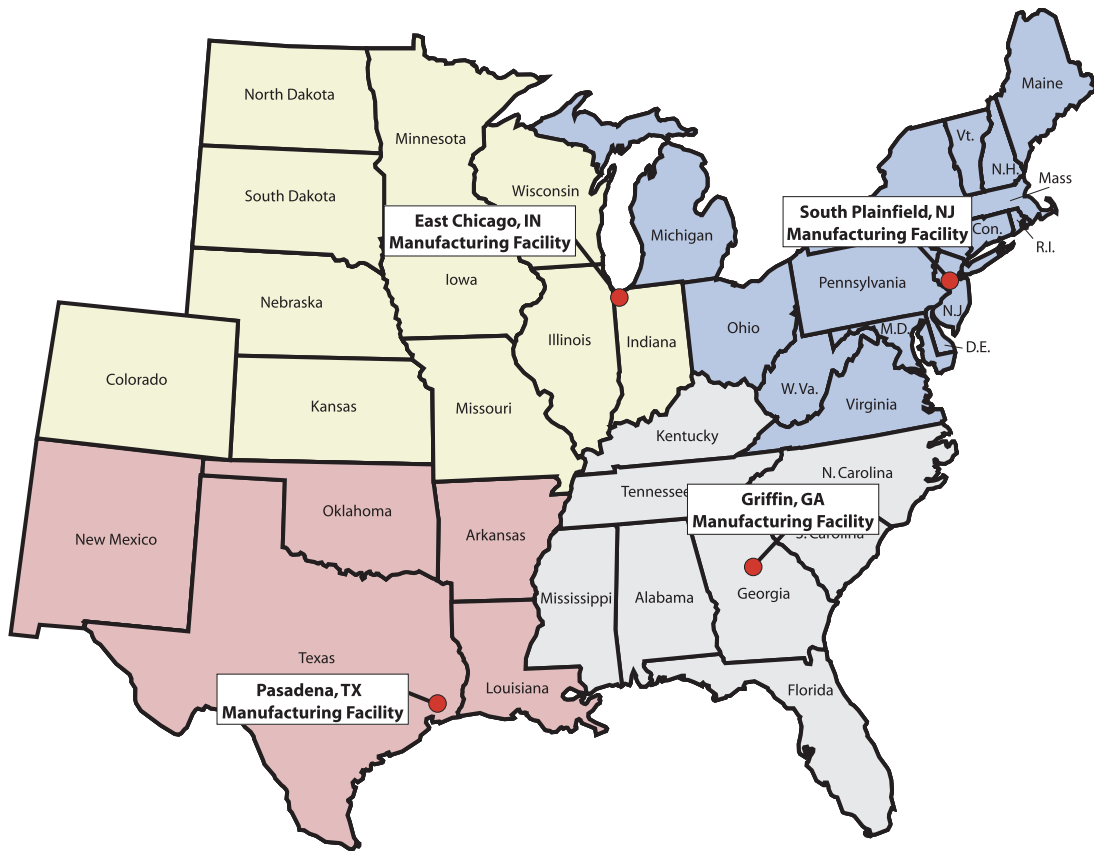


 **FrameRite**<sup>™</sup>  
Connectors

2007 **PRODUCT CATALOG**



QUALITY AND SERVICE COUNT.



Trusted by Architects and Builders throughout the country, Marino\WARE has always been an industry leader in quality, service and new product development. Marino\WARE is pleased to present our FrameRite™ Connectors Catalog.

Here we feature our new line of connectors that are designed specifically to reduce labor while assuring proper attachment of cold formed steel products. In addition, we feature world-class Simpson Strong-Tie Connectors which are now available through Marino\WARE.

This combination of Marino\WARE and Simpson Strong-Tie Connectors unites two industry leaders and offers our customers a one-stop source for the most reliable connectors available.

Besides growing our product line, we are also expanding our operations with a new facility in Pasadena, Texas. This new facility represents a significant expansion of our distribution and customer support capabilities in the Central United States.

At Marino\WARE we are dedicated to your success and committed to delivering the best possible products to the metal framing industry.



**Connector Selector**

- Joist Framing Connectors**
- Roof and Truss Connectors**
- Rigid Connectors**
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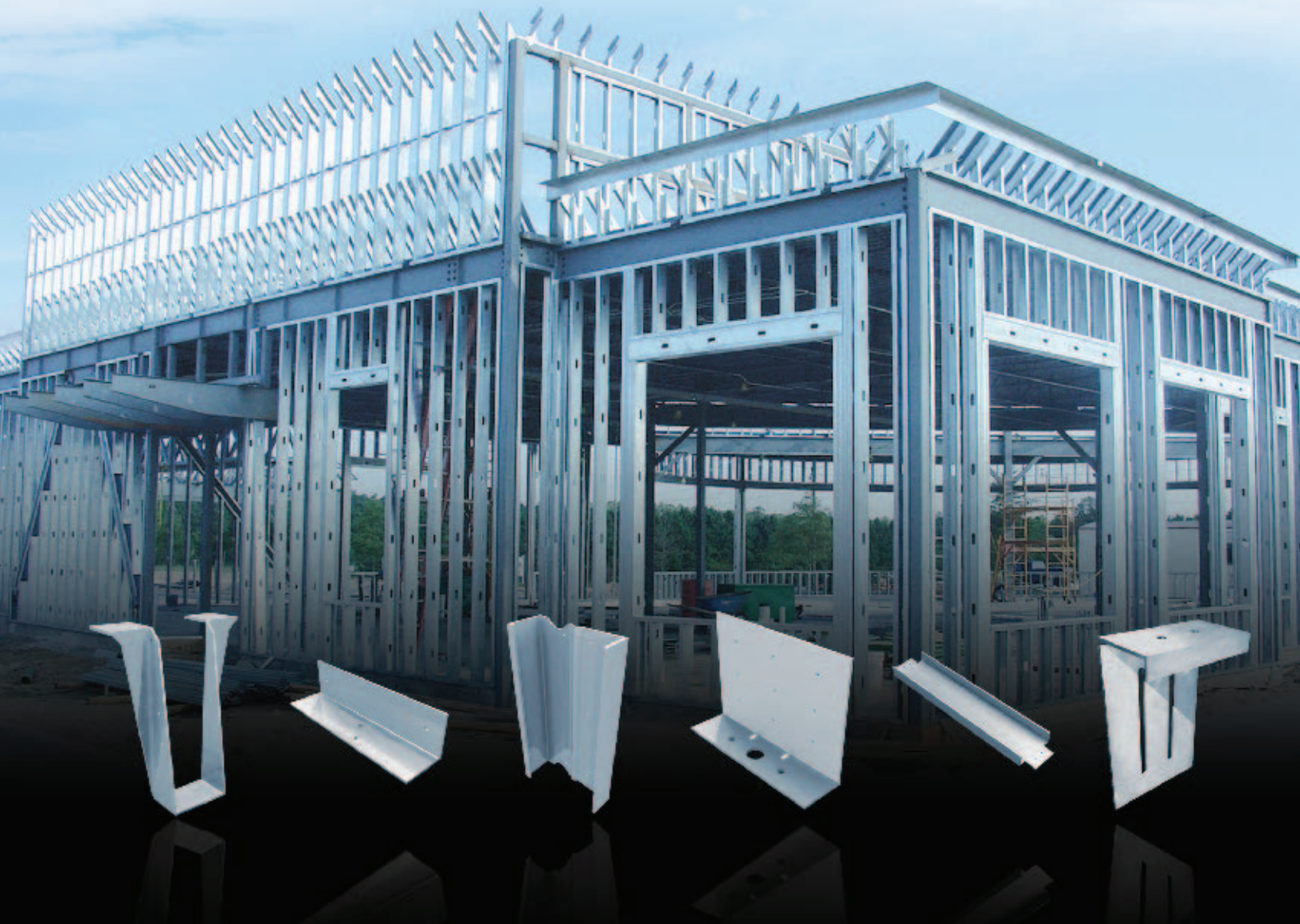
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- Breakaway Clips (BA)
- Grommet
- U-Flex Track **NEW**

**MARINO WARE**

## **Technical Support:**

MarinoWARE offers its customers free expert technical assistance with the selection and use of our FrameRite Connectors. Technical representatives are standing by and ready to assist you. Technical Services can be reached at 866-545-1545, at [connectors@marinoware.com](mailto:connectors@marinoware.com) or at [technicalservices@marinoware.com](mailto:technicalservices@marinoware.com). In most cases Technical Services representatives can provide immediate responses. In addition to Technical Services, MarinoWARE's DesignRite Engineering services can design the FrameRite Connectors best suited for your project detailed as part of your shop drawings when required by the project.



## Solid Blocking (JB)

Joist Blocking is pre-cut to fit securely between joists to prevent joist rotation. Joist Blocking is a one piece system in lieu of the typical 3 piece detail offering an economical alternative to installing conventional clips and solid web members.

**MATERIAL:** 16 ga (54 mil) 50ksi

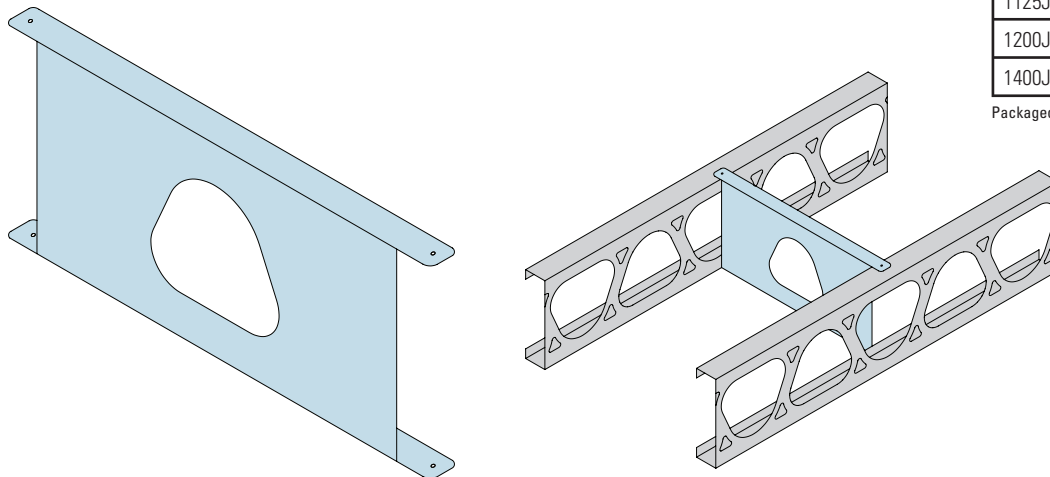
**FINISH:** Galvanized – G90

**INSTALLATION:**

- Position the pre-cut Joist Blocking to fit securely between the joist.
- (4) #10 - 16 screws are required to secure the blocking to the joist flanges using the pre-punched holes.
- Solid blocking should be installed 7' o.c. maximum along the joist length.
- Fits up to 2" flange joist product.
- Blocking for flanges from 2" to 3" available as a special order. **NEW**

Model No.	Depth	Spacing
800JB-16	8"	16
925JB-16	9 <sup>1</sup> / <sub>4</sub> "	16
1000JB-16	10"	16
1125JB-16	11 <sup>1</sup> / <sub>4</sub> "	16
1200JB-16	12"	16
1400JB-16	14"	16
800JB-24	8"	24
925JB-24	9 <sup>1</sup> / <sub>4</sub> "	24
1000JB-24	10"	24
1125JB-24	11 <sup>1</sup> / <sub>4</sub> "	24
1200JB-24	12"	24
1400JB-24	14"	24

Packaged 10 pieces per box.



## Web Stiffener (JS)

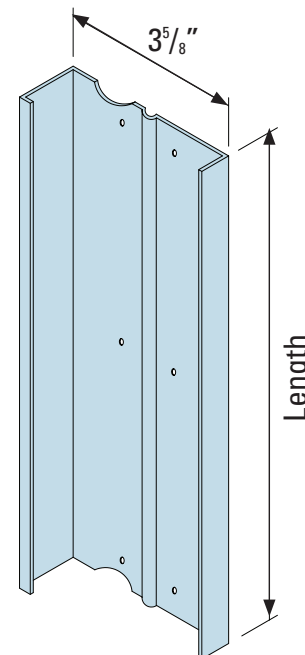
Web Stiffeners are used to provide reinforcement of joist webs to prevent crippling. Web reinforcement is often required by design to enhance the load capacity of joists. Web stiffeners are installed on the outside of the C-joist.

**MATERIAL:** 16 ga (54 mil) 50ksi

**FINISH:** Galvanized – G90

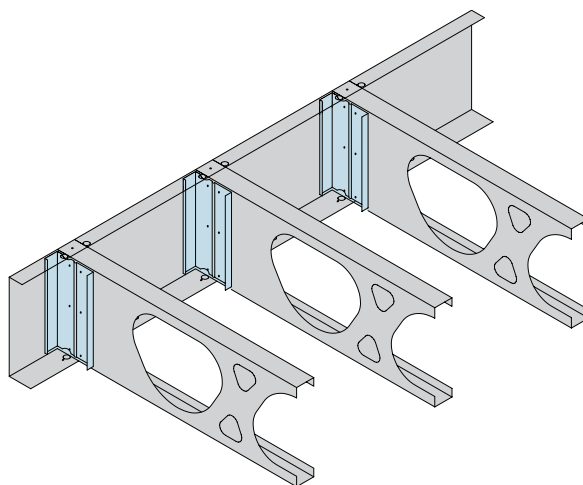
**INSTALLATION:**

- Web stiffeners are centered within the load or reaction bearing width.
- Web stiffeners require full bearing along their supported ends.
- (4-6) #10 - 16 screws are required to attach the stiffener to the joist web using pre-punched holes.



Model No.	Length
8JS-362	8"
925JS-362	9 <sup>1</sup> / <sub>4</sub> "
10JS-362	10"
1125JS-362	11 <sup>1</sup> / <sub>4</sub> "
12JS-362	12"
14JS-362	14"

Packaged 24 pieces per box.



# Utility Clips (UA) - 16 Gauge

Utility Clips are used in a variety of framing applications including floors, walls and roofs. UA clips are pre-cut with pre-drilled holes for easy installation.

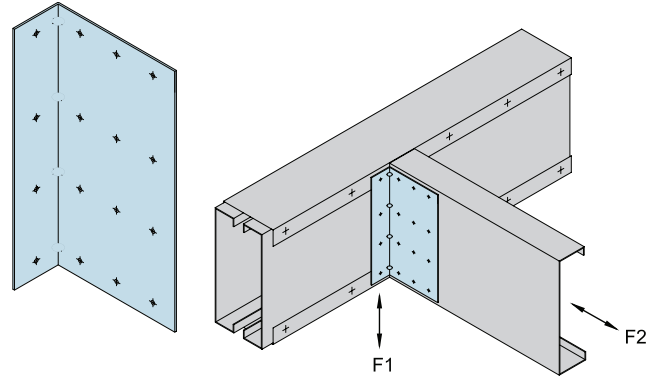
- Leg lengths available from 3/4" through 15 3/4".
- Leg widths available in 1/2", 2", 3" and 4".
- Available in 16, 14 and 12 gauge.
- Pre-punched for faster and more accurate fastener attachment.

**MATERIAL:** See Table for sizes – 50ksi

**FINISH:** Galvanized – G90

**INSTALLATION:**

- Utility Clips are attached to the cold formed steel (CFS) framing members using #10 - 16 self-drilling screws: using pre-punched holes.
- Clip can also be welded to the CFS framing.



Model No.	Thickness mil (ga)	Actual Size (inches)	Fasteners	Allowable Loads							
				20 ga (33 mil)		18 ga (43 mil)		16 ga (54 mil)		16 ga (54 mil)	
				33 ksi		33 ksi		33 ksi		50 ksi	
				F1	F2	F1	F2	F1	F2	F1	F2
UA-113-16	54 (16 ga)	1 1/2 x 1 1/2 x 3 3/4	3-#10	290	98	439	129	620	137 <sup>1</sup>	779	137 <sup>1</sup>
UA-223-16	54 (16 ga)	2 x 2 x 3 3/4	3-#10	290	123	439	138 <sup>1</sup>	620	138 <sup>1</sup>	779	137 <sup>1</sup>
UA-133-16	54 (16 ga)	1 1/2 x 3 x 3 3/4	3-#10	130	98	195	129	275	136 <sup>1</sup>	348	137 <sup>1</sup>
UA-143-16	54 (16 ga)	1 1/2 x 4 x 3 3/4	3-#10	93	98	138	129	195	137 <sup>1</sup>	250	137 <sup>1</sup>
UA-115-16	54 (16 ga)	1 1/2 x 1 1/2 x 5 1/4	3-#10	365	98	540	129	775	163	975	224 <sup>1</sup>
UA-225-16	54 (16 ga)	2 x 2 x 5 1/4	3-#10	365	123	540	163	775	203	975	224 <sup>1</sup>
UA-135-16	54 (16 ga)	1 1/2 x 3 x 5 1/4	3-#10	220	98	325	129	465	224 <sup>1</sup>	595	224 <sup>1</sup>
UA-145-16	54 (16 ga)	1 1/2 x 4 x 5 1/4	3-#10	165	98	245	129	350	163	440	224 <sup>1</sup>
UA-118-16	54 (16 ga)	1 1/2 x 1 1/2 x 7 3/4	5-#10	650	163	945	215	1355	272	1700	330 <sup>1</sup>
UA-228-16	54 (16 ga)	2 x 2 x 7 3/4	5-#10	650	205	945	270	1360	330 <sup>1</sup>	1700	330 <sup>1</sup>
UA-138-16	54 (16 ga)	1 1/2 x 3 x 7 3/4	5-#10	448	164	665	215	925	270	1185	330
UA-148-16	54 (16 ga)	1 1/2 x 4 x 7 3/4	5-#10	350	163	515	215	725	272	925	330 <sup>1</sup>
UA-119-16	54 (16 ga)	1 1/2 x 1 1/2 x 9	5-#10	650	163	945	215	1365	272	1710	383 <sup>1</sup>
UA-229-16	54 (16 ga)	2 x 2 x 9	5-#10	650	205	945	270	1365	340	1710	383 <sup>1</sup>
UA-139-16	54 (16 ga)	1 1/2 x 3 x 9	5-#10	460	164	700	215	975	270	1235	383 <sup>1</sup>
UA-149-16	54 (16 ga)	1 1/2 x 4 x 9	5-#10	370	163	547	215	780	272	975	383 <sup>1</sup>
UA-1110-16	54 (16 ga)	1 1/2 x 1 1/2 x 9 3/4	5-#10	650	163	945	215	1365	272	1710	415 <sup>1</sup>
UA-2210-16	54 (16 ga)	2 x 2 x 9 3/4	5-#10	650	205	980	270	1365	340	1720	415 <sup>1</sup>
UA-1310-16	54 (16 ga)	1 1/2 x 3 x 9 3/4	5-#10	475	164	710	215	1015	270	1285	415 <sup>1</sup>
UA-1410-16	54 (16 ga)	1 1/2 x 4 x 9 3/4	5-#10	385	163	547	215	810	272	1015	415 <sup>1</sup>
UA-1112-16	54 (16 ga)	1 1/2 x 1 1/2 x 11 3/4	7-#10	940	230	1385	303	1970	381	2500	500 <sup>1</sup>
UA-2212-16	54 (16 ga)	2 x 2 x 11 3/4	7-#10	940	288	1385	380	1970	475	2500	500 <sup>1</sup>
UA-1312-16	54 (16 ga)	1 1/2 x 3 x 11 3/4	7-#10	735	230	1085	302	1525	380	1975	500 <sup>1</sup>
UA-1412-16	54 (16 ga)	1 1/2 x 4 x 11 3/4	7-#10	615	230	905	303	1285	381	1625	500 <sup>1</sup>
UA-1114-16	54 (16 ga)	1 1/2 x 1 1/2 x 13 3/4	9-#10	1200	295	1800	390	2555	490	3200	585 <sup>1</sup>
UA-2214-16	54 (16 ga)	2 x 2 x 13 3/4	9-#10	1200	370	1800	488	2555	585 <sup>1</sup>	3200	585 <sup>1</sup>
UA-1314-16	54 (16 ga)	1 1/2 x 3 x 13 3/4	9-#10	1000	295	1500	390	2125	490	2675	585 <sup>1</sup>
UA-1414-16	54 (16 ga)	1 1/2 x 4 x 13 3/4	9-#10	865	295	1285	390	1825	490	2300	585 <sup>1</sup>
UA-1116-16	54 (16 ga)	1 1/2 x 1 1/2 x 15 3/4	9-#10	1200	295	1800	390	2555	490	3200	670 <sup>1</sup>
UA-2216-16	54 (16 ga)	2 x 2 x 15 3/4	9-#10	1200	370	1800	488	2555	610	3200	670 <sup>1</sup>
UA-1316-16	54 (16 ga)	1 1/2 x 3 x 15 3/4	9-#10	1000	295	1500	390	2125	490	2675	670 <sup>1</sup>
UA-1416-16	54 (16 ga)	1 1/2 x 4 x 15 3/4	9-#10	865	295	1285	390	1825	490	2300	670 <sup>1</sup>

<sup>1</sup> Clip controlled. Tabulated values may not be increased.  
<sup>2</sup> Clip and fastener are both at capacity. Place fastener evenly along the leg of the angle.  
 No Notation - #10 screw controlled.

# Utility Clips (UA) - 14 Gauge

Utility Clips are used in a variety of framing applications including floors, walls and roofs. UA clips are pre-cut with pre-drilled holes for easy installation.

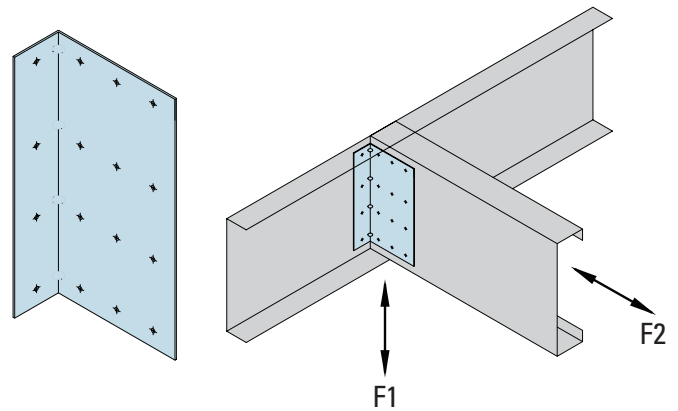
- Leg lengths available from 3<sup>1</sup>/<sub>4</sub>" through 15<sup>3</sup>/<sub>4</sub>".
- Leg widths available in 1<sup>1</sup>/<sub>2</sub>", 2", 3" and 4".
- Available in 16, 14 and 12 gauge.
- Pre-punched for faster and more accurate fastener attachment.

**MATERIAL:** See Table for sizes – 50ksi

**FINISH:** Galvanized – G90

**INSTALLATION:**

- Utility Clips are attached to the cold formed steel (CFS) framing members using #10 - 16 self-drilling screws: using pre-punched holes.
- Clip can also be welded to the CFS framing.



Model No.	Thickness mil (ga)	Actual Size (inches)	Fasteners	Allowable Loads							
				20 ga (33 mil)		18 ga (43 mil)		16 ga (54 mil)		16 ga (54 mil)	
				33 ksi		33 ksi		33 ksi		50 ksi	
				F1	F2	F1	F2	F1	F2	F1	F2
UA-113-14	68 (14 ga)	1 1/2 x 1 1/2 x 3 1/4	3-#10	290	98	439	129	620	163	779	220
UA-223-14	68 (14 ga)	2 x 2 x 3 1/4	3-#10	290	123	439	162	620	203	779	220
UA-133-14	68 (14 ga)	1 1/2 x 3 x 3 1/4	3-#10	130	98	195	129	275	163	348	220
UA-143-14	68 (14 ga)	1 1/2 x 4 x 3 1/4	3-#10	93	98	138	129	195	163	250	220
UA-115-14	68 (14 ga)	1 1/2 x 1 1/2 x 5 1/4	3-#10	365	98	540	129	775	163	975	245
UA-225-14	68 (14 ga)	2 x 2 x 5 1/4	3-#10	365	123	550	163	775	203	975	307
UA-135-14	68 (14 ga)	1 1/2 x 3 x 5 1/4	3-#10	222	98	325	129	465	162	585	245
UA-145-14	68 (14 ga)	1 1/2 x 4 x 5 1/4	3-#10	165	98	245	129	350	163	440	245
UA-118-14	68 (14 ga)	1 1/2 x 1 1/2 x 7 3/4	5-#10	650	163	945	215	1360	272	1700	410
UA-228-14	68 (14 ga)	2 x 2 x 7 3/4	5-#10	650	205	945	270	1360	340	1700	515 <sup>2</sup>
UA-138-14	68 (14 ga)	1 1/2 x 3 x 7 3/4	5-#10	440	163	665	216	925	270	1195	410
UA-148-14	68 (14 ga)	1 1/2 x 4 x 7 3/4	5-#10	350	163	515	215	725	272	925	410
UA-119-14	68 (14 ga)	1 1/2 x 1 1/2 x 9	5-#10	650	163	975	215	1365	272	1725	410
UA-229-14	68 (14 ga)	2 x 2 x 9	5-#10	650	205	945	270	1360	340	1725	515
UA-139-14	68 (14 ga)	1 1/2 x 3 x 9	5-#10	465	163	685	216	975	270	1250	410
UA-149-14	68 (14 ga)	1 1/2 x 4 x 9	5-#10	370	163	547	215	780	272	975	410
UA-1110-14	68 (14 ga)	1 1/2 x 1 1/2 x 9 3/4	5-#10	650	163	975	215	1365	272	1725	410
UA-2210-14	68 (14 ga)	2 x 2 x 9 3/4	5-#10	650	205	975	270	1365	340	1725	515
UA-1310-14	68 (14 ga)	1 1/2 x 3 x 9 3/4	5-#10	475	163	710	215	1015	270	1265	410
UA-1410-14	68 (14 ga)	1 1/2 x 4 x 9 3/4	5-#10	385	163	547	215	810	272	1025	410
UA-1112-14	68 (14 ga)	1 1/2 x 1 1/2 x 11 3/4	7-#10	940	230	1385	303	1970	381	2500	575
UA-2212-14	68 (14 ga)	2 x 2 x 11 3/4	7-#10	940	288	1385	380	1970	475	2500	720
UA-1312-14	68 (14 ga)	1 1/2 x 3 x 11 3/4	7-#10	735	230	1105	303	1525	381	1945	575
UA-1412-14	68 (14 ga)	1 1/2 x 4 x 11 3/4	7-#10	615	230	905	303	1285	381	1625	575
UA-1114-14	68 (14 ga)	1 1/2 x 1 1/2 x 13 3/4	9-#10	1200	295	1800	390	2555	490	3200	740
UA-2214-14	68 (14 ga)	2 x 2 x 13 3/4	9-#10	1200	370	1800	488	2555	610	3200	925 <sup>2</sup>
UA-1314-14	68 (14 ga)	1 1/2 x 3 x 13 3/4	9-#10	1015	295	1515	390	2100	490	2725	740
UA-1414-14	68 (14 ga)	1 1/2 x 4 x 13 3/4	9-#10	865	295	1285	390	1825	490	2300	740
UA-1116-14	68 (14 ga)	1 1/2 x 1 1/2 x 15 3/4	9-#10	1200	295	1800	390	2555	490	3200	740
UA-2216-14	68 (14 ga)	2 x 2 x 15 3/4	9-#10	1200	370	1800	488	2555	610	3200	925
UA-1316-14	68 (14 ga)	1 1/2 x 3 x 15 3/4	9-#10	1015	295	1515	390	2100	490	2725	740
UA-1416-14	68 (14 ga)	1 1/2 x 4 x 15 3/4	9-#10	865	295	1285	390	1825	490	2300	740

<sup>1</sup> Clip controlled. Tabulated values may not be increased.  
<sup>2</sup> Clip and fastener are both at capacity. Place fastener evenly along the leg of the angle.  
 No Notation - #10 screw controlled.

## Utility Clips (UA) - 12 Gauge

Utility Clips are used in a variety of framing applications including floors, walls and roofs. UA clips are pre-cut with pre-drilled holes for easy installation.

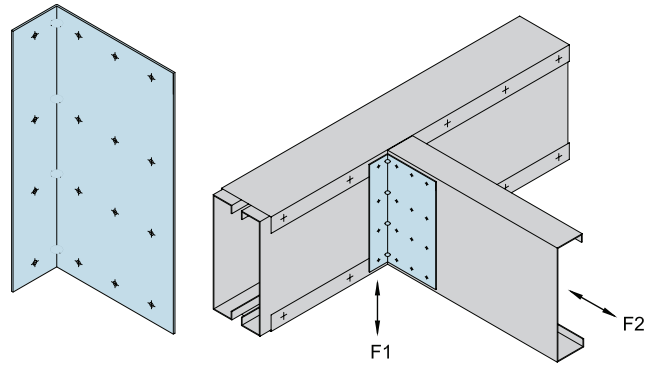
- Leg lengths available from 3/4" through 15 3/4".
- Leg widths available in 1 1/2", 2", 3" and 4".
- Available in 16, 14 and 12 gauge.
- Pre-punched for faster and more accurate fastener attachment.

**MATERIAL:** See Table for sizes – 50ksi

**FINISH:** Galvanized – G90

**INSTALLATION:**

- Utility Clips are attached to the cold formed steel (CFS) framing members using #10 - 16 self-drilling screws: using pre-punched holes.
- Clip can also be welded to the CFS framing.



Model No.	Thickness mil (ga)	Actual Size (inches)	Fasteners	Allowable Loads							
				20 ga (33 mil)		18 ga (43 mil)		16 ga (54 mil)		16 ga (54 mil)	
				33 ksi		33 ksi		33 ksi		50 ksi	
				F1	F2	F1	F2	F1	F2	F1	F2
UA-113-12	97 (12 ga)	1 1/2 x 1 1/2 x 3 1/4	3-#10	290	98	439	129	620	163	779	245
UA-223-12	97 (12 ga)	2 x 2 x 3 1/4	3-#10	290	123	439	162	620	203	779	307
UA-133-12	97 (12 ga)	1 1/2 x 3 x 3 1/4	3-#10	130	98	195	129	275	163	348	245
UA-143-12	97 (12 ga)	1 1/2 x 4 x 3 1/4	3-#10	93	98	138	129	195	163	250	245
UA-115-12	97 (12 ga)	1 1/2 x 1 1/2 x 5 1/4	3-#10	365	98	540	129	775	163	975	245
UA-225-12	97 (12 ga)	2 x 2 x 5 1/4	3-#10	365	123	550	163	775	203	975	307
UA-135-12	97 (12 ga)	1 1/2 x 3 x 5 1/4	3-#10	222	98	325	129	465	162	585	245
UA-145-12	97 (12 ga)	1 1/2 x 4 x 5 1/4	3-#10	165	98	245	129	350	163	440	245
UA-118-12	97 (12 ga)	1 1/2 x 1 1/2 x 7 3/4	5-#10	650	163	945	215	1360	272	1700	410
UA-228-12	97 (12 ga)	2 x 2 x 7 3/4	5-#10	650	205	945	270	1360	340	1700	515
UA-138-12	97 (12 ga)	1 1/2 x 3 x 7 3/4	5-#10	440	163	665	216	925	270	1195	410
UA-148-12	97 (12 ga)	1 1/2 x 4 x 7 3/4	5-#10	350	163	515	215	725	272	925	410
UA-119-12	97 (12 ga)	1 1/2 x 1 1/2 x 9	5-#10	650	163	975	215	1365	272	1725	410
UA-229-12	97 (12 ga)	2 x 2 x 9	5-#10	650	205	975	270	1360	340	1725	515
UA-139-12	97 (12 ga)	1 1/2 x 3 x 9	5-#10	465	163	685	216	975	270	1250	410
UA-149-12	97 (12 ga)	1 1/2 x 4 x 9	5-#10	370	163	547	215	780	272	975	410
UA-1110-12	97 (12 ga)	1 1/2 x 1 1/2 x 9 3/4	5-#10	650	163	975	215	1365	272	1725	410
UA-2210-12	97 (12 ga)	2 x 2 x 9 3/4	5-#10	650	205	975	270	1365	340	1725	515
UA-1310-12	97 (12 ga)	1 1/2 x 3 x 9 3/4	5-#10	475	163	710	215	1015	270	1265	410
UA-1410-12	97 (12 ga)	1 1/2 x 4 x 9 3/4	5-#10	370	163	547	215	810	272	1025	410
UA-1112-12	97 (12 ga)	1 1/2 x 1 1/2 x 11 3/4	7-#10	385	230	1385	303	1970	381	2500	575
UA-2212-12	97 (12 ga)	2 x 2 x 11 3/4	7-#10	940	288	1385	380	1970	475	2500	720
UA-1312-12	97 (12 ga)	1 1/2 x 3 x 11 3/4	7-#10	735	230	1105	303	1525	381	1945	575
UA-1412-12	97 (12 ga)	1 1/2 x 4 x 11 3/4	7-#10	615	230	905	303	1285	381	1625	575
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UA-2214-12	97 (12 ga)	2 x 2 x 13 3/4	9-#10	1200	370	1800	488	2555	610	3200	925
UA-1314-12	97 (12 ga)	1 1/2 x 3 x 13 3/4	9-#10	1015	295	1515	390	2100	490	2725	740
UA-1414-12	97 (12 ga)	1 1/2 x 4 x 13 3/4	9-#10	865	295	1285	390	1825	490	2300	740
UA-1116-12	97 (12 ga)	1 1/2 x 1 1/2 x 15 3/4	9-#10	1200	295	1800	390	2555	490	3200	740
UA-2216-12	97 (12 ga)	2 x 2 x 15 3/4	9-#10	1200	370	1800	488	2555	610	3200	925
UA-1316-12	97 (12 ga)	1 1/2 x 3 x 15 3/4	9-#10	1015	295	1515	390	2100	490	2725	740
UA-1416-12	97 (12 ga)	1 1/2 x 4 x 15 3/4	9-#10	865	295	1285	390	1825	490	2300	740

<sup>1</sup> Clip controlled. Tabulated values may not be increased.  
<sup>2</sup> Clip and fastener are both at capacity. Place fastener evenly along the leg of the angle.  
 No Notation - #10 screw controlled.



# Steel Joist Hanger (S/HJCT)

New improved higher load capacity joist hangers. The increased thickness of the S/HJCT increases the allowable load capacity to use with joists. Joist can be attached from either side or doubled up. This hanger can be used with either steel or wood headers.

**MATERIAL:** S/HJCT – 12 ga (97 mil) 50ksi

**FINISH:** Galvanized – G90

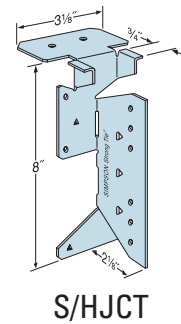
**INSTALLATION:**

- Attach hanger with specified fasteners.
- Use round holes for minimum load, use round and triangle holes for maximum load.
- May be used for weld-on applications. The minimum required weld to the top flange is  $\frac{1}{8}$ " x  $2\frac{1}{2}$ " fillet weld to each side of top flange. Consult the code for special considerations when welding galvanized steel.

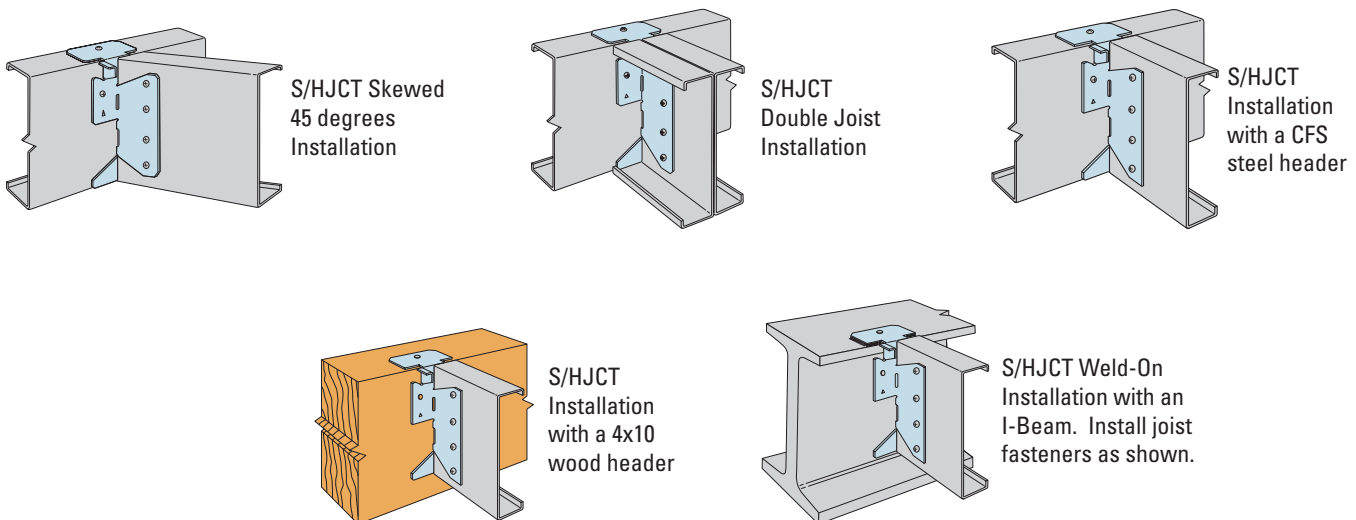
**FEATURES:**

- Uni-directional: Joist can be attached from left or right.
- One size fits joists 8" through 14" deep.
- Optional holes for additional load capacity.
- Simplicity of design.
- Quick and easy installation
- Field skewable up to 45 degrees left or right.

Model No.	Fasteners			Allow Load (100)	Fasteners			Allow Load (100)
	Steel Header		Joist		Wood Header		Joist	
	Top	Face			Top	Face		
<b>Straight Hanger</b>				<b>Straight Hanger</b>				
S/HJCT (min)	2-#10	4-#14	6-#14	2920	2-10d	4-SDS $\frac{1}{4}$ x3	6-#14	2490
S/HJCT (max)	2-#10	8-#14	9-#14	3015	2-10d	8-SDS $\frac{1}{4}$ x3	9-#14	2490
<b>Skew Hanger</b>				<b>Skew Hanger</b>				
S/HJCT (min)	2-#10	4-#14	6-#14	1515	2-10D	4-SDS $\frac{1}{4}$ x 3	6-#14	1935
<b>Welded Hanger</b>			<b>Steel Header</b>					
S/HJCT	$\frac{1}{8}$ x $2\frac{1}{2}$ fillet weld to each side of trap		4-#14	1450				



1. Allowable loads for CFS headers are based on a single 54 mil (16 ga) steel.
2. Allowable loads for wood headers are based on 4x10 minimum DFL, specific gravity = 0.50.
3. Steel header must be braced to prevent web buckling per Designer specification.
4. Steel joist shall be laterally braced per Designer specification.
5. Screws shall be installed using joist hanger holes screwing through the hanger into the joist.
6. Tabulated loads may not be increased.



Drawings provided courtesy of Simpson Strong-Tie Co.

# Hangers (S/LBV)



Precision forming with manufacturing quality control provides dimensional accuracy and helps ensure proper bearing area and connection. S/LBV flanges encapsulate the top flange of the joist.

**MATERIAL:** S/LBV – 14 ga (68 mil) 50ksi

**FINISH:** Galvanized – G90

**INSTALLATION:**

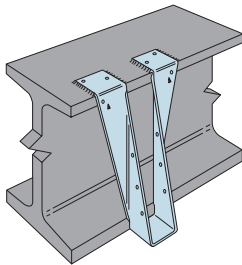
- S/LBV may be used for weld-on applications; a minimum of 1/8" x 2" fillet weld on each top flange is required. Distribute the weld equally on both top flanges. Consult the code for special considerations when welding galvanized steel. Uplift loads do not apply.

**OPTIONS:**

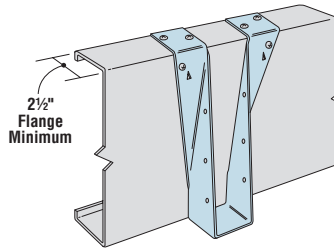
- Skew only: S/LBV series can be skewed to a maximum of 45 degrees.

Model No.	Dimensions			Fasteners			Allowable Down Loads (100)	
	W	H	B	Top	Face	Joist	68 mil (14 ga)	Welded
S/LBV	2 to 8	6 to 20	2 1/4	4-#10	2-#10	3-#10	2870	–
				4-#10	2-#10	3-#10	2825	–
				Weld	–	3-#10	–	2865

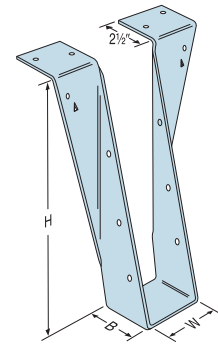
- Tabulated loads may not be increased.
- Designer shall insure that the joist member adequately transfers load to the hanger.
- Steel header must be braced to prevent buckling per Designer specification.



S/LBV are acceptable for weld-on applications



S/LBV Installation with a CFS steel header



Drawings provided courtesy of Simpson Strong-Tie Co.

# Framing Plates (LTP5)



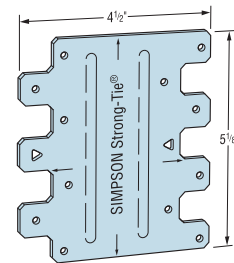
The LTP5 spans subfloor at the top of the blocking or rim joist. The embossments enhance performance and allows for design flexibility.

**MATERIAL:** LTP5 – 20 ga (33 mil) 33ksi

**FINISH:** Galvanized – G90

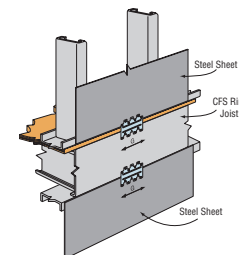
**INSTALLATION:**

- Use all specified fasteners.



Model No.	Type of Connection	Direction of Load	Fasteners		Allowable Loads 43 mil (18 ga)	
			To Rim Joist	To Plates & Shearwall	(100)	(133)
LTP5	1	G	7-#10	7-#10	1020	1020
	2		7-#10	7-#10	1080	1080
	3		7-8d x 1 1/2	7-#10	615	730

- Tabulated loads may not be increased.
- Allowable loads are for one anchor.
- When anchors are installed on each side of joist, the minimum joist thickness is 3".
- Allowable loads are based on steel (stud & sheet) of 43 mil (18 ga) minimum.



Drawings provided courtesy of Simpson Strong-Tie Co.



# Ledger Connector System (ICFVL)

The ICFVL Ledger connector System is engineered to solve the challenges of mounting steel ledgers to insulated concrete form (ICF) walls. Simpson's ICF component of the system, the ICFVL, is designed to provide both vertical and lateral, in-plane performance. The System is still quick, versatile and easy to use but now provides so much more! There are many benefits over traditional anchor bolting, including better on center spacing in most cases, faster installation and no protrusions.

Simpson's ICFVL is made from galvanized, 14 gauge steel. The embedded legs are embossed for additional stiffness and the hole allows for concrete to flow through and around the connector. The exposed flange on the face of the ICF provides a structural surface for mounting a steel ledger.

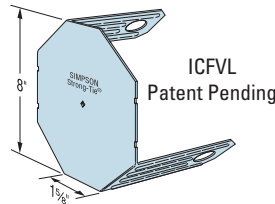
**MATERIAL:** ICFVL – 14 ga (68 mil) 50ksi

**FINISH:** Galvanized – G90

**INSTALLATION:**

**ICFVL**

- Snap a chalk line for the bottom of the ledger.
- Mark required on center spacing.
- Use ICFVL to mark kerfs locations.
- Cut kerfs as marked.
- Insert ICFVL flush to the face of the ICF.
- Place concrete

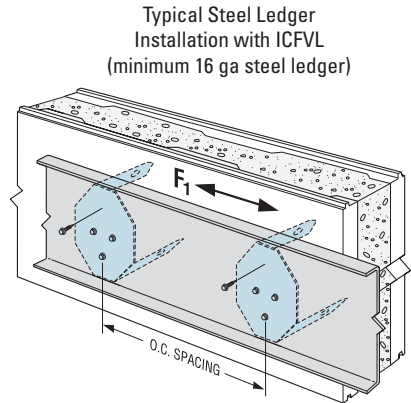


**Steel Ledger Attachment**

- Position the ledger level to the chalk line and against the ICFVL.
- Attach with four 1/4-14x3/4", #2 drill point screws (not provided).
- All screws should be located at least 1/2" from the edge of the ICFVL.
- Space screws evenly.

Ledger Type	Fasteners	Allowable Load (lbs)	
		Download (110/115/125)	Lateral F1 (133/160)
Steel	4 - 1/4 x 3/4	1660	1525

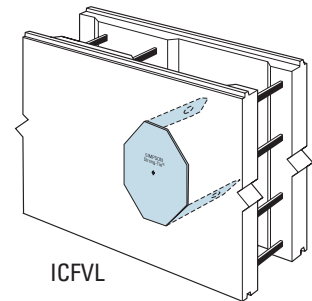
1. Loads apply to ICF foam thicknesses of 2 1/8" or less..
2. Alternately, #14 x 7/8" fastener may be used.
3. Tabulated loads may not be increased.
4. Concrete f'c = 2500 psi minimum
5. When combining download and lateral loads, Designer shall evaluate as follows: Design Download/Allowable Download + Design Lateral Load/Allowable Lateral Load.



Requires 4 screws at each location. Table provides on center spacing.

Ledger Type	ICFVL SPACING TO REPLACE ANCHOR BOLTS (in.)							
	1/2" Dia. Anchors at				5/8" Dia. Anchors at			
	12" o.c.	24" o.c.	36" o.c.	48" o.c.	12" o.c.	24" o.c.	36" o.c.	48" o.c.
68 mils (0.068")	11	22	33	44	9	18	27	36
54 mils (0.054")	15	30	45	48	12	24	36	48

1. The Designer may specify different spacing based on the load requirements.
2. For steel ledgers, the 68 mil ledger spacing is closer than the 54 mil ledger because the calculated load of a bolt is higher in a thicker piece of steel.
3. Steel ledger values are based on steel. Fu = 60 ksi.



Drawings provided courtesy of Simpson Strong-Tie Co.

# Bridle Hangers (BH)

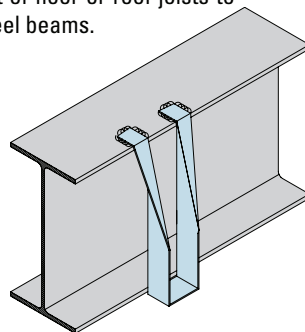
- Available heights (A) 6", 8", 9 1/4", 10", 11 1/4", 12", 14" and 16"
- Available widths (B - inside dimension) 2", 2 1/2", 3", 4" 5", 6" and 9"

**MATERIAL:** Bridle Hanger – 12 ga (97 mil) 50ksi

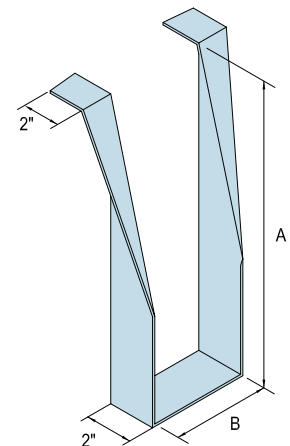
**FINISH:** Galvanized – G90

**INSTALLATION:**

- Bridle Hanger (12 ga) used for attachment of floor or roof joists to cold formed steel beams and structural steel beams.



Model No.	Depth
600BH12	6"
800BH12	8"
914BH12	9 1/4"
100BH12	10"
1114BH12	11 1/4"
120BH12	12"
140BH12	14"
160BH12	16"



# Reinforcing and Skewable Angles (S/LS)



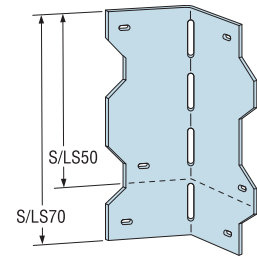
S/LS angles are load rated and provide the correct thickness and number of fasteners the specifier is looking for compared with field fabricated clip angles. General utility reinforcing angles with multiple uses. S/LS—Field-adjustable angles attach members intersecting at angles

**MATERIAL:** S/LS – 18 ga (43 mil) 33ksi

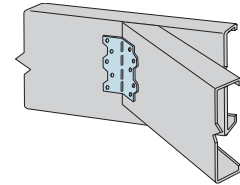
**FINISH:** Galvanized – G90

**INSTALLATION:**

- Use all specified fasteners.
- S/LS—field-skewable; bend one time only.
- Joist must be constrained against rotation when using a single S/LS per connection.



S/LS50



S/LS70

Model No.	Length	Fasteners	Allowable Loads (100 & 133)				
			33 mil (20 ga)		43 mil (18 ga)	54 mil (16 ga)	
			F1	F2	F1	F1	F1
S/LS50	4 <sup>7</sup> / <sub>8</sub>	4-#10	200	-	420	500	-
S/LS70	6 <sup>3</sup> / <sub>8</sub>	6-#10	465	-	630	715	-
LS90	9	10-#10	795	-	1050	1740	-

1. Load at (100) no reduction is necessary. Load at (133) for 1/3 increase, no increase allowed.  
 2. Loads are for one part only.

Drawings provided courtesy of Simpson Strong-Tie Co.

# Coiled Straps (CS)

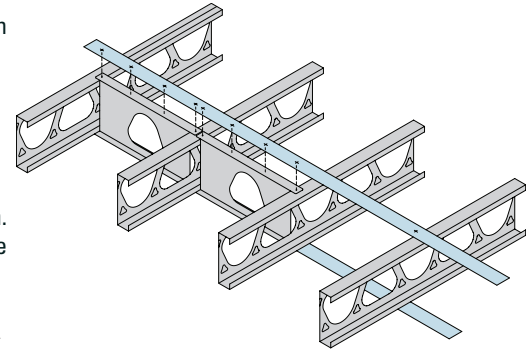


CS are continuous utility straps which can be cut to length on the job site. Packaged in lightweight (about 40 pounds) cartons.

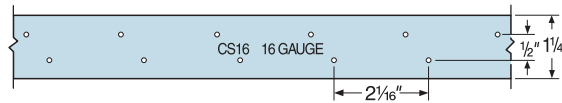
**FINISH:** Galvanized – G90

**INSTALLATION:**

- Use all specified fasteners.
- Refer to the applicable code for minimum edge and end distances.
- The table shows the maximum allowable loads and the screws required to obtain them. See footnote #1. Fewer screws may be used; reduce the allowable load by the code lateral load for each fastener subtracted from each end.



Typical CS Installation as a Floor-to-Floor Tie



Drawing provided courtesy of Simpson Strong-Tie Co.

Model No.	Total Length	Material Thickness mil (ga)	Width	Fasteners (Total)			Allowable Tension Loads	
				Rafter/Stud/Joist Thickness			33 mil (20 ga), 43 mil (18 ga) & 54 mil (16 ga)	
				33 mil (20 ga)	43 mil (18 ga)	54 mil (16 ga)	(100)	(133)
CS16	150'	54 (16 ga)	1 <sup>1</sup> / <sub>4</sub>	18-#10	12-#10	8-#10	1550	2065
CS18	200'	43 (18 ga)	1 <sup>1</sup> / <sub>4</sub>	14-#10	10-#10	6-#10	1235	1645
CS20	250'	33 (20 ga)	1 <sup>1</sup> / <sub>4</sub>	20-#10	8-#10	6-#10	945	1260

1. Use half of the fasteners in each member being connected to achieve the listed loads.  
 2. For CS straps: End Length (inches) = 1/2 total fasteners + 1".  
 3. Total Cut Length = End Length + Clear Span + End Length.  
 4. For a reduced number of screws, allowable load = (#screws used/#screws in table) x table load.  
 5. Loads are based on lesser of steel strap capacity and 2001 AISI NASPEC fastener calculation.  
 6. Tabulated loads may not be increased.

## Utility Clips (UA)

Utility Clips are used in a variety of framing applications including floors, walls and roofs. UA clips are pre-cut with pre-drilled holes for easy installation.

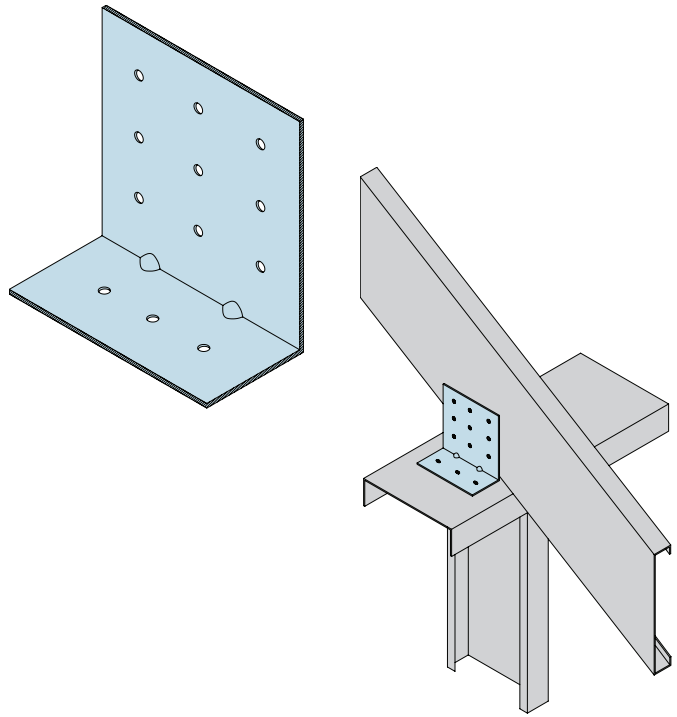
- Leg lengths available from 3<sup>1</sup>/<sub>4</sub>" through 15<sup>3</sup>/<sub>4</sub>".
- Leg widths available in 1<sup>1</sup>/<sub>2</sub>", 2", 3" and 4".
- Available in 16, 14 and 12 gauge.
- Pre-punched for faster and more accurate fastener attachment.

**MATERIAL:** See Table on pages 2-4 for sizes and loading

**FINISH:** Galvanized – G90

**INSTALLATION:**

- Utility Clips are attached to the cold-formed steel (CFS) framing members using #10 - 16 self-drilling screws: using pre-punched holes.
- Clip can also be welded to the CFS framing.



## Seismic and Hurricane Ties (S/H1A)



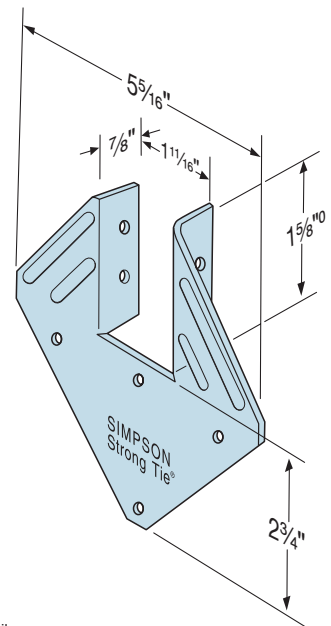
S/H1A was designed to fit within several proprietary truss chords to provide uplift resistance.

**MATERIAL:** 18 ga (43 mil) 33ksi

**FINISH:** Galvanized – G90

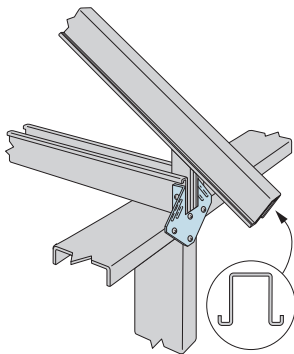
**INSTALLATION:**

- Use all specified fasteners.
- S/H1A can be installed with flanges facing outwards, reverse of illustration. When installed inside a wall for truss applications.
- S/H1A does not replace solid blocking.

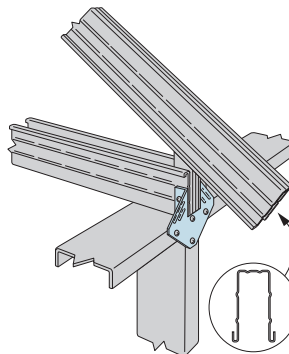


Model No.	Fasteners			Truss Thickness mil (ga)	Allowable Loads (100 & 133)		
	Truss	Plates	Studs		Plate/Wall Stud Thickness mil (ga)		
					33 mil (20 ga)	43 mil (18 ga)	54 mil (16 ga)
S/H1A	4-#10	3-#10	1-#10	27 (22 ga)	395	395	395
	4-#10	3-#10	1-#10	33 (20 ga)	510	550	690
	4-#10	3-#10	1-#10	43 (18 ga)	510	550	690
	4-#10	3-#10	1-#10	54 (16 ga)	590	675	850

1. Load at (100), no reduction is necessary. Load at (133) for 1/3 increase, no further increase allowed.  
 2. Loads are based on truss steel properties of Fy=50 ksi and Fu=65 ksi. Reduce load direct proportionally for lower steel strength. For example: Truss with 43 mil (18 ga) thickness has a steel properties of Fy=33 ksi, Fu=45 ksi and is connected to 43 mil plate and wall stud. The adjusted allowable load = 550 lbs x minimum [33/50 or 45/65] = 363 lbs.



Typical S/H1A Installation



Typical S/H1A Installation

Drawings provided courtesy of Simpson Strong-Tie Co.

# Seismic and Hurricane Ties (S/H)



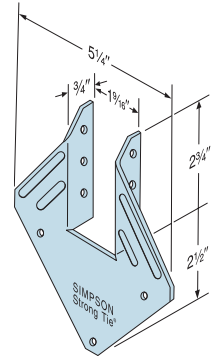
Designed to provide seismic and wind ties for trusses or joists, this versatile line may be used for general tie purposes, strongback attachments, and as all-purpose ties where one member crosses another.

**MATERIAL:** 18 ga (43 mil) 33ksi

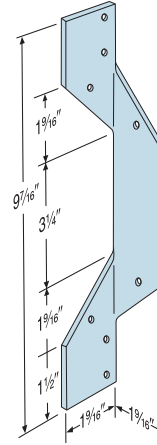
**FINISH:** Galvanized – G90

**INSTALLATION:**

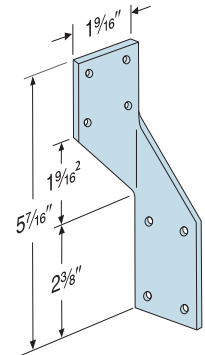
- Use all specified fasteners.
- The S/H1 can be installed with flanges facing outwards (reverse of illustration) when installed inside a wall for truss applications.
- Hurricane Ties do not replace solid blocking
- S/H2.5 ties are only shipped in equal quantities of rights and lefts.



S/H1



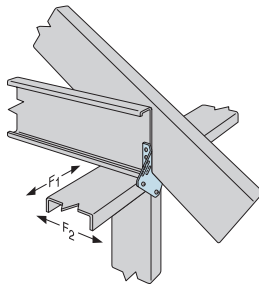
S/H2



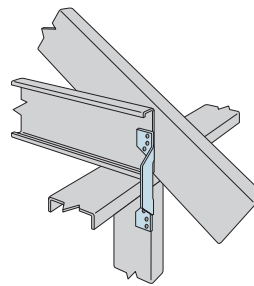
S/H2.5

Model No.	Fasteners			Truss Thickness mil (ga)	Allowable Loads (100 & 133)		
	To Rafters / Truss	To Plates	To Studs		Uplift	Lateral	
						F1	F2
S/H1	3-#10	2-#10	1-#10	43 (18 ga)	265	100	115
S/H2	3-#10		3-#10	43 (18 ga)	315		
S/H2.5	4-#10		4-#10	43 (18 ga)	415	90	125

1. Load at (100), no reduction is necessary. Load at (133) for 1/5 increase, no further increase allowed.
2. Loads are based on attachment of cold-formed steel members having a minimum thickness of 33 mil (20 ga).
3. Hurricane Ties are shown installed on the outside of wall for clarity. Installation inside of wall is acceptable. For Continuous Load Path, connections must be on same side of wall.



Typical S/H1 Installation



Typical S/H2 Installation

Drawings provided courtesy of Simpson Strong-Tie Co.

# Twist Straps (MTS)



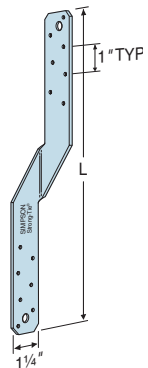
Twist straps provide a tension connection between two members. They resist uplift at the heel of a truss economically. The 3" bend section eliminates interference at the transition points between steel members.

**MATERIAL:** 16 ga (54 mil) 50ksi

**FINISH:** Galvanized – G90

**INSTALLATION:**

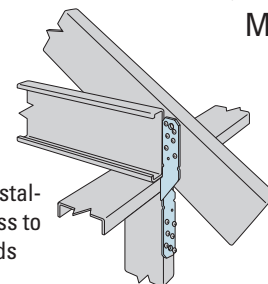
- Use all specified fasteners.



MTS12

Model No.	Material Thickness mil (ga)	L	Fasteners (Total)			Allowable Tension Loads		
			Rafter/Stud/Joist Thickness			33 mil (20 ga)		43 mil (18 ga)
			33 mil (20 ga)	43 mil (18 ga)	54 mil (16 ga)	(100)	(133)	(100) & (133)
MTS12	54 (16 ga)	12	12-#10	8-#10	6-#10	995	995	995

1. All straps have additional fastener holes.
2. Install half of the fasteners on each end of strap to achieve full loads.
3. Load at (100), no reduction necessary. Load at (133) for 1/5 increase, no further increase allowed.
4. All straps have the twist in the center of the strap.
5. Twist straps do not have to be wrapped over the truss to achieve the load.
6. May be installed on the inside face of the stud.
7. Loads are based on steel with 43 mil (18 ga) minimum.
8. Not all fastener holes need to be filled as additional fastener holes provided. Install fasteners symmetrically.



Typical Installation Truss to Steel Studs

Drawings provided courtesy of Simpson Strong-Tie Co.

# Strap Ties (ST/LSTA/MST/MSTA)



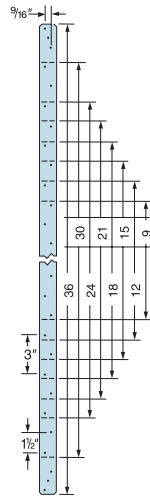
Straps are load rated and provide the correct thickness and number of fasteners the specifier is looking for compared with the field fabricated straps. Install Strap Ties where top or bottom plates are cut, at wall intersections, and as ridge ties. LSTA and MSTA straps are engineered for use on members with a minimum width of 1 1/2". Reduce the allowable load based on the size and quantity of fasteners used.

Refer to applicable code for minimum edge and end distances.

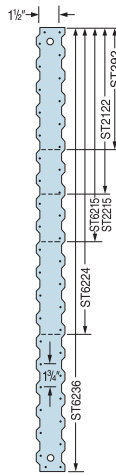
**FINISH:** Galvanized – G90

**INSTALLATION:**

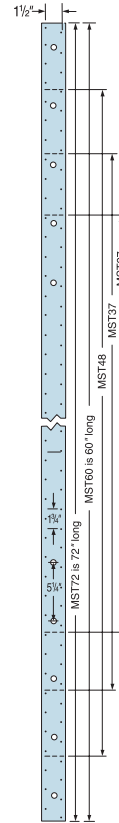
- Use all specified fasteners.



LSTA and MSTA



ST



S/MST

Model No.	Material Thickness mil (ga)	Dimensions		Fasteners (Total)			Allowable Tension Loads					
				Rafter/Stud/Joist Thickness			33 mil (20 ga)		43 mil (18 ga)		54 mil (16 ga)	
		W	L	33 mil (20 ga)	43 mil (18 ga)	54 mil (16 ga)	(100)	(133)	(100)	(133)	(100)	(133)
LSTA24	33 (20 ga)	1 1/4	24	14-#10	12-#10	10-#10	1190	1590	1190	1590	1190	1590
LSTA36	43 (18 ga)	1 1/4	36	18-#10	16-#10	14-#10	1555	2070	1555	2070	1555	2070
MSTA24	43 (18 ga)	1 1/4	24	18-#10	12-#10	10-#10	1555	2070	1555	2070	1555	070
MSTA36	54 (16 ga)	1 1/4	36	24-#10	18-#10	16-#10	1950	2600	1950	2600	1950	2600
ST6224	54 (16 ga)	2 1/16	23 5/16	28-#10	20-#10	12-#10	2455	3275	2455	3275	2455	3275
ST6236	68 (14 ga)	2 1/16	33 13/16	40-#10	30-#10	18-#10	3535	4715	3760	5015	3760	5015
S/MST27	97 (12 ga)	2 1/16	27	30-#10	30-#10	22-#10	2650	3535	3945	5260	5025	6700
SMST37	97 (12 ga)	2 1/16	37 1/2	40-#10	40-#10	22-#10	3710	4950	5025	6700	5025	6700

1. Use half of the fasteners in each member being connected to achieve the listed loads.  
 2. Loads are based on lesser of steel capacity and fastener calculation.  
 3. Tabulated loads may not be increased.

Drawings provided courtesy of Simpson Strong-Tie Co.

## Katz Blocking (KB)

Katz Blocking has been designed to provide top of wall attachment between parallel framing members. Product is pre-punched to work in 16" and 24" spacing of parallel framing members of wood or steel.

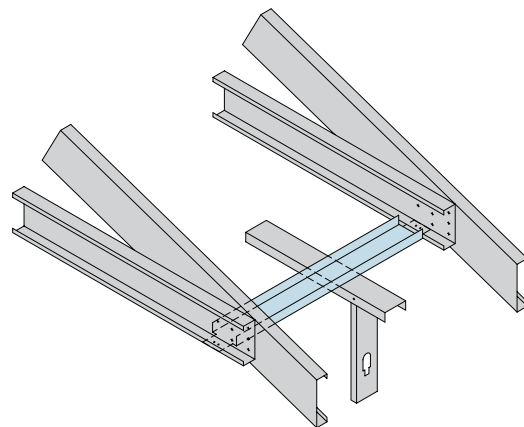
**MATERIAL:** See Table. 18 ga (43 mil) 33ksi; 20 ga (30 mil) 33ksi; 25 ga (18 mil) 33ksi

**FINISH:** Galvanized – G40

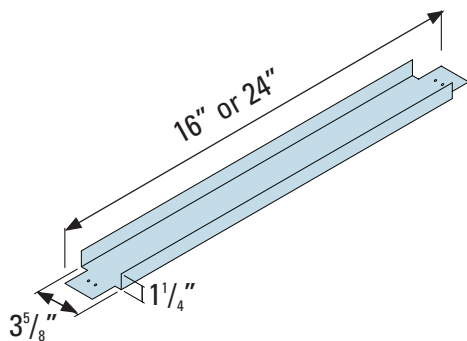
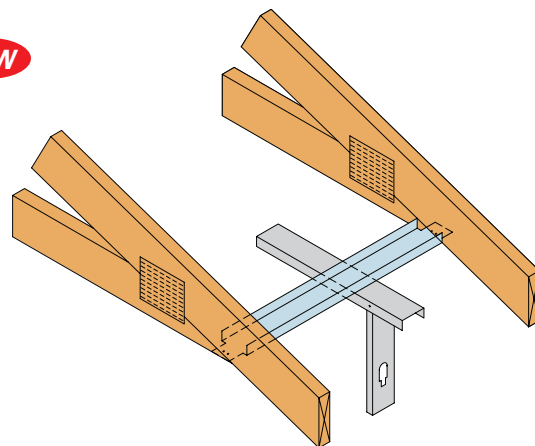
**INSTALLATION:**

- Insert the pre-cut structural blocking to fit securely between the underside of the floor/ceiling joist or roof trusses.
- Using #8 minimum self-drilling screws secure the blocking to steel framing of #8d nail to wood framing using the pre-punched holes.
- Use Katz blocking at 4' o.c. or maximum specified.

Model No.	Length	Gauge	Size	Pallet Quantity
KATZ16	16"	25	3 <sup>5</sup> / <sub>8</sub> "	500
KATZ24	24"	25	3 <sup>5</sup> / <sub>8</sub> "	500
KATZ2024	24"	20	3 <sup>5</sup> / <sub>8</sub> "	500
KATZ1816	16"	18	3 <sup>5</sup> / <sub>8</sub> "	200
KATZ1824	24"	18	3 <sup>5</sup> / <sub>8</sub> "	200



**NEW**



## Gusset Plate (Unpunched) (GP)

Designed for a variety of construction connections. Used for conditions such as roof, wall and floor framing connections. GPU Plate is used for in plane Truss chord connections, Header to jamb connections and Tension Strap connections. Adapts to varying construction tolerances.

**MATERIAL:** See Table, 50ksi

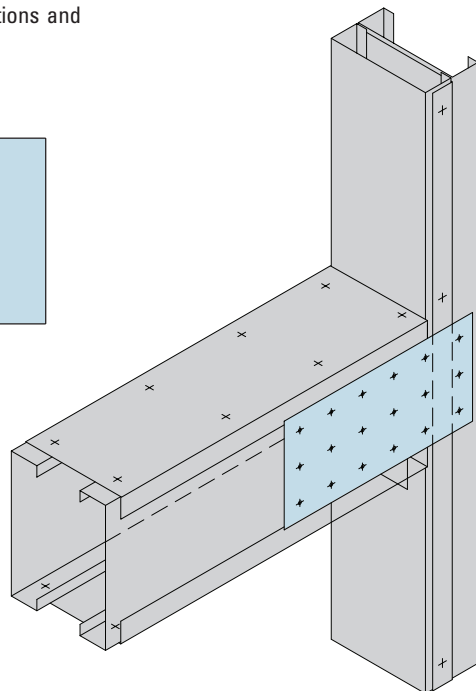
**FINISH:** Galvanized coating weight as requested.

**INSTALLATION:**

- As specified by design.
- 16 Gauge (54 mils) .0566" Design Thickness
- 12 Gauge (97 mils) .1017" Design Thickness
- Custom sizes available upon request.



Model No.	Thickness Gauge	Size
GPU66-16	16	6x6
GPU612-16	16	6x12
GPU1212-16	16	12x12
GPU66-12	12	6x6
GPU612-12	12	6x12
GPU1212-12	12	12x12



## Utility Clips (UA)

Utility Clips are used in a variety of framing applications including floors, walls and roofs. UA clips are pre-cut with pre-drilled holes for easy installation.

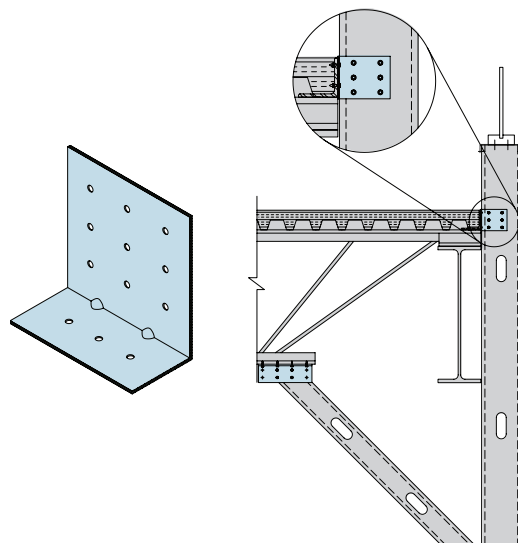
- Leg lengths available from 3<sup>1</sup>/<sub>4</sub>" through 15<sup>3</sup>/<sub>4</sub>".
- Leg widths available in 1<sup>1</sup>/<sub>2</sub>", 2", 3" and 4".
- Available in 16, 14 and 12 gauge.
- Pre-punched for faster and more accurate fastener attachment.

**MATERIAL:** See Table on pages 2-4 for sizes – 50ksi

**FINISH:** Galvanized – G90

**INSTALLATION:**

- Utility Clips are attached to the cold formed steel (CFS) framing members using #10 - 16 self-drilling screws: using pre-punched holes.
- Clip can also be welded to the CFS framing.



## Rigid Clip Connector (RCC)

Rigid Clip Connectors are an easy to use connector, that will save time and money from having to cut longer length angles while reinforcing shorter stud walls vertically or horizontally.

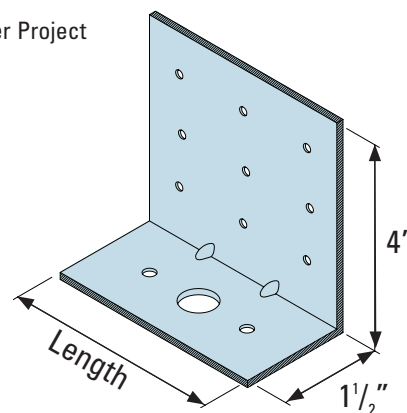
**MATERIAL:** 12 ga (97 mil) 50ksi

**FINISH:** Galvanized – G90

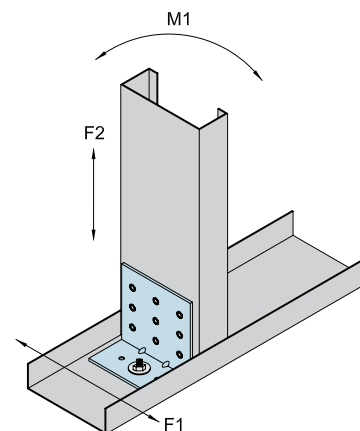
**INSTALLATION:**

- Attach long leg of Rigid Clip Connector to web of stud with #10 - 16 screws through all pre-punched holes.
- Attach short leg of Rigid Clip Connector to foundation with a 1/2" bolt or other structure per Project Engineer's design.
- Can be installed vertically or horizontally.

Model No.	Stud Size	Dimensions	Box Quantity
RCC358	3 <sup>3</sup> / <sub>8</sub> "	1 <sup>1</sup> / <sub>2</sub> x 4 x 3 <sup>1</sup> / <sub>4</sub>	50
RCC600	6"	1 <sup>1</sup> / <sub>2</sub> x 4 x 5 <sup>1</sup> / <sub>4</sub>	50
RCC800	8"	1 <sup>1</sup> / <sub>2</sub> x 4 x 7 <sup>3</sup> / <sub>4</sub>	25



Model No.	Stud Thickness Mils (ga)	Fy (yield) Stud	Fasteners (Long Leg)	F1 (lbs)	F2 (lbs)	M1 (in-lbs)
RCC358	33 (20)	33	9-#10	465 <sup>1</sup>	448 <sup>2</sup>	501 <sup>2</sup>
	43 (18)	33	9-#10	685 <sup>1</sup>	448 <sup>2</sup>	501 <sup>2</sup>
	54 (16)	33	9-#10	950 <sup>1</sup>	448 <sup>2</sup>	501 <sup>2</sup>
	54 (16)	50	9-#10	1225 <sup>1</sup>	448 <sup>2</sup>	501 <sup>2</sup>
RCC600	33 (20)	33	9-#10	650 <sup>1</sup>	724 <sup>2</sup>	1534 <sup>2</sup>
	43 (18)	33	9-#10	950 <sup>1</sup>	724 <sup>2</sup>	1534 <sup>2</sup>
	54 (16)	33	9-#10	1355 <sup>1</sup>	724 <sup>2</sup>	1534 <sup>2</sup>
	54 (16)	50	9-#10	1710 <sup>1</sup>	724 <sup>2</sup>	1534 <sup>2</sup>
RCC800	33 (20)	33	15-#10	850 <sup>1</sup>	1065 <sup>2</sup>	2931 <sup>2</sup>
	43 (18)	33	15-#10	1265 <sup>1</sup>	1065 <sup>2</sup>	2931 <sup>2</sup>
	54 (16)	33	15-#10	1795 <sup>1</sup>	1065 <sup>2</sup>	2931 <sup>2</sup>
	54 (16)	50	15-#10	2275 <sup>1</sup>	1065 <sup>2</sup>	2931 <sup>2</sup>



<sup>1</sup>Tabulated loads may not be increased.

<sup>2</sup>The designer shall specify the anchor embedment and configuration.

# Holdowns (S/HD)

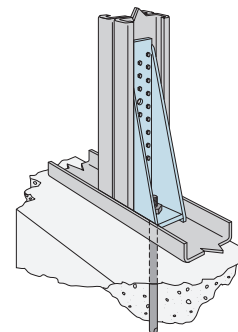
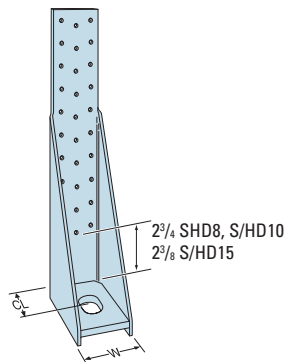


**MATERIAL:** S/HD8 and S/HD10 – 118 mil (10 ga) with 3/8" plate, S/HD15 – 171 mil (7 ga) with 1/2" plate.

**FINISH:** Simpson gray paint. Hot-dip galvanized is available.

**INSTALLATION:**

- Use all specified fasteners.
- The design engineer may specify any alternate anchorage calculated to resist the tension load for your specific job.
- Anchor bolt washer is not required.



Model No.	Dimensions			Fasteners		Allowable Tension Loads (133)			Holdown Deflection at Highest Allowable Design Load
	W	H	CL	Anchor Dia	Screws	2-33 mil (2-20ga)	43 mil (18 ga)	54 mil (16 ga)	
S/HD8	2 1/2	13 7/8	1 1/2	7/8	24-#10	7615	8460	8940	0.085
S/HD10	2 1/2	16 1/8	1 1/2	7/8	30-#10	9520	9665	9665	0.093
S/HD15	2 3/4	21 1/2	1 1/2	1	48-#10	—	12200	14405	0.070

1. For load at (100), multiply table value by 0.75 where the 1/3 increase is not permitted.
2. Values are test limited. For load at (100), no reduction necessary. For load at (133) for 1/3 increase, no further increase allowed.
3. The Designer shall specify the anchor embedment and configuration.
4. Deflection at Highest allowable Design Load: The deflection of a holdown measured between the anchor bolt and the strap portion of the holdown when loaded to the highest allowable load listed in the catalog table. This movement is strictly due to the holdown deformation under a static load test conducted on a steel jig.

Drawings provided courtesy of Simpson Strong-Tie Co.

# Tension Ties (S/LTT and S/HTT)



The S/HTT14 is a single-piece formed tension tie—no rivets, and a 4-ply formed seat which won't unfold during loading. No washers are required.

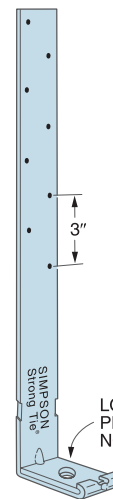
The S/LTT and S/HTT Tension Ties are ideal for retrofit or new construction projects. They provide high strength, post-pour, concrete-to-steel connections.

**MATERIAL:** See table.

**FINISH:** Galvanized – G90

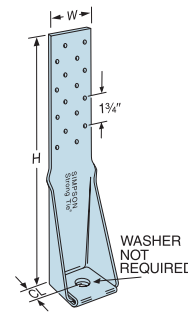
**INSTALLATION:**

- Use all specified fasteners.
- Use the specified number and type of screws to attach the strap portion to the steel stud. Bolt the base to the wall or foundation with a suitable anchor; see table for the required bolt diameter.

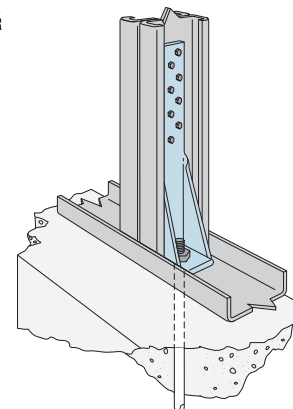


LOAD TRANSFER PLATE—WASHER NOT REQUIRED

S/LTT20



S/HTT14



Model No.	Material mil (ga)		Dimensions			Fasteners		Allowable Tension Loads (133)	Holdown Deflection at Highest Allowable Design Load
	Strap	Plate	W	H	CL	Anchor Bolts	Screws		
S/LTT20	97 (12 ga)	229 (3 ga)	2	20	1 1/2	1/2	5-#10	1600	0.209
S/HTT14	111 (11 ga)	—	2 1/2	15	1 1/4	5/8	14-#10	4385	0.041

1. The Designer shall specify the anchor embedment and configuration.
2. Load at (100), no reduction necessary. Load at (133) for 1/3 increase, no further increase allowed.
3. Loads are based on attachment of CFS members having a minimum thickness of 33 mil (20 ga).
4. Deflection at Highest allowable Design Load: The deflection of a holdown measured between the anchor bolt and the strap portion of the holdown when loaded to the highest allowable load listed in the catalog table. This movement is strictly due to the holdown deformation under a static load test conducted on a steel jig.

Drawings provided courtesy of Simpson Strong-Tie Co.

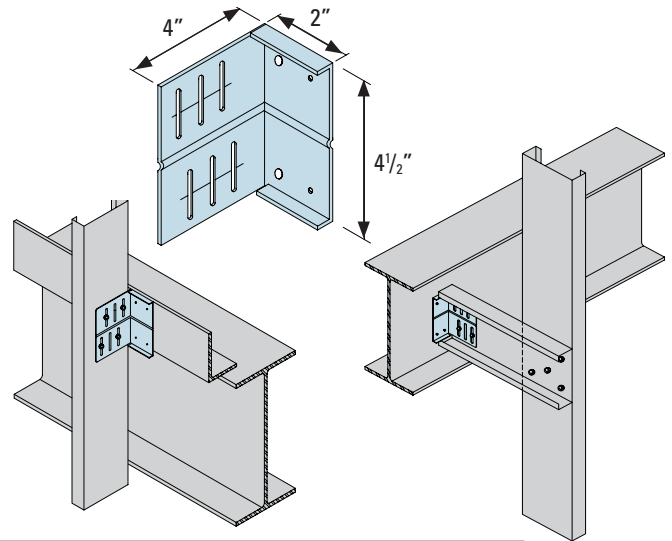
# WSC 950 and WSC 1500

WSC 950 and 1500 Slide Clips provide lateral support for steel studs and allow for vertical movement of the building structure. They allow for 1<sup>3</sup>/<sub>4</sub>" edge of slab tolerance from the existing supporting structure. The WSC Clips accommodate up to 3<sup>3</sup>/<sub>4</sub>" vertical movement at intermediate floors and 1<sup>1</sup>/<sub>2</sub>" vertical movement at roof levels. They are used in a vertical surface application. Simple and fast to install which saves time and money. One clip fits all stud sizes, no right or left hand clips. Screws must be backed out 1<sup>1</sup>/<sub>4</sub> turn once installed.

**MATERIAL:** See Table

**FINISH:** Galvanized – G90

Model No.	Gauge (Mil) Yield	Box Quantity
WSC950	16 (54) 50ksi	25
WSC1500	12 (97) 40ksi	25



Connection to Structure Hilti 0.145" X-EDNI Powder Actuated Fastener in 3/16" Steel					Connection to Structure #12-14 Hilti Kwik Pro Self Drilling Screws to 3/16" Steel				
Stud Thickness	# of Screws to Stud	# of Anchors to Structure	WSC 950	WSC 1500	Stud Thickness	Number of Screws	Number of Anchors	WSC 950	WSC 1500
			Allowable Load (lbs.)	Allowable Load (lbs.)				Allowable Load (lbs.)	Allowable Load (lbs.)
20ga. (33 mil) 33ksi	4	2	220	220	20ga. (33 mil) 33ksi	4	2	500	555
		3	335	335			3	557	555
		4	445	445			4	557	555
20ga. (33 mil) 33ksi	6	2	220	220	20ga. (33 mil) 33ksi	6	2	500	770
		3	335	335			3	750	835
		4	445	445			4	835	835
18ga. (43 mil) 33ksi	4	2	220	220	18ga. (43 mil) 33ksi	4	2	500	770
		3	335	335			3	750	824
		4	445	445			4	827	824
18ga. (43 mil) 33ksi	6	2	220	220	18ga. (43 mil) 33ksi	6	2	500	770
		3	335	335			3	750	1150
		4	445	445			4	945	1240
16ga. (54 mil) 33ksi	4	2	220	220	16ga. (54 mil) 33ksi	4	2	500	770
		3	335	335			3	750	1150
		4	445	445			4	945	1480
16ga. (54 mil) 33ksi	6	2	220	220	16ga. (54 mil) 33ksi	6	2	500	770
		3	335	335			3	750	1150
		4	445	445			4	945	1480
16ga. (54 mil) 50ksi	4	2	220	220	16ga. (54 mil) 50ksi	4	2	500	770
		3	335	335			3	750	1150
		4	445	445			4	945	1480
16ga. (54 mil) 50ksi	6	2	220	220	16ga. (54 mil) 50ksi	6	2	500	770
		3	335	335			3	750	1150
		4	445	445			4	945	1495
14ga. (68 mil) 50ksi	4	2	220	220	14ga. (68 mil) 50ksi	4	2	500	770
		3	335	335			3	750	1150
		4	445	445			4	945	1480
14ga. (68 mil) 50ksi	6	2	220	220	14ga. (68 mil) 50ksi	6	2	500	770
		3	335	335			3	750	1150
		4	445	445			4	945	1495

<sup>1</sup> All anchors must be attached in a single file line down the center of the clip.  
<sup>2</sup> All anchor data is from the Hilti 2006 Product Technical Guide.

<sup>3</sup> All anchors must be attached to structure per manufacturer's instructions.  
<sup>4</sup> All manufacturer's guidelines must be followed for anchor spacing and edge distance.



# Deflex

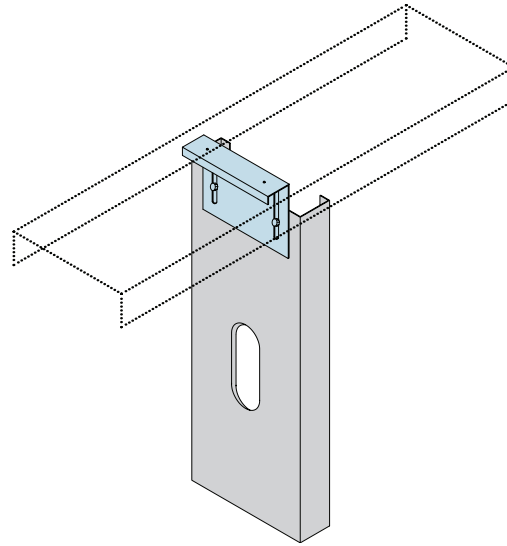
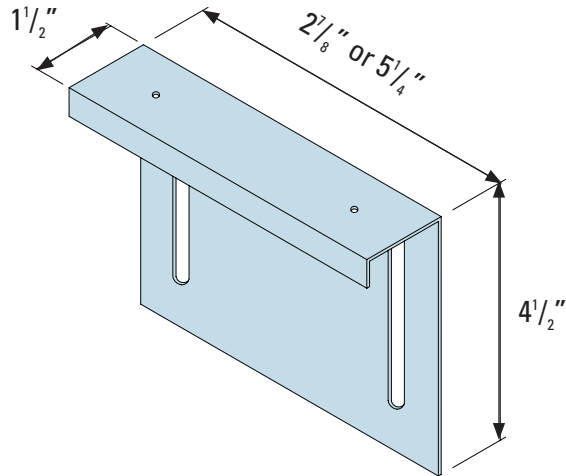
The Deflex Slide Clips allow for up to 1 1/2" vertical floor or roof deflection without the use of laborious slip tracks it can be installed with or without standard leg tracks. Simple and fast to install which saves time and money. Two sizes available for 3 5/8", 4", 6" and 8" studs.

**MATERIAL:** 16 ga (54 mil) 50ksi.

**FINISH:** Galvanized – G90

- 3T1000 accommodates 3 5/8" and 4" stud widths
- 6T1000 accommodates 6" and 8" stud widths

Model No.	Gauge (Mil) Yield	Box Quantity
3T1000	16 (54) 50ksi	25
6T1000	16 (54) 50ksi	25



Connection to Structure Hilti 0.145" X-EDNI Powder Actuated Fastener in 3/16" Steel					Connection to Structure #12-14 Hilti Kwik Pro Self Drilling Screws to 3/16" Steel				
			Deflex 3T1000	Deflex 6T1000				Deflex 3T1000	Deflex 6T1000
Stud Thickness	# of Screws to Stud	# of Anchors to Structure	Allowable Load (lbs.)	Allowable Load (lbs.)	Stud Thickness	Number of Screws	Number of Anchors	Allowable Load (lbs.)	Allowable Load (lbs.)
20ga. (33 mil) 33ksi	2	2	224	276	20ga. (33 mil) 33ksi	2	2	278	278
		3	228	276			3	278	278
18ga. (43 mil) 33ksi	2	2	224	413	18ga. (43 mil) 33ksi	2	2	410	413
		3	228	413			3	410	413
16ga. (54 mil) 33ksi	2	2	224	413	16ga. (54 mil) 33ksi	2	2	455	580
		3	228	440			3	495	580
16ga. (54 mil) 50ksi	2	2	224	413	16ga. (54 mil) 50ksi	2	2	455	685
		3	228	440			3	495	742
14ga. (68 mil) 50ksi	2	2	224	413	14ga. (68 mil) 50ksi	2	2	455	685
		3	228	440			3	495	742

<sup>1</sup>All anchors must be attached in a single file line down the center of the clip.  
<sup>2</sup>All anchor data is from the Hilti 2006 Product Technical Guide.  
<sup>3</sup>All anchors must be attached to structure per manufacturer's instructions.  
<sup>4</sup>Anchor edge distance to be 1/2" min.

# Slotted Slip Track (SLT) NEW

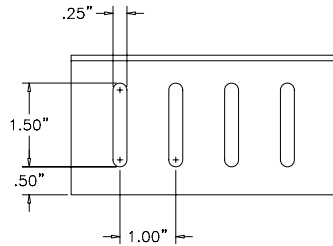
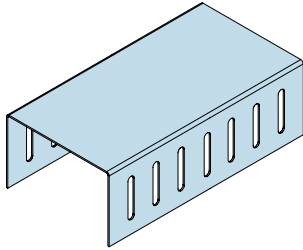
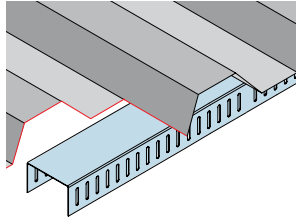
Slotted Slip Track (SLT) member is used as vertical deflection track in interior non bearing wall assemblies. The U-shape track has 1 1/2" vertical slots spaced 1" along both legs. The track section is fabricated from hot-dipped galvanized steel complying with ASTM A653, with a minimum G40 coating. The framing members comply with ASTM C645.

**MATERIAL:** 20 ga (30 and 33 mil), 18 ga (43 mil), and 16 ga (54 mil) 33ksi

**TRACK MEMBER DEPTH (Inches):** 2 1/2", 3 5/8", 4", 6", and 8"

**FINISH:** Galvanized – G40

- One-piece design
- Positive attachment to framing
- Absorbs vertical deflection
- Simple Installation and Reduced Labor Time



MarinoWARE Model No.	Section Designation	Mil (ga)	Track Member Width	Flange
212SLT2010	250CST250-30	33 (20 ga)	2 1/2"	2 1/2"
358SLT1610	362CST250-54	54 (16 ga)	3 5/8"	2 1/2"
358SLT1810	362CST250-43	43 (18 ga)	3 5/8"	2 1/2"
358SLT2010	362CST250-30	33 (20 ga)	3 5/8"	2 1/2"
400SLT1610	400CST250-54	54 (16 ga)	4"	2 1/2"
400SLT1810	400CST250-43	43 (18 ga)	4"	2 1/2"
400SLT2010	400CST250-30	33 (20 ga)	4"	2 1/2"
600SLT1610	600CST250-54	54 (16 ga)	6"	2 1/2"
600SLT1810	600CST250-43	43 (18 ga)	6"	2 1/2"
600SLT2010	600CST250-33	33 (20 ga)	6"	2 1/2"
800SLT1610	800CST250-54	54 (16 ga)	8"	2 1/2"
800SLT1810	800CST250-43	43 (18 ga)	8"	2 1/2"
800SLT2010	800CST250-33	33 (20 ga)	8"	2 1/2"

Section Designation	Design Thickness (inch)	Gross Section Properties							Effective Section Properties					
		$F_y$ (ksi)	Weight (lbs/ft)	Area (in <sup>2</sup> )	$I_x$ (in <sup>4</sup> )	$r_x$ (in)	$I_y$ (in <sup>4</sup> )	$r_y$ (in)	$I_x$ (in <sup>4</sup> )	$S_x$ (t) (in <sup>3</sup> )	$S_x$ (b) (in <sup>3</sup> )	$I_y$ (in <sup>4</sup> )	$S_y$ (l) (in <sup>3</sup> )	$S_y$ (r) (in <sup>3</sup> )
250CST250-18	0.0188	33	0.267	0.079	0.068	0.927	0.080	1.006	0.055	0.064	0.034	0.054	0.058	0.033
250CST250-30	0.0312	33	0.444	0.131	0.112	0.925	0.133	1.011	0.098	0.126	0.056	0.099	0.096	0.063
250CST250-43	0.0451	33	0.640	0.188	0.160	0.923	0.193	1.012	0.148	0.212	0.082	0.147	0.136	0.096
250CST250-54	0.0566	50	0.802	0.236	0.200	0.922	0.243	1.015	0.186	0.266	0.103	0.186	0.169	0.121
350CST250-18	0.0188	33	0.331	0.097	0.072	0.862	0.176	1.343	0.057	0.069	0.034	0.113	0.091	0.049
350CST250-30	0.0312	33	0.549	0.162	0.120	0.861	0.293	1.346	0.105	0.156	0.057	0.214	0.150	0.099
350CST250-43	0.0451	33	0.793	0.233	0.172	0.859	0.424	1.348	0.160	0.271	0.084	0.334	0.216	0.161
350CST250-54	0.0566	50	0.994	0.292	0.215	0.857	0.533	1.351	0.201	0.340	0.105	0.421	0.269	0.202
362CST250-18	0.0188	33	0.339	0.100	0.073	0.855	0.191	1.384	0.057	0.069	0.034	0.122	0.095	0.051
362CST250-30	0.0312	33	0.562	0.165	0.121	0.853	0.318	1.387	0.105	0.158	0.057	0.232	0.158	0.103
362CST250-43	0.0451	33	0.812	0.239	0.173	0.851	0.461	1.389	0.161	0.279	0.084	0.362	0.226	0.168
362CST250-54	0.0566	50	1.018	0.300	0.216	0.850	0.580	1.391	0.202	0.349	0.105	0.456	0.283	0.212
400CST250-18	0.0188	33	0.363	0.107	0.074	0.834	0.242	1.506	0.057	0.070	0.034	0.151	0.109	0.056
400CST250-30	0.0312	33	0.602	0.177	0.123	0.832	0.403	1.508	0.106	0.162	0.058	0.334	0.182	0.148
400CST250-43	0.0451	33	0.870	0.256	0.176	0.830	0.584	1.511	0.165	0.300	0.084	0.483	0.262	0.212
400CST250-54	0.0566	50	1.090	0.321	0.220	0.829	0.734	1.512	0.206	0.375	0.106	0.607	0.327	0.265
600CST250-18	0.0188	33	0.491	0.144	0.079	0.740	0.658	2.135	0.057	0.071	0.034	0.412	0.191	0.105
600CST250-33	0.0346	33	0.903	0.266	0.145	0.738	1.212	2.136	0.123	0.209	0.064	0.973	0.364	0.284
600CST250-43	0.0451	33	1.176	0.346	0.188	0.737	1.581	2.137	0.170	0.342	0.085	1.365	0.481	0.416
600CST250-54	0.0566	50	1.475	0.434	0.235	0.735	1.985	2.139	0.213	0.431	0.106	1.713	0.601	0.520
800CST250-18	0.0188	33	0.619	0.182	0.082	0.671	1.370	2.743	0.058	0.072	0.034	0.764	0.291	0.140
800CST250-33	0.0346	33	1.138	0.335	0.150	0.669	2.521	2.744	0.124	0.215	0.065	1.792	0.557	0.367
800CST250-43	0.0451	33	1.483	0.436	0.195	0.668	3.286	2.745	0.172	0.362	0.085	2.688	0.742	0.597
800CST250-54	0.0566	50	1.860	0.547	0.243	0.666	4.124	2.746	0.216	0.457	0.107	3.415	0.931	0.763

For SLT: 1 inch = 25.4 mm, 1 ksi = 6.8948 kPa, 1 lb/ft = 14.594 N/m.

All information shown for Slotted Slip Track provided courtesy of CEMCO.

## BridgeRite Clips (BR)

BridgeRite Clips are ready for use to attach cold rolled channel to wall studs. This easy to use clip will save time and money from having to cut longer length angles down to size.

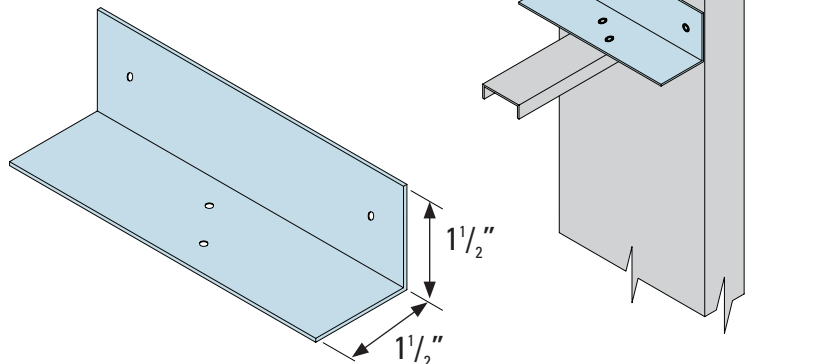
**MATERIAL:** 16 ga (54) 50ksi

**FINISH:** Galvanized – G90

**INSTALLATION:**

- Attach BridgeRite clip to web of stud and cold rolled channel #10 - 16 screws through pre-punched holes.

Model No.	Stud Size	Box Quantity
BRC3	3 <sup>5</sup> / <sub>8</sub> , 4	100
BRC6	6, 8	100



## Coiled Straps (CS)

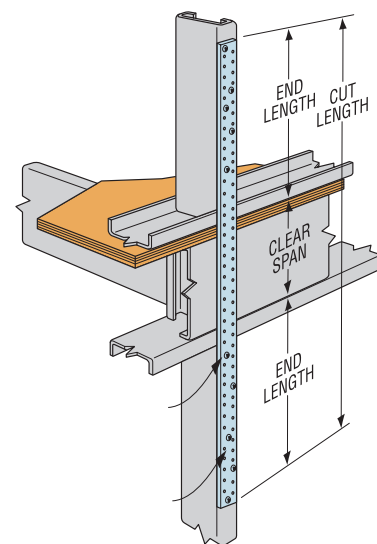


CS are continuous utility straps which can be cut to length on the job site. Packaged in lightweight (about 40 pounds) cartons.

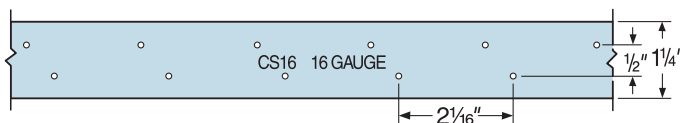
**FINISH:** Galvanized – G90

**INSTALLATION:**

- Use all specified fasteners.
- Refer to the applicable code for minimum edge and end distances.
- The table shows the maximum allowable loads and the screws required to obtain them. See footnote #1. Fewer screws may be used; reduce the allowable load by the code lateral load for each fastener subtracted from each end.



Typical CS Installation as a Floor-to-Floor Tie



Model No.	Total Length	Material Thickness mil (ga)	Width	Fasteners (Total)			Allowable Tension Loads	
				Rafter/Stud/Joist Thickness			33 mil (20 ga), 43 mil (18 ga) & 54 mil (16 ga)	
				33 mil (20 ga)	43 mil (18 ga)	54 mil (16 ga)	(100)	(133)
CS16	150'	54 (16 ga)	1 <sup>1</sup> / <sub>4</sub>	18-#10	12-#10	8-#10	1550	2065
CS18	200'	43 (18 ga)	1 <sup>1</sup> / <sub>4</sub>	14-#10	10-#10	6-#10	1235	1645
CS20	250'	33 (20 ga)	1 <sup>1</sup> / <sub>4</sub>	20-#10	8-#10	6-#10	945	1260

1. Use half of the fasteners in each member being connected to achieve the listed loads.  
 2. For CS straps: End Length (inches) = 1/2 total fasteners + 1".  
 3. Total Cut Length = End Length + Clear Span + End Length.  
 4. For a reduced number of screws, allowable load = (#screws used/#screws in table) x table load.  
 5. Loads are based on lesser of steel strap capacity and 2001 AISI NASPEC fastener calculation.  
 6. Tabulated loads may not be increased.

Drawings provided courtesy of Simpson Strong-Tie Co.

## Katz Blocking (KB)

Katz Blocking has been designed to provide top of wall attachment between parallel framing members. Product is pre-punched to work in 16" and 24" spacing of parallel framing members of wood or steel.

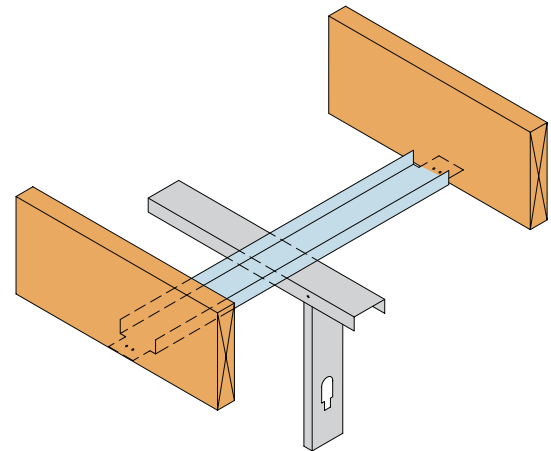
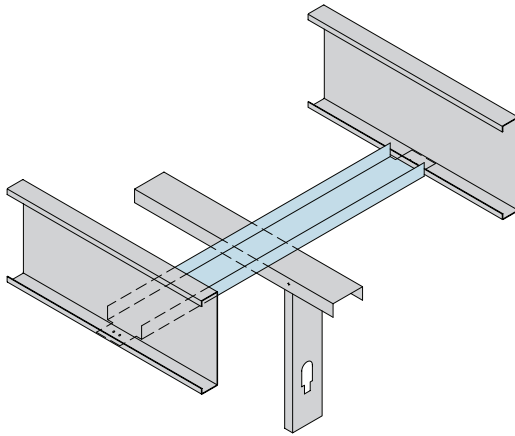
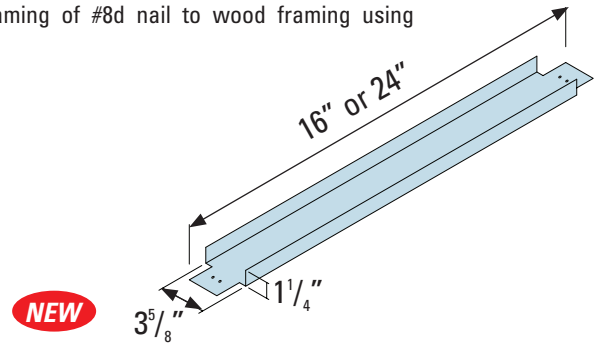
**MATERIAL:** See Table. 18 ga (43 mil) 33ksi; 20 ga (30 mil) 33ksi; 25 ga (18 mil) 33ksi

**FINISH:** Galvanized – G40

**INSTALLATION:**

- Insert the pre-cut structural blocking to fit securely between the underside of the floor/ceiling joist or roof trusses.
- Using #8 minimum self-drilling screws secure the blocking to steel framing of #8d nail to wood framing using the pre-punched holes.
- Use Katz blocking at 4' o.c. or maximum specified.

Model No.	Length	Gauge	Size	Pallet Quantity
KATZ16	16"	25	3 <sup>5</sup> / <sub>8</sub> "	500
KATZ24	24"	25	3 <sup>5</sup> / <sub>8</sub> "	500
KATZ2024	24"	20	3 <sup>5</sup> / <sub>8</sub> "	500
KATZ1816	16"	18	3 <sup>5</sup> / <sub>8</sub> "	200
KATZ1824	24"	18	3 <sup>5</sup> / <sub>8</sub> "	200



## Tension Bridging (TB)



TB bridging is a cost effective way to provide bracing between floor joists when compared with field fabricated blocking and clip angles with multiple fasteners. TB is a tension-type bridging with maximum fastener flexibility. Use two #10 screws of the seven screw holes at each end.

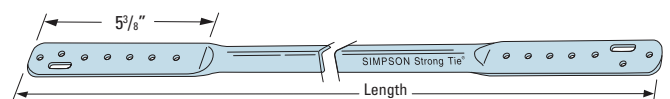
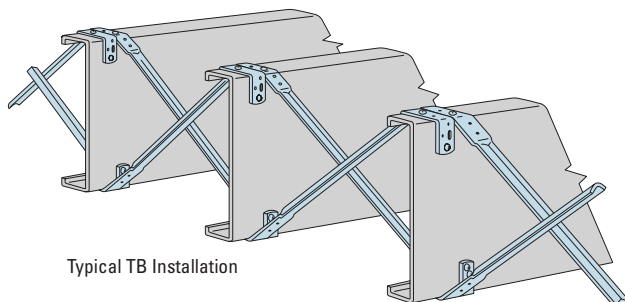
**MATERIAL:** 20 ga (33) 50ksi

**FINISH:** Galvanized – G90

**INSTALLATION:**

- Bridging will fit flange widths from 1<sup>5</sup>/<sub>8</sub>" to 3"

Model No.	Length	Web Height	Spacing
TB20	20"	6"	12" o.c.
TB20	20"	8"	12" o.c.
TB20	20"	10"	12" o.c.
TB27	27"	12"	12" o.c.
TB27	27"	6"	16" o.c.
TB27	27"	8"	16" o.c.
TB27	27"	10"	16" o.c.
TB27	27"	12"	16" o.c.
TB36	36"	10"	24" o.c.
TB36	36"	12"	24" o.c.



Drawings provided courtesy of Simpson Strong-Tie Co.

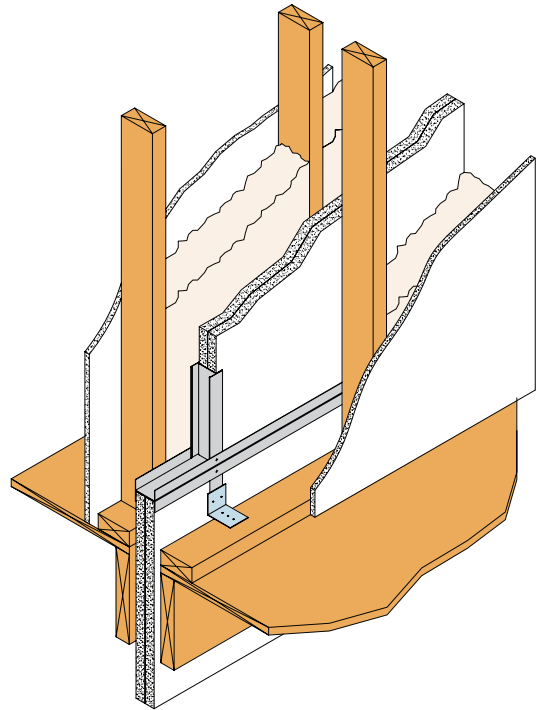
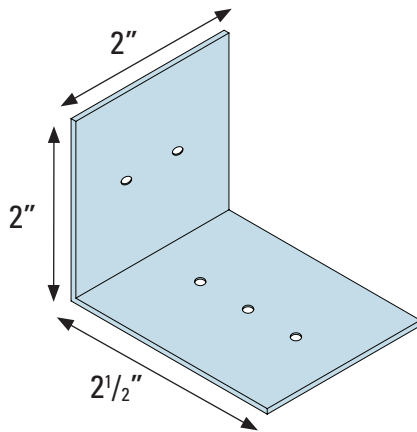
## Breakaway Clips (BA)

Breakaway Clips are manufactured from aluminum and designed to melt under extreme heat allowing a fire damaged structure to collapse while permitting the fire wall to remain in place to protect adjacent units.

**MATERIAL:** Aluminum .063"

### INSTALLATION:

- Must be used in conjunction with Area Separation Wall Systems.
- Attach the Breakaway Clip to the completed Area Separation Wall Assembly.
- One Clip should be located at each side of each H Stud.
- Fasten BA Clip to H Stud with a screw through pre-punched holes.
- Attach to wood or steel adjacent framing with nails or screws respectively.

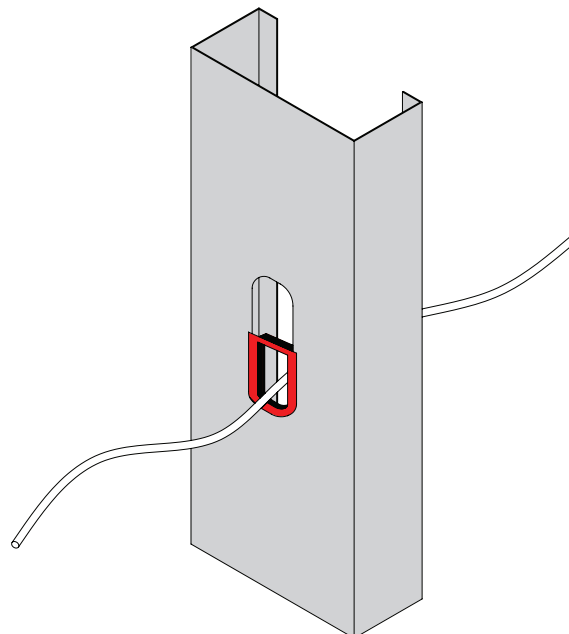
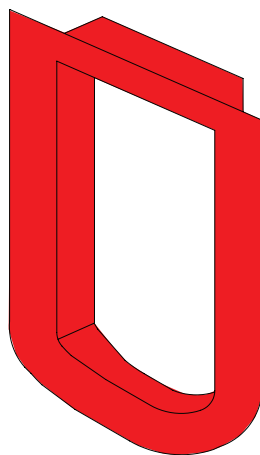


## Grommet

Grommets snap easily into stud and joist knockouts. They are used to protect electrical wiring and plumbing lines from contacting metal. Grommets can be used in commercial and residential construction for stud sizes of 3/2" and larger.

### INSTALLATION:

- Install grommets in all stud knockouts where wiring and plumbing lines will be inserted.
- Simple one piece snap in installation.
- 25 parts to a bag/500 to a box.

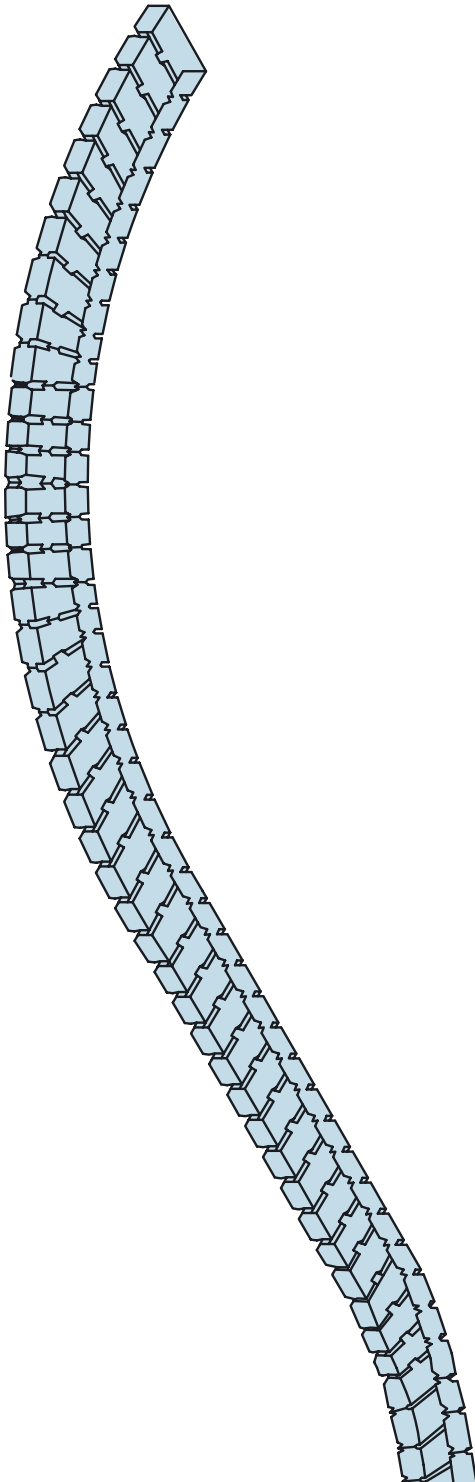


## U-Flex Track **NEW**

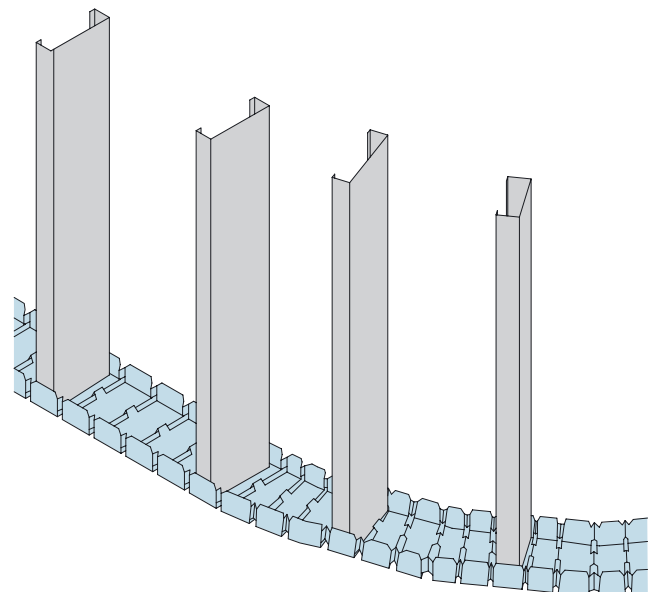
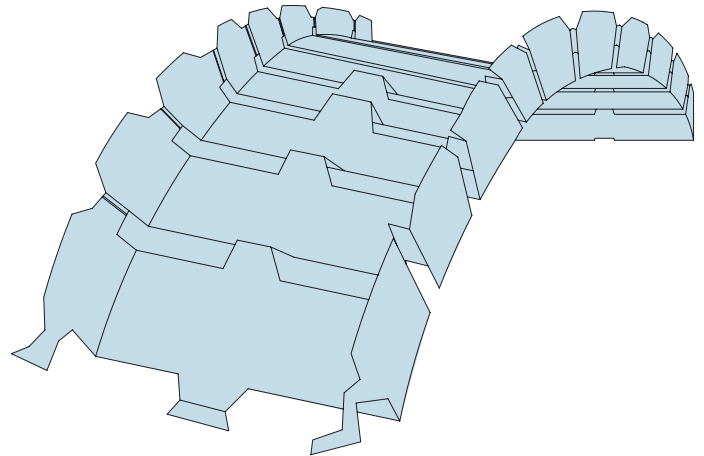
U-Flex is a flexible steel track whose main feature is its great flexibility in every direction, both horizontally and vertically. It was designed for curved steel and wood framing and works great for walls, ceilings, arches, columns, etc. U-Flex easily adapts to all types of curves. U-Flex fits together to create identical shapes and is simple, fast, economical and professional.

### INSTALLATION:

It's so easy to apply. It's a valuable time-saver. It's the assurance of doing a complex job. It's the satisfaction of a job well done. No more headaches or complicated calculations. No more of the arduous and often inaccurate work performed by the metallic scissors. No more doubt or hesitation when faced with a curved-surface project.



Model No.	Web	Leg	Minimum Radius	Radius with Cut	Gauge (Mil)
212UFT2508	2 1/2"	1 11/32"	5 1/4"	2 3/4"	25 (.018)
358UFT2508	3 5/8"	1 11/32"	8 1/4"	4 3/4"	25 (.018)
358UFT2008	3 5/8"	1 11/32"	8 1/4"	4 3/4"	20 (.033)
600UFT2008	6"	1 3/4"	24"	16"	20 (.033)



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## **StudRite™**

StudRite™ wall framing offers design flexibility and increased strength for interior and exterior wall framing while also offering “trade-friendly” pass-throughs. Easy to install, plus significant savings on jobsite labor and time



## **JoistRite™**

JoistRite™ floor and roof framing products feature a revolutionary design that allows for simple, “trade-friendly” installation of heating, electrical, plumbing, and other trade pass-throughs with superior strength and dimensional stability.

## **TrussRite™**

TrussRite™ provides wide spans, exceptional strength-to-weight ratio, is non-combustible, insect-resistant, quick to install and also dimensionally stable, yet requires less bracing than conventional trusses.



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