



# Wood Construction Connectors

C-C-CAN2022 | (800) 999-5099 | strongtie.com



SIMPSON  
Strong-Tie®



**We have  
exceptionally  
good products  
because  
we have  
exceptionally  
good listeners.**

**Meet the Simpson Strong-Tie Sales Team.**



At Simpson Strong-Tie, our commitment to innovation is ultimately a commitment to you. The solutions we create help you work smarter and more efficiently — so you can better meet clients' needs, streamline business operations and build stronger, safer structures and communities.

It's through our dedicated sales team of over 350 — and the deep customer relationships they cultivate — that we're able to craft the quality products and services that help our industry partners succeed. Because we're on the jobsite listening to the challenges, concerns and ideas of our customers, we know firsthand what the needs are. And we bring those needs into our design labs to develop solutions that not only solve our customers' problems, but also advance the industry.

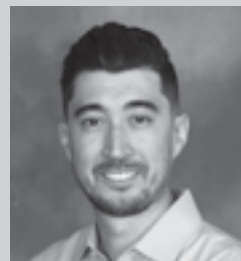
Construction professionals like you trust Simpson Strong-Tie because no one understands them like we do. And no one else can match our sheer number of boots on the ground. Our sales force, along with our entire company, is committed to ensuring that your expectations are exceeded, and that you always have exactly what you need to get the job done right — the first time, every time.

**Welcome to our catalogue of problem-solving products. Inspired by customers like you.**



“  
**My customers and I have a close connection. They know that Simpson Strong-Tie will be a partner for the long haul.**

**Terry Ferris** Territory Manager, Atlantic Canada



“  
**Our customers are our partners in success. At Simpson Strong-Tie, we build relationships, provide value and together, we both win.**

**Brian Parson** Product Specialist, Vancouver, British Columbia



# Alphabetical Product Index

A Angle ..... 298	DGF/DGBF/DGHF	HHDQ Holdown ..... 64-65
A34/A35 Framing Angle ..... 294-295	Fire Wall Hangers..... 222-223	HH Hanger ..... 146
ABA/ABU/ABW Post Base..... 74-76	DJTZ Deck Joist Tie..... 329-328	HHGU Girder Hanger ..... 153-154
ABL Anchor Bolt Locator ..... 31, 49	DS Drywall Stop ..... 340	HHRC Hip-Ridge Connector
ABR/AE Cross-Laminated	DSC Drag Strut Connector..... 257	.....144-145, 216-217
Timber Connector ..... 301	✓ DSP Double Stud Plate ..... 292-293	HHSUQ Heavy Severe
ABS Anchor Bolt Stabilizer ..... 30	DTC Roof Truss Clip..... 265	Skew Hanger..... 213, 244-245
AC Post Cap ..... 94-95	DTT Deck Tension Tie ..... 62-63, 326-327	✓ HHUS Hanger ..... 117-118, 152, 224-226
AM AnchorMate® Bolt Holder ..... 30	DU/DHU/DHUTF Drywall Hangers..220-221	✓ HIT Hanger ..... 166-169
APA/APB/APBDSP/APDJT/APGP/APHH/ APLH/APL/APT/APST/APVA/APVB/ APVDJT/APVGP/APVL/APVST	ECC/ECCU Column Cap ..... 101-103	HL Heavy Angle and Gussets..... 302, 365
Outdoor Accents® ..... 350-355	ECCL Column Cap ..... 104-105	HL Strap Tie..... 362
✓ APBDW Decorative Post Base Cover.... 358	ECCLQ Column Cap..... 100	HM Hurricane Tie ..... 314-315
✓ APBO Bottle Opener..... 358	ECCO Column Cap..... 101	HRC Hip-Ridge Connector
APDMW/APVDW Decorative Washers... 358	✓ ECCQ/ECCOQ Column Cap..... 97-99	.....144-145, 216-217
✓ APDPC Decorative Post Cap ..... 358	EG Hanger ..... 182-183	HRS Strap Tie ..... 284, 286
APDTS Decorative Star ..... 358	✓ EGQ Hanger ..... 181	HS Hurricane Tie ..... 277
✓ APGT2/APGT6/APGTF Gazebo Tie ..... 359	EPB Elevated Post Base ..... 83	HSCNW Coupler Nut ..... 36
✓ BA Hanger ..... 126-128, 170-172	EPCZ Post Cap ..... 96	HSLQ Angle ..... 300
BC Cap/Base..... 92-93	ETB Hidden Connector Kit..... 370-371	HSS Stud Shoe..... 341
BCS Cap/Base..... 92-93	Fastener Application Guide ..... 373-379	HST Strap Tie ..... 284, 287, 362
BP Bearing Plate ..... 34-35, 361	FB/FBFZ/FBR Fence Bracket..... 337	✓ HSUL/R Hanger..... 136-137, 210, 212
BPS Bearing Plate..... 34-35	FC Framing Clip ..... 328	✓ HSULC/HSURC Hanger ..... 136-137, 210
BT Brick Tie ..... 325	FJA Foundation Anchor..... 38	HT Strap Tie..... 362
CB Column Base ..... 85-86, 362	FPBB (E-Z Base™)..... 336	HTC Heavy Truss Clip ..... 264
CBGT Column Base..... 85-86	FPBM (E-Z Mender™)..... 336	HTHGQ Truss Hanger ..... 248-250
CBH Concealed Beam Hanger..... 368-369	FPBS (E-Z Spike™) ..... 336	HTHMQ Heavy Truss Hanger ..... 242-243
CBQGT Column Base..... 88	FRFP Foundation Plate ..... 39	HTPZ Strap Tie ..... 285
✓ CBSQ Column Base ..... 87	FSA Foundation Anchor ..... 38	HTS Twist Strap ..... 290-291
CBTZ Concealed Beam Tie..... 91	FSS Furring Stabilizer Strap..... 149	HTSM Twist Strap ..... 319
CC Column Cap..... 101-103, 362	FWH Rigid Tie® ..... 339	HTT Tension Tie ..... 60-61
CCC Column Cap ..... 104-105	GA Angle..... 296-297	HTU Hanger ..... 227-228
CCCQ Column Cap ..... 100	✓ GBC Gable Brace Connector ..... 258	HU Hanger .... 115-116, 150-151, 306-307
CCO Column Cap ..... 101	GLB Beam Seat..... 106-107	HUC Hanger .... 115-116, 150-151, 306-307
CCOB Column Cap..... 101	GLS Hanger ..... 178-179	✓ HUCQ Concealed Hanger ..... 114, 150-151
✓ CCQ/CCOQ Column Cap ..... 97-99	H Hurricane Ties.....274-277, 314-315	✓ HUS Hanger..... 117-118, 152, 224-225
CCT Column Cap..... 104-105	HB Hanger ..... 126-128, 170-172	HUSTF Hanger ..... 132
CCTQ Column Cap ..... 100	HBC Cap/Base ..... 92-93	HWP/HWPH Hanger.....129-131, 173-175
CF-R Form Angle / Shelf Bracket ..... 349	HCA Hinge Connector..... 217	NEW ICFVL Ledger System ..... 322-324
CHC Component Hoist Clip ..... 266-267	HCP Hip Corner Plate ..... 145, 219	✓ ITS Hanger..... 166-169
CJTZ Concealed Joist Tie ..... 366-367	HD Holdown ..... 66-67	✓ IUS Hanger ..... 148-149
CMSTC Coiled Strap ..... 281	HDB Holdown ..... 66-67	JB Hanger ..... 126-128
CMST Coiled Strap ..... 281	HDQ Holdown..... 64-65	✓ JBA Hanger ..... 126-128
CNW Coupler Nut ..... 36	✓ HDU Holdown..... 62-63	KBSZ Knee-Brace Stabilizer..... 338
CP Crush Plates..... 260	HGA Gusset Angle ..... 277	KST Speed Wall Ties (Kwik Strip) ..... 35
CPS Composite Standoff Base ..... 364	HGAM Gusset Angle ..... 314-315	L Angle..... 296-297
CPTZ Concealed Post Tie..... 79-80	HGLB Beam Seat ..... 106-107	L Strap Tie ..... 303
CS Coiled Strap ..... 281	HGLS Hanger ..... 178-179	L-BOLT Anchor Bolts ..... 37
CSC Ceiling Support Clip ..... 149	HGLT Hanger ..... 176-177	LB Hanger..... 126-128
CSHP High-Performance	HGLTV Hanger..... 176-177	LBAZ Hanger ..... 126-128
Coiled Strap ..... 282-283	HGT Girder Tiedown ..... 280, 318	LBP Bearing Plate ..... 34-35
CTS Compression Tension Strap..... 343	HGU Girder Hanger..... 153-154	LCE Post Cap ..... 94-95
	HGUM Girder Hanger..... 308-311	LEG Hanger ..... 182-183, 362
	✓ HGUS Hanger ..... 117-118, 152, 224-226	LF Hanger ..... 148-149





# Alphabetical Product Index

LGT Girder Tiedown.....	278–279, 316–317
LGU Girder Hanger.....	153–154
LGUM Girder Hanger.....	308–311
LJS Hanger.....	224–225
LMAZ Mud sill Anchor.....	50–51
LPCZ Post Cap.....	94–95
LRUZ Rafter Hanger.....	138–139
LS Angle.....	296–297
LSC Light Stair Stringer Connector.....	332–333
✓ LSSJZ Hanger.....	142
NEW LSSR Rafter Hanger.....	140–141, 208–209
LSTA Strap Tie.....	284–285
✓ LSTHD Strap-Tie Holdown.....	57–59
LSTI Strap Tie.....	284–285
LSU Hanger.....	208–209
LT Hanger.....	166–169
LTA2 Truss Anchor.....	321
LTB Bridging.....	348
✓ LTHJA Truss Hanger.....	238–239
LTP Framing Plate.....	294–295
LTS Twist Strap.....	290–291
NEW LTT/LTTI/LTTP Tension Tie.....	60–61
LUCZ Hanger.....	115–116
LU Hanger.....	115–116
LUL Hanger.....	224–225
✓ LUS Hanger.....	117–118, 224–226
MAB15 Mud sill Anchor.....	50–51
✓ MASA Mud sill Anchor.....	52–54
MASAP Mud sill Anchor.....	52–54
MASB Mud sill Anchor.....	50–51
MEG Hanger.....	182–183, 362
MGT Girder Tiedown.....	278–279, 316–317
MGU Girder Hanger.....	153–154
✓ MIT Hanger.....	166–169
MIU Hanger.....	148–149
MJC Multiple Joist Connector.....	268–269
ML Angle.....	330–331
MMHC Hinged Roof Connector.....	344–345
MPAI Purlin Anchor.....	68–69
MPBZ Moment Post Base.....	71–73
MP Mending Plate.....	346
MSC Hanger.....	214–215
MST Strap Tie.....	284, 286, 288
MSTA Strap Tie.....	284–285, 288
MSTAM Strap Tie.....	320
MSTC Strap Tie.....	284, 286, 288
MSTCBZ Strap Tie.....	289
MSTCM Strap Tie.....	320
MSTI Strap Tie.....	284, 286
MTHMQ/MTHMQ-2 Hanger.....	240–241
MTS Twist Strap.....	290–291
MTSM Twist Strap.....	319
NCA Nailless Bridging.....	348
NS/NSP Nail Stopper.....	340
OCB/OCC Ornamental Cap/Base.....	363
OHA Ornamental Angle.....	363
OHU Ornamental Hanger.....	372
OL/OHL/OT/OHT Ornamental Strap Tie.....	363
OS/OHS Ornamental Strap Tie.....	363
OU Ornamental Hanger.....	363
PAB Pre-Assembled Anchor Bolt.....	47–48
PAI Purlin Anchor.....	68–69
PB/PBS Post Base.....	77–78
PCZ Post Cap.....	96
PGT® Pipe Grip Tie®.....	334–335
PGT2A Pipe Grip Tie.....	334–335
PGT2E Pipe Grip Tie.....	334–335
PGTIC Pipe Grip Tie.....	334–335
PPBF Porch Post Base.....	89–90
PPBZ Porch Post Base.....	89–90
PS Strap Tie.....	284, 287, 362
PSCL/PSCA Sheathing Clip.....	342
PSPNZ Protective Plate.....	340
PWF Strap Tie.....	304
RBC Roof Boundary Clip.....	299
RCPS Rebar Carport Saddle.....	84
RCWB Wall Bracing.....	347
RFB Retrofit Bolt.....	37
RP6 Retrofit Plate.....	34–35
RPBZ Retrofit Post Base.....	81–82
RPS Strap Tie.....	342
RR Ridge Rafter Connector.....	147
RSP Stud Plate Tie.....	292–293
RTA/RTB/RTC/RTC2Z/RTF/ RTR/RTT/RTU Rigid Tie®.....	339
SAKT Shallow Podium Slab Anchor Kit... ..	49
SAR Shallow Anchor Rod.....	49
✓ SB Anchor Bolt.....	40–42
SBV Shelf Bracket.....	349
SCL Hanger.....	180
SD Outdoor Accent® Connector Screw.....	356–357
SD Wafer Head Screw.....	394
SDWS Outdoor Accent Structural Wood Screw.....	356–357
SM1 StrapMate® Strap Holder.....	31
SP/SPH Stud Plate Tie.....	292–293
Special Order Plates.....	361
SS Stud Shoe.....	341
✓ SSP Single Stud Plate.....	292–293
✓ SSTB® Anchor Bolt.....	43–46
ST Strap Tie.....	284–286
STC Roof Truss Clip.....	265
STCT Roof Truss Clip.....	265
✓ STHD Strap-Tie Holdown.....	57–59
STN22 Outdoor Accent Hex-Head Washer.....	356–357
Strong-Drive® 33° SCN/SCNR Connector Nails.....	381
Strong-Drive SCN/SCNR Connector Nails.....	380
Strong-Drive SD CONNECTOR Screws.....	382–386
Strong-Drive SD CONNECTOR SS Screws.....	382–386
Strong-Drive SDS HEAVY-DUTY CONNECTOR Screw.....	387
Strong-Drive SDW TRUSS-PLY and EWP-PLY Screws.....	388–393
✓ SUR/SUL Hanger.....	136–137, 210–212
SURC/SULC Hanger.....	136–137, 210
T Strap Tie.....	303
TA Staircase Angle.....	331
TBE Truss Bearing Enhancer.....	261–262
TB Tension Bridging.....	348
TC Truss Connector.....	263
✓ THA Hanger.....	230–232
✓ THAC Hanger.....	230–232
THAI Hanger.....	207
✓ THAR/L Truss Hanger.....	229
THASR/L Truss Hanger.....	234–235
THGB/THGBH Truss Hanger.....	251–252
THGBV/THGBHV Truss Hanger.....	253–254
✓ THGQ/THGQH Truss Hanger.....	248–250
THGW Truss Hanger.....	251–252
THGWV Truss Hanger.....	253–254
THJA Truss Hanger.....	238–239
THJM Truss Hanger.....	233
THJU Truss Hanger.....	236–237
Titen HD® Heavy-Duty Screw Anchor.....	28–29
Titen HD Washer-Head Screw Anchor.....	28–29
NEW Titen Turbo™ Concrete and Masonry Screws.....	27
TJC Jack Truss Connector.....	246–247
TP/TPA Tie Plate.....	346
TSBR Truss Spacer-Restraint.....	255
TSF Truss Spacer.....	259
TSP Stud Plate Tie.....	274–276, 292–293
TWB Wall Bracing.....	347
UB Post Bracket.....	82
U Hanger.....	115–116, 150–151
URFP Foundation Plate.....	39
VGT Variable Girder Tiedown .....	278–279, 316–317
VPA Connector.....	143, 218
✓ VTCR Valley Truss Clip.....	256
WBSK Workbench/Shelving Kit.....	339
WB/WBC Wall Bracing.....	347
WMU Hanger.....	312–313
WP Hanger.....	129–131, 173–175
WT Wedge Form Tie.....	32–33
WUB Post Bracket.....	82
Z Clip.....	304



# Subject Index

## General Information

Corrosion Information .....	16–21
Discontinued Products .....	9
Important Information and General Notes .....	12–16
New Products .....	8

## Fasteners

Concrete/CMU .....	27–29
Fastener Application Guide .....	373–379
Fastener Types and Information .....	22, 380–394

## Concrete Connectors and Anchors

Anchor Systems .....	26–29
Anchor Bolts .....	40–49
Anchor Bolt Holders .....	30
Beam Seats .....	106–107
Bearing Plates .....	34–35, 361
Column Caps .....	97–105
Coupler Nuts .....	36
Foundation Anchors .....	38
Girder Tiedowns .....	316–318
Hangers .....	306–313
Hurricane Ties .....	314–315
ICF Ledger Connectors .....	322–324
Mudsill Anchors .....	52–54
Purlin Anchors .....	68–69
Strap Ties .....	320
Strap-Tie Holdowns .....	57–59
Truss Anchors .....	321
Wedge Form Ties .....	32–33

## Holdowns and Tension Ties

General Information and Notes .....	55–56
Holdowns .....	62–67
Purlin Anchors .....	68–69
Tension Ties .....	60–61

## Caps and Bases

Post/Column Caps and Bases .....	70–107
----------------------------------	--------

## Hanger Options .....

## Solid Sawn Joist Hangers

Adjustable Rafter Connectors .....	138–142
Concealed Joist Tie .....	366–367
Face-Mount Hangers .....	114–125
Hip-Ridge and Corner Connectors .....	144–145
Rough Lumber Hangers .....	125
Skewed 45° Hangers .....	136–137
Top-Flange Hangers .....	126–136

## I-Joist, Glulam and Structural Composite Lumber Connectors

Adjustable Hangers .....	207–209
Beam Seats .....	106–107
Face-Mount Hangers .....	148–165
Firewall Hangers .....	220–223
General Installation Information .....	109–110
Hinge Connectors .....	217
Hip-Ridge and Corner Connectors .....	216–219
Purlin Anchors .....	68–69
Sloped/Skewed Connectors .....	208–215
Top-Flange Hangers for I-Joists and SCL .....	166–206

## Plated Truss Connectors

Adjustable Hangers .....	230–232, 234–235
Bridging/Spacers/Braces .....	255, 259, 261–262
Face-Mount Hangers .....	224–228
Gable End .....	258

Girder Hangers .....	248–254
Girder Tiedowns .....	278–280, 316–318
Hoist Clip for Lifting Panels .....	266
Multi-Member Hangers .....	236–243
Special-Order Plates .....	361
Truss-to-Wall Connectors .....	257–258, 261–265
Valley Truss Clips .....	256

## Straps and Ties

General Information .....	272–273
Angles and Clips .....	294–302
Adjustable Stringer Connector .....	332–333
Hurricane Ties .....	274–277
Straps .....	281–291

## Masonry Connectors

Hangers .....	306–313
Hurricane Ties .....	314–315
Strap Ties .....	320

## Decks and Fences

Angles .....	330–331
Deck Post Connectors .....	326–329, 338
Fence Products .....	328, 334–337
Joist Tie .....	329
Staircase Angle .....	331

## Miscellaneous

Brick Ties .....	325
Bridging .....	348
Compression/Tension Straps .....	343
Cross-Laminated Timber Connectors .....	368–371
Custom Steel Plates .....	361
Drywall Stops .....	340
Framing Clips .....	328
Gazebo Ties .....	359
Hip Connectors .....	144–145, 216–217, 219
Knee Brace .....	338
Mending Plates .....	346
Metric Conversion .....	24
Nail Stoppers .....	340
Panel Sheathing Clips .....	342
Ridge Rafter Connector .....	147
Rigid Ties .....	339
Shelf Brackets .....	349
Special-Order Plates .....	361
Stud Shoes .....	341
Stair Connectors .....	331–333
T and L Strap Ties .....	303, 351
Tie Plates .....	346
Variable Pitch Connectors .....	143, 218
Wall Bracing .....	347

## Decorative Hardware

Concealed Beam Tie .....	91
Concealed Joist Ties .....	366–367
Concealed Post Tie .....	79–80
Indoor Architectural Products .....	360–365, 372
Outdoor Accents® .....	350–359
Standoff Bases .....	74–80, 364

## Website Only

Hinge Connector Straps .....	Website Only
Lally Column Caps .....	Website Only
Marriage Strap .....	Website Only
Post Capacities .....	Website Only
Strap Connector .....	Website Only



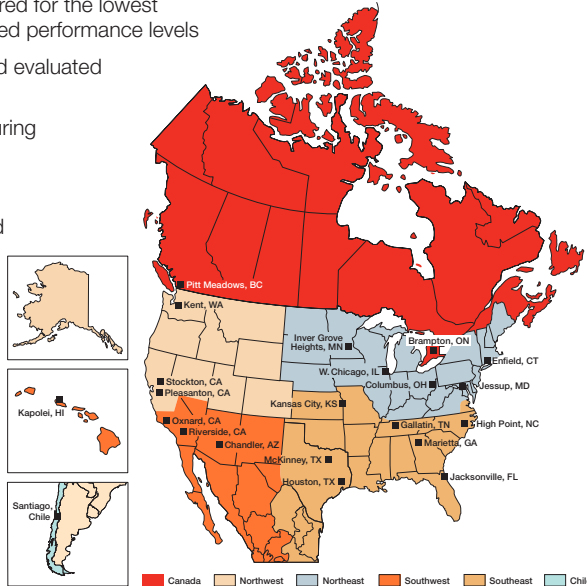
# Introduction

For more than 60 years, Simpson Strong-Tie has focused on creating structural products that help people build safer and stronger homes and buildings. A leader in structural systems research and technology, Simpson Strong-Tie is one of the largest suppliers of structural building products in the world. The Simpson Strong-Tie commitment to product development, engineering, testing and training is evident in the consistent quality and delivery of its products and services.

For more information, visit the company's website at [strongtie.com](http://strongtie.com).

## The Simpson Strong-Tie Company Inc. No-Equal Pledge® includes:

- Quality products value-engineered for the lowest installed cost at the highest-rated performance levels
- The most thoroughly tested and evaluated products in the industry
- Strategically located manufacturing and warehouse facilities
- National code agency listings
- The largest number of patented connectors in the industry
- Global locations with an international sales team
- In-house R&D and tool and die professionals
- In-house product testing and quality control engineers
- Member of WWTA, OSWA, AWTF, WRLA, LBMAO, ABSDA, TPIC, PEO and Provincial engineering associations



## The Simpson Strong-Tie Quality Policy

We help people build safer structures economically. We do this by designing, engineering and manufacturing No-Equal® structural connectors and other related products that meet or exceed our customers' needs and expectations. Everyone is responsible for product quality and is committed to ensuring the effectiveness of the Quality Management System.

Karen Colonias  
Chief Executive Officer

## Getting Fast Technical Support

When you call for engineering technical support, having the following information on hand will help us to serve you promptly and efficiently:

- Which Simpson Strong-Tie® catalogue are you using? (*See the front cover for the catalogue number.*)
- Which Simpson Strong-Tie product are you using?
- What is your load requirement?
- What is the carried member's width and height?
- What is the supporting member's width and height?
- What is the carried and supporting members' material and application?

You should consult a qualified design professional familiar with all applicable building codes each time you use a Simpson Strong-Tie product.

## We Are ISO 9001 Registered

Simpson Strong-Tie is an ISO 9001 registered company. ISO 9001 is an internationally recognized quality management system that lets our domestic and international customers know they can count on the consistent quality of Simpson Strong-Tie products and services.



**USA and Canada (800) 999-5099 | [strongtie.com](http://strongtie.com)**

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**General Information**

10-24 ▶

**Concrete Connectors and Anchors**

26-54 ▶

**Holdowns and Tension Ties**

55-69 ▶

**Bases and Caps**

70-107 ▶

**Solid Sawn Joist Hangers**

108-147 ▶

**I-Joist, Glulam and Structural Composite Lumber Connectors**

148-223 ▶

**Plated Truss Connectors**

224-269 ▶

**Straps and Ties**

272-304 ▶

**Masonry and Concrete Connectors**

306-325 ▶

**Decks and Fences**

326-338 ▶

**Miscellaneous**

339-349 ▶

**Decorative Hardware**

350-372 ▶

**Fasteners**

373-394 ▶



## New Products



### APDPC/APBDW/APBO/APGT Outdoor Accents® Accessories Collection

New additions to the Outdoor Accents decorative hardware line include a post base wrap and bottle opener as well as complementary products like the APDPC decorative post cap and a full line of black powder coated gazebo ties.

See p. 358 for more information.



### LTTTP2 Tension Tie

The patent-pending LTTTP2 is a new addition to the tension tie product line. The LTTTP2 is designed to be used with both solid sawn and I-joist purlins. LTTTP2 is also designed to be installed vertically on a stud for holdown application.

See pp. 60–61 for more information.



### LSSR Slopeable/Skewable Rafter Hanger

The patent-pending LSSR light slopeable/skewable rafter hanger series now includes 2x models for solid sawn lumber. One of its key features is it can be installed after all of the rafters have been tacked into place. A versatile hanger, it is field adjustable for skew up to 45° and features an innovative hinged swivel seat to adjust for up to a 45° skew.

See pp. 140–141 for more information.



### ICFVL Ledger Connector System

The new ICFVL8 is designed to accommodate foam thicknesses up to 4½" whereas the new ICFVL6 replaces the current ICFVL model for foam thicknesses up to 3¼".

See pp. 322–324 for more information.



### Titen Turbo™ Concrete and Masonry Screws

The new Titen Turbo concrete and masonry screw anchor features a patent-pending Torque Reduction Channel that displaces dust where it can't obstruct the thread action, reducing the likelihood of binding in the hole. The Titen Turbo is available in ⅜" and ¼" diameter with either a hex head (required for use with connectors) or, for other material installations, a 6-lobe-drive countersunk head. The pointed tip allows for easy attachment of wood to concrete or for wood-to-wood applications.

See p. 27 for more information.





## Discontinued Products

### Products to Be Discontinued

Simpson Strong-Tie is dedicated to continuously expanding our line of structural connectors with innovative new products that address the changing needs of our customers. As new connectors are introduced that improve upon older designs, it becomes necessary to discontinue the old versions in the name of efficiency and product-line simplicity.

The table on the right lists products that are no longer included in the *Wood Construction Connectors* catalogue as well as the products recommended to replace them. While technical information for discontinued products will be maintained on our website for a number of months, Simpson Strong-Tie asks that our customers begin to substitute the replacement products shown below in their designs and inventories. While it is hard to say when they will no longer be available from our distribution partners, production of some of these connectors ended in 2021 and others will be phased out of production in 2022. Verify with designer prior to substituting replacement product for specified product.


For the most current information on discontinued products, visit [strongtie.com/discontinued](http://strongtie.com/discontinued). If you have questions about any of the products shown below, please call (800) 999-5099 for assistance.

Discontinued Product	Replacement Product (C-C-CAN2022 Page #)
<b>Column Caps / Bases</b>	
<b>DPPC</b> (Limited availability)	<b>APDPC</b> (p. 358)
<b>OECC66 / OECC88</b> (Limited availability)	<b>ECC66PC/ECC88PC</b> (p. 101)
<b>Hanger / Tension Tie</b>	
<b>F46</b> (Limited availability)	<b>F46Z</b> (See <a href="http://strongtie.com">strongtie.com</a> )
<b>Holddown</b>	
<b>LTT19/LTT20B</b> (Limited availability)	<b>LTTP2</b> (pp. 60–61)
<b>Masonry and Concrete Connectors</b>	
<b>ICFVL</b> (Late 2022)	<b>ICFVL6</b> (pp. 322–324)
<b>Straps / Ties / Clips</b>	
<b>CS18 / CS22</b> (Limited availability)	<b>CSHP</b> (pp. 282–283)
<b>GT2Z</b> (Limited availability)	<b>APGT2</b> (p. 359)
<b>GT6Z</b> (Limited availability)	<b>APGT6</b> (p. 359)
<b>GT8Z</b> (Limited availability)	No replacement
<b>GTFZ</b> (Limited availability)	<b>APGTF</b> (p. 359)
<b>PGT20Z</b> (Limited availability)	<b>PGT2A</b> (p. 334)
<b>RTA12</b> (Limited availability)	<b>RTA12Z</b> (See <a href="http://strongtie.com">strongtie.com</a> )
<b>RTR</b> (Limited availability)	<b>RTRZ</b> (p. 339)
<b>TBD22</b> (Limited availability)	No replacement



## How to Use This Catalogue

### • New Products

New products are shown with the  symbol. There are also many new sizes within existing model series.

### • Changes In Orange

Significant changes from last year's catalogue are indicated in red.



### Value Engineered

This icon indicates a product that is preferable to similar connectors because of a) easier installation, b) higher loads, c) lower installed cost, or a combination of these features.



### Extra Corrosion Protection

The teal arrow icon identifies products that are available with additional corrosion protection (ZMAX®, hot-dip galvanized or double-barrier coating). The SS teal arrow icon identifies products also available in stainless steel. Other products may also be available with additional protection; contact Simpson Strong-Tie for options. The end of the product name will indicate what type of extra corrosion protection is provided (Z = ZMAX, HDG = hot-dip galvanized or SS = stainless steel). Stainless products may need to be manufactured upon ordering. See p. 20 for information on corrosion, and visit our website [strongtie.com/info](http://strongtie.com/info) for more technical information on this topic.



### Strong-Drive® SD Connector Screw Compatible

This icon identifies products approved for installation with the Simpson Strong-Tie® Strong-Drive® SD Connector screw. See pp. 382–386 for more information.

## How We Determine Factored Resistances

Factored resistances in this catalogue are determined by calculations and test criteria established by industry, such as CCMC, ICC-ES Acceptance Criteria, IAPMO UES Evaluation Criteria, CSA standards and ASTM standards.

Connectors are typically evaluated in accordance with CSA O86 — *Engineering Design in Wood*. Evaluation is based on the minimum of three static load tests in wood assemblies. The published factored resistance is the lower of the corrected lowest ultimate load of the tests or the modified average 3 mm (1/8") deflection. In some cases, fastener calculations or member capacities are used to limit the published values.

Holdowns and tension ties are tested in accordance with ICC-ES AC155 — *Acceptance Criteria for Holdowns (Tie-downs) Attached to Wood Members*. The published factored resistances are based on the lower of the corrected lowest ultimate load of the tests or the average test value at 6.4 mm (1/4"). Static load tests include holdown testing on steel jigs and wood assemblies.

Cast-in-place concrete products are tested in accordance with ICC-ES AC398 — *Cast-in-Place, Cold Formed Steel Connectors in Concrete for Light-Frame Construction* or AC399 — *Cast-in-Place Proprietary Bolts in Concrete for Light-Frame Construction*. Threaded fasteners are tested per AC233 — *Alternate Dowel-Type Threaded Fasteners*.

Where a test standard is unavailable, testing is conducted per sound engineering principles. Some tests include only portions of a product, such as purlin anchor tests, wherein only the embedded hook is tested, not the nailed or bolted section of the strap, which is calculated per CSA S136 and CSA O86. Testing to determine factored resistances in this catalogue is not done on connection systems in buildings. Testing is conducted under the supervision of an independent laboratory.

For detailed information regarding how Simpson Strong-Tie tests specific products, contact Simpson Strong-Tie.



# Load Table Explanation

## Catalogue Definition

Deflection: The distance a point moves when a load is applied.

Hanger Load Table Explanation, see p. 108.

**Model No.:** This is the Simpson Strong-Tie product name.

**Nails:** This shows the fastener quantity and type required to achieve the table values.

**Factored Resistances:** The maximum resistance that a connection is designed to provide. There may be multiple design loads acting in different directions (up, down, lateral, perpendicular, etc.) imposed on a connection.

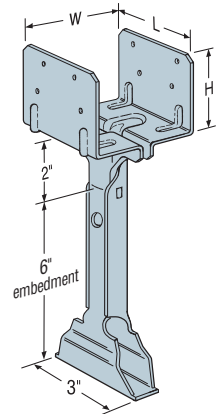
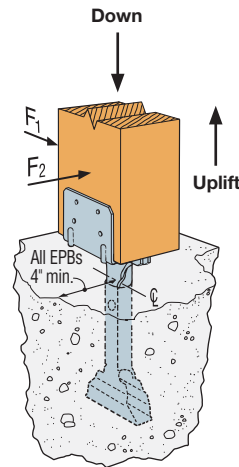
**Load Duration:** Assumed duration factor used to determine the factored resistance.

Model No.	Dimensions (in.)			Nails	Factored Resistance							
	W	L	H		Uplift	D.Fir-L		Down	S-P-F			
					(K <sub>D</sub> = 1.15)	F <sub>1</sub>	F <sub>2</sub>	(K <sub>D</sub> = 1.00)	Uplift	F <sub>1</sub>	F <sub>2</sub>	Down
					(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.				
kN	kN	kN	kN	kN	kN	kN	kN	kN				
EPB44PHDG	3 <sup>3</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	(8) 16d	1045 <sup>3</sup>	—	—	5660	1045 <sup>3</sup>	—	—	5660
					4.65	—	—	25.18	4.65	—	—	25.18
EPB44A	3 <sup>3</sup> / <sub>16</sub>	3	2 <sup>3</sup> / <sub>8</sub>	(8) 16d	1965	1340	1530	4370	1395	950	1085	3640
					8.74	5.96	6.81	19.44	6.21	4.23	4.83	16.19
EPB44	3 <sup>3</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>16</sub>	(8) 16d	1270	1945	1700	8465	900	1380	1205	6995
					5.65	8.65	7.56	37.66	4.00	6.14	5.36	31.12
EPB46	5 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>16</sub>	3	(12) 16d	1270	1390	1635	8465	900	990	1160	6980
					5.65	6.18	7.27	37.66	4.00	4.40	5.16	31.05
EPB66	5 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	3	(12) 16d	1570	1390	1635	8465	1115	990	1160	6225
					6.98	6.18	7.27	37.66	4.96	4.40	5.16	27.69

**Dimensions W, L, H:** This shows the product dimensions (width, length and height in this case) referenced in the product drawing.

All installations should be designed only in accordance with the factored resistance values set forth in this catalogue.

**Nails:** 16d = 0.162" dia. x 3 1/2" long. See pp. 22–24 for other nail sizes and information.



**Product Drawing:** Provides a graphic presentation of the product with dimensional information (often cross-referenced to the table).



## Important Information and General Notes

### Warning

Simpson Strong-Tie Company Inc. structural connectors, anchors, and other products are designed and tested to provide specified design loads. To obtain optimal performance from Simpson Strong-Tie products and achieve maximal allowable design load, the products must be properly installed and used in accordance with the corrosion information, installation instructions and design limits provided by Simpson Strong-Tie. To ensure proper installation and use, designers and installers must carefully read the following General Notes, General Instructions for the Installer, General Instructions for the Designer and Corrosion Information, as well as consult the applicable catalogue pages for specific product installation instructions and notes.

Proper product installation requires careful attention to all notes and instructions, including these basic rules:

1. Be familiar with the application and correct use of the connector.
2. Read and follow all instructions and warnings on our website, in this and any other applicable catalogue, in the *Installer's Pocket Guide* and all other Simpson Strong-Tie publications. If any instructions or warnings are unclear, do not use the product and contact Simpson Strong-Tie.
3. Install all required fasteners per installation instructions provided by Simpson Strong-Tie: (a) use proper fastener type; (b) use proper fastener quantity; (c) fill all fastener holes; (d) do not overdrive or underdrive nails, including when using powder nailers; and (e) ensure screws are completely driven.
4. Only bend products that are specifically designed to be bent. For those products that require bending (such as strap-type holdowns, straight-end twist straps, etc.), do not bend more than one full cycle.
5. Cut joists to the correct length, do not "short-cut." The gap between the end of the joist and the header material should be no greater than 1/8" unless otherwise noted.
6. Wear head, skin, eye and ear protection when installing the products or visiting a jobsite.

Failure to follow fully all of the notes and instructions provided by Simpson Strong-Tie may result in improper installation of products. Improperly installed products may not perform to the specifications set forth in this catalogue and may reduce a structure's ability to resist the movement, stress, and loading that occurs from gravity loads as well as impact events such as earthquakes and high-velocity winds.

Simpson Strong-Tie provides no warranty for any products that have been modified, improperly installed or not used in accordance with the information set forth in this catalogue or on our website.

#### Important Information

In addition to following the basic rules provided above as well as all notes, warnings and instructions provided in the catalogue, installers, designers, engineers and consumers must consult the Simpson Strong-Tie website at [strongtie.com](http://strongtie.com) each time a product is used to obtain additional design and installation information.

## Simpson Strong-Tie Limited Warranty

For the Limited Warranty that applies to Simpson Strong-Tie products, please consult [strongtie.com/limited-warranties](http://strongtie.com/limited-warranties). See p. 395 for the Limited Warranty in effect when this catalogue was first published. To obtain a copy of the current Limited Warranty, contact us at [limited\\_warranty@strongtie.com](mailto:limited_warranty@strongtie.com), (800) 999-5099 or Simpson Strong-Tie Company Inc., 5956 West Las Positas Boulevard, Pleasanton, CA 94588.

The Limited Warranty contains important disclaimers, limitations and exclusions, and applies only if the products have been properly specified, installed, maintained, and used in accordance with the design limits and the structural, technical, and environmental specifications in the Simpson Strong-Tie Documentation. All future purchases of Simpson Strong-Tie products are subject to the terms of the Limited Warranty in effect as of the purchase date.

Although products are designed for a wide variety of uses, Simpson Strong-Tie assumes no liability for confirming that any product is appropriate for an intended use, and each intended use of a product must be reviewed and approved by qualified professionals. Each product is designed for the load capacities and uses listed in the Simpson Strong-Tie Documentation, subject to the limitations and other information set forth therein. Due to the particular characteristics of potential impact events such as earthquakes and high velocity winds, the specific design and location of the structure, the building materials used, the quality of construction, or the condition of the soils or substrates involved, damage may nonetheless result to a structure and its contents even if the loads resulting from the impact event do not exceed Simpson Strong-Tie's specifications and the products are properly installed in accordance with applicable building codes, laws, rules and regulations.

## Terms and Conditions of Sale

### Product Use

Products in this catalogue are designed and manufactured for the specific purposes shown, and should not be used with other connectors not approved by a qualified licensed/certified building design professional, a licensed professional engineer or licensed architect ("designer"). You should review our website and consult a qualified designer familiar with all applicable building codes each time you use a Simpson Strong-Tie product.

### Indemnity

Any designer or other person who modifies any products, changes any installation procedures or designs any non-catalogue products for fabrication by Simpson Strong-Tie Company Inc. shall, regardless of specific instructions to the user, indemnify, defend, and hold harmless Simpson Strong-Tie Company Inc. for any and all claimed loss or damage occasioned in whole or in part by such products.

### Non-Catalogue and Modified Products

Modifications to products or changes in installation procedures should only be made by a qualified professional designer. The performance of such modified products or altered installation procedures is the sole responsibility of the designer. Any person modifying Simpson Strong-Tie products must provide the installer with specific instructions on the modified products' specifications, installation and use.

Consult Simpson Strong-Tie Company Inc. for applications for which there is no catalogue product, or for connectors for use in hostile environments, with excessive wood shrinkage, or with abnormal loading or erection requirements.

Non-catalogue products must be designed by a qualified designer and will be fabricated by Simpson Strong-Tie in accordance with customer specifications.

Any modified, special order or non-catalogue products, or any products that are not installed strictly in accordance with Simpson Strong-Tie installation procedures, are provided "AS IS" and without any representation or warranty of any kind.



# Important Information and General Notes

## General Notes

These general notes are provided to ensure proper installation of Simpson Strong-Tie Company Inc. products and must be followed fully.

- Simpson Strong-Tie reserves the right to change specifications, designs and models without notice or liability for such changes.
- Steel used for each Simpson Strong-Tie® product is individually selected based on the product's steel specifications, including strength, thickness, formability, finish and weldability. Contact Simpson Strong-Tie for steel information on specific products.
- Unless otherwise noted, dimensions are in inches, resistances are in pounds.
- Unless otherwise noted, bolts and nails cannot be combined. 8d (0.131" x 2½"), 10d (0.148" x 3") and 16d (0.162" x 3½") specify common nails that meet the requirement of CSA B111 or ASTM F1667. When a shorter nail is specified, it will be noted (for example 8d x 1½"). Refer to p. 22–24 for more nail information.
- Do not overload. Do not exceed catalogue factored resistances.
- Unless otherwise noted, factored resistances are for Douglas Fir-Larch under continuously dry conditions ( $K_S = 1.00$ ). Factored resistances for other species or conditions must be adjusted according to CSA O86-14.

The following material properties were used to generate the resistances in this catalogue in accordance with CSA O86-14. For LVL and other engineered wood products verify with the manufacturer that their material properties meet or exceed the values shown in the table below.

Species	$\phi F_{cp}$	Specific Gravity
Douglas Fir-Larch (D.Fir-L)	812 psi (5.60 MPa)	0.49
Spruce-Pine-Fir (S-P-F)	615 psi (4.24 MPa)	0.42
Hem-Fir (HF)	533 psi (3.68 MPa)	0.46
D Fir-L Glulam	812 psi (5.60 MPa)	0.49
Spruce-Pine Glulam	672 psi (4.64 MPa)	0.44
LVL	1092 psi (7.53 MPa)	0.50
Parallam® PSL	908 psi (6.27 MPa)	0.50
LSL ( $E = 1.3 \times 10^6$ )	992 psi (6.84 MPa)	0.50
LSL ( $E > 1.5 \times 10^6$ )	1092 psi (7.53 MPa)	0.50

- Simpson Strong-Tie Company Inc. will manufacture non-catalogue products provided prior approval is obtained and an engineering drawing is included with the order. Steel specified on the drawings as ½", ⅜", and ¼" will be 11 gauge (0.120"), 7 gauge (0.179"), and 3 gauge (0.239"), respectively. The minimum yield and tensile strengths are 33 ksi and 52 ksi, respectively.
- All references to bolts are for structural quality through bolts equal to or better than American Society of Testing and Materials ASTM Standard A307, Grade A or Society of Automotive Engineers standard SAEJ429, Grade 2. RFB is ASTM F1554 Grade 36; SSTB is ASTM A36. **Nuts shall be ASTM A563, Grade A or better, unless noted otherwise.**
- Unless otherwise noted, bending steel in the field may cause fractures at the bend line. Fractured steel will not carry load and must be replaced.
- A fastener that splits the wood will not take the factored load. Evaluate splits to determine if the connection will perform as required. Dry wood may split more easily and should be evaluated as required. If wood tends to split, consider pre-boring holes with diameters not exceeding 0.75 of the nail diameter. Use a ⅝" bit for Simpson Strong-Tie Strong-Drive® SDS Heavy-Duty Connector screws and a ⅜" bit for Strong-Drive SD9/SD10 Connector screws.

- Wood shrinks and expands as it loses and gains moisture, particularly perpendicular to its grain. Take wood shrinkage into account when designing and installing connections. Simpson Strong-Tie manufactures products to fit common dry lumber dimensions. If you need a connector with dimensions other than those listed in this catalogue, Simpson Strong-Tie may be able to vary connector dimensions; contact Simpson Strong-Tie. The effects of wood shrinkage are increased in multiple lumber connections, such as floor-to-floor installations. This may result in the vertical rod nuts becoming loose, requiring post-installation tightening.
- Top flange hangers may cause unevenness. Possible remedies should be evaluated by a professional and include using a face mount hanger, and routing the beam or cutting the subfloor to accommodate the top flange thickness.
- Built-up lumber (multiple members) must be fastened together to act as one unit to resist the applied load (excluding the connector fasteners). This must be determined by the Designer/Engineer of Record.
- Some model configurations may differ from those shown in this catalogue. Contact Simpson Strong-Tie for details.
- Hanger Options — some combinations of hanger options are not available. In some cases, combinations of these options may not be installable. Horizontal loads induced by sloped joists must be resisted by other members in the structural system. A qualified designer must always evaluate each connection, including carried and carrying member limitations, before specifying the product. Fill all fastener holes with fastener types specified in the tables, unless otherwise noted. Hanger configurations, height, and fastener schedules may vary from the tables depending on joist size, skew and slope. See the tabulated factored resistance for the non-modified hanger, and adjust as indicated. Gauge may vary from that specified depending on the manufacturing process used.
- Simpson Strong-Tie will calculate the net height for a sloped seat. The customer must provide the  $H_1$  joist height before slope.
- Truss plates shown are the responsibility of the truss designer.
- Do not weld products listed in this catalogue unless this publication specifically identifies a product as acceptable for welding or unless specific approval for welding is provided in writing by Simpson Strong-Tie. Some steels have poor weldability and a tendency to crack when welded. Cracked steel will not carry load and must be replaced.
- Unless noted otherwise, all references to standard cut washers refer to Type A plain washers (W) conforming to the dimensions shown in ASME B18.22.1 for the appropriate rod size. Some products require SAE narrow washers (N) to fit in a tight space and are noted accordingly.
- To achieve tabulated values for embedded concrete/masonry products, full consolidation of concrete or grout is required whether mounted to the form prior to the pour or wet set.



## Important Information and General Notes

### General Instructions for the Designer

These general instructions for the designer are provided to ensure proper selection and installation of Simpson Strong-Tie Company Inc. products and must be followed carefully. These general instructions are in addition to the specific design and installation instructions and notes provided for each particular product, all of which should be consulted prior to and during the design process.

- a. Factored resistances for hangers are determined by a static load test resulting in not more than a  $\frac{1}{8}$ " (3 mm) deflection of the joist relative to the header.
- b. Factored resistances for more than one direction for a single connection cannot be added together. A factored load which can be divided into components in the directions given must be evaluated as follows:
 

Factored Uplift / Factored Uplift Resistance + Factored Parallel to Plate / Factored Parallel to Plate Resistance + Factored Perpendicular to Plate / Factored Perpendicular to Plate Resistance < 1.0.

The three terms in the unity equation are due to the three possible directions that exist to generate force on a hurricane tie. The number of terms that must be considered for simultaneous loading is at the sole discretion of the designer and is dependant on the method of calculating wind forces and the utilization of the connector within the structural system.
- c. Factored resistances are based on CSA O86-14 unless otherwise specified.
- d. Unless otherwise noted, resistances include Load Duration, Group Action and Toe-Nail factors from CSA O86 as applicable. The application of additional adjustment factors shall be by the designer. Load Duration Factor,  $K_D$  as specified by CSA O86-14 is as follows:
 

**Standard term ( $K_D = 1.00$ )** — applies to all roof and floor factored resistances and is designated as "Normal" in tables.

**Short term ( $K_D = 1.15$ )** — applies to all wind and seismic factored resistances. Other factored resistance values, based on load durations or special conditions, may govern in certain geographic areas and may be used where applicable, up to the maximum tabulated factored resistance. Load duration increases are only applied if the factor of safety can be maintained.
- e. Wood shear is not considered in the factored resistances given; reduce factored resistances when wood shear is limiting.
- f. Simpson Strong-Tie strongly recommends the following addition to construction drawings and specifications: "Simpson Strong-Tie® connectors are specifically required to meet the structural calculations of plan. Before substituting another brand, confirm factored resistances based on reliable published testing data or calculations. The Engineer/Designer of Record should evaluate and give written approval for substitution prior to installation."
- g. Verify that the dimensions of the supporting member are sufficient to receive the specified fasteners, and develop the top flange bearing length.
- h. Some catalogue illustrations show connections that could cause tension stresses perpendicular to grain or bending of the wood during loading if not sufficiently reinforced. In this case, mechanical reinforcement should be considered.
- i. Simpson Strong-Tie recommends that hanger height be at least 60% of joist height for stability against rotation while under construction prior to sheathing installation.
- j. The term "designer" used throughout this catalogue is intended to mean a licensed/certified building design professional, a licensed professional engineer, or a licensed architect.
- k. For holdowns, anchor bolt nuts should be finger-tight plus  $\frac{1}{4}$  to  $\frac{1}{2}$  turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used as they may preload the holddown.
- l. Holddown and Tension Tie capacities are based on installations with an anchor rod length of 6" from the concrete to top of holddown seat. These products may be raised to any height with consideration of the increased deflection due to additional rod elongation. For cases where the anchor rod is offset, Simpson Strong-Tie offers recommendations, subject to the approval of the designer, which permit holdowns to be raised up to 18" maximum with a corresponding horizontal anchor rod offset of 1  $\frac{1}{2}$ ". See "General Instructions for the Installer" (p. 15, note q).
- m. Throughout the catalogue there are installation drawings showing the load transfer from one element in the structure to another. Additional connections may be required to safely transfer the loads through the structure. It is the designer's responsibility to specify and detail all necessary connections to ensure that a continuous load path is provided as required by the building code.



# Important Information and General Notes

## General Instructions for the Installer

These general instructions for the installer are provided to ensure proper selection and installation of Simpson Strong-Tie Company Inc. products and must be followed carefully. These general instructions are in addition to the specific installation instructions and notes provided for each particular product, all of which should be consulted prior to and during installation of Simpson Strong-Tie Company Inc. products.

- a. All specified fasteners must be installed according to the instructions in this catalogue. Incorrect fastener quantity, size, placement, type, material, or coating may cause the connection to fail. Prior to using a particular fastener, please consult the Connector Fastener types on pp. 22–24.
  - Larger diameter fasteners may be substituted in place of smaller diameter fasteners in connectors provided the larger fastener does not cause splitting in the wood member and the connector holes are not enlarged.
  - Simpson Strong-Tie Strong Drive® SD Connector screws are available for use with some of our connectors. These are designed to replace nails in certain products. See pp. 382–386 for information. Screws not manufactured by Simpson Strong-Tie are not supported in our products.
- b. Fill all fastener holes as specified in the installation instructions for that product. Refer to Simpson Strong-Tie Fastener Guide for the requirements of the various shaped fastener holes.
- c. Do not overdrive nails. Overdriven nails reduce shear capacity. See “Over-Driven Nails in Connectors and Straps” on p. 23 for additional information.
- d. Use the materials specified in the installation instructions. Substitution of or failure to use specified materials may cause the connection to fail.
- e. Products shall be installed for the use specified. Do not add fastener holes or otherwise modify Simpson Strong-Tie Company Inc. products. The performance of modified products may be substantially weakened. Simpson Strong-Tie will not warrant or guarantee the performance of such modified products. Do not alter installation procedures from those set forth in this catalogue. See Terms and Conditions of Sale.
- f. Install products in the position specified in the catalogue.
- g. Do not alter installation procedures from those set forth in this catalogue.
- h. The proper use of certain products requires that the product be bent. For those products, installers must not bend the product more than one time (one full cycle).
- i. Bolt holes shall be at least a minimum of  $\frac{1}{32}$ " (1 mm) and no more than a maximum of  $\frac{1}{16}$ " (2 mm) larger than the bolt diameter (per 12.4.1.2 CSA O86-14).
- j. Install all specified fasteners before loading the connection.
- k. Some hardened fasteners may have premature failure if exposed to moisture. These fasteners are recommended to be used in dry interior applications.
- l. Use proper safety equipment.
- m. Welding galvanized steel may produce harmful fumes; follow proper welding procedures and safety precautions. Welding should be in accordance with CSA W59. Unless otherwise noted Simpson Strong-Tie connectors cannot be welded.
- n. Pneumatic or powder-actuated fasteners may deflect and injure the operator or others. Pneumatic nail tools may be used to install connectors, provided the correct quantity and type of nails (length and diameter) are properly installed in the nail holes. Tools with nail hole-locating mechanisms should be used. CSHP coiled strap works with several manufacturers' full round-head pneumatic framing tools. Visit [strongtie.com/cshp](http://strongtie.com/cshp). Follow the manufacturer's instructions and use the appropriate safety equipment. Overdriving nails may reduce factored resistances. Contact Simpson Strong-Tie. Powder-actuated fasteners should not be used to install connectors, unless noted otherwise. Reference p. 168 for top-flange hanger installation with powder-actuated fasteners.
- o. Joist shall bear completely on the connector seat, and the gap between the joist end and the header shall not exceed  $\frac{1}{8}$ " (3 mm) per ASTM D1761 and ASTM D7147 test standards.
- p. For holdowns, anchor bolt nuts should be finger-tight plus  $\frac{1}{3}$  to  $\frac{1}{2}$  turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used as they may preload the holddown.
- q. Holdowns and Tension Ties may be raised off the sill as dictated by field conditions to accommodate an anchor mislocated no more than  $1\frac{1}{2}$ ". The holddown shall be raised off the sill at least  $3\frac{1}{4}$ " for every  $\frac{1}{4}$ " that the anchor is offset from the model's centreline (as defined on p. 76 to maximum of 18"). Anchor bolt slope shall be no greater than 1:12 (or 5 degrees). Contact the designer if the holddown anchor is offset more than  $1\frac{1}{2}$ ". Raised holddown height is measured from the top of concrete to the top of the holddown bearing plate.
- r. Strong-Drive® screws are permitted to be installed through metal truss plates as approved by the truss designer (predrilling required through the plate using a maximum of a  $\frac{5}{32}$ " bit).
- s. For cold-formed steel applications, all screws shall be installed in accordance with the screw manufacturer's recommendations. All screws shall penetrate and protrude through the joined materials a minimum of 3 full exposed threads per AISI Standard for Cold Formed Steel Framing — General Provisions, Section D1.3, if applicable.
- t. Nuts shall be installed such that the end of the threaded rod or bolt is at least flush with the top of the nut.
- u. When installing hurricane ties on the inside of the wall special considerations must be taken to prevent condensation on the inside of the completed structure in cold climates.
- v. Unless otherwise noted, connectors shown in this catalogue have been designed to be installed at the time the framing members are installed. Contact Simpson Strong-Tie for retrofit suitability of specific connectors including those manufactured in accordance with the hanger options section of this catalogue.
- w. When bolts are used, standard cut washers must be placed between the wood and the nut or the wood and the head when there is no steel between (see 12.2.2.4 — CSA O86-14).



## Code Reports

### Codes

Simpson Strong-Tie® connectors are recognized by most code agencies. Agencies that recognize some or all of our products include ICC-ES; the City of Los Angeles, California; State of Florida; and IAPMO Evaluation Service.

The factored resistances shown in this catalogue comply with the National Building Code of Canada (NBC 2015 and NBC 2020).

Call Simpson Strong-Tie or visit the code agencies' web sites for the current evaluation reports if recognition or approval is to be based on the report. Specific reductions and restrictions may be required by other code agencies.

To determine which specific code report applies to a product and download a copy of the code report, you can use our Code Report Finder at [strongtie.com/codes](http://strongtie.com/codes).

International Code Council – ESR
1056, 1161, 1396, 1472, 1622, 1679, 1772, 1958, 2105, 2138, 2236, 2320, 2330, 2508, 2549, 2551, 2552, 2553, 2555, 2604, 2605, 2607, 2608, 2611, 2613, 2615, 2616, 2652, 2705, 2713, 2762, 2802, 2811, 2877, 2920, 3006, 3037, 3046, 3050, 3096, 3372, 3403, 3506, 3638, 4057, 4208, 4294
IAPMO Uniform Evaluation Service (UES) – ER
112, 124, 130, 143, 192, 240, 241, 262, 263, 265, 280, 281, 326, 417, 449, 466, 493
Intertek
42142

## Corrosion Information

### Understanding the Corrosion Issue

Metal connectors, fasteners and anchors can corrode and lose load carrying capacity when installed in corrosive environments or when installed in contact with corrosive materials. The many variables present in a building environment make it impossible to predict accurately whether, or when, corrosion will begin to reach a critical level. This relative uncertainty makes it crucial that specifiers and users be knowledgeable about the potential risks and select a product suitable for the intended use. When there is any uncertainty about the possible corrosion risks of any installation, a qualified professional should be consulted. Because of the risks posed by corrosion, periodic inspections should be performed by a qualified engineer or qualified inspector and maintenance performed accordingly.

It's common to see some corrosion in outdoor applications. Even stainless steel can corrode. The presence of some corrosion does not mean that

load capacity has been affected or that failure is imminent. If significant corrosion is apparent or suspected, then the wood, fasteners, anchors, and connectors should be inspected by a qualified engineer or qualified inspector. Replacement of affected components may be appropriate.

Because of the many variables involved, Simpson Strong-Tie cannot provide estimates of the service life of connectors, anchors, and fasteners. We suggest that all users and specifiers obtain recommendations on corrosion from the suppliers of the materials that will be used with Simpson Strong-Tie products, in particular, treated wood or concrete. We have attempted to provide basic knowledge on the subject here, and have additional information in our technical bulletins on the topic ([strongtie.com/info](http://strongtie.com/info)). The Simpson Strong-Tie website should always be consulted for the latest information.





# Corrosion Information

## Corrosion Conditions

Corrosion can result from many combinations of environmental conditions, materials, construction design, and other factors, and no single guideline addresses all corrosion possibilities. Nevertheless, important corrosion information can be obtained from Wood Preservation Canada, the American Wood Protection Association (AWPA), National, Provincial and local building codes. The following discussion provides general guidelines and approaches for the selection of Simpson Strong-Tie products for various construction conditions, but is not intended to supersede the guidelines of the entities listed above.

Corrosion issues for Simpson Strong-Tie products generally fall into five categories:

### 1. Environmental and Construction Factors

Many environments and materials can cause corrosion, including ocean salt air, condensation, duration of wetness, fire retardants, fumes, fertilizers, chlorides, sulfates, preservative-treated wood, de-icing salts, dissimilar metals, soils, and more. Designers must take all of these factors into account when deciding which Simpson Strong-Tie products to use with which corrosion-resistant coatings or materials.

The design, quality of construction, and misinstallation can directly affect the corrosion resistance of products. A product intended and installed for use in dry-service environment may corrode if the structure design or building materials allow moisture intrusion, or expose the product to corrosive conditions, such as moisture or chemicals contained in the construction materials, soils, or atmospheres.

### 2. Chemically Treated Lumber

Some wood-preservative or fire-retardant chemicals or chemical retention levels create increased risk of corrosion and are corrosive to steel connectors and fasteners. For example, testing by Simpson Strong-Tie has shown that ACQ-Type D is more corrosive than Copper Azole, Micronized Copper Azole, or CCA-C. At the same time, other tests have shown that inorganic boron treatment chemicals, specifically SBX-DOT, are less corrosive than CCA-C.

Because different chemical treatments of wood have different corrosion effects, it's important to understand the relationship between the wood treatment chemicals and the coatings and base metals of Simpson Strong-Tie products.

The preservative-treated wood supplier should provide all of the pertinent information about the treated wood product. The information should include the Use Category Designation, wood species group, wood treatment chemical, and chemical retention as per CAN/CSA O80 Series-15. See building code requirements and appropriate evaluation reports for corrosion effects of wood treatment chemicals and for fastener corrosion resistance recommendations.

With Fire-Retardant-Treated (FRT) Wood, CSA Standard O86-14 refer to the manufacturers' recommendations for fastener corrosion requirements. In the absence of recommendations from the FRT manufacturer, fasteners should be hot-dip galvanized, stainless steel, silicon bronze or copper. Simpson Strong-Tie further requires that the fastener is compatible with the metal connector hardware. Fastener lateral and withdrawal resistances may be reduced in FRT lumber. Refer to the FRT manufacturer's evaluation report for potential reduction factors.

### 3. Dissimilar Metals and Galvanic Corrosion

Galvanic corrosion occurs when two electrochemically dissimilar metals contact each other in the presence of an electrolyte (such as water) that acts as a conductive path for metal ions to move from the more anodic to the more cathodic metal. Good detailing practice, including the following, can help reduce the possibility of galvanic corrosion of fasteners and connectors:

- Use fasteners or anchors and connectors with similar electrochemical properties
- Use insulating materials to separate dissimilar metals
- Ensure that the fastener or anchor is the cathode when dissimilar connector metals are present
- Prevent exposure to and pooling of electrolytes

### Galvanic Series of Metals

Corroded End (Anode)
Magnesium, Magnesium alloys, Zinc
Aluminum 1100, Cadmium, Aluminum 2024-T4, Iron and Steel
Lead, Tin, Nickel (active), Inconel Ni-Cr alloy (active), Hastelloy alloy C (active)
Brasses, Copper, Cu-Ni alloys, Monel
Nickel (passive)
304 stainless steel (passive), 316 stainless steel (passive), Hastelloy alloy C (passive)
Silver, Titanium, Graphite, Gold, Platinum
Protected End (Cathode)

If you are uncertain about the galvanic corrosion potential of any installation, always consult with a corrosion expert. See the product pages for particular parts for more information regarding what coating systems are recommended or required for use with the parts in question.

### 4. Hydrogen-Assisted Stress Corrosion Cracking

Some hardened fasteners may experience premature failure from hydrogen-assisted stress-corrosion cracking if exposed to moisture. These fasteners are recommended for use only in dry-service conditions.

### 5. Indoor Swimming Pools

Indoor swimming pool environments are extremely corrosive to steel products. And some stainless steel is highly susceptible to stress corrosion cracking (SCC) under sustained loads in this environment. SCC can result in sudden failures. Instead of stainless steel, it is advised to use a duplex coated, post-hot-dip galvanized or ZMAX® coated low carbon steel for any load-bearing components used in swimming pool environments. Regular maintenance is strongly advised. See [strongtie.com/corrosion](http://strongtie.com/corrosion) for additional information.



## Corrosion Information

# Guidelines for Selecting Materials and Coatings

In the discussion and charts of this section, Simpson Strong-Tie presents a **three-step** system to determine which product coatings and base metals to use in a range of corrosion conditions. These are general guidelines that may not consider all relevant application criteria. Refer to product-specific information for additional guidance.

Simpson Strong-Tie evaluated the Use Categories outlined in CAN/CSA O80 Series-15 and ICC-ES AC257 Exposure Conditions and developed a set of corrosion resistance recommendations. These recommendations address the coating systems and materials used by Simpson Strong-Tie for fastener, connector, and anchor products. Although the CSA Use Categories and ICC-ES AC257 Exposure Conditions specifically address treated-wood applications and some common corrosion agents, Simpson Strong-Tie believes that its recommendations may be applied more generally to other application conditions, insofar as the service environments discussed are similar. You should consult with a corrosion engineer concerning the application where advisable.

### Step 1 — Evaluate the Corrosion Conditions

- **Dry Service:** Generally INTERIOR applications including wall and ceiling cavities, **and in** raised floor applications in enclosed buildings that have been designed to prevent condensation and exposure to other sources of moisture. Prolonged periods of wetness during construction should also be considered, as this may constitute a Wet Service or Elevated Service condition. Dry Service is typical of CSA UC1 and UC2 for wood treatment and AC257 Exposure Condition 1. Keep in mind that dry-service environment may contain airborne salts. AC257 Exposure Condition 2 reflects the presence of airborne salt in a dry-service environment and corrosion hazard to exposed metal surfaces. It does not include effects of treatment chemicals. This condition is generally considered in Elevated and Uncertain assessments.
- **Wet Service:** Generally EXTERIOR construction in conditions other than elevated service. These include Exterior Protected and Exposed and General Use Ground Contact as described by CSA UC4.1. CAN/CSA O80 Series-15 classifies exterior above-ground treatments as Use Categories UC3.1 or UC3.2 depending on moisture run-off; and for exterior ground-contact levels of protection, it has Use Categories UC4.1, UC4.2 and UC4.3. ICC-ES AC257 considers the exterior exposure to be limited by the presence of treatment chemicals, and corrosion accelerators. In general, the AC257 Exposure Condition 1 includes Use Categories UC1 (interior/dry) and UC2 (interior/damp), while Exposure Condition 3 is a surrogate to UC3.1, UC3.2 and UC4.1 (exterior, above-ground and ground-contact, general use). The ICC-ES AC257 Exposure Conditions 2 and 4 are exposures that are salt environments.
- **Elevated Service:** Includes fumes, fertilizers, soil, some preservative-treated wood (UC4.2 and UC4.3), industrial-zone atmospheres, acid rain, salt air, and other corrosive elements.
- **Uncertain:** Unknown exposure, materials, or treatment chemicals.
- **Ocean/Water Front Service:** Marine environments that include airborne chlorides, salt air, and some salt splash. Environments with de-icing salts are included.



# Corrosion Information

## Guidelines for Selecting Materials and Coatings (cont.)

### Step 2 – Determine Your Corrosion Resistance Classification

#### Corrosion Resistance Classifications

Environment	Material to Be Fastened						
	Untreated Wood or Other Material	Preservative-Treated Wood					FRT Wood
		SBX-DOT Zinc Borate	Chemical Retention ≤ UC4.1	Chemical Retention > UC4.1	ACZA	Other or Uncertain	
Dry Service	Low	Low	Low	High	Medium	High	Medium
Wet Service	Medium	N/A	Medium	High	High	High	High
Elevated Service	High	N/A	Severe	Severe	High	Severe	N/A
Uncertain	High	High	High	Severe	High	Severe	Severe
Ocean/Water Front	Severe	N/A	Severe	Severe	Severe	Severe	N/A

#### Additional Considerations

1. Always consider the importance of the connection as well as the cost of maintenance and replacement.
2. If the information about treatment chemicals in an application is incomplete, or if there is any uncertainty as to the service environment of any application, Simpson Strong-Tie recommends the use of a Type 300 Series stainless steel. Simpson Strong-Tie has evaluated the corrosion effects of various formulations of wood treatment chemicals ACZA, ACQ, CCA, MCA, CA, and salt as corrosion accelerators. Simpson Strong-Tie has not evaluated all formulations and retentions of the named wood treatment chemicals other than to use coatings and materials in the severe category. Manufacturers may independently provide test results or other product information. Simpson Strong-Tie expresses no opinion regarding such information.
3. Type 316/305/304 stainless-steel products are recommended where preservative-treated wood used in ground contact has a chemical retention level greater than those for UC4.1; CA-C, 0.15 pcf (**pounds per cubic foot**); CA-B, 0.21 pcf; micronized CA-C, 0.14 pcf; micronized CA-B, 0.15 pcf; ACQ-Type D (or C), 0.40 pcf. When wood treated with micronized CA-C and micronized CA-B with treatment retentions up to UC4.2 is in dry service, hot-dip galvanized fasteners and connectors may be suitable.
4. Mechanical galvanizations C3 and N2000 should not be used in conditions that would be more corrosive than UC3.1 (exterior, above ground, rapid water run off).
5. Some chemically treated wood may have chemical retentions greater than specification, particularly near the surface, making it potentially more corrosive than chemically treated wood with lower retentions. If this condition is suspected, use Type 316/305/304 stainless-steel, silicon bronze, or copper fasteners.
6. Some woods, such as cedars, redwood, and oak, contain water-soluble tannins and are susceptible to staining when in contact with metal connectors and fasteners. According to the California Redwood Association ([calredwood.org](http://calredwood.org)), applying a quality finish to all surfaces of the wood prior to installation can help reduce staining.
7. Anchors, fasteners and connectors in contact with FRT lumber shall be hot-dip galvanized or stainless steel, unless recommended otherwise by the FRT manufacturer. Many FRT manufacturers permit low-corrosion-resistant connector and fastener coatings for dry-service conditions.
8. Simpson Strong-Tie does not recommend painting stainless-steel anchors, fasteners or connectors. Imperfections or damage to the paint can facilitate collection of dirt and water that can degrade or block the passive formation of the protective chromium oxide film. When this happens, crevice corrosion can initiate and eventually become visible as a brown stain or red rust. Painting usually does not improve the corrosion resistance of stainless steel.






# Corrosion Information

## Guidelines for Selecting Materials and Coatings (cont.)

### Step 3 – Match Your Corrosion Resistance Classification to the Coatings and Materials Available

Not all products are available in all finishes. Contact Simpson Strong-Tie for product availability, ordering information and lead times.

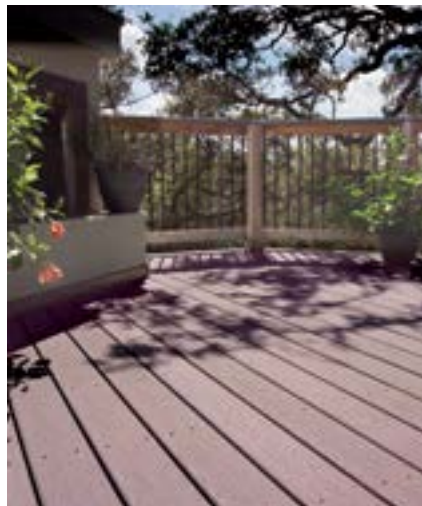
#### Coatings and Materials Available for Connectors

Level of Corrosion Resistance	Coating or Material	Description	
Connectors			Fastener Material or Finish
Low	<b>Gray or Black Paint</b>	Organic paint intended to protect the product while it is warehoused and in transit to the jobsite.	Bright, Hot-Dip Galvanized, Mechanically Galvanized, or Double-Barrier Coating
	<b>Powder Coating</b>	Baked-on paint finish that is more durable than standard paint.	
	<b>Galvanized</b>	Standard (G90) zinc-galvanized coating containing 0.90 oz. of zinc per square foot of surface area (total both sides).	
Medium		Galvanized (G185) 1.85 oz. of zinc per square foot of surface area (hot-dip galvanized per ASTM A653) total for both sides. Products with a powder-coat finish over a ZMAX® base have the same level of corrosion resistance.	Hot-Dip Galvanized, Mechanically Galvanized, or Double-Barrier Coating <i>* Bright fasteners may be used with ZMAX or HDG connectors where low corrosion resistance is allowed.</i>
		Products are hot-dip galvanized after fabrication (14 ga. and thicker). The coating weight increases with material thickness. The minimum average coating weight is 2.0 oz./ft. <sup>2</sup> (per ASTM A123) total for both sides. Anchor bolts are hot-dip galvanized per ASTM F2329.	
High/Severe		Type 316 stainless steel is a nickel-chromium austenitic grade of stainless steel with 2–3% molybdenum. Type 316 stainless steel is not hardened by heat treatment and is inherently nonmagnetic. It provides a level of corrosion protection suitable for severe environments, especially environments with chlorides.	Type 316 Stainless Steel

**Dry Service**



**Wet Service**



**Elevated Service / Severe**








# Corrosion Information

## Guidelines for Selecting Materials and Coatings (cont.)

### Step 3 – Match Your Corrosion Resistance Classification to the Coatings and Materials Available

Not all products are available in all finishes. Contact Simpson Strong-Tie for product availability, ordering information and lead times.

#### Coatings and Materials Available for Fasteners

Level of Corrosion Resistance	Coating or Material	Description	
Fasteners			Applicable Products
Low	Bright	No surface coating.	Nails
	Electrocoating (E-Coat™)	Electrocoating utilizes electrical current to deposit the coating material on the fastener. After application, the coating is cured in an oven. Electrocoating provides a minimum amount of corrosion protection and is recommended for dry, low-corrosive applications.	Strong-Drive® SDWF, SDW and SDWV Screws
	Clear and Bright Zinc, ASTM F1941	Zinc coatings applied by electrogalvanizing processes to fasteners that are used in dry service and with no environmental or material corrosion hazard.	SD8 Wafer Head Screw
Medium	Zinc Plating with Baked-On Ceramic Coating	A baked ceramic barrier coating applied over top of electroplated zinc provides increased protection in mildly corrosive environments.	Titen Turbo™ Concrete and Masonry Screw
	 ASTM A153, Class D	Hot-dip galvanized fasteners 3/8" and smaller in diameter in accordance with ASTM A153, Class D.	Strong-Drive SCN CONNECTOR Nail
	Type 410 Stainless Steel with Protective Top Coat	Carbon martensitic grade of stainless steel that is inherently magnetic, with an added protective top coat. This material can be used in mild atmospheres and many mild chemical environments.	Titen Stainless-Steel Concrete and Masonry Screw
	Mechanically Galvanized Coating, ASTM B695, Class 55	Simpson Strong-Tie® Strong-Drive SD Connector screws are manufactured with a mechanically applied zinc coating in accordance with ASTM B695, Class 55, with a supplemental overcoat. These fasteners are compatible with painted and zinc-coated (G90 and ZMAX) connectors and are recognized in evaluation reports that can be found on <a href="http://strongtie.com">strongtie.com</a> .	Strong-Drive SD CONNECTOR Screw
	Double-Barrier Coating	Simpson Strong-Tie Strong-Drive SDS Heavy-Duty Connector screws and Outdoor Accents® structural wood screws are manufactured with double-barrier coating that provides a level of corrosion protection equaling that provided by HDG coating and are recognized in evaluation reports that can be found on <a href="http://strongtie.com">strongtie.com</a> .	Strong-Drive SDS HEAVY-DUTY CONNECTOR Screw Outdoor Accents Connector Screw and Structural Wood Screw
High/Severe	 ASTM A153, Class C	Simpson Strong-Tie Strong-Drive Timber-Hex screws are hot-dip galvanized in accordance with ASTM A153, Class C. These hot-dip galvanized fasteners have a minimum average of 1.25 oz./ft. <sup>2</sup> of zinc coating.	Strong-Drive TIMBER-HEX HDG Screw
	 Type 316 Stainless Steel	Type 316 stainless steel is a nickel-chromium austenitic grade of stainless steel with 2-3% molybdenum. It provides a level of corrosion protection suitable for severe environments, especially environments with chlorides.	Strong-Drive SCNR CONNECTOR Nail Strong-Drive SDS HEAVY-DUTY CONNECTOR Screw Strong-Drive SD CONNECTOR SS Screw Strong-Drive SDWS TIMBER SS Screw



# Fastener Types

## Fastener Types and Sizes Specified for Simpson Strong-Tie® Connectors

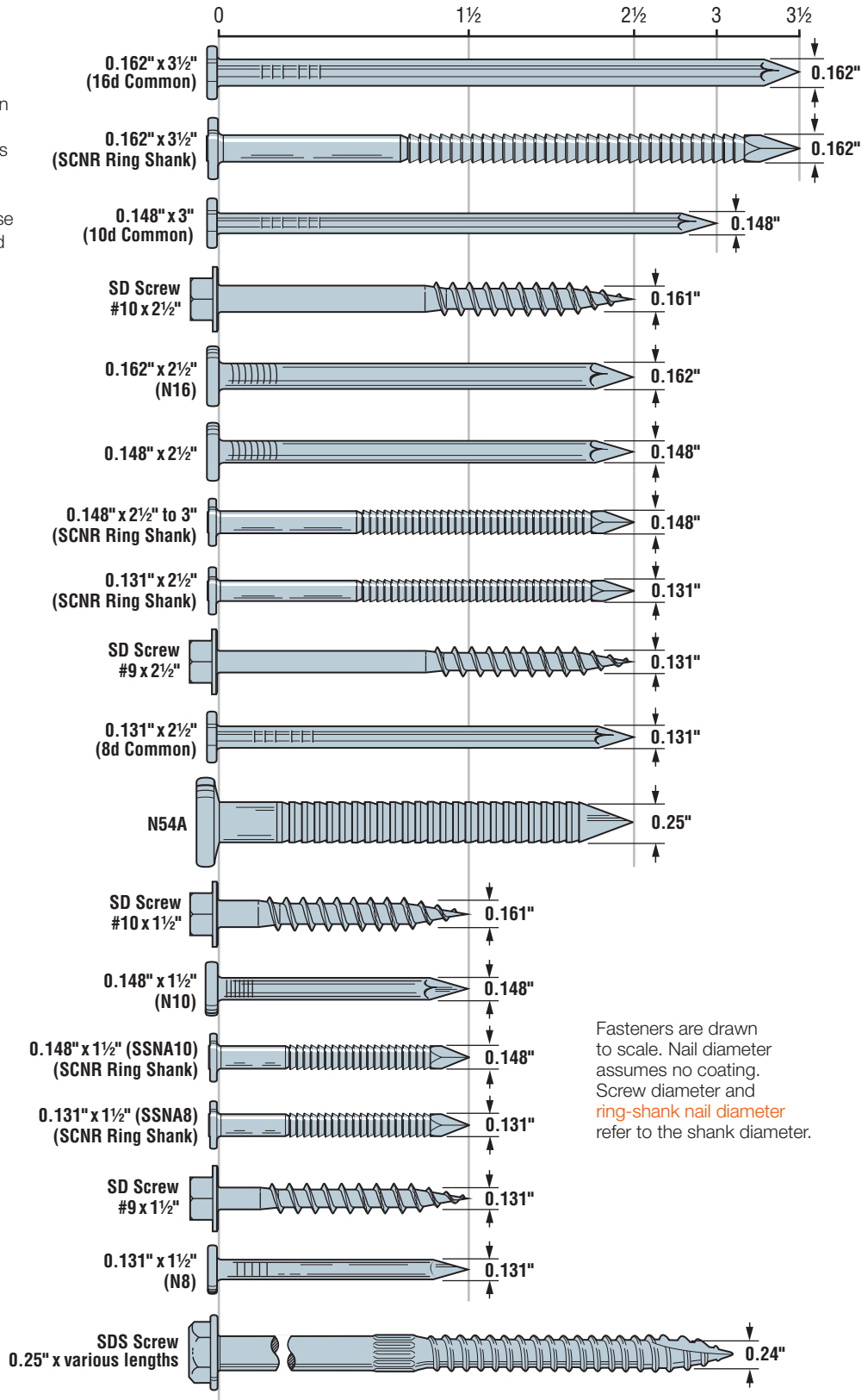
Many Simpson Strong-Tie connectors have been designed and tested for use with specific types and sizes of fasteners. The specified quantity, type and size of fastener must be installed in the correct holes on the connector to achieve published values. Other factors such as fastener material and finish are also important. Incorrect fastener selection or installation can compromise connector performance and could lead to failure. For more information about fasteners, see our *Fastening Systems* catalogue at [strongtie.com](http://strongtie.com) or access our Fastener Finder software at [strongtie.com/software](http://strongtie.com/software).



The Simpson Strong-Tie Strong-Drive® SD Connector screw is the only screw approved for use with our connectors. See pp. 382–386 for more information.



The factored resistances of stainless-steel connectors match those of carbon-steel connectors when installed with Simpson Strong-Tie stainless-steel, SCNR ring-shank nails. For more information, refer to engineering letter L-F-SSNAILS at [strongtie.com](http://strongtie.com).



Fasteners are drawn to scale. Nail diameter assumes no coating. Screw diameter and ring-shank nail diameter refer to the shank diameter.



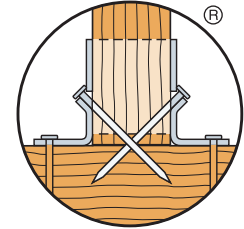
# Fastener Design Information

In some cases, it is desirable to install Simpson Strong-Tie face-mount joist hangers and straight straps with fasteners that are a different type or size than what is called out in the load table. In these cases, these reduction factors must be applied to the factored resistances listed for the connector.

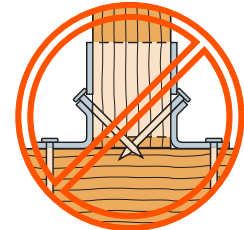
## Resistance Adjustment Factors for Optional Fasteners Used with Face-Mount Hangers and Straight Straps

Specified Catalogue Nail	Replacement Nail	Face-Mount Hangers	Straight Straps
16d common (0.162" x 3½")	10d common (0.148" x 3")	0.83	0.83
	12d common (0.148" x 3¼")		
16d common (0.162" x 3½")	16d x 2½" (0.162" x 2½")	1.00	1.00
16d common (0.162" x 3½")	10d x 1½" (0.148" x 1½")	0.64	0.77
16d common (0.162" x 3½")	16d spiral (0.152" x 3½")	0.91	0.91
16d common (0.162" x 3½")	10d spiral (0.122" x 3")	0.61	0.61
	12d spiral (0.122" x 3¼")		
10d common (0.148" x 3")	10d x 2½" (0.148" x 2½")	0.85	1.00
10d common (0.148" x 3")	8d common (0.131" x 2½")	0.80	0.80
10d common (0.148" x 3")	10d x 1½" (0.148" x 1½")	0.77	0.92
10d common (0.148" x 3")	10d spiral (0.122" x 3")	0.74	0.74
8d common (0.131" x 2½")	8d x 1½" (0.131" x 1½")	0.85	0.98
8d common (0.131" x 2½")	8d spiral (0.110" x 2½")	0.64	0.75

For LUS, HUS, LJS26DS, HHUS and HGUS hangers



Double-shear nailing shall use full length common nails



Shorter nails may not be used as double-shear nails

- Resistance adjustment factors shown in the table are based on calculated reduction factors and are applicable for all face mount hangers and straight straps throughout this catalogue, except as noted in the footnotes below.
- Some products have been tested specifically with alternate fasteners and have reduced capacities published on the specific product page which may differ from the values calculated using this table. The values on the product page shall be used in lieu of the values calculated using this table.
- This table does not apply to SUR/SUL/HSUR/HSUL hangers or to hangers modified per allowed options or to connectors made from steel thicker than 10 gauge.
- Unless noted otherwise, 10d x 1½", 10d x 2½" or 16d x 2½" nails may not be substituted for joist nails in double-shear hangers (i.e., LUS, HUS, HHUS, HGUS). For applications involving pneumatic nails, refer to [strongtie.com](http://strongtie.com) for additional information.
- Do not substitute 10d x 1½" nails for face nails on slope and skew combinations or skewed only LSU and LSSU.
- For straps installed over 5% maximum sheathing, use a 2½" long nail minimum.

## Over-Driven Nails in Connectors and Straps

A nail that is installed such that the head deforms the steel of the connector or strap is considered over-driven. Extra care to prevent over-driven nails should be taken when installing power-driven nails. Simpson Strong-Tie has evaluated the effect of over-driven nails in connectors and straps. No reductions in resistance for connectors or straps apply as a result of over-driven nails if all of the following conditions are met:

- Connectors and straps are 14-, 16-, or 18-gauge steel.
- The top of the nail head is not driven past flush with the face of the metal hardware.
- The nail goes through an existing fastener hole without enlarging it.
- The steel around the hole is not torn or damaged other than denting caused by the nail head.



# Conversion Charts

## Metric Conversion

Imperial	Metric
1 in.	25.40 mm
1 ft.	0.3048 m
1 lb.	4.448 N
1 kip	4.448 kN
1 psi	6,895 Pa

## Bolt Diameter

in.	mm
3/8	9.5
1/2	12.7
5/8	15.9
3/4	19.1
7/8	22.2
1	25.4

## If Common Rafter Roof Pitch is ...

Rise/Run	Slope
1/12	5°
2/12	10°
3/12	14°
4/12	18°
5/12	23°
6/12	27°
7/12	30°
8/12	34°
9/12	37°
10/12	40°
11/12	42°
12/12	45°

## Then Hip/Valley Rafter Roof Pitch becomes ...

Rise/Run	Slope
1/17	3°
2/17	7°
3/17	10°
4/17	13°
5/17	16°
6/17	19°
7/17	22°
8/17	25°
9/17	28°
10/17	30°
11/17	33°
12/17	35°

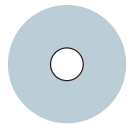
## US Standard Steel Gauge Equivalents in Nominal Dimensions

Ga.	Min. Thick. (mil)	Approximate Dimensions		Thickness of Steel Sheets (in.)		
		in.	mm	Uncoated Steel	Galvanized Steel (G90)	ZMAX® (G185)
3	229	1/4	6	0.239	—	—
7	171	3/16	4.5	0.179	0.186	—
8	155	1/8	4.3	0.164	0.168	0.170
10	118	3/16	3.5	0.134	0.138	0.140
11	111	1/8	3.1	0.120	0.123	0.125
12	97	7/64	2.7	0.105	0.108	0.110
14	68	5/64	2	0.075	0.078	0.080
16	54	1/16	1.6	0.060	0.063	0.065
18	43	3/64	1.3	0.048	0.052	0.054
20	33	1/32	1	0.036	0.040	0.042
22	27	1/32	1	0.030	0.033	0.035

1. Use these Roof Pitch to Hip/Valley Rafter Roof Pitch conversion tables only for hip/valley rafters that are skewed 45° right or left. All other skews will cause the slope to change from that listed.

1. Steel thickness may vary according to industry mill standards.

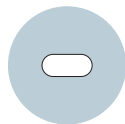
# Fastening Identification



### Round Holes

**Purpose:**  
To fasten a connector.

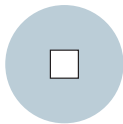
**Fill Requirements:**  
Always fill, unless noted otherwise.



### Ovoid Holes

**Purpose:**  
To make fastening a connector in a tight location easier.

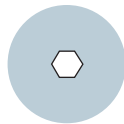
**Fill Requirements:**  
Always fill, unless noted otherwise.



### Square Holes

**Purpose:**  
To fasten a connector.

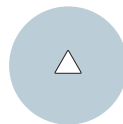
**Fill Requirements:**  
Always fill, unless noted otherwise.



### Hexagonal Holes

**Purpose:**  
To fasten a connector to concrete or masonry.

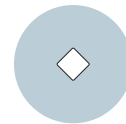
**Fill Requirements:**  
Always fill when fastening a connector to concrete or masonry.



### Triangular Holes

**Purpose:**  
To increase a connector's strength or to achieve max. strength.

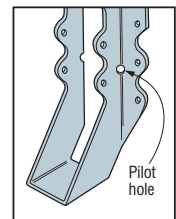
**Fill Requirements:**  
When the designer specifies max. nailing.



### Diamond Holes

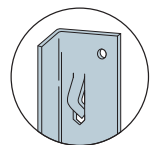
**Purpose:**  
To temporarily fasten a connector to make installing it easier.

**Fill Requirements:**  
None.



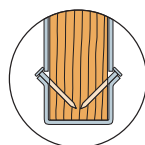
### Pilot Holes

Tooling holes for manufacturing purposes. No fasteners required.



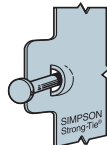
### Speed Prongs

Used to temporarily position and secure the connector for easier and faster installation.



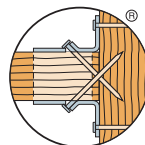
### Positive Angle Nailing (PAN)

Provided when wood splitting may occur, and to speed installation.



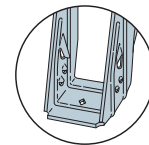
### Dome Nailing

This feature guides the nail into the joist and header at a 45° angle.



### Double-Shear Nailing

The nail is installed into the joist and header, distributing the load through two points on each joist nail for greater strength. Double-shear nailing must be full-length catalogue nail.



### ITS/IUS Strong-Grip™

The Strong-Grip™ seat allows the I-joist to "snap" in securely without the need for joist nails.





# Drawing Finder

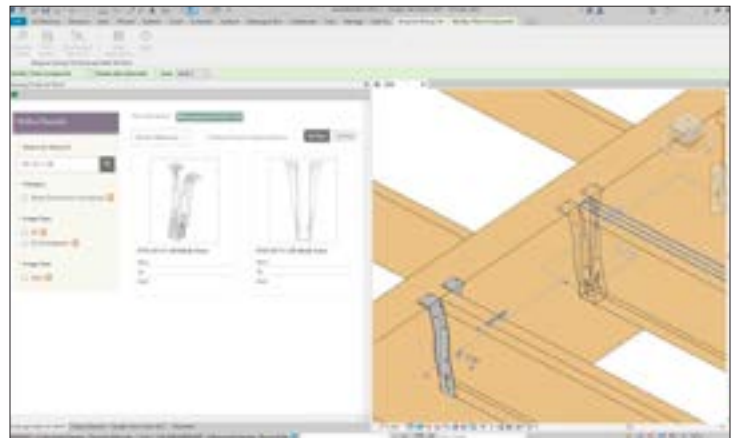
Drawing Library and Direct Download Tools

## The fastest way to put Simpson Strong-Tie products into your plans.

Specify Simpson Strong-Tie products in your designs quickly and easily with our Drawing Finder web app and plugins. Our web-based tool makes it easy for you to find drawings of the exact products you need from our extensive library of over 40,000 drawings. Our Drawing Finder plugins for AutoCAD®, AutoCAD LT® and Revit® bring the same powerful search engine to the program you're working within, so that you never have to leave your project file. You can quickly download the most recent Simpson Strong-Tie product drawings directly into your design for a more efficient workflow. And the Drawing Finder for Bluebeam® plugin offers a library of PDF files to help users of Bluebeam Revu create markups and reviews.



**Drawing Finder** for AutoCAD and AutoCAD LT



**Drawing Finder** for Revit

### Features and Benefits

- Extensive library of over 40,000 connector, anchor and fastener drawings
- Search feature makes finding products fast and simple
- Previously downloaded drawings remain easily accessible
- Compatible with the most current versions of AutoCAD, AutoCAD LT and Revit on Windows
- Seven different file formats available for more compatibility: PDF, IFC, SAT, STL, DWG, DXF and RFA

**MORE  
INFO**

Visit [strongtie.com/drawingfinder](https://strongtie.com/drawingfinder) to access the Drawing Finder web app or download our free Drawing Finder plugins, and start simplifying and streamlining your project workflows.



## Sill Plate Anchoring Solutions

Simpson Strong-Tie offers many anchorage solutions for sill plate applications in concrete or concrete block foundations. Cast-in-place structural connectors offer a time-saving alternative to anchor bolts, and provide installers with more flexibility on the jobsite. Our post-installed connectors are often used in retrofit/expansion applications or when cast-in place anchors are omitted or mis-located. All of these connectors have been evaluated and are acceptable alternates to the code-specified anchor bolts. Powder-actuated pins are acceptable alternates to code-specified anchor bolts for temporary placement of exterior sill plates and for permanent attachment of interior sill plates.

Various product finishes are available to address most environmental or preservative-treated wood conditions. For more information on product performance, installation requirements, corrosion and appropriate code listings for Simpson Strong-Tie® products, please visit [strongtie.com](http://strongtie.com).

### Concrete Products

#### Adhesive

- SET-3G™
- AT-XP®
- SET-XP®
- ET-HP®



### Structural Connectors

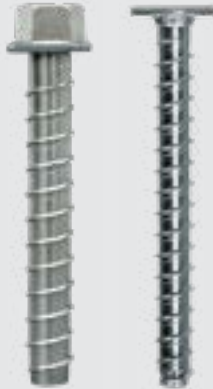
#### Cast-in-Place

- MASA
- LMA
- MAB
- MASB



#### Mechanical

- Titen HD®
- Titen HD Washer-Head
- Strong-Bolt® 2



#### Post-Installed Connectors

- URFP
- FRFP



#### Gas/Powder-Actuated Fasteners

- PDPAT



#### Bearing Plates

- BP
- BPS
- LBPS





# Titen Turbo™

## Concrete and Masonry Screws

The new Titen Turbo concrete and masonry screw anchor features a patent-pending Torque Reduction Channel that displaces dust where it can't obstruct the thread action, reducing the likelihood of binding in the hole. The Titen Turbo is available in 3/16" and 1/4" diameter with either a hex head (required for use with connectors) or, for other material installations, a 6-lobe-drive countersunk head. The pointed tip allows for easy attachment of wood to concrete or for wood-to-wood applications. For more information, visit [go.strongtie.com/titenturbo](http://go.strongtie.com/titenturbo).

**Material:** Carbon steel

**Coating:** Zinc plated with baked-on ceramic coating

**Codes:** IAPMO UES ER-712 (concrete), IAPMO UES ER-716 (masonry)

For proper installation sequence, see installation requirements in IAPMO UES ER-712 (Concrete) and ER-716 (Masonry).

### Titen Turbo Screw Anchor Warning:

Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, use this product in dry and noncorrosive environments only, or provide moisture barrier. Steps must be taken to prevent inadvertent sustained loads above the listed allowable loads. Overtightening and bending can initiate cracks detrimental to the hardened screw's performance. Use the Simpson Strong-Tie Titen Turbo installation tool kit (part TNTINSTALLKIT); it has a bit that is designed to reduce the potential for overtightening the screw.

## Titen Turbo Factored Resistances in Normal-Weight Concrete

Anchor Diameter (in.)	Drill Bit Diameter (in.)	Embedment Depth (in.)	Critical Edge Distance, C <sub>ac</sub> (in.)	Minimum Edge Distance, C <sub>min</sub> (in.)	Minimum Spacing (in.)	Factored Resistance	
						Tension	Shear
						lb.	lb.
3/16	5/32	1 3/4	3	1 3/4	1	645	260
						2.87	1.16
				3		975	260
						4.34	1.16
1/4	3/16	1 3/4	3	1 3/4	2	600	400
						2.67	1.78
				3		985	400
						4.38	1.78

1. Factored resistances shown are generated based on testing per ICC-ES AC193 and ACI 355.2 using the provisions of CSA A23.3-14 Annex D for uncracked concrete.
2. The minimum concrete compressive strength shall be 17.25 MPa (2500 psi).
3. Tabulated values are calculated with C<sub>min</sub> on one side and C<sub>ac</sub> on three sides for a single anchor with no influence of another anchor.
4. Refer to [strongtie.com](http://strongtie.com) for additional information on the Titen Turbo.

## Titen Turbo Allowable Loads in CMU

Anchor Diameter (in.)	Drill Bit Diameter (in.)	Embedment Depth (in.)	Minimum Edge Distance (in.)	End Distance (in.)	Minimum Spacing (in.)	Allowable Load (f' <sub>m</sub> ≥ 1500 psi)			
						UngROUTED CMU		GFCMU	
						Tension	Shear	Tension	Shear
3/16	5/32	1 1/4	3 3/8	3 3/8	3	117	164	—	—
						0.52	0.73	—	—
		2	1 1/2			—	—	267	218
						—	—	1.19	0.97
1/4	3/16	1 1/4	3 3/8	3 3/8	4	117	190	—	—
						0.52	0.85	—	—
		2	1 1/2			—	—	343	283
						—	—	1.53	1.26
		2	3 3/8			—	—	393	342
						—	—	1.75	1.52

1. The allowable loads listed are based on a safety factor of 5.0 for CMU.
2. Allowable loads may not be increased for the duration of load.
3. The attached member or element may govern the allowable load. The designer shall verify allowable load.
4. Refer to [strongtie.com](http://strongtie.com) for additional information on the Titen Turbo.



**Titen Turbo Hex-Head Screw**  
Patent Pending



**Titen Turbo Hex Head**



**Titen Turbo 6-Lobe Head**



# Titen HD®

## Heavy-Duty Screw Anchor

The original high-strength screw anchor for use in cracked and uncracked concrete, as well as uncracked masonry. The Titen HD offers low installation torque and outstanding performance. Designed and tested in dry, interior, non-corrosive environments or temporary outdoor applications, the Titen HD demonstrates industry-leading performance even in seismic conditions.

### Features

- Tested in accordance with ICC-ES AC193 and ACI 355.2 for cracked and uncracked concrete (ICC-ES ESR-2713)
- Tested in accordance with ICC-ES AC106 for masonry (ICC-ES ESR-1056)
- Qualified for static and seismic loading conditions
- Thread design undercuts to efficiently transfer the load to the base material
- Standard fractional sizes
- Specialized heat-treating process creates tip hardness for better cutting without compromising the ductility
- No special drill bit required — designed to install using standard-sized ANSI tolerance drill bits
- Testing shows the Titen HD installs in concrete with 50% less torque than competitor anchors
- Hex-washer head requires no separate washer, unless required by code, and provides a clean installed appearance
- Removable — ideal for temporary anchoring (e.g., formwork, bracing) or applications where fixtures may need to be moved
- Reuse of the anchor to achieve listed load values is not recommended

**Codes:** ICC-ES ESR-2713 (concrete); ICC-ES ESR-1056 (masonry); FM 3017082, 3035761 and 3043442

**Material:** Carbon steel

**Coating:** Zinc plated or mechanically galvanized.

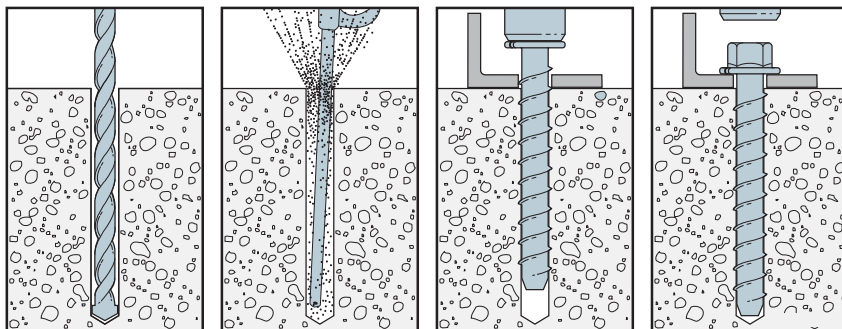
Not recommended for permanent exterior use or highly corrosive environments.

### Installation

- ⚠ Holes in metal fixtures to be mounted should match the diameter specified in the table below.
- Use a Titen HD screw anchor one time only — installing the anchor multiple times may result in excessive thread wear and reduce load capacity.
- ⚠ Do not use impact wrenches to install into hollow CMU.
- ⚠ **Caution:** Oversized holes in base material will reduce or eliminate the mechanical interlock of the threads with the base material and reduce the anchor's load capacity.

1. Drill a hole in the base material using a carbide drill bit the same diameter as the nominal diameter of the anchor to be installed. Drill the hole to the specified embedment depth plus minimum hole depth overall (see table below right) to allow the thread tapping dust to settle, and blow it clean using compressed air. (Overhead installations need not be blown clean.) Alternatively, drill the hole deep enough to accommodate embedment depth and the dust from drilling and tapping.
2. Insert the anchor through the fixture and into the hole.
3. Tighten the anchor into the base material until the hex-washer head contacts the fixture.

### Installation Sequence



Titen HD  
Screw Anchor



Titen HD  
Washer-Head  
Screw Anchor



Serrated teeth on the tip of the Titen HD screw anchor facilitate cutting and reduce installation torque.

### Additional Installation Information for Structural Steel

Titen HD® Diameter (in.)	Wrench Size (in.)	Recommended Steel Fixture Hole Size (in.)	Minimum Hole Depth Overdrill (in.)
1/4	3/8	3/8 to 7/16	1/8
3/8	9/16	1/2 to 9/16	1/4
1/2	3/4	5/8 to 11/16	1/2
5/8	15/16	3/4 to 13/16	1/2
3/4	1 1/8	7/8 to 15/16	1/2

Suggested fixture hole sizes are for structural steel thicker than 12 gauge only. Larger holes are not required for wood or cold-formed steel members.



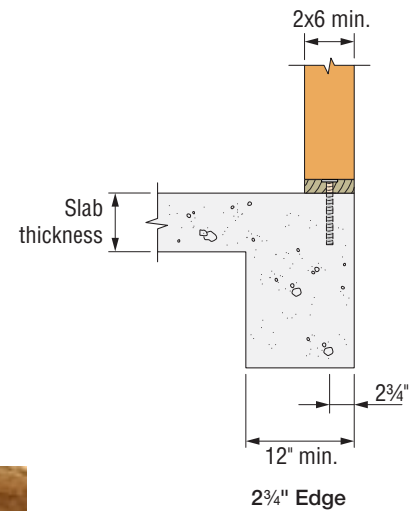
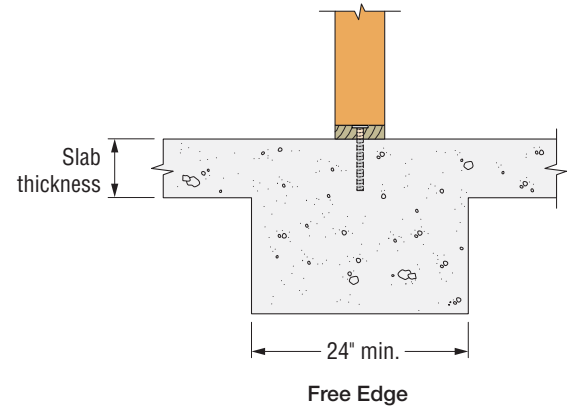
# Titen HD®

## Heavy-Duty Screw Anchor

The Titen HD with washer-head is a high-strength screw anchor for use in cracked and uncracked concrete, as well as masonry. The washer-head design is commonly used where a minimal head profile is necessary. The model is offered in sizes suitable for use in sill plate applications, and the washer head's low installed profile means modular wall and floor systems can be installed on top with no need for notching the wall framing to accommodate the anchor. The anchor's 6-lobe drive eases driving and is less prone to stripping.

Anchor Bolt Dia. (in.)	Model No.	Shearwall Bottom Plate	Nominal Embedment Depth (in.)	Factored Shear Resistance			
				Free Edge		2¾" Edge	
				D.Fir-L	SPF	D.Fir-L	SPF
				lb.	lb.	lb.	lb.
½	THD50600WH	(1) 2x	4½	1555	1230	1555	1230
				6.93	5.47	6.93	5.47
	THD50800WH	(2) 2x	5	2645	2460	2315	2315
				11.77	10.94	10.29	10.29
¾	THDB62600WH	(1) 2x	4½	1555	1230	1555	1230
				6.93	5.47	6.93	5.47
	THDB62800WH	(2) 2x	5	3115	2460	2470	2460
				13.85	10.94	10.99	10.94

1. Published factored resistances are the lesser of steel strength, concrete breakout and pryout capacities, as per CSA A23.3 Annex D and wood failure per 12.4 CSA O86:19.
2. Minimum concrete compression strength is 27.6 MPa.
3. Factored resistances assume minimum loaded end distance is 6" (152 mm) for either wood or concrete.
4. Free edge refers to no spacing restrictions, and 12" edge distance.
5. Factored shear resistance is in-plane or parallel to shearwall.
6. 2¾" edge assumes 2x6 wood wall with one edge = 2¾".
7. Factored resistances shown are applicable to cracked concrete designs under wind or seismic loads.
8. For wind or low seismic zones ( $I_E S(0.2) < 0.35$ ), the factored resistance for THD50800WH under free edge conditions is 2775 lb. (12.35 kN) for (2) 2x6 D.Fir-L sill plate.
9. Refer to the Simpson Strong-Tie Anchor Designer Software at [strongtie.com/software](http://strongtie.com/software) for all other concrete conditions and applications.



AD

Anchor Designer™

For other scenarios, use our Anchor Designer™ Software.

Visit: [strongtie.com/software](http://strongtie.com/software).



## AnchorMate®

### Anchor Bolt Holder

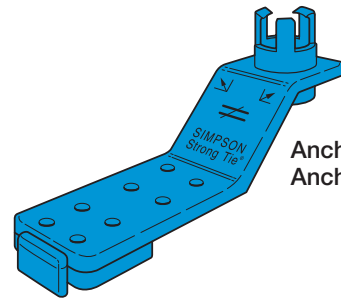
The reusable AnchorMate anchor bolt holder is designed to hold the anchor in place before the concrete pour, as required in some jurisdictions. The gripping section secures the bolt in place without a nut for quicker setup and teardown. It also protects the threads from wet concrete and simplifies trowel finishing.

**Features:**

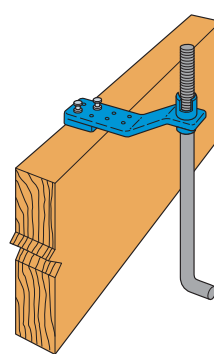
- Built-in 2x4 and 2x6 stops eliminate measuring.
- Color coded for easy size identification.
- Use the 5/8" and 7/8" AnchorMate to secure the SSTB to the formboard before the concrete pour. Alignment arrows (left or right) match the SSTB bolt head arrow.

**Material:** Engineered composite polymer

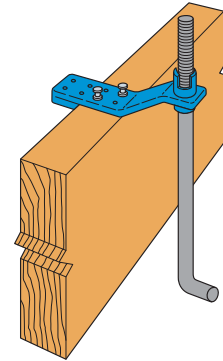
Model No.	Diameter (in.)	Color
AM1/2	1/2	Yellow
AM5/8	5/8	Blue
AM3/4	3/4	Red
AM7/8	7/8	Green
AM1	1	Black



AnchorMate  
Anchor Bolt Holder



Typical AnchorMate  
Installation for a 2x6 Mudsill



Typical AnchorMate  
Installation for a 2x4 Mudsill

## ABS

### Anchor Bolt Stabilizer

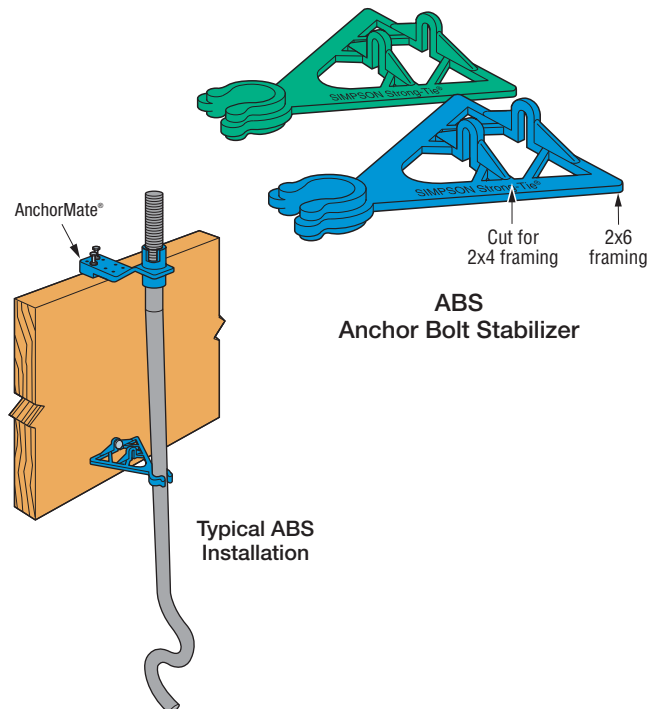
The ABS stabilizes the anchor bolt to prevent it from being pushed against the form during the concrete pour.

**Features:**

- Supports the bolt approximately 8" below the top of the concrete
- Model ABS5/8 is for the 5/8" SSTB and ABS7/8 is for the 7/8" SSTB
- Thin section limits the effect of a cold joint
- Sized for 2x4 and 2x6 mudsills

**Material:** Engineered composite polymer

Model No.	Diameter (in.)	Color
ABS5/8	5/8	Blue
ABS7/8	7/8	Green





# StrapMate®

## Strap Holder

The StrapMate is designed to keep the STHD and LSTHD straps vertically aligned during the concrete pour to minimize possibility of spalling. The friction fit allows for quick and easy installation.

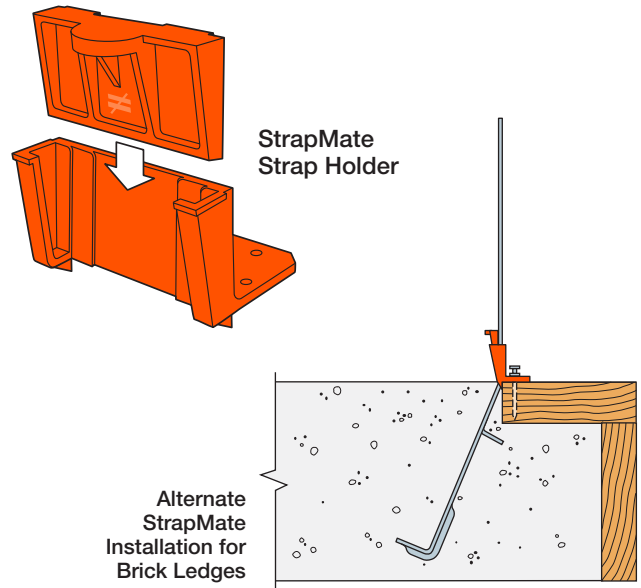
**Features:**

- The StrapMate is reusable
- Works with STHD and LSTHD

**Material:** Engineered Composite Plastic

- Designed to fit 3/4" plywood forms up to 1 3/4" LVL forms and larger
- The strap is positioned off the front edge of the form board

Model No.	Nails
SM1	(2) 8d Duplex



# ABL

## Anchor Bolt Locator

The ABL enables the accurate and secure placement of anchor bolts on concrete-deck forms prior to concrete placement. The structural heavy-hex nut is attached to a pre-formed steel "chair," which eliminates the need for an additional nut on the bottom of the anchor bolt. Electro-galvanized versions available for HDG anchor bolts. Order ABL-OST when using HDG anchor bolts.

**Features:**

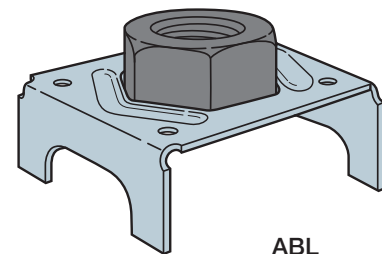
- Designed for optimum concrete flow.
- Installed with nails or screws.
- Meets code requirement for 1" stand off.
- PAB anchors are not designed for use with the ABL. See p. 49 for SAR anchors.

**Material:** Nut — Heavy hex; Chair — Steel

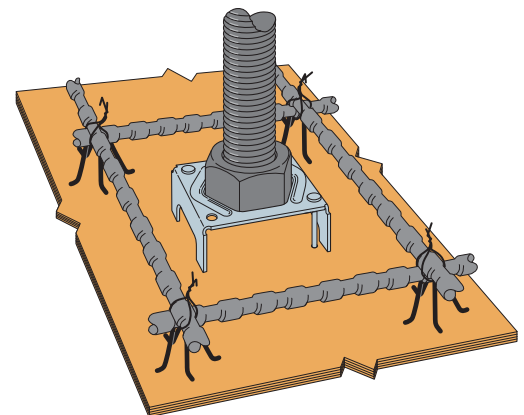
**Finish:** Nut — None or Electro-galvanized;  
Chair — G90; ABL-OST — HDG

Model No.	Anchor Bolt Diameter (in.)
ABL4-1	1/2
ABL5-1	5/8
ABL6-1	3/4
ABL7-1	7/8
ABL8-1	1
ABL9-1	1 1/8
ABL10-1	1 1/4

See p. 49 for  
Shallow Anchorage  
information in  
podium slabs.



**ABL**  
US Patents: 8,621,816  
and 8,381,482



Typical ABL Installation



# WT

## Wedge Form Tie

The wedge tie (WT) is a form tie that secures concrete forms in place while the concrete is poured. It easily installs between form boards and accurately spaces the forms. Several models are available for varying wall thickness and types of form boards.

Designed for low foundation wall applications. 5/8"-wide formed "V" design for rigidity allows accurate form spacing and support. Sizes now available for composite form board.

**Material:** W1 — 14 gauge; WT — 18 gauge

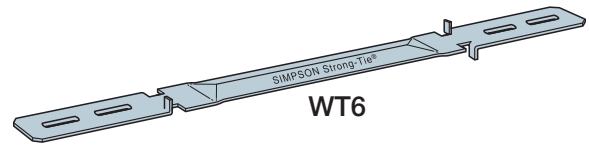
**Finish:** Galvanized

**Installation:**

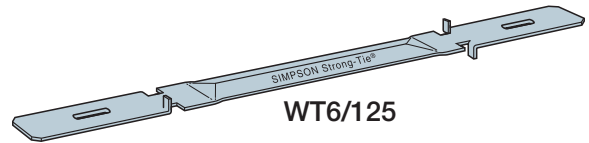
- Two W1 wedges required for each tie
- Not recommended for wall pours greater than 4' high
- Wall thickness from 6" to 12"



Order wedges separately. Specify W1.

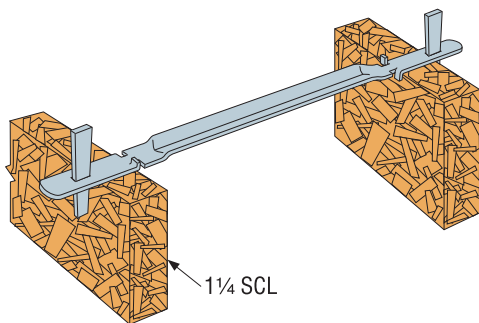


WT6

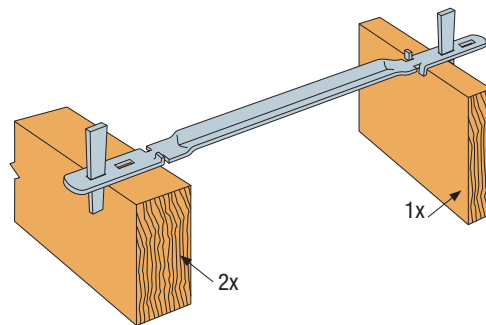


WT6/125

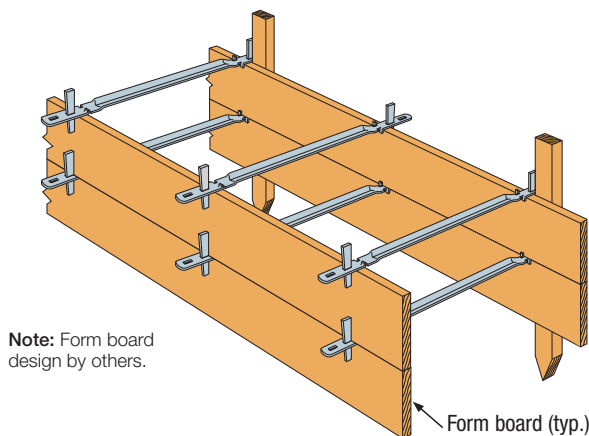
The spacing of the WTs along the length of the form depends on the depth of the WT in the form. The spacing does not depend on the thickness of the wall. The maximum recommended spacing for WTs used with 1x, 2x and 1 1/4" thick forms is outlined in the tables below. The tables give spacing guidelines for various form heights and types of form boards. In general, the higher the form is, the closer the spacing of the WTs should be.



Wedge Tie Installed on SCL



Wedge Tie Installed on Solid Sawn



**Note:** Form board design by others.

Form board (typ.)

Wedge Tie Installed on Form Board



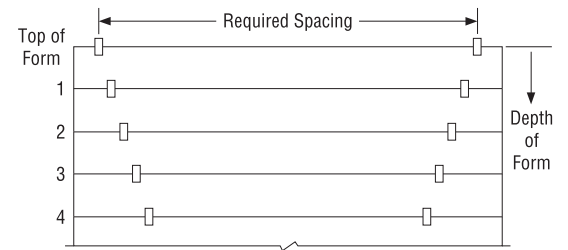
**WT**

## Wedge Form Tie (cont.)

## For Solid Sawn

Location (see Fig. 1)	Depth of Form (in.)	1x6	2x6	Depth of Form (in.)	1x8	2x8
		Spacing (in.)	Spacing (in.)		Spacing (in.)	Spacing (in.)
Top of Form	0	27	46	0	25	43
1	5.5	27	46	7.25	25	43
2	11	23	38	14.5	21	36
3	16.5	22	35	21.75	19	32
4	22	19	32	29	18	30
5	27.5	18	31	36.25	17	29
6	33	17	29	43.5	15	26
7	38.5	16	28	—	—	—
8	44	15	27	—	—	—

Model No.		Wall Thickness (in.)
Solid Sawn	SCL	
WT6	WT6/125	6
WT8	WT8/125	8
WT10	—	10
WT12	—	12

Figure 1 — Spacing Locations  
(side view)

## For Solid Sawn

Location (see Fig. 1)	Depth of Form (in.)	1x10	2x10	Depth of Form (in.)	1x12	2x12
		Spacing (in.)	Spacing (in.)		Spacing (in.)	Spacing (in.)
Top of Form	0	24	40	0	23	38
1	9.25	24	40	11.25	23	38
2	18.5	20	34	22.5	19	32
3	27.75	18	31	33.75	17	22
4	37	17	24	45	15	16
5	46.25	15	19	—	—	—

## For SCL

Location (see Fig. 1)	Depth of Form (in.)	1 ¼" x 9 ½"	Depth of Form (in.)	1 ¼" x 11 ⅞"	Depth of Form (in.)	1 ¼" x 14"	Depth of Form (in.)	1 ¼" x 16"
		Spacing (in.)		Spacing (in.)		Spacing (in.)		Spacing (in.)
Top of Form	0	34	0	32	0	30	0	29
1	9.25	34	11.875	32	14	30	16	29
2	19	28	23.75	27	28	21	32	16
3	28.5	26	35.625	20	42	14	48	11
4	38	23	47.5	15	—	—	—	—
5	47.5	18	—	—	—	—	—	—



# BP/LBP/RP6

## Bearing Plates

Bearing plates give greater bearing surface than standard cut washers, and help distribute the load at these critical connections.

The BPS and LBPS are bearing plates that offer increased flexibility while the slotted hole allows for adjustability to account for bolts that are not in the middle of the sill plate.

The BP<sup>5/8</sup>SKT uses 1/4" x 1 1/2" Strong-Drive® SDS Heavy-Duty Connector screws to provide lateral resistance when 5/8"-diameter sill holes are overdrilled (screws are provided). The shear capacity of the connection and the sill/anchor bolt shall be determined by the designer for each installation.

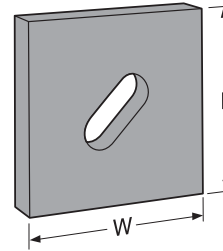
The RP6 retrofit plate is installed on the outside of masonry buildings and helps tie the walls to the roof or floor structure with a 3/4"-diameter rod.

**Material:** See table

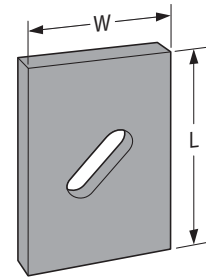
**Finish:** LBP, LBPS — Galvanized; BP<sup>5/8</sup>-2, BP<sup>5/8</sup>S — Zinc Plated; BPS, BP — None; RP6 — Simpson Strong-Tie® gray paint. BPs, BPSs and RP6 may be ordered HDG; LBP and LBPS products may be ordered ZMAX®; contact Simpson Strong-Tie; see Corrosion Information, pp. 16–21. BPs available in black powder coat; add PC to model number.

**Installation:**

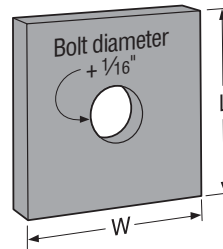
- See General Notes
- BP/BPS — For shearwall applications, position edge of plate washer within 1/2" of sheathed edge of sill plate.
- BPS-6 plate washers are sized to accommodate the 1/2" from the sheathed edge in single- and double-sheathed 2x6 walls.
- Standard-cut washer required with BPS slotted bearing plates. Washer not required when used with Titen HD® heavy-duty screw anchors.



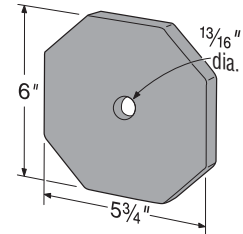
**BPS**  
(LBPS similar)



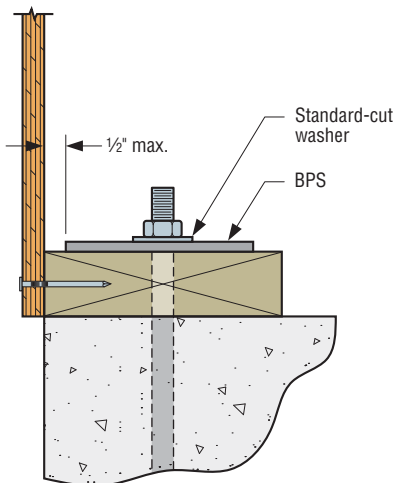
**BPS<sup>1/2</sup>-6**  
(other models similar)



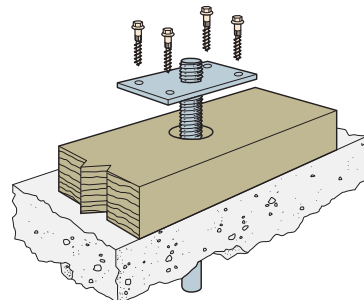
**BP**  
(LBP similar)



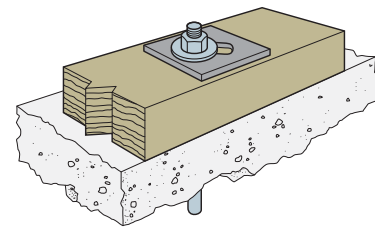
**RP6**



**Typical BPS Installed as a Shear Anchor**



**The BP<sup>5/8</sup>SKT is used when 5/8" diameter sill bolt holes are overdrilled**



**Typical BPS Installation**



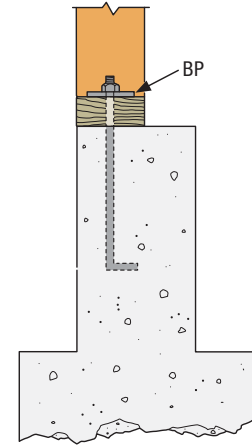
# BP/LBP/RP6

## Bearing Plates (cont.)

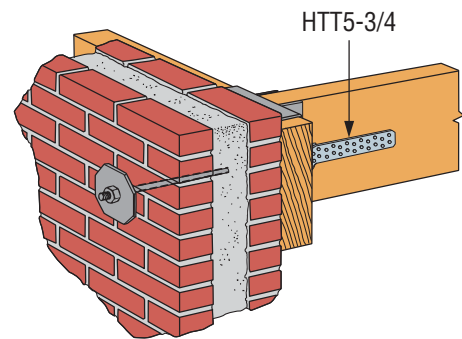
These products are available with additional corrosion protection. For more information, see p. 20.

Bolt Diameter (in.)	Model No.	Thickness	Dimensions (in.)	
			W	L
3/8	BP3/8-2	3/16"	2	2
1/2	LBP1/2	9/64"	2	2
	LBPS1/2	9/64"	3	3
	BPS1/2-3	3 ga.	3	3
	BPS1/2-6	3 ga.	3	4 1/2
	BP1/2	3/16"	2	2
	BP1/2-3	3 ga.	3	3
5/8	LBP5/8	9/64"	2	2
	LBPS5/8	9/64"	3	3
	BPS5/8-3	3 ga.	3	3
	BPS5/8-6	3 ga.	3	4 1/2
	BP5/8-2	3/16"	2	2
	BP5/8SKT	3 ga.	4	2
	BP5/8	1/4"	2 1/2	2 1/2
	BP5/8-3	3 ga.	3	3
3/4	BP3/4-3	3 ga.	3	3
	BPS3/4-3	3 ga.	3	3
	BPS3/4-6	3 ga.	3	4 1/2
	RP6	3/8"	6	5 3/4
7/8	BP7/8-2	3/8"	1 1/4	2 1/4
	BP7/8-R	5/16"	3	3
1	BP1	3/8"	3 1/2	3 1/2

- BP5/8SKT sold as a kit.
- Standard cut washer required with BPS1/2-3, BPS5/8-3, BPS3/4-3, BPS1/2-6, BPS5/8-6 and BPS3/4-6 (not provided).



Typical BP Installed with a Mudsill Anchor Bolt



Typical RP6 Installation

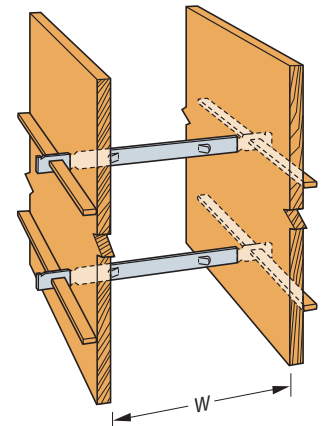
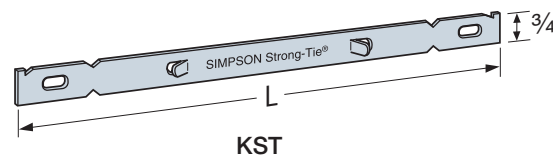
## KST

### Speed Wall Ties (Kwik Strip)

Material: 16 gauge

Finish: None

Model No.	Wall Thickness W (in.)	Length L (in.)
KST6	6	10 1/2
KST8	8	12 1/2
KST10	10	14 1/2
KST12	12	16 1/2



Typical KST Installation

- The Factored Tensile Resistance for all models is 1410 lb. (6.27 kN).
- Formwork designer to specify tie spacing and concrete pour rate to ensure that Factored Resistances are not exceeded.



# CNW/HSCNW

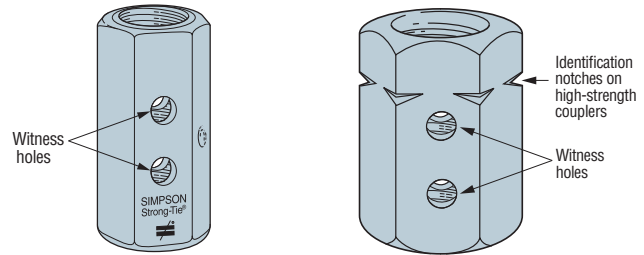
## Coupler Nuts

Simpson Strong-Tie® coupler nuts are a tested and load-rated method to join threaded rod and anchor bolts. The Witness™ holes in the nut provide a means to verify when rods are properly installed. The positive stop feature helps ensure even threading into each end of the nut. The CNW meets and exceeds the tensile capacity of corresponding ASTM A307 bolts and threaded rod. The HSCNW meets and exceeds the tensile capacity of corresponding ASTM A449 bolts and threaded rod. Contact Simpson Strong-Tie for other coupler nut sizes.

**Finish:** Zinc Plated

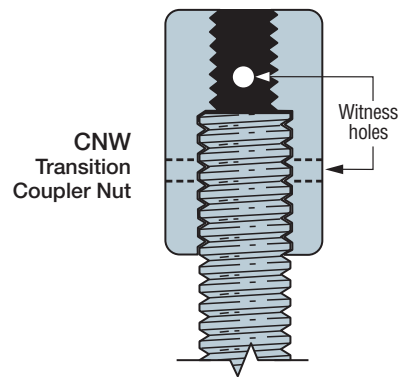
**Installation:**

- Tighten the two rods until each all-thread rod is visible in the witness hole. Any portion of thread visible in the witness hole is a correct installation.
- Standard CNW for use with non-hot-dip galvanized all-thread rod only.
- 5/8"- and 7/8"-diameter couplers available with oversized threads for installation to hot-dip galvanized bolts (order CNW5/8-5/8OST and CNW7/8-7/8OST).
- Some OST couplers are typically oversized on one end of the coupler nut only and will be marked with an "O" on oversized side. Contact Simpson Strong-Tie.



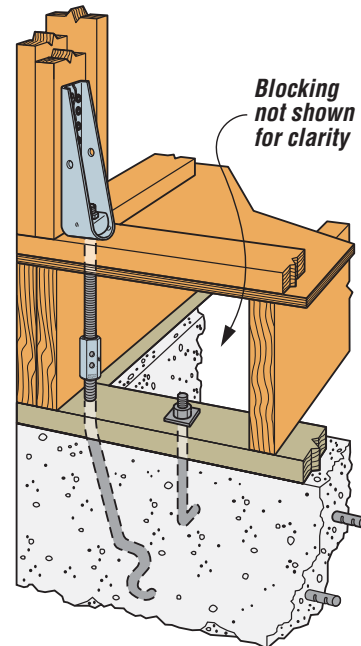
**CNW**  
Allows Fast Visual Check  
for Correct All Thread  
Rod Installation

**HSCNW**  
High-Strength  
Coupler Nut



**CNW**  
Transition  
Coupler Nut

Model No.	Rod Diameter (in.)
CNW1/2	1/2
CNW5/8	5/8
CNW3/4	3/4
CNW7/8	7/8
CNW1	1
CNW1 1/4	1 1/4
HSCNW3/4	3/4
HSCNW1	1
Transition Couplers	
CNW5/8 - 1/2	5/8 to 1/2
CNW3/4 - 5/8	3/4 to 5/8
CNW7/8 - 5/8	7/8 to 5/8
CNW1 - 7/8	1 to 7/8



**Typical CNW**  
**Installation**



# L-BOLT

## Anchor Bolts

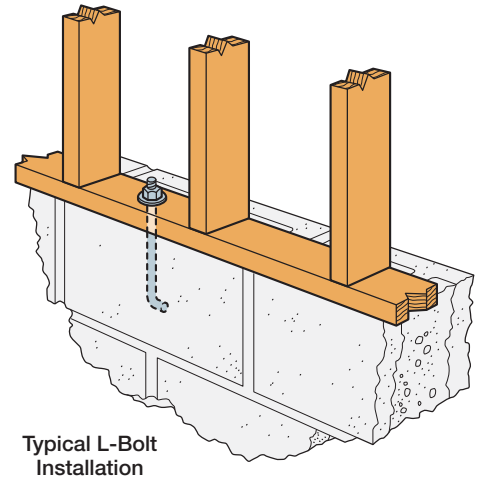
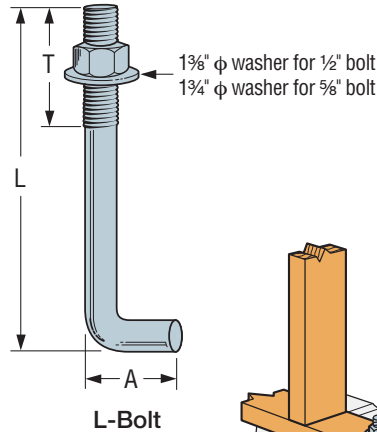
The L-Bolt anchor bolts are used to attach sill plates to concrete or masonry foundations, provide anchorage for light weight post bases and for general anchorage to concrete. The L-Bolt anchor bolts meet the prescriptive requirements of article 9.23.6 of the National Building Code of Canada 2015 (NBC 2015).

**Material:** ASTM F1554 Grade 36

**Finish:** Unfinished, available in HDG (per ASTM A153)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Dimensions (in.)			
	Diameter	L	T	A
LBOLT50600	½	6	1½	1½
LBOLT50800	½	8	1½	1½
LBOLT50100	½	10	1½	1½
LBOLT50120	½	12	1½	1½
LBOLT62600HDG	⅝	6	3	1⅞
LBOLT62800	⅝	8	3	1⅞
LBOLT62100	⅝	10	3	1⅞



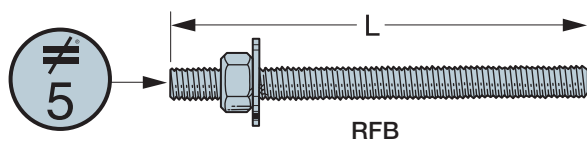
# RFB

## Retrofit Bolt

The RFB retrofit bolt is a clean, oil-free, pre-cut threaded rod, supplied with nut and washer. It offers a complete engineered anchoring system when used with Simpson Strong-Tie® adhesive. Inspection is easy; the head is stamped with rod length and No-Equal® symbol for identification after installation.

**Material:** ASTM F1554 Grade 36

**Finish:** Zinc Plated (unless otherwise noted), available in HDG (per ASTM A153); stainless steel (RFB#5x8SS only)



These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Bolt Diameter (in.)	Length, L (in.)
RFB#4X4	½	4
RFB#4X5	½	5
RFB#4X6	½	6
RFB#4X7	½	7
RFB#4X10	½	10
RFB#4X8HDG-R	½	8
RFB#5X5	⅝	5
SS RFB#5X8	⅝	8
RFB#5X10	⅝	10
RFB#5X12HDG-R	⅝	12
RFB#5X16	⅝	16
RFB#6X10.5	¾	10½

- RFB#4X8HDG-R and RFB#5X12HDG-R are only available with a hot-dip galvanized coating. They are retail packaged and are sold 10 per carton.
- Washer provided on all RFB (except RFB#5x8SS).



# FJA/FSA

## Foundation Anchors

This series is for retrofit or new construction. These products may be used together as a system or in individual applications, designed and tested for earthquake and high wind conditions.

FJA foundation joist anchor nails or bolts directly into floor joist, and provides a direct connection between the foundation and joist. It provides uplift and lateral resistance.

FSA foundation stud anchor nails or bolts to floor joist, or nails to stud. Plywood shearwall may require notching with stud-to-foundation installation.

**Material:** 12 gauge

**Finish:** Galvanized; may be ordered HDG, contact Simpson Strong-Tie.  
See Corrosion Information, pp. 16–21.

**Installation:**

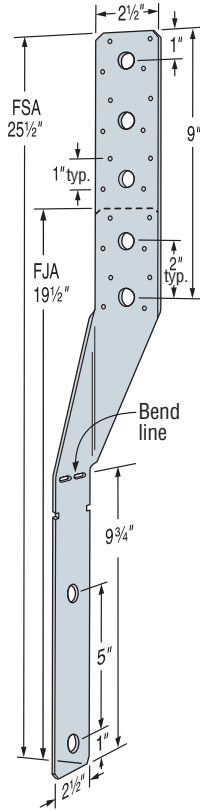
- Use all specified fasteners; see General Notes.
- Select and install concrete anchor bolts in accordance with the manufacturer's recommendations.
- See Acrylic-Tie® AT-XP® adhesive at [strongtie.com](http://strongtie.com) and RFB, p. 37.
- Spacing to be specified by the designer.
- FSA may be bent along bend line up to 20° to accommodate installation. Bend one time only.

These products are available with additional corrosion protection. For more information, see p. 20.

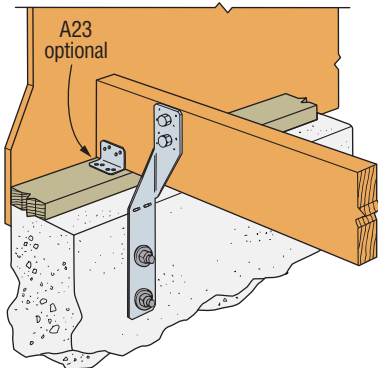
Model No.	Fasteners			Factored Resistance ( $K_D = 1.15$ )	
	Anchor Bolt		Stud / Joist / Plate	D.Fir-L	S-P-F
	Qty.	Dia. (in.)		Uplift lb.	Uplift kN
FJA	2	1/2	(8) 10d x 1 1/2"	2085	1480
			(2) 1/2" MB	9.27	6.58
FSA	2	1/2	(8) 10dx1 1/2"	1805	1425
			(2) 1/2" MB	8.02	6.33
FSA	2	1/2	(8) 10dx1 1/2"	1790	1270
			(2) 1/2" MB	7.96	5.65
			(2) 1/2" MB	960	760
			(2) 1/2" MB	4.27	3.38



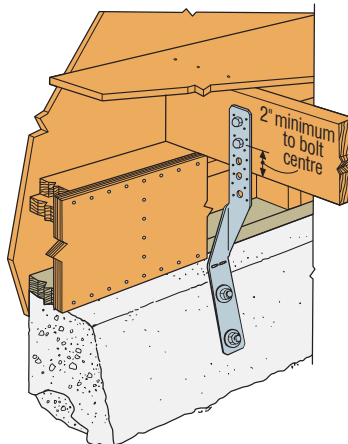
1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other load durations govern.
2. Use the RFB#4x6 with Acrylic-Tie for the anchorage system.
3. See p. 387 for Strong-Drive® SDS Heavy-Duty Connector screw information.
4. **Nails:** 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.



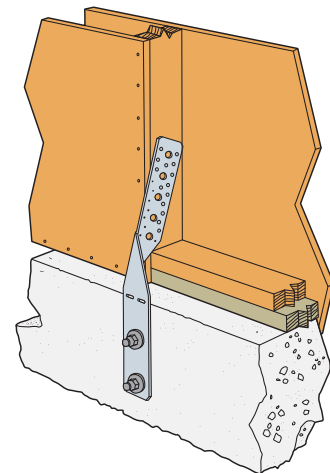
FJA/FSA



Typical FJA Installation  
Foundation to Joist



Typical FSA Installation  
Foundation to Joist



Typical FSA Installation  
Foundation to Stud



# URFP/FRFP

## Retrofit Foundation Plates

The URFP universal retrofit foundation plate is the new, improved version of the UFP, offering increased load capacity while maintaining the same adjustability during installation. Ideal where there is minimum vertical clearance, the URFP provides a retrofit method to secure the mudsill to the foundation. This new design allows installation flexibility when the mudsill is offset or inset from the foundation edge.

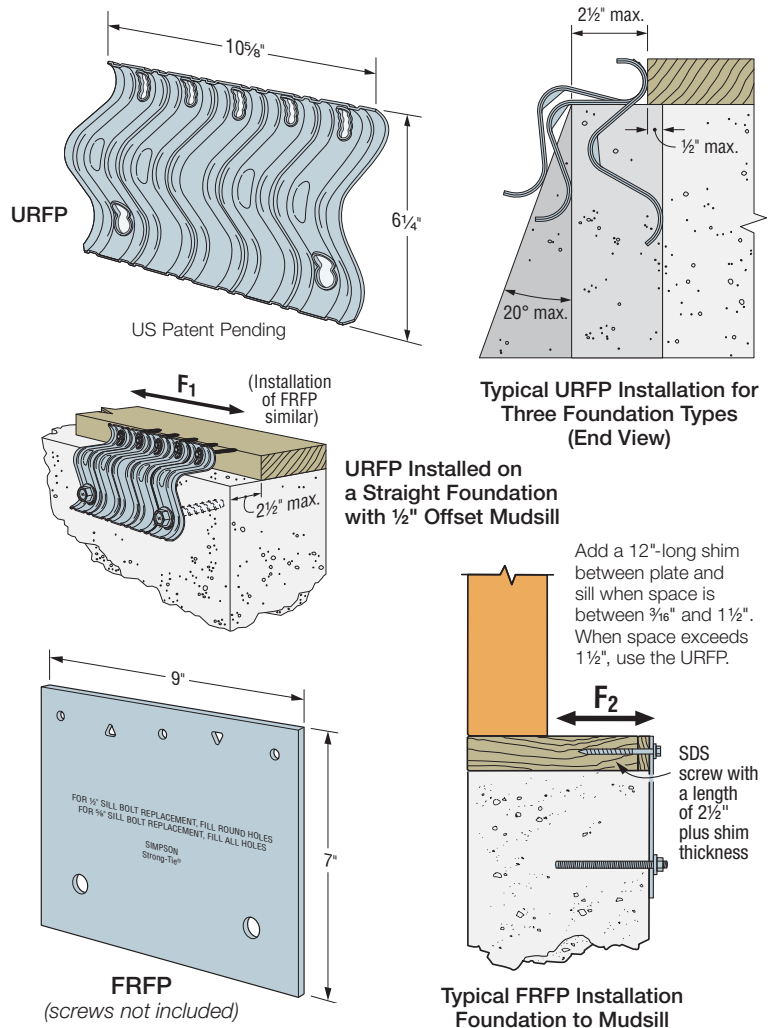
The next generation FRFP flat retrofit foundation plate connects the mudsill to the foundation and provides lateral load resistance. This new design allows the designer to maintain the same requirements when filling the original three holes, or as an alternate, fill the newly added two optional triangle holes and designers can utilize increased capacities.

**Material:** URFP — 14 gauge; FRFP — 7 gauge

**Finish:** Galvanized. May be ordered HDG; contact Simpson Strong-Tie. See Corrosion Information, pp. 16–21.

### Installation:

- Use all specified fasteners; see General Notes.
- Capacities are based on test results using Simpson Strong-Tie® Strong-Drive® ¼" x 3" SDS Heavy-Duty Connector screws, which are supplied with the URFP.
- For URFP, alternate lag screws will not achieve published values.
- FRFP shall use a minimum Strong-Drive SDS Heavy-Duty Connector screw length of 2½" plus the shim thickness. SDS screws are not supplied with FRFP.



These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Fasteners			Factored Resistance ( $K_0 = 1.15$ )			
	Anchor Bolt		Sill Plate	D.Fir-L		S-P-F	
	Qty.	Diameter (in.)		$F_1$ lb. kN	$F_2$ lb. kN	$F_1$ lb. kN	$F_2$ lb. kN
URFP-SDS3	2	½	(5) ¼" x 3" SDS	2435 10.83	—	1755 7.81	—
FRFP	2	½	(3) ¼" x 2½" SDS + shim thickness	1900 8.45	690 3.07	1370 6.09	495 2.20
	2	½	(5) ¼" x 2½" SDS + shim thickness	3165 14.08	690 3.07	2280 10.14	495 2.20

1. Factored resistances have been increased 15% for wind or earthquake loading. Reduce where other load durations govern.
2. Nominal embedment depths for post-installed anchors shall be a minimum of 4" and is for use with AT-XP® or SET-3G™ structural anchoring adhesive or Titen HD® screw anchors.
3. Each anchor bolt requires a standard cut-washer. The Simpson Strong-Tie Titen HD Heavy Duty screw anchor does not require a washer.
4. The minimum concrete loaded end distance for the anchor bolts is 12" for AT-XP or SET-XP adhesive and 13" for Titen HD screw anchors.
5. For additional retrofit information, see flier F-SEISRTRGD at [strongtie.com](http://strongtie.com).
6. The minimum concrete compressive strength shall be 2500 psi (17.2 MPa).



**SB**

# Anchor Bolt

The SB $\frac{5}{8}$ x24 anchor bolt offers a load-tested anchorage solution that exceeds the capacity of all of our holdowns that call for a  $\frac{5}{8}$ "-diameter anchor. Similarly, the SB1x30 covers holdowns utilizing a 1"-diameter anchor that exceed the capacity of our SSTB bolts. The SB $\frac{7}{8}$ x24 is designed to maximize performance with minimum embedment for holdowns utilizing a  $\frac{7}{8}$ "-diameter anchor.

**Features:**

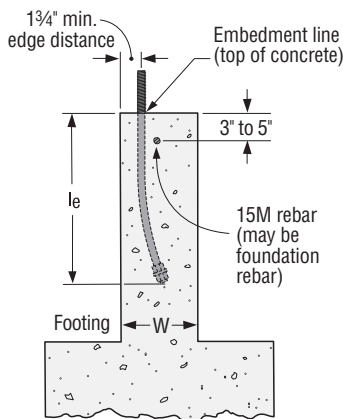
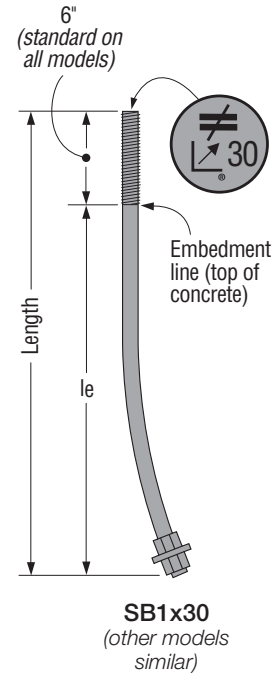
- Identification on the bolt head showing embedment angle and model
- Sweep geometry to optimize position in form
- Rolled thread for higher tensile capacity
- Hex nuts and plate washer fixed in position
- Available in HDG for additional corrosion resistance

**Material:** ASTM F1554, Grade 36

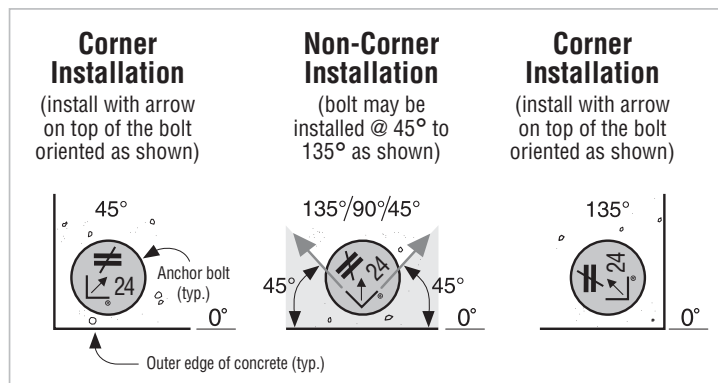
**Finish:** None. May be ordered HDG; contact Simpson Strong-Tie

**Installation:**

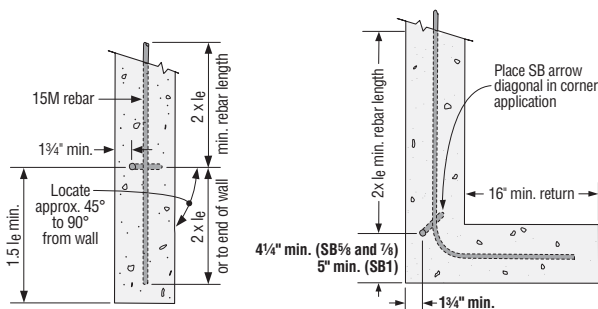
- SB is only for concrete applications poured monolithically except where noted.
- Top nuts and washers for holddown attachment are not supplied with the SB; install standard nuts, couplers and/or washers as required.
- On HDG SB anchors, chase the threads to use standard nuts or couplers or use overtapped products in accordance with ASTM A563, for example Simpson Strong-Tie® NUT $\frac{5}{8}$ -OST, NUT $\frac{7}{8}$ -OST and NUT1-OST.
- Install SB before the concrete pour using AnchorMates®. Install the SB per the plan view detail.
- Minimum concrete compressive strength is 20 MPa.
- When rebar is required it does not need to be tied to the SB.



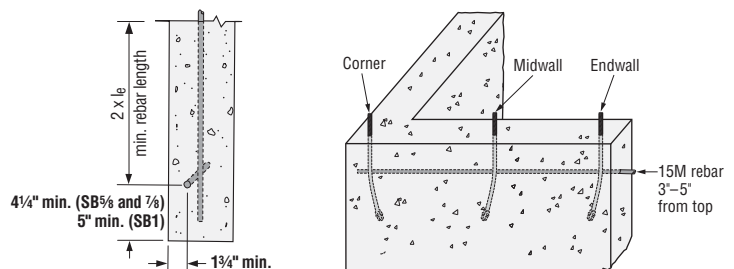
Typical SB Installation



Plan View of SB Placement in Concrete



Stemwall Plan Views



Perspective View



**SB**

## Anchor Bolt (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

## SB Bolts at Stemwall

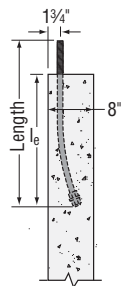
Model No.	Dimensions (in.)				Factored Tensile Resistance					
					Wind / Seismic $I_E F_a S_a(0.2) < 0.35$			Seismic $I_E F_a S_a(0.2) \geq 0.35$		
	Stemwall Width	Diameter	Length	Min. Embed. ( $l_e$ )	Midwall	Corner	Endwall	Midwall	Corner	Endwall
					lb.	lb.	lb.	lb.	lb.	lb.
					kN	kN	kN	kN	kN	kN
SB5/8x24	6	5/8	24	18	8915	8915	8915	8915	7600	7600
					39.66	39.66	39.66	39.66	33.81	33.81
SB7/8x24	8	7/8	24	18	15560	13895	10135	11670	10420	7600
					69.22	61.81	45.08	51.91	46.35	33.81
SB1x30	8	1	30	24	20285	13895	10730	15215	10420	8045
					90.24	61.81	47.73	67.68	46.35	35.79

See p. 42 for notes to the designer.

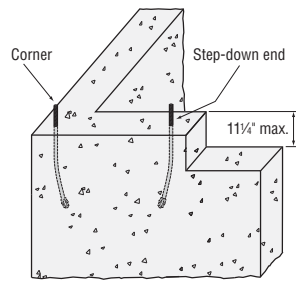
## SB Bolts at Stemwall: Garage Front

Model No.	Dimensions (in.)				Factored Tensile Resistance			
					Wind / Seismic $I_E F_a S_a(0.2) < 0.35$		Seismic $I_E F_a S_a(0.2) \geq 0.35$	
	Stemwall Width	Diameter	Length	Min. Embed. ( $l_e$ )	Step-Down End	Corner	Step-Down End	Corner
					lb.	lb.	lb.	lb.
					kN	kN	kN	kN
SB7/8x24	8	7/8	24	18	10735	11385	8050	8540
					47.75	50.65	35.81	37.99
SB1x30	8	1	30	24	16790	14550	12595	10910
					74.69	64.72	56.03	48.53

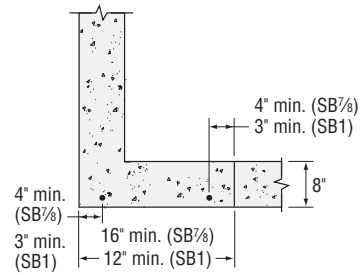
See p. 42 for notes to the designer.



Stemwall  
Garage Front



Perspective  
View



Plan View



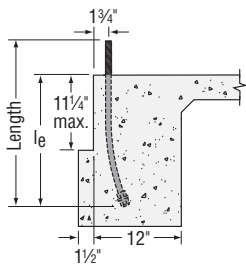
**SB**

# Anchor Bolt (cont.)

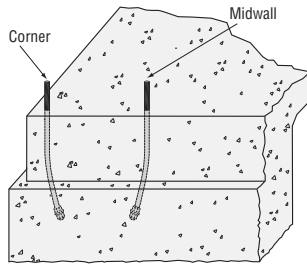
These products are available with additional corrosion protection. For more information, see p. 20.

## SB Bolts at Slab on Grade: Edge

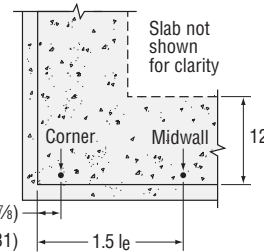
Model No.	Dimensions (in.)				Factored Tensile Resistance			
	Footing Width	Diameter	Length	Min. Embed. (l <sub>e</sub> )	Wind / Seismic I <sub>E</sub> F <sub>a</sub> S <sub>a</sub> (0.2) < 0.35		Seismic I <sub>E</sub> F <sub>a</sub> S <sub>a</sub> (0.2) ≥ 0.35	
					Midwall	Corner	Midwall	Corner
					lb.	lb.	lb.	lb.
					kN	kN	kN	kN
SB <sup>5</sup> / <sub>8</sub> x24	12	5/8	24	18	8915	8915	8915	7600
					39.66	39.66	39.66	33.81
SB <sup>7</sup> / <sub>8</sub> x24	12	7/8	24	18	18220	18025	16345	13520
					81.05	80.18	72.71	60.14
SB1x30	12	1	30	24	23900	23150	23580	17360
					106.32	102.98	104.89	77.22



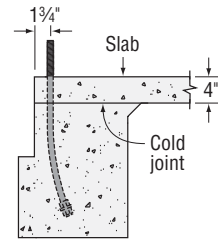
Slab Edge



Perspective View



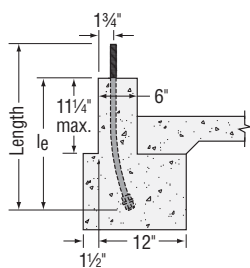
Plan View



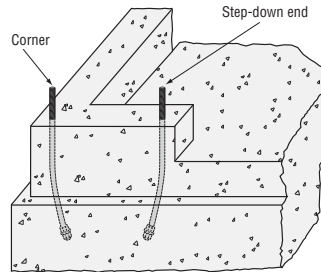
Two-Pour Installation

## SB Bolts at Slab on Grade: Garage Curb

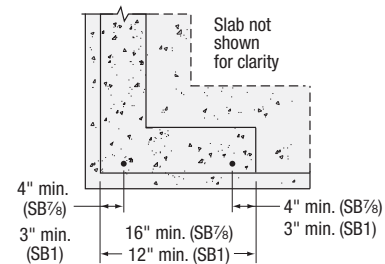
Model No.	Dimensions (in.)				Factored Tensile Resistance			
	Curb Width	Diameter	Length	Min. Embed. (l <sub>e</sub> )	Wind / Seismic I <sub>E</sub> F <sub>a</sub> S <sub>a</sub> (0.2) < 0.35		Seismic I <sub>E</sub> F <sub>a</sub> S <sub>a</sub> (0.2) ≥ 0.35	
					Step-Down End	Corner	Step-Down End	Corner
					lb.	lb.	lb.	lb.
					kN	kN	kN	kN
SB <sup>7</sup> / <sub>8</sub> x24	6	7/8	24	18	13630	16685	10225	12515
					60.63	74.22	45.48	55.67
SB1x30	6	1	30	24	23150	23150	17360	17360
					102.98	102.98	77.22	77.22



Slab Garage Curb



Perspective View



Plan View

**Notes to the designer:**

1. Rebar is required at top of stemwall foundations but is not required for Slab-on-Grade Edge and Garage Curb, or Stemwall Garage Front installations.
2. Minimum end distances for SB bolts are as shown in graphics.
3. Factored resistances have been developed based on testing per ICC AC308 in uncracked concrete using the corresponding adjustment factors from CSA A23.3 Annex D.
4. For designs under NBC2020, replace I<sub>E</sub>F<sub>a</sub>S<sub>a</sub>(0.2) with I<sub>E</sub>S(0.2).
5. Factored resistances for seismic I<sub>E</sub>F<sub>a</sub>S<sub>a</sub>(0.2) ≥ 0.35 applications assumes ductile yielding in the attachment. See D.4.3.5.3 CSA A23.3 for more information.
6. Midwall loads apply when anchor is 1.5 l<sub>e</sub> or greater from the end. For bolts acting in tension simultaneously, the minimum bolt centre-to-centre spacing is 3 l<sub>e</sub>.
7. Full published values apply for two pour applications for slab on grade: edge.



## Anchor Bolt

The SSTB anchor bolt is designed for maximum performance as an anchor bolt for holdowns and Simpson Strong-Tie® Strong-Wall® shearwalls. Extensive testing has been done to determine the tensile capacity of the SSTB when installed in many common applications.

### Features:

- Identification on the bolt head showing embedment angle and model
- Offset angle reduces side bursting, and provides more concrete cover
- Rolled thread for higher tensile capacity
- Stamped embedment line aids installation
- Available in HDG for additional corrosion resistance

**Material:** ASTM F1554, Grade 36

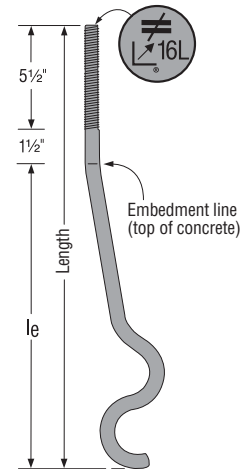
**Finish:** None. May be ordered HDG; contact Simpson Strong-Tie

### Installation:

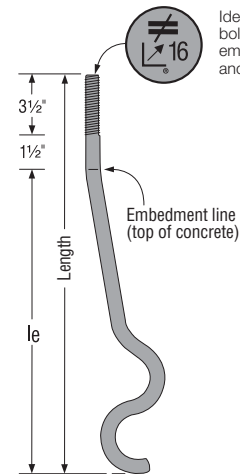
- SSTB is suitable for monolithic and two-pour concrete applications.
- Nuts and washers for holddown attachment are not supplied with the SSTB; install standard nuts, couplers and/or washers as required.
- On HDG SSTB anchors, chase the threads to use standard nuts or couplers or use overtapped products in accordance with ASTM A563, for example Simpson Strong-Tie® NUT $\frac{3}{8}$ -OST or NUT $\frac{1}{2}$ -OST.
- Install SSTB before the concrete pour using AnchorMates®. Install the SSTB per the plan view detail.
- Minimum concrete compressive strength is 20 MPa.
- When rebar is required it does not need to be tied to the SSTB.
- Order SSTBL Models (example: SSTB16L) for longer thread length (16L = 5½", 20L = 6½", 24L = 6", 28L = 6½"). SSTB and SSTBL tensile capacities are the same. SSTB34 and SSTB36 feature 4½" and 6½" of thread respectively and are not available in "L" versions.

### Reinforced Concrete Block

- Before concrete pour, install diagonally at approximately 45° in the cell.
- Grout all cells with coarse grout per CSA A179. Vibrate the grout per Code.
- See typical SSTB Installation in Grouted Concrete Block detail on p. 46.

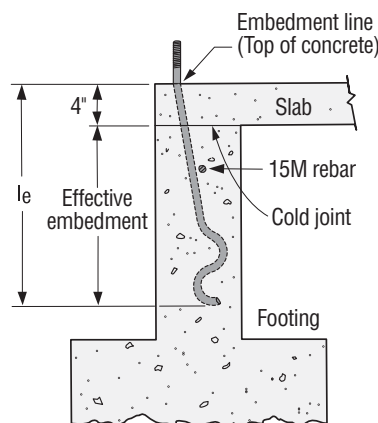


**SSTB16L**  
(other models similar)



**SSTB16**  
(other models similar)

Identification on the bolt head showing embedment angle and model.

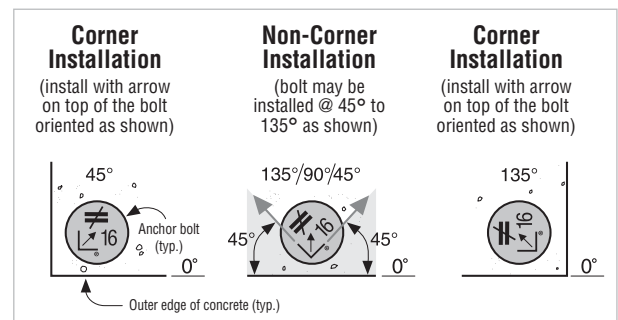


**Two-Pour Installation**  
(SSTB20, 24, 34 and 36)

### For two-pour (4" slab) installation loads:

- When using the SSTB20, use the equivalent capacities of the SSTB16.
- When using the SSTB24, use the equivalent capacities of the SSTB20.
- When using the SSTB34 or 36, use the equivalent capacities of the SSTB28.

See p. 46 for additional installation details.



**Plan View of SSTB Placement in Concrete and Reinforced Concrete Block**



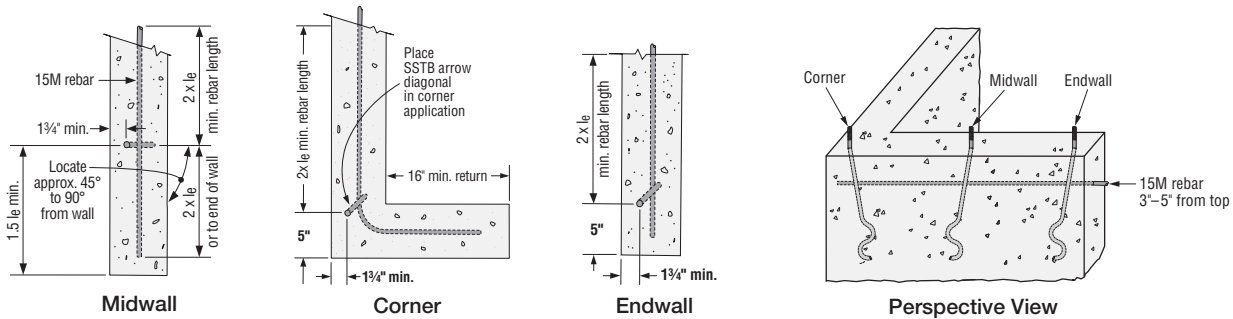
# Anchor Bolt (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

## SSTB Bolts at Stemwall

Model No.	Dimensions (in.)				Factored Tensile Resistance					
	Stemwall Width	Dia.	Length	Min. Embed. (l <sub>e</sub> )	Wind / Seismic I <sub>E</sub> F <sub>a</sub> S <sub>a</sub> (0.2) < 0.35			Seismic I <sub>E</sub> F <sub>a</sub> S <sub>a</sub> (0.2) ≥ 0.35		
					Midwall	Corner	Endwall	Midwall	Corner	Endwall
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.		
kN	kN	kN	kN	kN	kN	kN	kN	kN		
SSTB16	6	5/8	17 5/8 (16L = 19 5/8)	12 5/8	5365	5365	5365	3380	3380	3380
					23.87	23.87	23.87	15.04	15.04	15.04
SSTB20	6	5/8	21 5/8 (20L = 24 5/8)	16 5/8	6415	6005	6005	4170	3895	3895
					28.54	26.71	26.71	18.55	17.33	17.33
SSTB24	6	5/8	25 5/8 (24L = 28 1/8)	20 5/8	7470	6645	6645	4960	4410	4410
					33.23	29.56	29.56	22.06	19.62	19.62
SSTB28	8	7/8	29 7/8 (28L = 32 7/8)	24 7/8	14710	12940	11315	11035	9705	8485
					65.44	57.56	50.33	49.09	43.17	37.74
SSTB34	8	7/8	34 7/8	28 7/8	14710	12940	11315	11035	9705	8485
					65.44	57.56	50.33	49.09	43.17	37.74
SSTB36	8	7/8	36 7/8	28 7/8	14710	12940	11315	11035	9705	8485
					65.44	57.56	50.33	49.09	43.17	37.74

See p. 46 for notes to the designer.

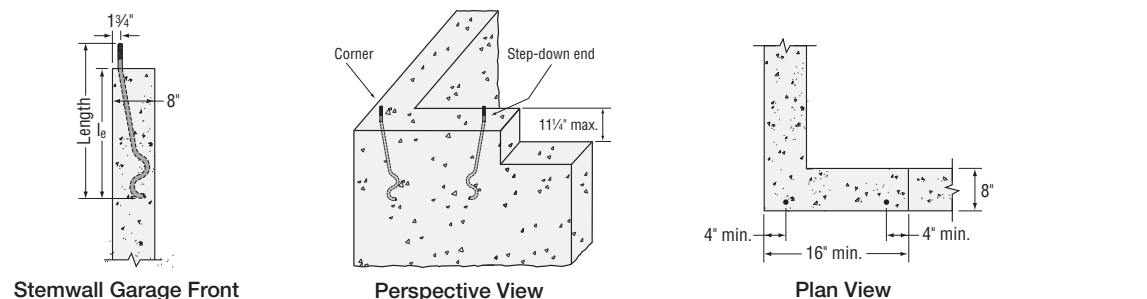


Stemwall Plan Views

## SSTB Bolts at Stemwall: Garage Front

Model No.	Dimensions (in.)				Factored Tensile Resistance			
	Stemwall Width	Diameter	Length	Min. Embed. (l <sub>e</sub> )	Wind / Seismic I <sub>E</sub> F <sub>a</sub> S <sub>a</sub> (0.2) < 0.35		Seismic I <sub>E</sub> F <sub>a</sub> S <sub>a</sub> (0.2) ≥ 0.35	
					Step-Down End	Corner	Step-Down End	Corner
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	
kN	kN	kN	kN	kN	kN	kN	kN	
SSTB28	8	7/8	29 7/8	24 7/8	10425	10470	7820	7850
					46.37	46.57	34.79	34.92

See p. 46 for notes to the designer.



Stemwall Garage Front

Perspective View

Plan View



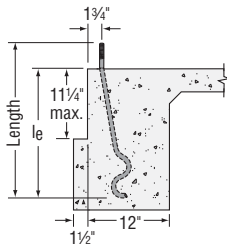
## Anchor Bolt (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

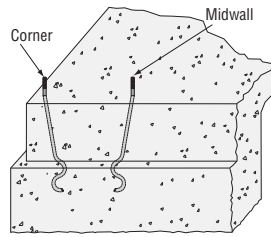
## SSTB Bolts at Slab on Grade: Edge

Model No.	Dimensions (in.)				Factored Tensile Resistance			
	Footing Width	Diameter	Length	Min. Embed. (le)	Wind / Seismic $I_e F_a S_a(0.2) < 0.35$		Seismic $I_e F_a S_a(0.2) \geq 0.35$	
					Midwall	Corner	Midwall	Corner
					lb.	lb.	lb.	lb.
					kN	kN	kN	kN
SSTB16	12	5/8	17 3/8	12 3/8	7955	7955	5015	5015
					35.39	35.39	22.31	22.31
SSTB20	12	5/8	21 3/8	16 3/8	8915	8915	6345	6345
					39.66	39.66	28.23	28.23
SSTB24	12	5/8	25 3/8	20 3/8	8915	8915	7680	7680
					39.66	39.66	34.16	34.16
SSTB28	12	7/8	29 3/8	24 3/8	18220	18220	14670	15400
					81.05	81.05	65.26	68.51
SSTB34	12	7/8	34 3/8	28 3/8	18220	18220	14670	15400
					81.05	81.05	65.26	68.51
SSTB36	12	7/8	36 3/8	28 3/8	18220	18220	14670	15400
					81.05	81.05	65.26	68.51

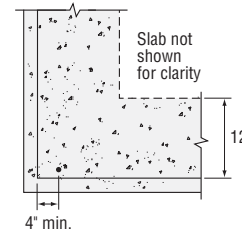
See p. 46 for notes to the designer.



Slab Edge



Perspective View

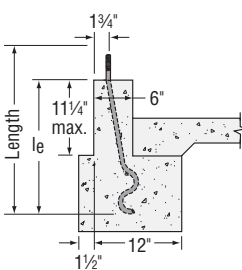


Plan View

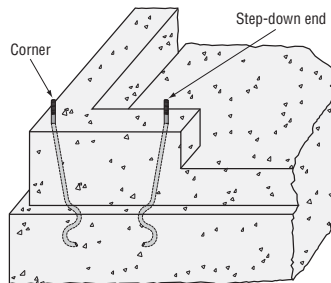
## SSTB Bolts at Slab on Grade: Garage Curb

Model No.	Dimensions (in.)				Factored Tensile Resistance			
	Curb Width	Diameter	Length	Min. Embed. (le)	Wind / Seismic $I_e F_a S_a(0.2) < 0.35$		Seismic $I_e F_a S_a(0.2) \geq 0.35$	
					Step-Down End	Corner	Step-Down End	Corner
					lb.	lb.	lb.	lb.
					kN	kN	kN	kN
SSTB28	6	7/8	29 3/8	24 3/8	15255	18220	11440	13785
					67.86	81.05	50.89	61.32

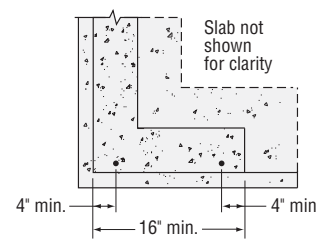
See p. 46 for notes to the designer.



Slab Garage Curb



Perspective View



Plan View



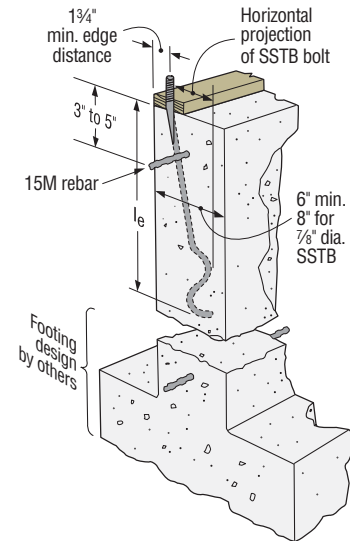
## Anchor Bolt (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

### SSTB Bolts in 8" CMU Wall

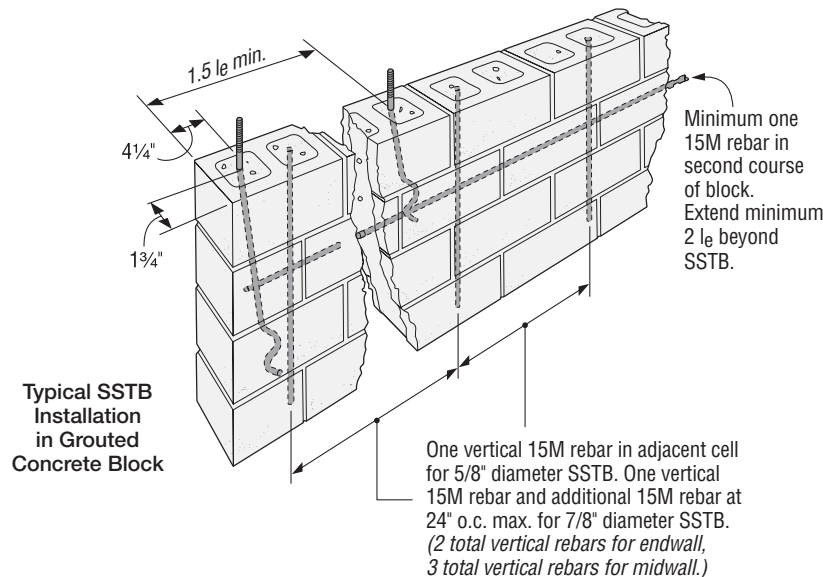
Model No.	Dimensions (in.)			Factored Tensile Resistance	
	Diameter	Length	Min. Embed. ( $l_e$ )	Midwall	Endwall
				lb.	lb.
				kN	kN
SSTB16	5/8"	17 5/8" (16L = 19%)	12 5/8"	5715 25.42	2340 10.41
SSTB20	5/8"	21 5/8" (20L = 24%)	16 5/8"	5715 25.42	2340 10.41
SSTB24	5/8"	25 5/8" (24L = 28 1/8")	20 5/8"	5715 25.42	2340 10.41
SSTB28	7/8"	29 7/8" (28L = 32 7/8")	24 7/8"	8030 35.72	5760 25.62
SSTB34	7/8"	34 7/8"	28 7/8"	8030 35.72	5760 25.62
SSTB36	7/8"	36 7/8"	28 7/8"	8030 35.72	5760 25.62

1. Factored resistances shown are based on testing per CSA A370-14.
2. Reinforced concrete masonry units shall have a minimum specified compressive strength of 15 MPa per CSA S304.1-14 using Type N mortar and filled solid using coarse grout per CSA A179-14.
3. Minimum end distance required to achieve midwall resistance is  $1.5 l_e$ .
4. Minimum end distance required to achieve endwall resistance is  $4 1/4"$ .
5. See installation detail for minimum reinforcing requirements.



#### Typical SSTB Installation in Concrete Foundation

Maintain minimum rebar cover, per CSA A23.1-14 requirements



#### Typical SSTB Installation in Grouted Concrete Block

#### Notes to the designer:

1. Rebar is required at top of stemwall foundations but is not required for Slab-on-Grade Edge and Garage Curb, or Stemwall Garage Front installations.
2. Minimum end distances for SSTB bolts are as shown in graphics.
3. Factored resistances have been developed based on testing per ICC AC308 in uncracked concrete using the corresponding adjustment factors from CSA A23.3 Annex D.
4. For designs under NBC2020, replace  $l_e F_a S_a (0.2)$  with  $l_e S (0.2)$ .
5. Factored resistances for seismic  $l_e F_a S_a (0.2) \geq 0.35$  applications assumes ductile yielding in the attachment. See D.4.3.5.3 CSA A23.3 for more information.
6. See ESR-2611 for additional information.
7. Midwall capacities apply when anchor is  $1.5 l_e$  or greater from the end. For bolts acting in tension simultaneously, the minimum bolt centre-to-centre spacing is  $3 l_e$ .



# PAB

## Pre-Assembled Anchor Bolt

The PAB anchor bolt is a versatile cast-in-place anchor bolt ideal for high-tension-load applications. It features a plate washer at the embedded end sandwiched between two fixed hex nuts and a head stamp for easy identification after the pour.

- Available in diameters from 1/2" to 1 1/4" in lengths from 12" to 36" (in 6" increments)
- Available in standard and high-strength steel
- Head stamp contains the No Equal sign, diameter designation and an "HS" on high-strength rods

### Material:

Standard Steel — ASTM F1554 Grade 36, A36 or A307;  $F_u = 58$  ksi  
 High-Strength Steel (up to 1" diameter) — ASTM A449;  $F_u = 120$  ksi  
 High-Strength Steel (1 1/8" and 1 1/4" diameter) — ASTM A193 B7 or F1554 Grade 105;  $F_u = 125$  ksi

**Finish:** None. May be ordered in HDG; contact Simpson Strong-Tie.

### Installation:

- On HDG PABs, chase the threads to use standard nuts or couplers or use overtapped products in accordance with ASTM A563; for example, Simpson Strong-Tie® NUT 5/8"-OST, NUT 7/8"-OST, CNW 5/8"-OST, CNW 7/8"-OST. Some OST couplers are typically oversized on one end of the coupler nut only and will be marked with an "O" on oversized side. Couplers may be special ordered with both ends oversized. Contact Simpson Strong-Tie.



The Simpson Strong-Tie Anchor Designer™ Software analyzes and suggests anchor solutions using the CSA A23.3 Annex D Limit States Design methodology. It provides cracked and uncracked-concrete anchorage solutions for numerous Simpson Strong-Tie Anchor Systems mechanical and adhesive anchors as well as the PAB anchor. With its easy-to-use graphical user interface, the software makes it easy for the designer to identify anchorage solutions without having to perform time-consuming calculations by hand (see [strongtie.com/software](http://strongtie.com/software)).

### How to Specify and Order:

- When calling out PAB anchor bolts, substitute the desired length for the "XX" in the Root Model Number.
- For a 5/8" x 18" anchor bolt, the model number would be PAB5-18 (or PAB5H-18 for high strength).

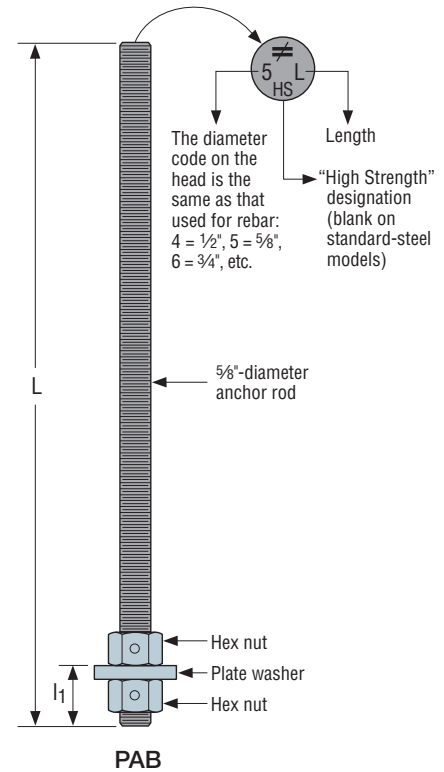
### PAB Anchor Bolt — Standard Steel

Diameter (in.)	Plate Washer Size (in.)	$l_1$ (in.)	Root Model No.	Lengths (in.)
1/2	3/8 x 1 1/2 x 1 1/2	1 1/8	PAB4-XX	12" to 36" (in 6" increments)
5/8	1/2 x 1 3/4 x 1 3/4	1 3/8	PAB5-XX	
3/4	1/2 x 2 1/4 x 2 1/4	1 1/2	PAB6-XX	
7/8	1/2 x 2 1/2 x 2 1/2	1 5/8	PAB7-XX	
1	5/8 x 3 x 2 3/4	1 7/8	PAB8-XX	
1 1/8	5/8 x 3 1/2 x 3 1/4	2	PAB9-XX	
1 1/4	3/4 x 3 1/2 x 3 1/2	2 1/4	PAB10-XX	

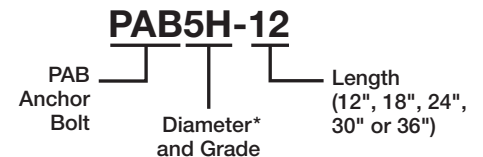
### PAB Anchor Bolt — High-Strength Steel

Diameter (in.)	Plate Washer Size (in.)	$l_1$ (in.)	Root Model No.	Lengths (in.)
1/2	3/8 x 1 1/2 x 1 1/2	1 1/8	PAB4H-XX	12" to 36" (in 6" increments)
5/8	1/2 x 1 3/4 x 1 3/4	1 3/8	PAB5H-XX	
3/4	1/2 x 2 1/4 x 2 1/4	1 1/2	PAB6H-XX	
7/8	1/2 x 2 1/2 x 2 1/2	1 5/8	PAB7H-XX	
1	5/8 x 3 x 2 3/4	1 7/8	PAB8H-XX	
1 1/8	5/8 x 3 1/2 x 3 1/4	2	PAB9H-XX	
1 1/4	3/4 x 3 1/2 x 3 1/2	2 1/4	PAB10H-XX	

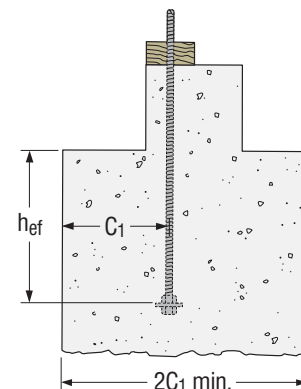
1. Lengths greater than 36" are available as a special order.
2. Plate washers are designed to develop the capacity of the bolt.



### Naming Legend



\*Units in 1/8" Increments  
(Ex: 9 = 5/8" or 1 1/8")



Design values are calculated using a full shear cone. Coverage on each side of the bolt shall be a minimum of  $C_1$  or reductions must be taken.

**PAB**

## Pre-Assembled Anchor Bolt (cont.)

## PAB Anchor Bolt — Anchorage Solutions

Model No.	Diameter (in.)	Factored Tensile Resistance $N_r$					
		Wind / Seismic $I_E F_a S_a(0.2) < 0.35$			Seismic $I_E F_a S_a(0.2) \geq 0.35$		
		$h_{ef}$	$C_1$	$N_r$	$h_{ef}$	$C_1$	$N_r$
		in.	in.	lb.	in.	in.	lb.
		mm	mm	kN	mm	mm	kN
PAB4	½	4	7	5600	4	7	5600
		102	178	24.91	102	178	24.91
PAB5	⅝	5	8.5	8915	6	10	8915
		127	216	39.66	152	254	39.66
PAB6	¾	6	10	13175	7	11.5	13175
		152	254	58.61	178	292	58.61
PAB7	⅞	8	13.5	18225	9	15	18225
		203	343	81.07	229	381	81.07
PAB7H	⅞	12	19	37725	15	24	37725
		305	483	167.82	381	610	167.82
PAB8	1	9	15	23905	11	18	23905
		229	381	106.34	279	457	106.34
PAB8H	1	15	24	49485	18	28.5	49485
		381	610	220.13	457	724	220.13
PAB9	1⅝	11	18	30100	13	21	30100
		279	457	133.90	330	533	133.90
PAB10	1¾	12	19.5	38225	15	24	38225
		305	495	170.04	381	610	170.04

1. Factored resistances shown are in accordance with CSA A23.3 Annex D using 20 MPa concrete assuming cracked concrete and no supplementary reinforcement (Category B).
2. PAB8H values shown in italics for seismic applications require minimum 25 MPa concrete.
3. Foundation dimensions are for anchorage only. Foundation design (size and reinforcement) is the responsibility of the design professional.
4. For designs under NBC2020, replace  $I_E F_a S_a(0.2)$  with  $I_E S(0.2)$ .
5. Factored resistances for seismic  $I_E F_a S_a(0.2) \geq 0.35$  applications assumes ductile yielding in the attachment. See D.4.3.5.3 CSA A23.3 for more information.

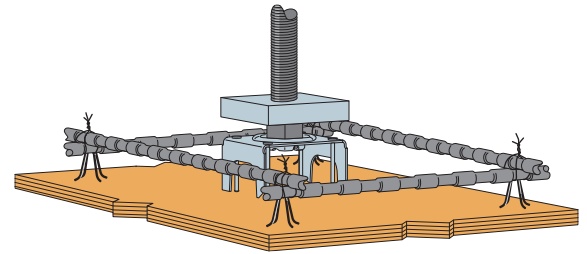




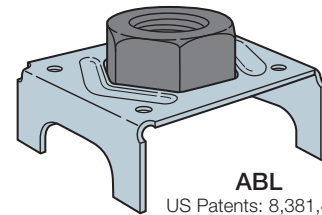
# Shallow Podium Slab

## Anchor Kit

The Shallow Podium Slab anchor kit includes the patented Anchor Bolt Locator (ABL) and patent-pending Shallow Anchor Rod (SAR). Uniquely suited for installation to concrete-deck forms, the ABL enables accurate and secure placement of anchor bolts. The structural heavy hex nut is attached to a pre-formed steel “chair” and becomes the bottom nut of the anchor assembly. The shallow anchor is provided with a plate washer fixed in place that attaches on the ABL nut when assembled and increases the anchor breakout and pullout capacity. The shallow anchor is easily installed before or after placement of the slab reinforcing steel or tendons. Where higher anchor capacities are needed such as at edge conditions or to meet seismic ductility requirements, the anchor kit is combined with anchor reinforcement.



Shallow Podium Slab  
Anchor Kit



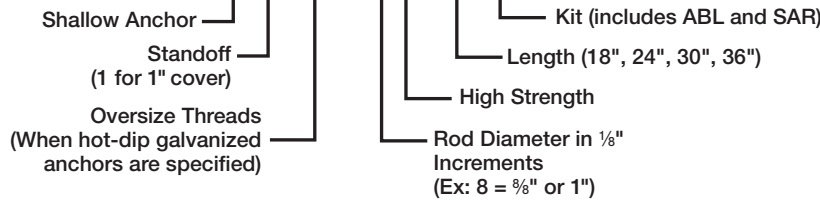
**ABL**

US Patents: 8,381,482  
and 8,621,816

See p. 31 for more  
information on the ABL.

### Naming Legend

## SA1OST-8H-18KT



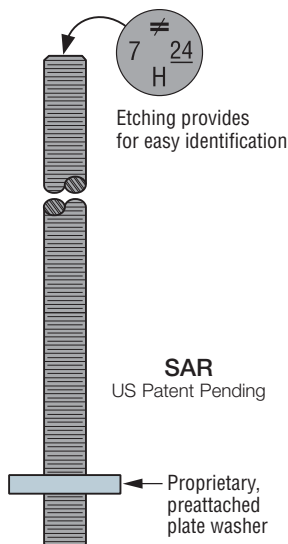
## SAR

### Shallow Anchor Rod

SAR anchor rods are for use with the ABL anchor bolt locator. They combine to make an economical podium-deck anchorage solution. Anchorage specification is per designer.

#### Features:

- Proprietary, pre-attached plate washer
- Available in standard or high strength
- Anchor rod diameters from 1/2" to 1 1/4"
- Standard lengths available 18", 24", 30" or 36"
- Specify "HDG" for hot-dip galvanized



Visit [strongtie.com/sardetails](http://strongtie.com/sardetails) and reference the Shallow Anchor Solutions details for more information.



# LMAZ/MAB15/MASB

## Mudsill Anchors

The LMAZ offers a higher lateral load capacity in a lighter gauge.

The MASB is designed for installation on concrete masonry units.

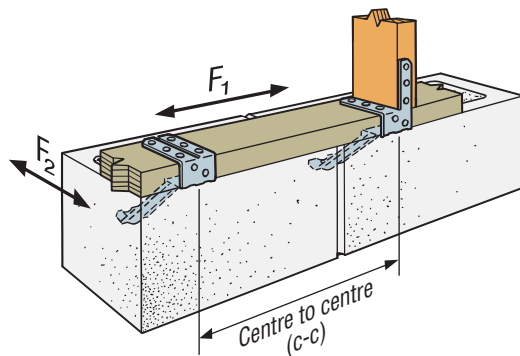
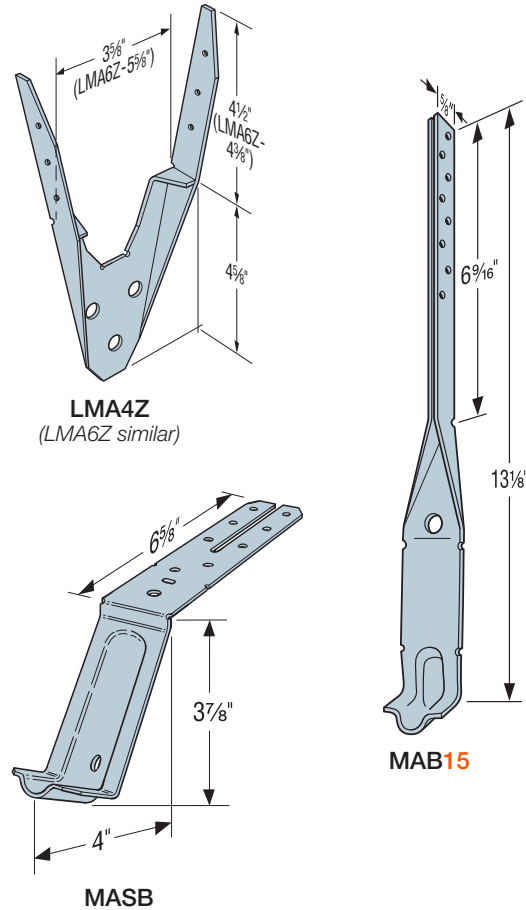
The MAB15 anchors the mudsill to concrete block, poured walls or slab foundation.

**Material:** LMAZ, MAB15 — 18 gauge; MASB — 16 gauge

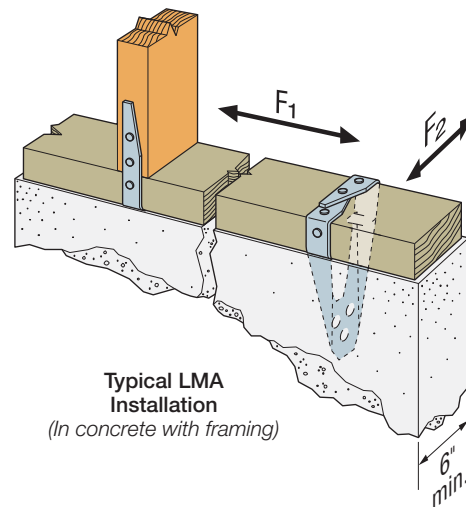
**Finish:** Galvanized. Some products available in ZMAX®; LMAZ—ZMAX only. See Corrosion Information, pp. 16–21.

### Installation:

- Use all specified fasteners; see General Notes.
- Not for use where (a) a horizontal cold joint exists between the slab and foundation wall or footing beneath, unless provisions are made to transfer the load, or (b) anchors are installed in slabs poured over foundation walls formed of concrete block. All grout and concrete must have a minimum  $f'_c$  of 2000 psi (13.8 MPa).
- MASB — First fill CMU cell with concrete grout. Place MASB into the grouted cell, and adjust into position. Attach mudsill to anchor after the concrete cures.
- MAB15 — When used in monolithic slab or stemwall construction, prior to installation, spread the MAB15 legs to accommodate mudsill. Immediately after pouring and screeding, insert into the concrete or grout. Attach the mudsill to the anchor with 10d x 1½" nails after the concrete cures. When installed in grouted concrete block or solid pour for a centre hole installation, drill a ¾" hole through the mudsill and install straps through the hole. Wrap MAB15 straps around the mudsill and install 10d x 1½" nails.



Typical MASB Installation



Typical LMA Installation  
(In concrete with framing)



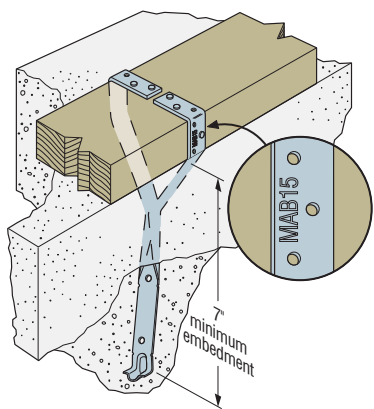
# LMAZ/MAB15/MASB

## Mudsill Anchors (cont.)

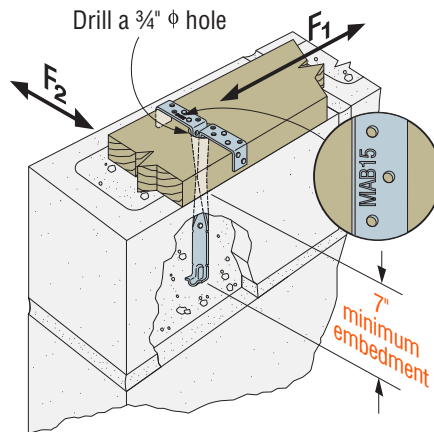
These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Sill Size	Fasteners		Factored Resistance ( $K_D = 1.15$ )					
				D.Fir-L			S-P-F		
		Sides (total)	Top	Uplift	Parallel to Plate F <sub>1</sub>	Perpendicular to Plate F <sub>2</sub>	Uplift	Parallel to Plate F <sub>1</sub>	Perpendicular to Plate F <sub>2</sub>
				lb.	lb.	lb.	lb.	lb.	lb.
		kN	kN	kN	kN	kN	kN		
MASB	2x4, 2x6	(2) 10d x 1 1/2"	(6) 10d x 1 1/2"	200	1235	900	140	1235	640
				0.89	5.49	4.00	0.62	5.49	2.85
MAB15	2x4, 2x6	(2) 10d x 1 1/2"	(4) 10d x 1 1/2"	800	725	705	570	515	500
				3.56	3.23	3.14	2.54	2.29	2.22
LMA4Z	2x4	(2) 10d x 1 1/2"	(4) 10d x 1 1/2"	1410	955	930	1000	675	660
				6.27	4.25	4.14	4.45	3.00	2.94
	3x4	(4) 10d x 1 1/2"	(2) 10d x 1 1/2"	1410	955	930	1000	675	660
				6.27	4.25	4.14	4.45	3.00	2.94
LMA6Z	2x6	(2) 10d x 1 1/2"	(4) 10d x 1 1/2"	1410	1165	1125	1000	825	800
				6.27	5.18	5.00	4.45	3.67	3.56
	3x6	(4) 10d x 1 1/2"	(4) 10d x 1 1/2"	1570	1165	1125	1115	825	800
				6.98	5.18	5.00	4.96	3.67	3.56

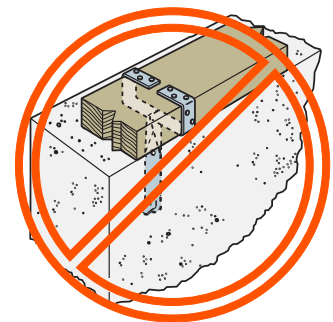
1. Factored resistances have been increased 15% for short-term load duration; reduce where other durations govern.
2. For factored uplift resistances, provide attachment from the mudsill to the building structural components to prevent cross grain bending.
3. LMA attached to the studs has a factored uplift resistance of 1125 lb. (5.00 kN) for D.Fir-L and 800 lb. (3.55kN) for S-P-F; a factored F<sub>1</sub> resistance of 1025 lb. (4.56 kN) for D.Fir-L and 725 lb. (3.22 kN) for S-P-F; a factored F<sub>2</sub> resistance of 1075 lb. (4.78 kN) for D.Fir-L and 760 lb. (3.38 kN) for S-P-F.
4. MASB with one leg attached to the studs has a factored F<sub>1</sub> resistance of 1110 lb. (4.93 kN) for D.Fir-L and 1020 lb. (4.54 kN) for S-P-F; a factored F<sub>2</sub> resistance of 895 lb. (3.98 kN) for D.Fir-L and 635 lb. (2.82 kN) for S-P-F. MASB is not load rated for uplift with one leg up.
5. For concrete stemwall applications, factored resistances are based on a minimum stemwall width of 6".
6. Nails: 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.



**Typical MAB15 Installation in Concrete**  
Not applicable for concrete-block installation.



**Typical MAB15 Installation in Concrete Block**  
Concrete installation similar.



**MAB15 Misinstallation**  
(MAB15 straps must be separated before the concrete is poured or installed through a 3/4" diameter hole)



# MASA/MASAP

## Mudsill Anchors



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

Mudsill anchors have always been a time-saving alternative to anchor bolts, and the MASA anchors provide even greater load-carrying capacity than our original MAS. As a result, the MASA provides an alternative for 5/8" and 1/2" mudsill anchor bolts on 2x, double-2x and 3x mudsills. Two versions of the MASA are available — the standard MASA for installation on standard forms and the MASAP for panelized forms.

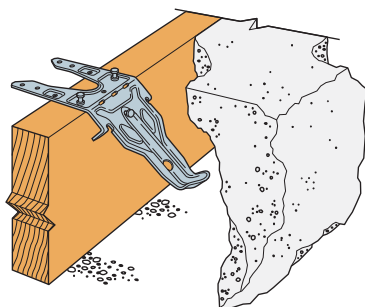
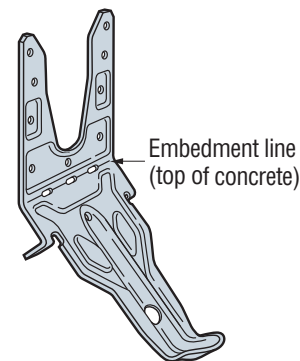
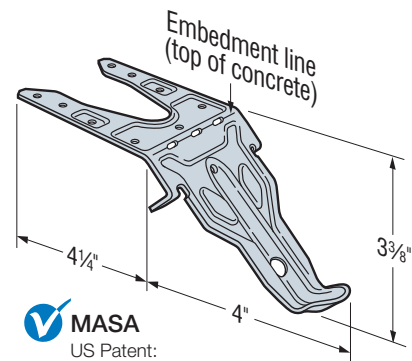
The MASA and MASAP have been tested to meet the requirements of ICC-ES acceptance criteria AC-308 for cracked and uncracked concrete.

**Material:** 16 gauge

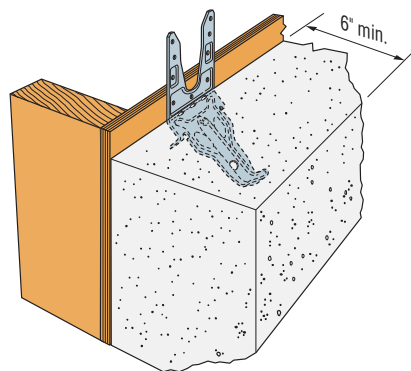
**Finish:** Galvanized, all available in ZMAX® coating; see Corrosion Information, pp. 16–21

### Installation:

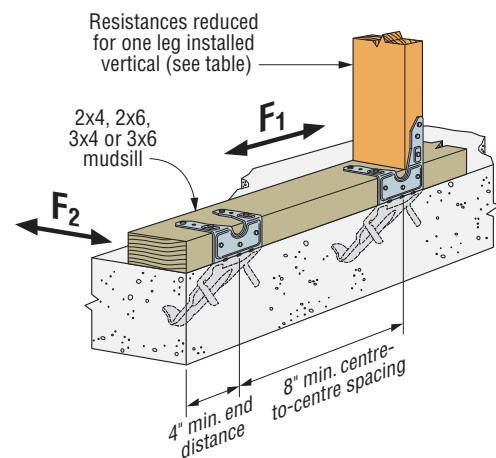
- Use all specified fasteners; see General Notes.
- Concrete shall have a minimum  $f'_c = 2500$  psi (17.25 MPa).
- Spalling — Full resistances apply for spalls up to a maximum height of 1 1/4" and a maximum depth of 7/8". Any exposed portion of the mudsill anchor must be protected against possible corrosion.
- Minimum MASA end distance is 4" and minimum centre-to-centre spacing is 8" for full capacity.
- For installation in severe corrosion environments, refer to [strongtie.com/cipcorrosion](http://strongtie.com/cipcorrosion) for additional considerations.



Typical MASA  
Installation in  
Concrete



Typical MASAP  
Installation in Concrete



Typical MASA/MASAP  
Installation on Sill Plate



# MASA/MASAP

## Mudsill Anchors (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

### Factored Resistance for Uncracked Concrete

Model No.	Sill Plate Size	Fasteners		Factored Resistance — Uncracked Concrete									
				Wind / Seismic $I_e F_a S_a(0.2) < 0.35$					Seismic $I_e F_a S_a(0.2) \geq 0.35$				
		Sides	Top	Uplift	F <sub>1</sub>		F <sub>2</sub>		Uplift	F <sub>1</sub>		F <sub>2</sub>	
				(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 0.65)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 0.65)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 0.65)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 0.65)
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.		
kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN		
<b>Standard Installation — Attached to D.Fir-L Sill Plate</b>													
MASA or MASAP	2x4, 2x6	(3) 10d x 1½"	(6) 10d x 1½"	1235	2000	1130	1800	1035	1155	1810	1130	1490	1035
				5.49	8.90	5.03	8.01	4.60	5.14	8.05	5.03	6.63	4.60
	3x4, 3x6	(5) 10d x 1½"	(4) 10d x 1½"	935	1910	1130	1260	710	730	1430	1130	1245	710
				4.16	8.50	5.03	5.60	3.16	3.25	6.36	5.03	5.54	3.16
<b>One-Leg-Up Installation — Attached to D.Fir-L Sill Plate</b>													
MASA or MASAP	2x4, 2x6	(6) 10d x 1½"	(3) 10d x 1½"	1115	1330	755	—	—	875	1025	755	—	—
				4.96	5.92	3.36	—	—	3.89	4.56	3.36	—	—
<b>Both Legs Over Maximum ½" Plywood or OSB Installation — Attached to D.Fir-L Sill Plate and Rimboard</b>													
MASA or MASAP	2x4, 2x6	(9) 10d x 1½"	—	1310	1560	1130	—	—	980	1170	1130	—	—
				5.83	6.94	5.03	—	—	4.36	5.20	5.03	—	—
<b>Double 2x Sill Plate Installation — Attached to D.Fir-L Sill Plate</b>													
MASA or MASAP	2x4, 2x6	(5) 10d x 1½"	(2) 10d x 1½"	1300	1555	880	1315	745	975	1290	880	1315	745
				5.78	6.92	3.91	5.85	3.31	4.34	5.74	3.91	5.85	3.31
<b>Standard Installation — Attached to S-P-F Sill Plate</b>													
MASA or MASAP	2x4, 2x6	(3) 10d x 1½"	(6) 10d x 1½"	875	1505	1040	1275	735	875	1505	1040	1275	735
				3.89	6.69	4.63	5.67	3.27	3.89	6.69	4.63	5.67	3.27
	3x4, 3x6	(5) 10d x 1½"	(4) 10d x 1½"	665	1615	1040	895	505	665	1430	1040	895	505
				2.96	7.18	4.63	3.98	2.25	2.96	6.36	4.63	3.98	2.25
<b>One-Leg-Up Installation — Attached to S-P-F Sill Plate</b>													
MASA or MASAP	2x4, 2x6	(6) 10d x 1½"	(3) 10d x 1½"	795	950	650	—	—	795	950	650	—	—
				3.54	4.23	2.89	—	—	3.54	4.23	2.89	—	—
<b>Both Legs Over Maximum ½" Plywood or OSB Installation — Attached to S-P-F Sill Plate and Rimboard</b>													
MASA or MASAP	2x4, 2x6	(9) 10d x 1½"	—	960	1290	840	—	—	960	1170	840	—	—
				4.27	5.74	3.74	—	—	4.27	5.20	3.74	—	—
<b>Double 2x Sill Plate Installation — Attached to S-P-F Sill Plate</b>													
MASA or MASAP	2x4, 2x6	(5) 10d x 1½"	(2) 10d x 1½"	1000	1170	760	935	525	975	1170	760	935	525
				4.45	5.20	3.38	4.16	2.34	4.34	5.20	3.38	4.16	2.34

1. Factored resistances shown are based on testing per ICC-ES AC308 using the corresponding adjustment factors from CSA A23.3 Annex D.

2. The minimum 28-day concrete compressive strength ( $f'_c$ ) shall be 2500 psi (17.25 MPa).

3. Factored resistances are based on a minimum wall width of 6".

4. For simultaneous loads in more than one direction, the connector must be evaluated using the unity equation (see General Instructions for the Designer on p. 14).

5. For designs under NBC2020, replace  $I_e F_a S_a(0.2)$  with  $I_e S(0.2)$ .

6. **Nails:** 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.



# MASA/MASAP

## Mudsill Anchors (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

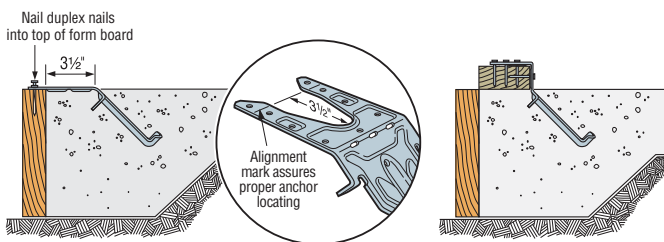
### Factored Resistance for Cracked Concrete

Model No.	Sill Plate Size	Fasteners		Factored Resistance — Cracked Concrete									
				Wind / Seismic $I_E F_a S_a(0.2) < 0.35$					Seismic $I_E F_a S_a(0.2) \geq 0.35$				
		Sides	Top	Uplift	F <sub>1</sub>		F <sub>2</sub>		Uplift	F <sub>1</sub>		F <sub>2</sub>	
				(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 0.65)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 0.65)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 0.65)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 0.65)
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.		
kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	
<b>Standard Installation — Attached to D.Fir-L Sill Plate</b>													
MASA or MASAP	2x4, 2x6	(3) 10d x 1½"	(6) 10d x 1½"	1165	2000	1130	1455	1035	875	1810	1130	1090	1035
				5.18	8.90	5.03	6.47	4.60	3.89	8.05	5.03	4.85	4.60
MASA or MASAP	3x4, 3x6	(5) 10d x 1½"	(4) 10d x 1½"	735	1910	1130	1215	710	550	1430	1130	910	710
				3.27	8.50	5.03	5.40	3.16	2.45	6.36	5.03	4.05	3.16
<b>One-Leg-Up Installation — Attached to D.Fir-L Sill Plate</b>													
MASA or MASAP	2x4, 2x6	(6) 10d x 1½"	(3) 10d x 1½"	880	1330	755	—	—	660	1025	755	—	—
				3.91	5.92	3.36	—	—	2.94	4.56	3.36	—	—
<b>Both Legs Over Maximum ½" Plywood or OSB Installation — Attached to D.Fir-L Sill Plate and Rimboard</b>													
MASA or MASAP	2x4, 2x6	(9) 10d x 1½"	—	1125	1560	1130	—	—	840	1170	1130	—	—
				5.00	6.94	5.03	—	—	3.74	5.20	5.03	—	—
<b>Double 2x Sill Plate Installation — Attached to D.Fir-L Sill Plate</b>													
MASA or MASAP	2x4, 2x6	(5) 10d x 1½"	(2) 10d x 1½"	985	1555	880	1315	745	735	1290	880	1150	745
				4.38	6.92	3.91	5.85	3.31	3.27	5.74	3.91	5.12	3.31
<b>Standard Installation — Attached to S-P-F Sill Plate</b>													
MASA or MASAP	2x4, 2x6	(3) 10d x 1½"	(6) 10d x 1½"	875	1505	1040	1275	735	875	1505	1040	1090	735
				3.89	6.69	4.63	5.67	3.27	3.89	6.69	4.63	4.85	3.27
MASA or MASAP	3x4, 3x6	(5) 10d x 1½"	(4) 10d x 1½"	665	1615	1040	895	505	550	1430	1040	895	505
				2.96	7.18	4.63	3.98	2.25	2.45	6.36	4.63	3.98	2.25
<b>One-Leg-Up Installation — Attached to S-P-F Sill Plate</b>													
MASA or MASAP	2x4, 2x6	(6) 10d x 1½"	(3) 10d x 1½"	795	950	650	—	—	660	950	650	—	—
				3.54	4.23	2.89	—	—	2.94	4.23	2.89	—	—
<b>Both Legs Over Maximum ½" Plywood or OSB Installation — Attached to S-P-F Sill Plate and Rimboard</b>													
MASA or MASAP	2x4, 2x6	(9) 10d x 1½"	—	960	1290	840	—	—	840	1170	840	—	—
				4.27	5.74	3.74	—	—	3.74	5.20	3.74	—	—
<b>Double 2x Sill Plate Installation — Attached to S-P-F Sill Plate</b>													
MASA or MASAP	2x4, 2x6	(5) 10d x 1½"	(2) 10d x 1½"	985	1170	760	935	525	735	1170	760	935	525
				4.38	5.20	3.38	4.16	2.34	3.27	5.20	3.38	4.16	2.34

See footnotes on p. 53.

## Alternative Mud sill Anchor Installations

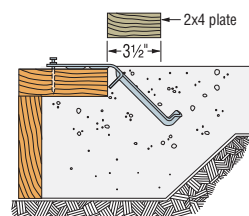
### Alternate Installation for Inside of Wall Continuity



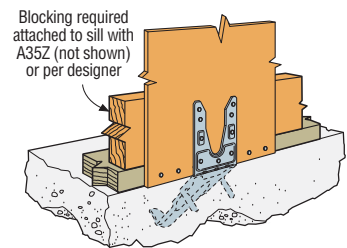
**1 Step 1:** Attach MASA 3½" from inside of form. After concrete cures, remove nails and bend straps up 90°.

**2 Step 2:** Place mudsill on concrete and nail MASA over mudsill.

### Alternate Installation for Brick Ledges



**Alternate MASA Installation for Brick Ledges**



**MASA/MASAP Rim Joist or Blocking Installation in Concrete Over Maximum ½" Sheathing**



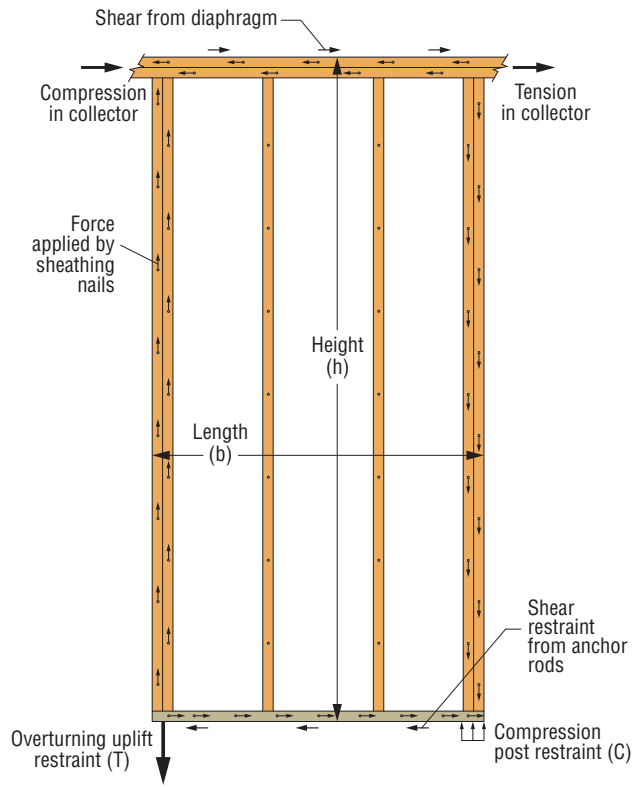
# General Information and Notes

Holdowns and tension ties represent key components that comprise a continuous load path. In light-frame construction, holdowns are typically used to resist uplift due to shearwall overturning or wind uplift forces. In panelized roof construction, holdowns are used to anchor the concrete or masonry walls to the roof framing.

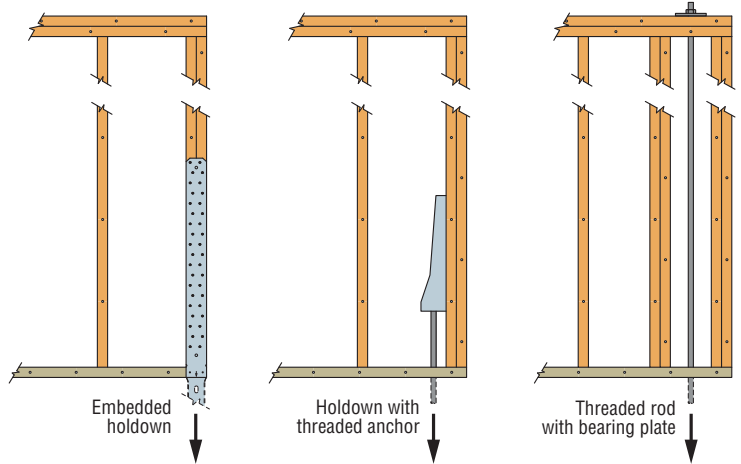
Holdowns can be separated into two categories — post-installed or cast-in-place. Cast-in-place holdowns, such as the STHD holdowns or the PA purlin anchors are installed at the time of concrete placement and attached to wood framing with nails. Cast-in-place holdowns are an economical anchorage solution with factored resistances up to 8800 lb.

After the concrete has been placed, post-installed holdowns are attached to anchor bolts during wall framing. They are attached to the wood framing with nails, Simpson Strong-Tie® Strong-Drive® SD Connector screws and Strong-Drive SDS Heavy-Duty Connector screws or bolts and have factored resistances ranging from about 1000 lb. up to nearly 20000 lb.

The Holdown Selector is a simple web application that selects holddown solutions based on design loads. See [strongtie.com/holdownselector](http://strongtie.com/holdownselector) for more information.



Idealized Force Diagram on Full-Height Shearwall Segment



Methods of Providing Overturning Restraint

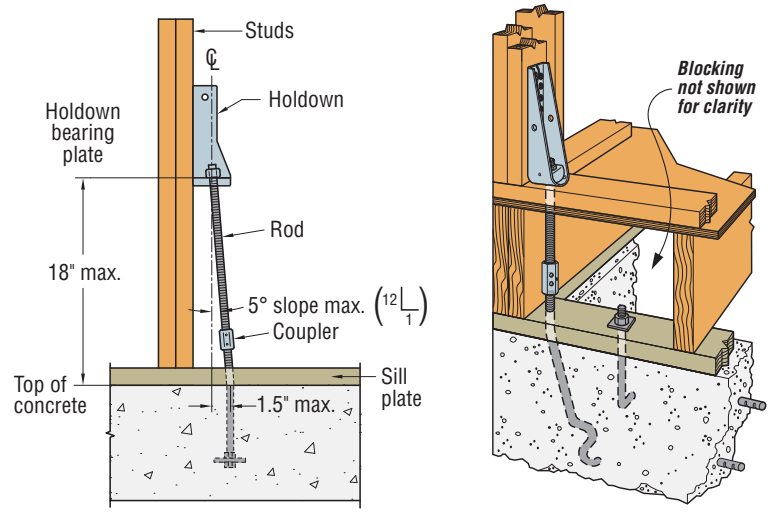
**Holdown Selector**  
[strongtie.com/holdownselector](http://strongtie.com/holdownselector)



# General Information and Notes (cont.)

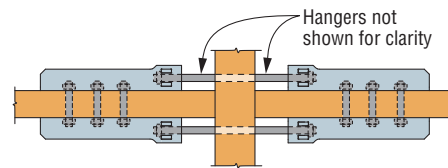
## Holddown and Tension Tie General Notes:

- Factored resistances have been increased 15% for earthquake or wind load durations with no further increase allowed. Reduce where other loads govern.
- Use all specified fasteners.
- The designer must specify anchor bolt type, length and embedment. See pp. 40–42 for SB, pp. 43–46 for SSTB anchor bolts and pp. 47–48 for PAB anchor bolts.
- Simpson Strong-Tie® Anchor Designer™ is available for quick and easy designs of anchors for wind and seismic loads as well as cracked and uncracked concrete. See [strongtie.com/anchordesigner](http://strongtie.com/anchordesigner).
- Anchor bolt nut should be finger tight plus 1/3 to 1/2 turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken not to over-tighten the nut. Impact wrenches should not be used.
- Post or beam by designer. Minimum no. 2 or better lumber is required. Unless noted otherwise, tabulated resistances are based on installation into the wide face of a minimum 3 1/2" wide solid or built-up post. Posts may consist of multiple members provided they are connected independently of the holddown fasteners.
- Holdowns are for use in vertical or horizontal applications.
- Tension values are valid for holdowns installed flush or raised off the sill plate.
- Deflection at Factored Resistances is determined by testing on wood posts and includes fastener slip, holddown deformation and anchor rod elongation for holdowns installed 6" above top of concrete (4 1/2" for HTT). **Holdowns may be installed at any height above top of concrete provided that additional elongation of the anchor rod is accounted for.** Holdown deflections may be linearly reduced for design loads less than the factored resistance.
- To accommodate a 1 1/2" max. offset anchor bolt, holdowns may be installed raised up to 18" above the top of concrete with no load reduction provided that additional elongation of the anchor rod is accounted for.
- Tabulated loads for bolted holdowns may be doubled when holdowns are installed on opposite sides of the wood member. Designer must evaluate the factored resistance of the assembly based on 12.4 CSA O86-14 assuming bolts in double shear. Anchorage is the responsibility of the designer.
- Factored resistances for nailed or screwed holdowns may be doubled when holdowns are installed on opposite sides of the wood member. Member must be thick enough to prevent opposing holddown fastener interference or the holdowns are offset to eliminate fastener interference. Designer must evaluate the factored resistances of the wood member and the anchorage.
- Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers known as the narrow face. Values in the tables reflect installation into the wide face. See technical bulletin T-C-SCLCLMCAN at [strongtie.com](http://strongtie.com) for reductions in resistances due to narrow face installations.

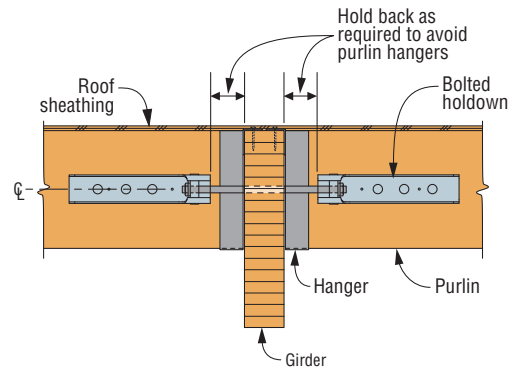


Holddown Raised Off Sill Plate

Holddown on Raised Floor Foundation

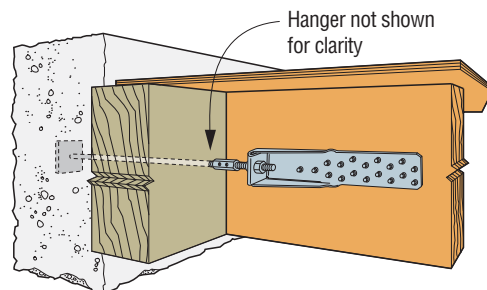


Plan View



Elevation View

Purlin-to-Purlin Cross-Tie Detail



Horizontal HTT Installation





# LSTHD/STHD

## Strap-Tie Holdowns



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

The STHD is an embedded strap-tie holddown offering high load capacity and a staggered nail pattern to help minimize splitting. The STHD incorporates many features that aid correct installation and improve performance. When installed on the forms with the StrapMate® strap holder, the unique design of the STHD delivers enhanced stability before and during the pour to help prevent both parallel and perpendicular movement (relative to the form). This results in accurate positioning of the strap and reduced possibility of spalling.

### Features

- The nailing pattern allows for nailing to the edges of double 2x's
- Strap nail slots are countersunk to provide a lower nail head profile
- The slots below the embedment line enable increased front-to-back concrete bond and help to reduce spalling
- Rim joist (RJ) models accommodate up to a 17" clear span without any loss of strap nailing

**Material:** LSTHD — 14 gauge; STHD — 12 gauge

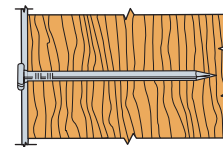
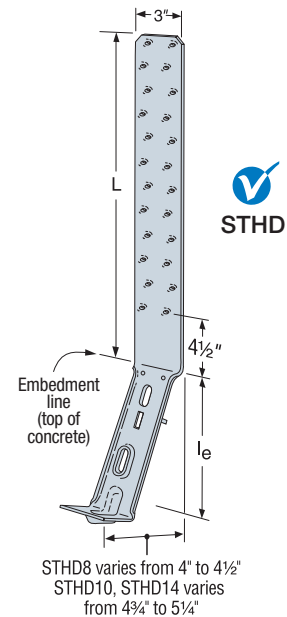
**Finish:** Galvanized

### Installation:

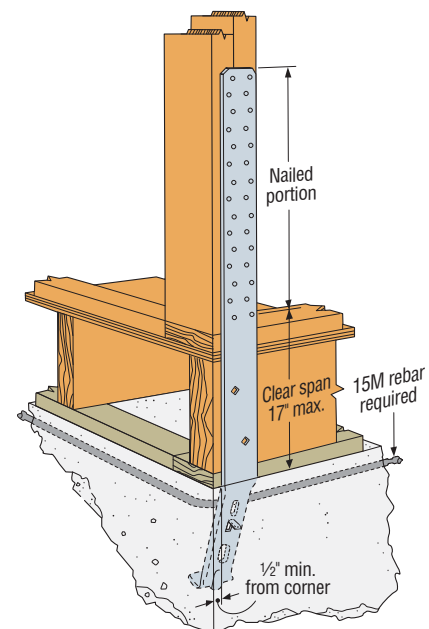
- Use all specified fasteners; see General Notes.
- Install before concrete pour with a StrapMate, or other holding device.
- Nail strap from the bottom up.
- Strap may be bent one full cycle (bent horizontal 90° then bent vertical) to aid wall placement, but may cause spalling behind the strap. If the spall is 1" or less, measured from the embedment line to the bottom of the spall, full values apply. Any portion of the strap left exposed should be protected against corrosion.
- Unless otherwise noted, do NOT install where: (a) a horizontal cold joint exists within the embedment depth between the slab and foundation wall or footing beneath, unless provisions are made to transfer the load, or the slab is designed to resist the load imposed by the anchor; or (b) slabs are poured over concrete block foundation walls.
- Additional studs attached to the shearwall studs or post may be required by the designer for wall sheathing nailing.
- Wood shrinkage after strap installation across horizontal members may cause strap to buckle outward.
- For installations in severe corrosion environments, refer to [strongtie.com/cipcorrosion](http://strongtie.com/cipcorrosion) for additional considerations.
- See installation illustrations on p. 58 for rebar information.

### For Two-Pour Installation for Downturn Footings

- For STHD10 installed through a 4"-thick slab, use the equivalent 8"-stemwall resistances of the LSTHD8
- For STHD14 installed through a 4"-thick slab, use the equivalent 8"-stemwall resistances of the STHD10
- For STHD14 installed through a 6"-thick slab, use the equivalent 8"-stemwall resistances of the LSTHD8



Nails are countersunk for a low-profile strap surface.



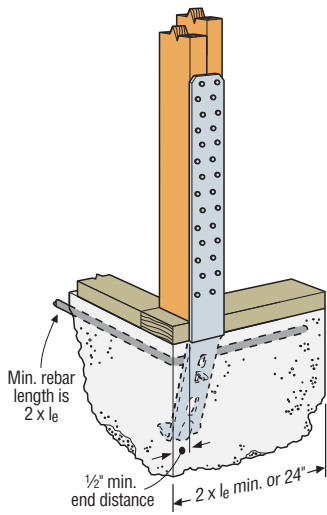
Typical STHD14RJ Rim Joist Application



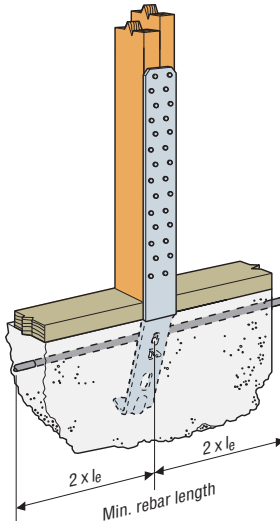
# LSTHD/STHD

## Strap-Tie Holdowns (cont.)

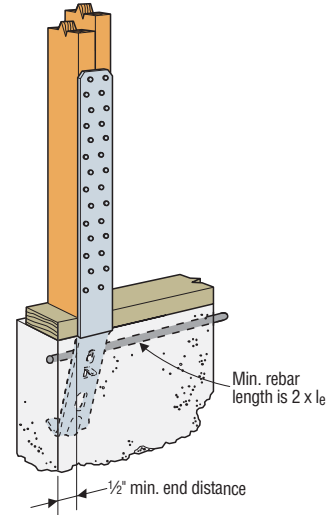
Holdowns and  
Tension Ties



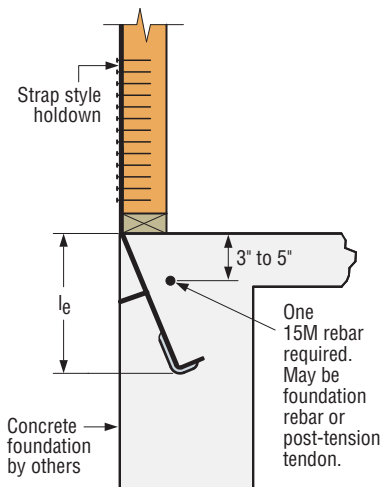
Typical STHD14  
Corner Installation



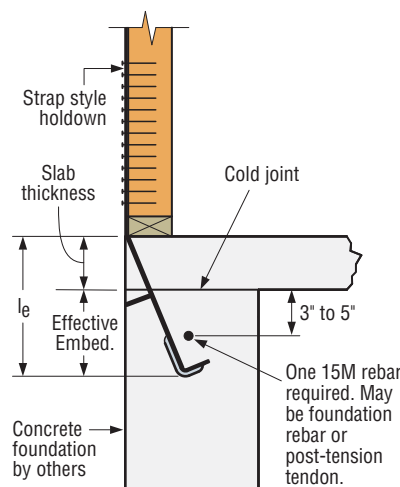
Typical STHD14  
Midwall Installation



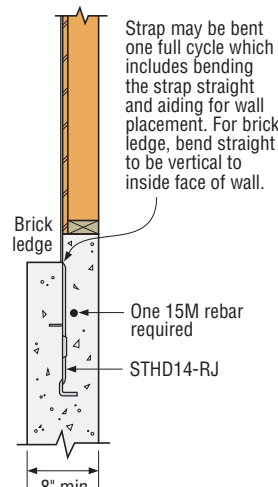
Typical STHD14  
Endwall Installation



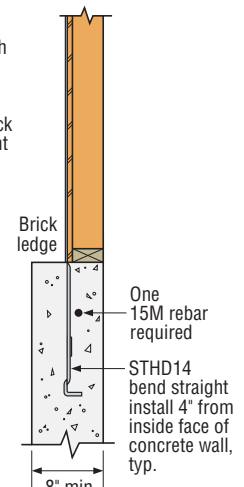
Single-Pour Rebar Installation  
*\*Maintain minimum rebar cover, per CSA A23.1-14.*



Two-Pour Installation  
for Downturn Footings



Brick-Ledge Installation  
with Step



Brick-Ledge Installation  
without Step

### Spall Reduction System for STHD Strap Tie Holddown

#### Features

- Built-in tab
- StrapMate® locator line
- Additional diamond hole in RJ versions

#### Benefits

##### Built-in Tab:

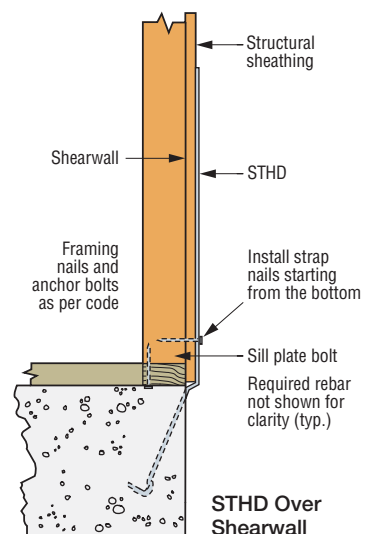
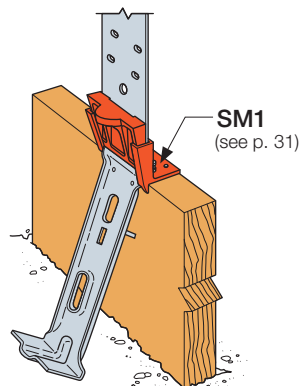
- Reduces spalling and costly retrofits
- No additional labor to install
- Holds STHD away from form board

##### StrapMate Locator Line:

- Easy inspection to ensure proper location
- Allows adjustment without removing STHD

##### Additional Diamond Hole:

- One more fastener to help prevent the STHD RJ models from bowing out at the rim joist section





## LSTHD/STHD

## Strap-Tie Holdowns (cont.)

Factored Resistances for Wind and Seismic  $I_E F_a S_a(0.2) < 0.35$ 

Min. Stem Wall Width (in.)	Model No.		Strap Length (L) (in.)		$l_e$ (in.)	Fasteners	Factored Tensile Resistance ( $K_D = 1.15$ )					
							Uncracked			Cracked		
	Standard	Rim Joist	Standard	Rim Joist			Midwall	Corner	Endwall	Midwall	Corner	Endwall
							lb.	lb.	lb.	lb.	lb.	lb.
				kN	kN	kN	kN	kN	kN			
6	LSTHD8	LSTHD8RJ	18%	32½	8	(20) 10d	4625	4130	2515	3975	3550	2160
							20.57	18.37	11.19	17.68	15.79	9.61
	STHD10	STHD10RJ	24%	38½	10	(24) 10d	5485	5485	3045	4470	4470	2480
							24.40	24.40	13.55	19.88	19.88	11.03
	STHD14	STHD14RJ	26%	39%	14	(30) 10d	7655	7655	4755	7655	7655	4755
							34.05	34.05	21.15	34.05	34.05	21.15
8	LSTHD8	LSTHD8RJ	18%	32½	8	(20) 10d	4625	4015	3310	3975	3450	2845
							20.57	17.86	14.72	17.68	15.35	12.66
	STHD10	STHD10RJ	24%	38½	10	(24) 10d	7400 <sup>3</sup>	6320	4670	6070	5150	3810
							32.92 <sup>3</sup>	28.11	20.77	27.00	22.91	16.95
	STHD14	STHD14RJ	26%	39%	14	(30) 10d	8800 <sup>4</sup>	8195 <sup>4</sup>	6185	7960 <sup>4</sup>	7350	5550
							39.15 <sup>4</sup>	36.45 <sup>4</sup>	27.51	35.41 <sup>4</sup>	32.70	24.69

See footnotes below.

Factored Resistances for Seismic  $I_E F_a S_a(0.2) \geq 0.35$ 

Min. Stem Wall Width (in.)	Model No.		Strap Length (L) (in.)		$l_e$ (in.)	Fasteners	Factored Tensile Resistance ( $K_D = 1.15$ )					
							Uncracked			Cracked		
	Standard	Rim Joist	Standard	Rim Joist			Midwall	Corner	Endwall	Midwall	Corner	Endwall
							lb.	lb.	lb.	lb.	lb.	lb.
				kN	kN	kN	kN	kN	kN			
6	LSTHD8	LSTHD8RJ	18%	32½	8	(20) 10d	3470	3100	1885	2980	2660	1620
							15.44	13.79	8.39	13.26	11.83	7.21
	STHD10	STHD10RJ	24%	38½	10	(24) 10d	4110	4110	2280	3350	3350	1860
							18.28	18.28	10.14	14.90	14.90	8.27
	STHD14	STHD14RJ	26%	39%	14	(30) 10d	5740	5740	3565	5740	5740	3565
							25.53	25.53	15.86	25.53	25.53	15.86
8	LSTHD8	LSTHD8RJ	18%	32½	8	(20) 10d	3470	3010	2485	2980	2585	2135
							15.44	13.39	11.05	13.26	11.50	9.50
	STHD10	STHD10RJ	24%	38½	10	(24) 10d	5550	4740	3505	4525	3865	2855
							24.69	21.09	15.59	20.13	17.19	12.70
	STHD14	STHD14RJ	26%	39%	14	(30) 10d	6655	6145	4640	5970	5510	4160
							29.60	27.34	20.64	26.56	24.51	18.51

- Factored resistances have been developed based on testing per ICC-ES AC 398 using the corresponding adjustment factors from CSA A23.3 Annex D.
- Unless otherwise noted, tabulated values are applicable to D.Fir-L and S-P-F framing members.
- S-P-F factored resistance is 7210 lb. (32.07 kN).
- S-P-F factored resistance is 7725 lb. (34.36 kN).
- The minimum 28-day concrete compressive strength ( $f'_c$ ) shall be 2500 psi (17.25 MPa).
- The minimum centre-to-centre spacing is three times the required embedment depth ( $S_{min} = 3l_e$ ).
- See technical bulletin T-SCLCLMCAN at [strongtie.com](http://strongtie.com) for installation on structural composite lumber posts or studs.
- Deflection at the highest factored resistance for installation over double studs are as follows:
  - Installed on framing: LSTHD8 = 0.094"; STHD10 = 0.157"; STHD14 = 0.135"
  - Installed over structural sheathing: LSTHD8 = 0.159"; STHD10 = 0.201"; STHD14 = 0.290"
 Deflection values shown are applicable for D.Fir-L studs. For attachment to S-P-F studs multiply the deflection values by 1.13.
- Deflection values may be reduced linearly for lesser loads including specified wind loads at  $h/500$ .
- Use the specified number of nails listed. In some cases, not all nail holes will be filled. Nail strap from bottom up.
- For designs under NBC2020, replace  $I_E F_a S_a(0.2)$  with  $I_E S(0.2)$ .
- Nails: 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.



# LTT/HTT

## Tension Ties

Holdowns and  
Tension Ties

Tension ties offer a solution for resisting tension loads that are fastened with nails or Strong-Drive® SD Connector screws. The new LTTTP2 light tension tie, designed for wood joist attachments to concrete or masonry walls, features two separate nailing patterns: obround holes spaced 3" apart for I-joist purlins and square holes spaced to accommodate the narrow face of 2x solid-sawn purlins. LTTTP2 may also be installed vertically on the wide face of a minimum 2x4 stud for holddown application. It features an extruded anchor bolt hole to accommodate 3/4", 5/8" and 1/2" bolt diameters.

The LTTI31 is designed for wood chord open-web truss attachments to concrete or masonry walls and may also be installed vertically on a minimum 2x6 stud.

The HTT4 and HTT5 tension ties feature an optimized nailing pattern which results in better performance with less deflection. HTT5KT is sold as a kit with the holddown, bearing plate washer and Strong-Drive SD Connector screws.

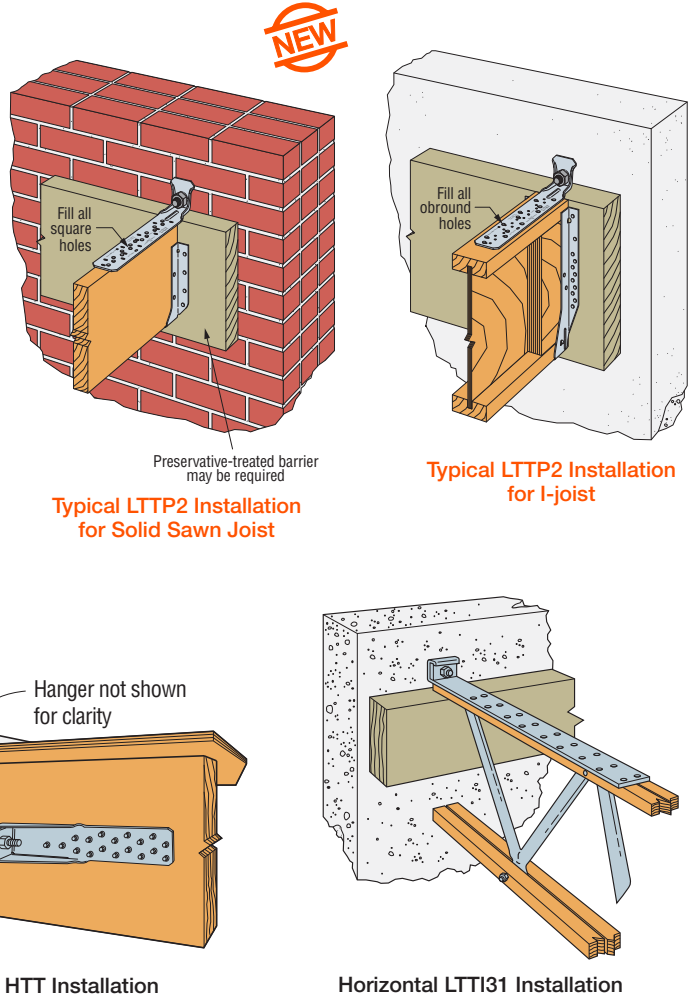
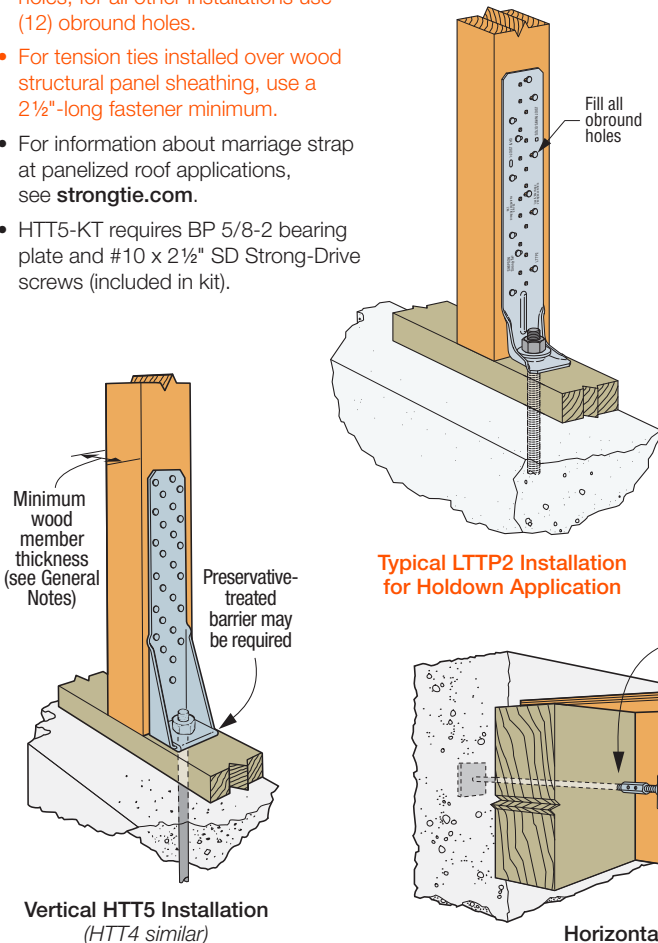
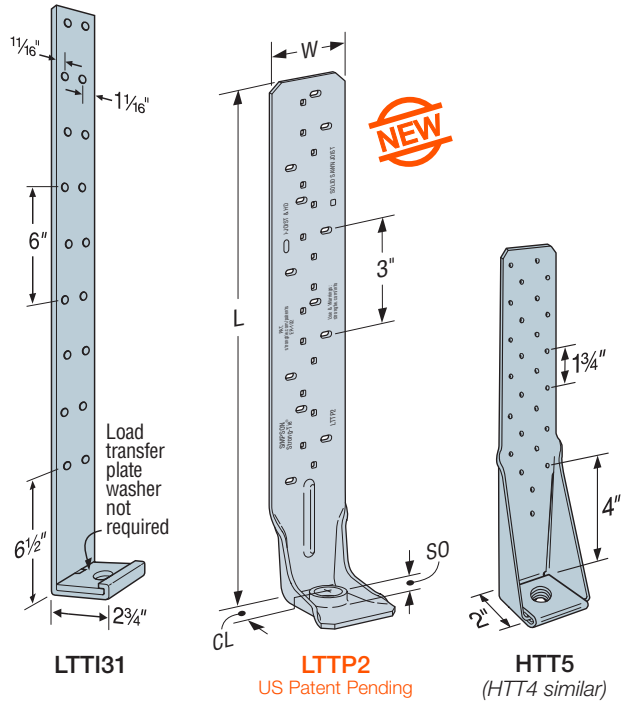
The HTT5-3/4 is designed to use a 3/4"-diameter anchor bolt.

**Material:** See table

**Finish:** Galvanized. May be ordered HDG; contact Simpson Strong-Tie.

**Installation:**

- See Holddown and Tension Tie General Notes on pp. 55–56.
- LTTTP2 — one standard cut-washer is required when using 1/2" and 5/8" anchor bolts; and no additional washer is required for 3/4" anchor bolts.
- LTTTP2 — For installations on narrow edge of solid sawn (2x, 3x) joists use (15) square holes; for all other installations use (12) obround holes.
- For tension ties installed over wood structural panel sheathing, use a 2 1/2"-long fastener minimum.
- For information about marriage strap at panelized roof applications, see [strongtie.com](http://strongtie.com).
- HTT5-KT requires BP 5/8-2 bearing plate and #10 x 2 1/2" SD Strong-Drive screws (included in kit).





## LTT/HTT

## Tension Ties (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Ga.	Dimensions (in.)			Anchor Bolt Diameter (in.)	Fasteners	Minimum Wood Thickness (in.)	Factored Tensile Resistance (K <sub>D</sub> = 1.15)		Deflection at Factored Resistance <sup>6</sup>
		W	L	ϕ				D.Fir-L	S-P-F	
								lb.	lb.	in.
LTPP2	10	2 <sup>5</sup> / <sub>16</sub>	14 <sup>15</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>8</sub>	1/2 <sup>3</sup> / <sub>8</sub> , 5/8 <sup>3</sup> / <sub>8</sub> , or 3/4	(12) 10d x 1 1/2"	1 1/2	2350	2060	0.250
						(12) #9 x 1 1/2" SD		10.45	9.16	6.35
						(12) 10d x 2 1/2"	3	3925	3720	0.250
						(15) 10d x 2 1/2"		17.46	16.55	6.35
						(15) #9 x 1 1/2" SD		3185	3090	0.250
LTTI31	18	3 <sup>3</sup> / <sub>4</sub>	31	1 <sup>1</sup> / <sub>8</sub>	5/8	(18) 10d x 1 1/2"	3	14.17	13.75	6.35
						(18) 10d x 1 1/2"		2460	2161	0.134
HTT4	11	2 <sup>1</sup> / <sub>2</sub>	12 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>8</sub>	5/8	(18) 10d x 1 1/2"	1 1/2	10.94	9.61	3.40
						(18) #10 x 1 1/2" SD		2945	2790	0.250
						(18) 10d	3	13.10	12.41	6.35
						(18) 16d		3120 <sup>7</sup>	2845 <sup>7</sup>	0.250
						(18) 16d		13.88 <sup>7</sup>	12.66 <sup>7</sup>	6.35
HTT5	11	2 <sup>1</sup> / <sub>2</sub>	16	1 <sup>1</sup> / <sub>8</sub>	5/8	(26) #10 x 1 1/2" SD	1 1/2	4760	4190	0.171
						(26) 10d x 1 1/2"		21.17	18.64	4.34
						(26) 10d	3	5865	5515	0.188
						(26) 16d		26.09	24.53	4.78
						(26) 16d		5220	4595	0.144
HTT5KT	11	2 <sup>1</sup> / <sub>2</sub>	16	1 <sup>1</sup> / <sub>8</sub>	5/8	(26) #10 x 2 1/2" SD	3	23.22	20.44	3.66
						(26) #10 x 2 1/2" SD		6000	5280	0.205
HTT5-3/4	11	2 <sup>1</sup> / <sub>2</sub>	16	1 <sup>1</sup> / <sub>8</sub>	3/4	(26) #10 x 1 1/2" SD	1 1/2	26.69	23.49	5.21
						(26) 10d x 1 1/2"		6380	6035	0.250
						(26) 10d	3	28.38	26.85	6.35
						(26) 16d		6565	5760	0.250
						(26) 16d		29.20	25.62	6.35
HTT5-3/4	11	2 <sup>1</sup> / <sub>2</sub>	16	1 <sup>1</sup> / <sub>8</sub>	3/4	(26) #10 x 2 1/2" SD	3	6720	5895	0.250
						(26) #10 x 1 1/2" SD		29.89	26.22	6.35
						(26) 10d x 1 1/2"	1 1/2	7125	6255	0.250
						(26) #10 x 1 1/2" SD		31.69	27.82	6.35
HTT5-3/4	11	2 <sup>1</sup> / <sub>2</sub>	16	1 <sup>1</sup> / <sub>8</sub>	3/4	(26) 16d	3	7490	7490	0.155
						(26) 16d		33.32	33.32	3.94
						(26) 16d	6315	5545	0.170	

1. Factored resistances have been increased 15% for short-term load duration. Reduce where other load durations govern.
2. The designer must specify anchor bolt type, length and embedment to ensure adequate anchorage to concrete.
3. Post design shall be by the designer. Tabulated values are based on a minimum wood member thickness in the direction of the fastener penetration. Post may consist of multiple 2x members provided they are designed to act as one unit independently of the holdown fasteners.
4. Holdowns shall be installed centred along the width of the attached post.
5. Deflection at Factored Resistance includes fastener slip, holdown elongation and anchor bolt elongation (L = 4.5"). Additional elongation of anchor bolts shall be accounted for by the designer when the length of the anchor bolt above the top of the concrete to the attachment at the holdown is longer than 4 1/2". Similar consideration for floor to floor connections must be addressed by the designer.
6. Deflection values may be reduced linearly for lesser loads including specified wind loads at h/500.
7. When the LTTI31 is raised off the concrete or masonry wall, the factored resistances are 1890 lb. (8.41 kN) D.Fir-L and 1720 lb. (7.65 kN) S-P-F. The deflection at factored resistance is 0.25" (6.35 mm).
8. Standard cut washers are required below the nut when using 1/2" - or 5/8" - diameter anchor bolts with LTPP2.
9. LTPP2 installed flush with the top of concrete using (15) 0.148" x 2 1/2" nails into the edge of 2x lumber has a factored resistance of 4090 lb. (18.19 kN) with a deflection at factored resistance of 0.192" (4.9 mm) for both D.Fir-L and S-P-F.
10. LTPP2 installed flush with the top of concrete using (12) 0.148" x 1 1/2" nails into the wide face of 2x lumber has a factored resistance of 2970 lb. (13.21 kN) with a deflection at factored resistance of 0.168" (4.3 mm) for both D.Fir-L and S-P-F.
11. When using structural composite lumber columns, screws must be applied to the wide face of the column (see p. 20 for details).



# HDU/DTT2Z

## Holdowns



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

The HDU series of holdowns combine the advantages of low deflection and high capacity from the pre-deflected geometry with the ease of installation of Simpson Strong-Tie® patented Strong-Drive® SDS Heavy-Duty Connector screws.

The DTT2Z tension tie is suitable for lighter-duty holdown applications on single or double 2x posts, and installs easily with Strong-Drive SDS Heavy-Duty Connector screws (included).

### HDU Special Features:

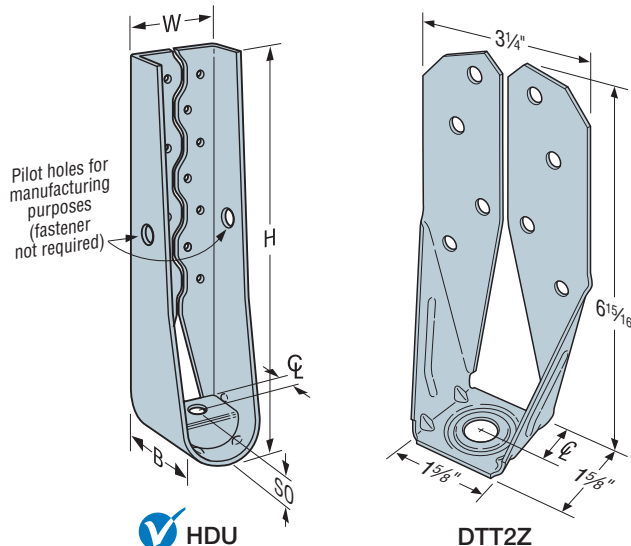
- Pre-deflected body virtually eliminates deflection due to material stretch.
- Uses Strong-Drive SDS Heavy-Duty Connector screws which install easily, reduce fastener slip, and provide a greater net section area of the post compared to bolts.
- 1/4" x 2 1/2" Strong-Drive SDS Heavy-Duty Connector screws are supplied with the holdowns. (Lag screws will not achieve the same capacity.) This ensures the proper fasteners are used and is convenient for the installer.
- No stud bolts to countersink at openings.

**Material:** See table

**Finish:** HDU — Galvanized; DTT2Z — ZMAX® coating; DTT2SS — Stainless steel

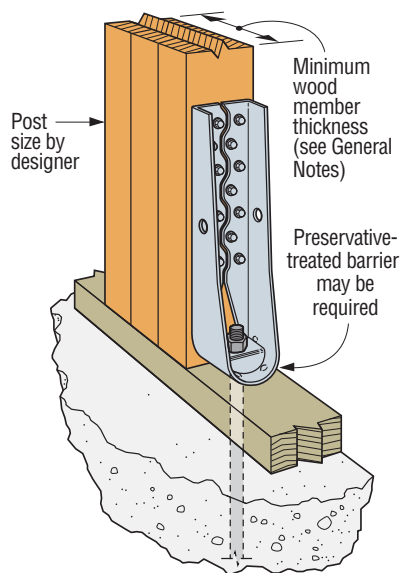
### Installation:

- Use all specified fasteners; see General Notes.
- Place the holdown over the anchor bolt.
- No additional washer required for HDU, the DTT2Z requires standard cut washer (included) be installed between the nut and seat.
- To tie multiple 2x members together, the designer must determine the fasteners required to join the members to act as one unit without splitting the wood. Full length SDS Heavy-Duty Connector screws (4 1/2", 6", 8") may be substituted for the 2 1/2"-long screws to help facilitate this fastening.
- See SB and SSTB anchor bolts on pp. 40–46 for anchorage options.
- Strong-Drive SDS Heavy-Duty Connector screws install best with a low speed high torque drill with a 3/8" hex head driver.
- Anchor bolt nut should be finger tight plus 1/3 to 1/2 turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken not to over-tighten the nut. Impact wrenches should not be used.
- Fasteners and crescent washer are included with the holdown. For replacement parts order: SDS25212-HDU\_ (Fill in the size needed; e.g., HDU2.)
- Some HDU holdowns may be installed with a Simpson Strong-Tie shrinkage take-up device. See technical bulletin T-L-TUDINSTLL at [strongtie.com](http://strongtie.com) for more information.

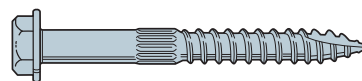


**HDU**

**DTT2Z**  
US Patent: 8,555,580



Vertical HDU Installation



**1/4" x 2 1/2" SDS HEAVY-DUTY  
CONNECTOR Screw**

(See p. 387 for more information)



## HDU/DTT2Z

## Holdowns (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Ga.	Dimensions (in.)					Fasteners		Minimum Wood Thickness (in.)	Factored Tensile Resistance (K <sub>D</sub> = 1.15)		Deflection <sup>7,8</sup> at Factored Resistance	
		W	H	B	Q <sup>11</sup>	SO	Anchor Bolt Diameter (in.)	SDS Screws		D.Fir-L	S-P-F		
										lb.	lb.		in.
										kN	kN		mm
SS DTT2Z	14	3½	6½ <sup>16</sup>	1½	1 <sup>5</sup> / <sub>16</sub>	¾	½	(8) ¼" x 1½"	1½	2805	2520	0.25	
12.48										11.21	6.35		
SS DTT2Z-SDS2.5	14	2 <sup>7</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>16</sub>	¾	1 <sup>3</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	5 <sup>8</sup> / <sub>16</sub>	(8) ¼" x 2½"	3	3060	2950	0.25	
13.61										13.12	6.35		
HDU2-SDS2.5	14	2 <sup>7</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>16</sub>	¾	1 <sup>3</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	5 <sup>8</sup> / <sub>16</sub>	(8) ¼" x 2½"	3	3210	2900	0.092	
14.28										12.90	2.34		
HDU4-SDS2.5	14	2 <sup>7</sup> / <sub>8</sub>	10 <sup>5</sup> / <sub>16</sub>	¾	1 <sup>3</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	5 <sup>8</sup> / <sub>16</sub>	(10) ¼" x 2½"	3	5350	4830	0.13	
23.80										21.49	3.30		
HDU5-SDS2.5	14	2 <sup>7</sup> / <sub>8</sub>	13 <sup>3</sup> / <sub>16</sub>	¾	1 <sup>3</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	5 <sup>8</sup> / <sub>16</sub>	(14) ¼" x 2½"	3	7485	6390	0.153	
33.30										28.43	3.89		
HDU8-SDS2.5	10	3	16 <sup>5</sup> / <sub>16</sub>	¾	1 <sup>3</sup> / <sub>8</sub>	1½	7 <sup>8</sup> / <sub>16</sub>	(20) ¼" x 2½"	3	9585	7690	0.130	
									42.64	34.21	3.30		
	4½	13550	9755	0.201									
		60.28	43.39	5.11									
HDU11-SDS2.5	10	3	22¼	¾	1 <sup>3</sup> / <sub>8</sub>	1½	1	(30) ¼" x 2½"	5½	14800	10665	0.206	
									65.84	47.44	5.23		
	7¼	16985	12230	0.197									
		75.56	54.40	5.00									
HDU14-SDS2.5	7	3 <sup>3</sup> / <sub>8</sub>	25 <sup>1</sup> / <sub>16</sub>	¾	1 <sup>9</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>8</sub>	1	(36) ¼" x 2½"	7¼	20930	15070	0.250	
									93.10	67.04	6.35		
	5½ <sup>a</sup>	20850	15010	0.250									
		92.75	66.77	6.35									

1. Factored resistances have been increased 15% for short-term load duration; reduce where other load durations govern.
2. The designer must specify anchor bolt type, length and embedment to ensure adequate anchorage to concrete.
3. When using structural composite lumber columns, screws must be applied to the wide face of the column (see technical bulletin T-SCLCLMCAN at [strongtie.com](http://strongtie.com) for details).
4. Post design shall be by the designer. Tabulated values are based on a minimum wood member thickness in the direction of the fastener penetration. Post may consist of multiple 2x members provided they are connected independently of the holdown fasteners.
5. Holdowns shall be installed centre along the width of the attached post.
6. Tension values are valid for holdowns flush or raised off of the sill plate.
7. Deflection at Factored Resistance includes fastener slip, holdown elongation and anchor bolt elongation (L = 6"). Additional elongation of anchor bolts shall be accounted for by the designer when the length of the anchor bolt above the top of the concrete to the attachment at the holdown is longer than 6". Similar consideration for floor-to-floor connections must be addressed by the designer.
8. Deflection values may be reduced linearly for lesser loads including specified wind loads at h/500.
9. Noted HDU14 factored resistances are based on a 5½"-wide (6x6) post. All other resistances assume 3½"-wide posts (minimum).
10. HDU14 requires heavy hex nut for anchor bolt (supplied with holdown).
11. Centre line dimension is taken from the face of the post/framing member to the centre of anchor.



# HDQ8/HHDQ

## Holdowns

The HHDQ series of holdowns combines low deflection and high loads with ease of installation. The unique seat design of the HDQ8 greatly minimizes deflection under load. Both styles of holddown employ the Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws which install easily, reduce fastener slip and provide a greater net section area of the post compared to bolts. They may be installed either flush or raised off the mudsill without a reduction in capacity.

### Special Features:

- Uses Strong-Drive SDS Heavy-Duty Connector screws which install easily, reduce fastener slip, and provide a greater net section area of the post compared to bolts
- Strong-Drive SDS Heavy-Duty Connector screws are supplied with the holdowns to ensure proper fasteners are used
- No stud bolts to countersink at openings

**Material:** HDQ8 — 7 gauge;

HHDQ — Body: 7 gauge, washer: 1/2" plate

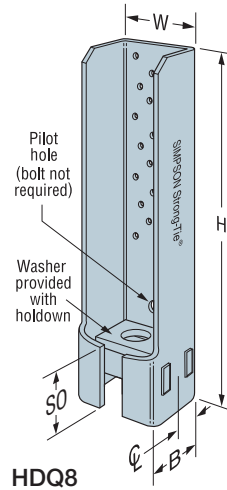
**Finish:** HDQ8 — Galvanized;

HHDQ — Simpson Strong-Tie gray paint;

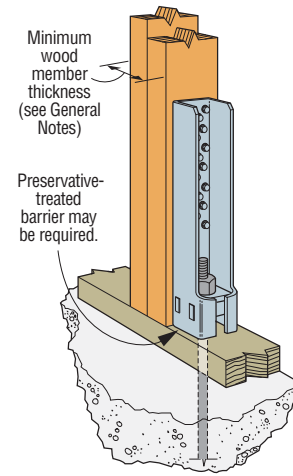
HHDQ11 — Available in stainless steel

### Installation:

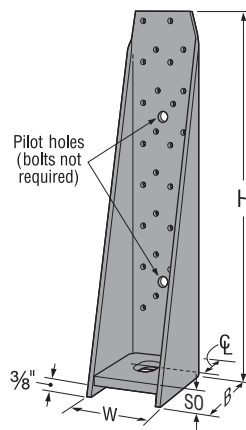
- Use all specified fasteners; see General Notes.
- For use in vertical and horizontal applications.
- No additional washer is required.
- To tie multiple 2x members together, the designer must determine the fasteners required to join members without splitting the wood.
- See SB and SSTB anchor bolts on pp. 40–46 for anchorage options.
- Strong-Drive SDS Heavy-Duty Connector screws install best with a low speed high torque drill with a 3/8" hex-head driver.
- HDQ8 has 5/8" of adjustability perpendicular to the wall.
- HHDQ14 requires a heavy hex anchor nut (supplied with holddown).
- Anchor bolt nut should be finger tight plus 1/3 to 1/2 turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken not to over-tighten the nut. Impact wrenches should not be used.



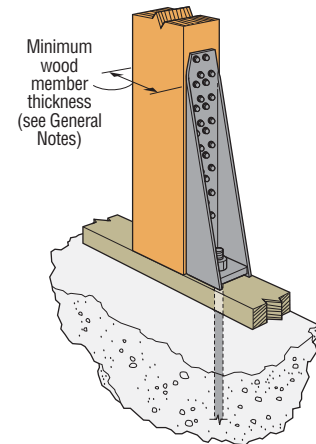
HDQ8



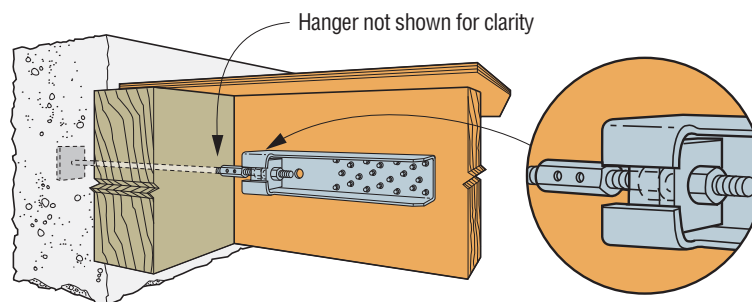
HDQ8 Vertical Installation



HHDQ11  
(HHDQ14 similar)



Vertical HHDQ11 Installation  
(HHDQ14 similar)



Horizontal HDQ8 Installation





## HDQ8/HHDQ

## Holdowns (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Ga.	Dimensions (in.)					Fasteners		Minimum Wood Thickness (in.)	Factored Tensile Resistance (K <sub>D</sub> = 1.15)		Deflection <sup>7,8</sup> at Factored Resistance
		W	H	B	C <sup>11</sup>	S <sub>O</sub>	Anchor Bolt Diameter (in.)	SDS Screws		D.Fir-L	S-P-F	
										lb.	lb.	
										kN	kN	
HDQ8-SDS3	7	27/8	14	2 1/2	1 1/4	2 3/8	7/8	(20) 1/4" x 3"	3	9825	7075	0.112
									4 1/2	43.71	31.47	2.84
										61.77	44.46	3.53
									HHDQ11-SDS2.5	7	3	15 1/8
7 1/4	72.44	55.25	5.54									
	17510	12610	0.168									
HHDQ14-SDS2.5	7	3	18 3/4	3 1/2	1 5/16	7/8	1	(30) 1/4" x 2 1/2"				
									7 1/4	77.89	56.09	4.27
										90.55	72.42	3.56

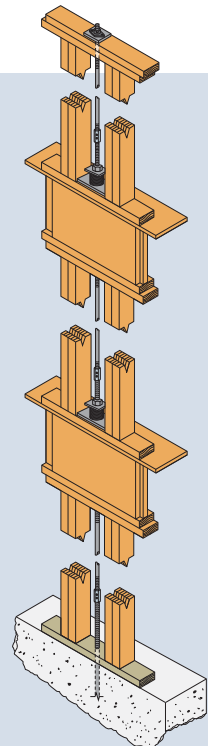
1. Factored resistances have been increased 15% for short-term load duration; reduce where other load durations govern.
2. The designer must specify anchor bolt type, length and embedment to ensure adequate anchorage to concrete.
3. When using structural composite lumber columns, screws must be applied to the wide face of the column (see technical bulletin T-SCLCLMCAN at [strongtie.com](http://strongtie.com) for details).
4. Post design shall be by the designer. Tabulated values are based on a minimum wood member thickness in the direction of the fastener penetration. Post may consist of multiple 2x members provided they are connected independently of the holddown fasteners.
5. Holddowns shall be installed centre along the width of the attached post.
6. Tension values are valid for holddowns flush or raised off of the sill plate.
7. Deflection at Factored Resistance includes fastener slip, holddown elongation and anchor bolt elongation (L = 6"). Additional elongation of anchor bolts shall be accounted for by the designer when the length of the anchor bolt above the top of the concrete to the attachment at the holddown is longer than 6". Similar consideration for floor to floor connections must be addressed by the designer.
8. Deflection values may be reduced linearly for lesser loads including specified wind loads at h/500.
9. Noted HHDQ14 factored resistances are based on a 5 1/2"-wide (6x6) post. All other resistances assume 3 1/2"-wide posts (minimum).
10. Requires heavy hex nut for anchor bolt (supplied with holddown).
11. Centre line dimension is taken from the face of the post/framing member to the centre of anchor.

## Need a Higher Capacity Holddown?



When one of our conventional holddowns doesn't offer enough overturning capacity for a multi-storey project, consider specifying the Simpson Strong-Tie® Anchor Tiedown System (ATS). ATS is a high-capacity overturning-restraint system commonly used in 2–6 storey wood structures to anchor stacked shearwalls. This continuous rod system features our patented shrinkage take-up devices, extends from the foundation to the top of the structure and is restrained (tied off) at each level. Designed properly, it can provide over 100000 lb. of overturning restraint; important when designing for the cumulative overturning forces in multi-storey buildings.

For more information and specification options see our *Strong-Rod Systems Canadian Limit States Design* catalogue (C-L-SRSCAN22) or visit [strongtie.com/ats](http://strongtie.com/ats).





# HDB/HD

## Holdowns

Simpson Strong-Tie offers a wide range of bolted holdowns offering low-deflection performance for a range of load requirements. All of these holdowns have been tested in accordance with ICC-ES's AC 155 acceptance criteria.

The HD3B is light-duty holddown designed for use in shearwalls and braced-wall panels, as well as other lateral applications.

The HD5B, HD7B and HD9B bolted holdowns incorporate the proven design of our HDQ8 SDS-style holddown and feature a unique seat design which greatly minimizes deflection under load. **HD and HDB** holdowns are self-jigging, ensuring that a minimum of seven bolt diameters from the end of the post is met. They can be installed directly on the sill plate or raised above it and are suitable for back-to-back applications where eccentricity is a concern. HDBs are designed to provide resistances for intermediate-load-range shearwalls, braced-wall panels and lateral applications.

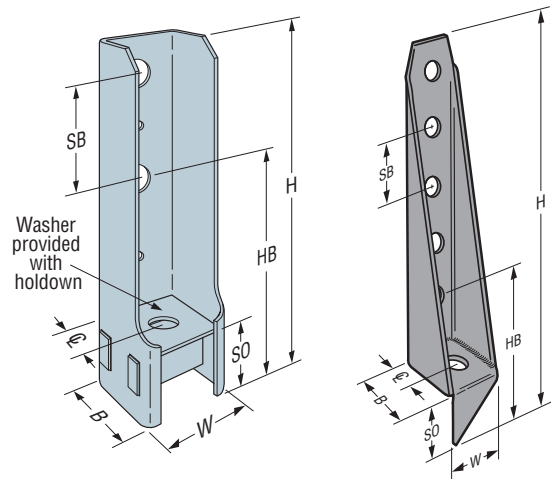
HD holdowns offer the highest bolted capacities for both vertical and horizontal applications.

**Material:** See table. For stainless-steel options, see engineering letter L-C-SSHD at [strongtie.com](http://strongtie.com).

**Finish:** HD3B/HD5B/HD7B/HD9B — Galvanized;  
HD — Simpson Strong-Tie® gray paint; HDG available.

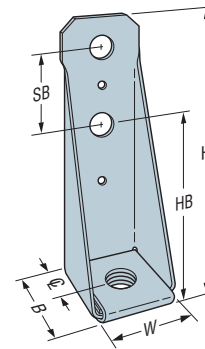
### Installation:

- Use all specified fasteners; see General Notes.
- Bolt holes shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt diameter (per 12.4.1.2 CSA O86-14).
- Stud bolts should be snugly tightened with standard cut washers between the wood and nut.
- The designer must specify anchor bolt type, length, and embedment. See SB and SSTB anchor bolts on pp. 36-42.
- To tie multiple 2x members together, the designer must determine the fasteners required to join members without splitting the wood.
- Anchor bolt nut should be finger tight plus 1/3 to 1/2 turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken not to over-tighten the nut. Impact wrenches should not be used.
- **Standard cut washers are required under the nut of the anchor bolt for HD12 and HD19.**

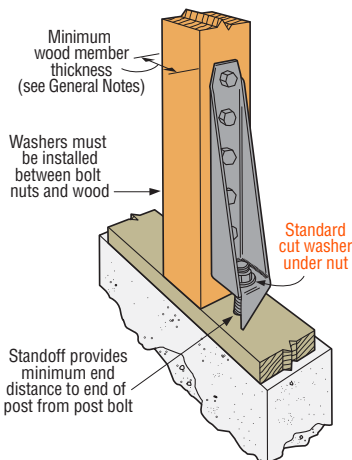


**HD5B**  
(HD7B and HD9B similar)

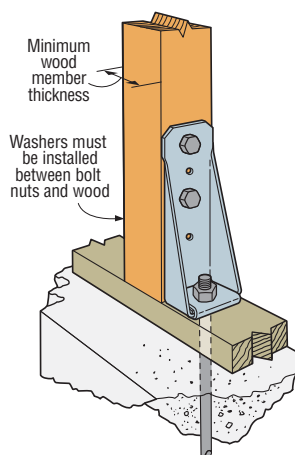
**HD19**  
(HD12 similar)



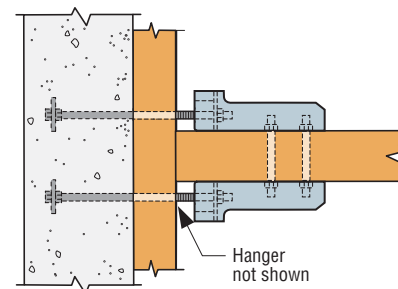
**HD3B**



**Vertical HD19 Installation**



**Vertical HD3B Installation**



**Horizontal HDB Installation**  
(plan view)



## HDB/HD

## Holdowns (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Body Ga.	Dimensions (in.)							Fasteners			Wood Member Thickness (in.)	Factored Tensile Resistance (K <sub>D</sub> = 1.15)		Deflection <sup>8,9</sup> at Factored Resistance	
		HB	SB	W	H	SO	B	C <sup>11</sup>	Anchor Bolt Dia. (in.)	Stud Bolts			D.Fir-L	S-P-F		
										Qty.	Dia. (in.)		lb.	lb.		kN
HD3B	12	4¾	2½	2½	8¾	¾	2¼	1⅝	⅝	2	⅝	1½	1305	1030	0.118	
													5.81	4.58	3.00	
													3	2610	2060	0.088
														11.61	9.16	2.24
													3½	3055	2412	0.114
														13.59	10.73	2.90
HD5B	10	5¼	3	2½	9¾	2	2½	1¼	⅝	2	¾	3	3100	2445	0.106	
													13.79	10.88	2.69	
													3½	3630	2865	0.116
														16.15	12.74	2.95
													4½	4645	3670	0.142
														20.66	16.33	3.61
HD7B	10	5¼	3	2½	12¾	2	2½	1¼	⅞	3	¾	3	4645	3670	0.107	
													20.66	16.33	2.72	
													3½	5440	4295	0.121
														24.20	19.11	3.07
													4½	6605	5215	0.141
														26.98	23.20	3.58
HD9B	7	6⅞	3½	2⅞	14	2¾	2½	1¼	⅞	3	⅞	3½	5885	4645	0.121	
													26.18	20.66	3.07	
													4½	8165	6445	0.155
														36.32	28.67	3.94
													5½	7915	6330	0.152
														35.21	28.16	3.86
HD12	3	7	4	3½	20¾	3¾	4¼	2⅞	1 <sup>12</sup>	4	1	3½	9700	7660	0.150	
													43.15	34.07	3.81	
													4½	12425	9810	0.166
														55.27	43.64	4.22
													5½ <sup>7</sup>	12045 <sup>7</sup>	9635 <sup>7</sup>	0.134
														53.58	42.86	3.40
HD19	3	7	4	3½	24½	3¾	4¼	2⅞	1⅝ <sup>12</sup>	5	1	5½ <sup>7</sup>	15060 <sup>7</sup>	12045 <sup>7</sup>	0.187	
													66.99	53.58	4.75	
													6 <sup>7</sup>	20710 <sup>7</sup>	16350 <sup>7</sup>	0.229
														92.12	72.73	5.82

- Factored resistances have been increased 15% for short-term load duration; reduce where other load durations govern.
- The designer must specify anchor bolt type, length and embedment to ensure adequate anchorage to concrete.
- When using structural composite lumber columns, bolts must be applied to the wide face of the column (see technical bulletin T-SCLCLMCAN at [strongtie.com](http://strongtie.com) for details).
- Post design shall be by the designer. Tabulated values are based on a minimum wood member thickness in the direction of the fastener penetration. Post may consist of multiple 2x members provided they are connected independently of the holddown fasteners.
- Holdowns shall be installed centre along the width of the attached post.
- Tension values are valid for holdowns flush or raised off of the sill plate.
- Noted HD12 and HD19 factored resistances are based on a 5½"-wide post (6x6 or 4-2x6). All other resistances assume 3½"-wide posts (minimum).
- Deflection at Factored Resistance includes fastener slip, holdown elongation and anchor bolt elongation (L = 6"). Additional elongation of anchor bolts shall be accounted for by the designer when the length of the anchor bolt above the top of the concrete to the attachment at the holdown is longer than 6". Similar consideration for floor to floor connections must be addressed by the designer.
- Deflection values may be reduced linearly for lesser loads including specified wind loads at h/500.
- The factored resistances shown are based on the lower of the assembly testing and the bolt calculations in accordance with 12.4 CSA O86-14. For applications where the HD or HDB holdowns are used on opposite sides of the post the capacity of the connection may be calculated using the lower of two times the tabulated value or the bolt calculations in accordance with 12.4 CSA O86-14 assuming double shear.
- Centre line dimension is taken from the face of the post/framing member to the centre of anchor.
- Standard cut washer required under the anchor nut where noted.
- Stud bolts shall be structural quality through bolts equal to or better than ASTM A307 Grade A.



# PAI/MPAI

## Purlin Anchors

Wood-to-concrete and -concrete block connectors. The PAs dual embedment line allows installation in concrete or concrete block.

**Material:** MPAI — 14 gauge; PAI — 12 gauge

**Finish:** Galvanized. Some products available HDG or ZMAX® coating.

**Installation:**

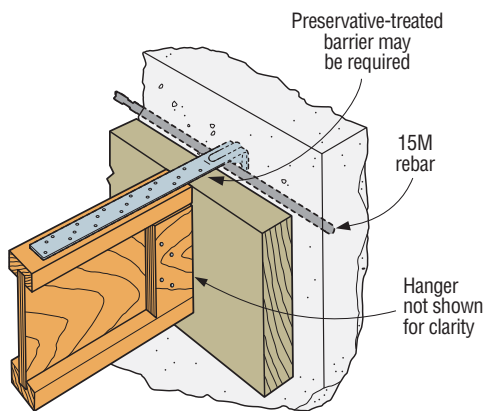
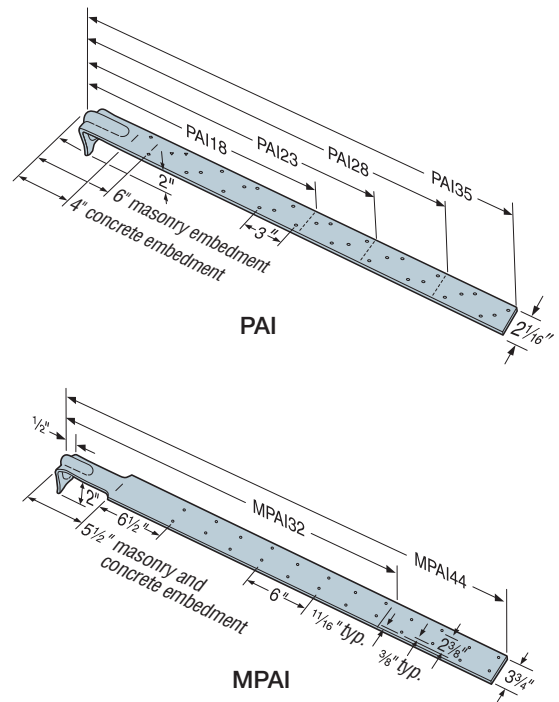
- Minimum concrete strength is 15 MPa.
- Use all specified fasteners; some models have extra fastener holes. See General Notes.
- Wood splitting may occur when anchor is nailed to wood less than 3½" wide. To reduce splitting for widths less than 3½", fill every other nail hole with 10d x 1½" nails. Reduce the factored resistance based on the size and quantity of fasteners used. (See nail table on p. 23.)

**Edge Distance** — Minimum concrete edge distance is 5". Minimum concrete block left-to-right edge distance is 20".

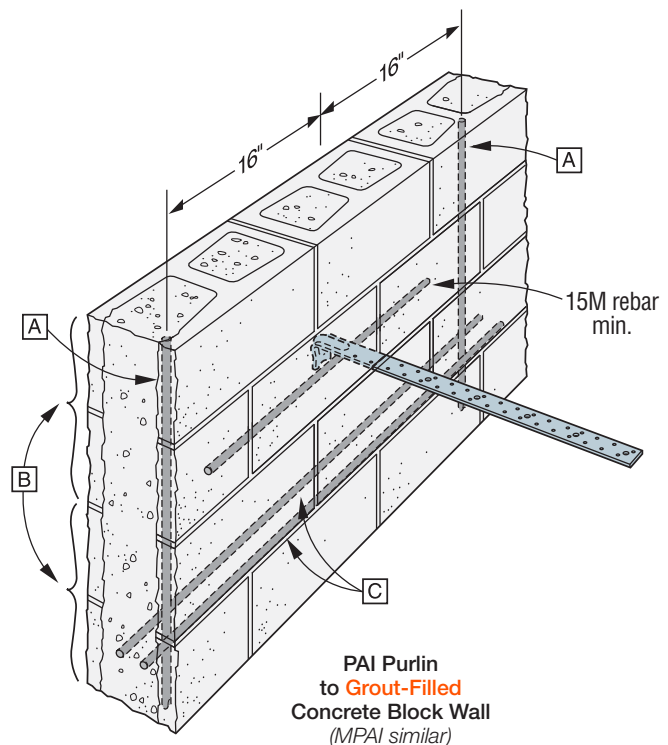
**Concrete Block Walls** — The masonry embedment line on PAI, MPAI allows for 4" of grout embedment in a standard 8" concrete masonry unit. The minimum wall specifications are:

- [A] One 15M vertical rebar, 32" long, 16" each side of anchor;
- [B] Two courses of grout filled block above and below the anchor (no cold joints allowed);
- [C] A horizontal bond beam with two 15M rebars, 40" long, a maximum of two courses above or below the anchor.

All cells grouted with 15 MPa ¾" aggregate grout. Grout shall be vibrated per the Code. Rebar quantities, sizes and lengths are minimum requirements and may be increased per any additional wall design requirements.



**PAI Purlin to Concrete Wall**  
(MPAI similar)



**PAI Purlin to Grout-Filled Concrete Block Wall**  
(MPAI similar)



## PAI/MPAI

## Purlin Anchors (cont.)

Model No.	Strap Length (in.)	Embed Length (in.)		Quantity 10d x 1 1/2" Fasteners		Factored Tensile Resistance							
						Concrete Anchorage				Masonry Anchorage			
		Wind and Seismic $I_E F_a S_a(0.2) < 0.35$		Seismic $I_E F_a S_a(0.2) \geq 0.35$		D.Fir-L	S-P-F	D.Fir-L	S-P-F				
		Uncracked	Cracked	Uncracked	Cracked	( $K_D = 1.15$ )	( $K_D = 1.15$ )	( $K_D = 1.15$ )	( $K_D = 1.15$ )				
		lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.				
<b>No Ledger, 1 3/4" SCL or 2x Ledger</b>													
PAI18	18	4	6	10	8	5005	3505	3755	2630	2795	2475	2325	2060
						22.26	15.59	16.70	11.70	12.43	11.01	10.34	9.16
PAI23	23	4	6	15	13	5005	3505	3755	2630	3380	2995	3140	2780
						22.26	15.59	16.70	11.70	15.04	13.32	13.97	12.37
PAI28	29	4	6	21	19	5005	3505	3755	2630	4275	3785	4235	3740
						22.26	15.59	16.70	11.70	19.02	16.84	18.84	16.64
PAI35	35	4	6	27	25	5005	3505	3755	2630	4415	3865	4235	3865
						22.26	15.59	16.70	11.70	19.64	17.19	18.84	17.19
MPAI32	33 1/2	5 1/2		22		7530	5270	5645	3955	4820	4820	3890	3890
						33.50	23.44	25.11	17.59	21.44	21.44	17.34	17.34
MPAI44	45 1/2	5 1/2		22		7530	5270	5645	3955	4820	4820	3890	3890
						33.50	23.44	25.11	17.59	21.44	21.44	17.34	17.34
<b>2-2x or 4x Ledger</b>													
PAI18	18	4	6	9	7	5005	3505	3755	2630	2620	2320	2035	1805
						22.26	15.59	16.70	11.70	11.65	10.32	9.05	8.03
PAI23	23	4	6	14	12	5005	3505	3755	2630	3380	2995	2900	2565
						22.26	15.59	16.70	11.70	15.04	13.32	12.90	11.41
PAI28	29	4	6	20	18	5005	3505	3755	2630	4275	3785	4235	3740
						22.26	15.59	16.70	11.70	19.02	16.84	18.84	16.64
PAI35	35	4	6	26	23	5005	3505	3755	2630	4415	3865	4235	3865
						22.26	15.59	16.70	11.70	19.64	17.19	18.84	17.19
MPAI32	33 1/2	5 1/2		22		7530	5270	5645	3955	4820	4820	3890	3890
						33.50	23.44	25.11	17.59	21.44	21.44	17.34	17.34
MPAI44	45 1/2	5 1/2		22		7530	5270	5645	3955	4820	4820	3890	3890
						33.50	23.44	25.11	17.59	21.44	21.44	17.34	17.34

1. Factored resistances shown for D.Fir-L and S-P-F have been increased 15% for short-term load duration. Reduce where other durations govern.
2. Factored resistances for anchorage to concrete have been developed based on testing per ICC-ES AC 398 using the corresponding adjustment factors from CSA A23.3 Annex D (2014 and 2019).
3. For designs under NBC 2020, replace  $I_E F_a S_a(0.2)$  with  $I_E S(0.2)$ .
4. The minimum 28 day concrete compressive strength ( $f'_c$ ) shall be 2500 psi (17.25 MPa).
5. Masonry shall be minimum 15 MPa concrete block, grouted solid with Type S mortar per CSA S304.
6. For anchorage to concrete applications, use the lower of the applicable wind/seismic zone vs. concrete condition vs. lumber species for the factored resistance.
7. For installation over sheathing up to 5/8" thick, use 2 1/2" long nails minimum.
8. **Nails:** 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22-24 for other nail sizes and information.



# Bases and Caps General Notes

- Uplift and lateral resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce where other load durations govern.
- Downloads may not be increased for short-term loading, and shall be reduced where limited by the post factored resistance.
- For post bases with 1" standoffs, full bearing on concrete is required. Standoffs shall bear on top of concrete and not be embedded into wet concrete. A higher download may be achieved by solidly packing grout in the 1" standoff area before installation of the post. Factored download resistances shall be based on the capacity of the post, grout or concrete according to the code. (Figure 1)
- The designer is responsible for concrete design.
- For post-installed bases, the designer must specify anchor bolt type, length and embedment. Titen HD®, Stainless-Steel Titen HD and SET-3G™ are some of the retrofit anchor options. For more information, refer to our *Anchoring, Fastening, Restoration and Strengthening Systems for Concrete and Masonry* catalogue at [strongtie.com](http://strongtie.com).
- Except for the MPBZ moment post base, post bases do not provide adequate resistance to prevent members from rotating about the base and are therefore not recommended for non-top-supported installations (such as fences or unbraced carports). The top of the post must be restrained from moving horizontally by some other means, e.g., by tying the roof into a supporting structure or by adding knee bracing between the posts and beams. (Figure 2) Alternatively, see the MPBZ on pp. 71–73 for a post base that provides moment resistance for columns or posts. (Figure 3)
- For post bases that do not attach to all four sides of the post, the post may be wider than the base and overhang the base in one direction (e.g., a 6x8 post on an ABU66Z) as long as the bearing area provided by the base is sufficient for the post.
- For applications involving the use of a post base to support a wood beam, refer to p. 74.
- Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Factored resistances for caps and bases reflect installation into the wide face. See technical bulletin T-C-SCLCLMCAN at [strongtie.com](http://strongtie.com) for load reductions due to narrow face installations. Some products require installation of fasteners into the wide face only.
- Unless otherwise noted, factored resistances for post caps are based on the assumption that the wood post is at least as wide as the supported beam. For applications where this condition is not met (e.g., a 6x10 beam supported by 4x4 post), the designer must evaluate the download capacity.
- Factored lateral resistances for post caps can only be achieved if one of the members, the post or beam, is supported laterally by other means. (Figure 2) For applications involving lateral load transfer from the beam to the column, the column must be designed to receive the load without rotating about its base (e.g., cantilevered out of the ground, diagonally braced, or connected at the base with a moment-resisting connector like the MPBZ post base).
- Post cap factored resistances are for a continuous beam. Unless otherwise noted, the beam may be spliced at the centreline of the post, and the maximum allowable download for each spliced beam is one half of the cap's tabulated factored resistance. For CC, CCQ and CCOS caps, the download for each spliced beam shall also not exceed 2x the download of the other spliced beam. Eccentricity induced in the post by spliced beams must be evaluated by the designer. Tabulated uplift and lateral loads do not apply to spliced beam conditions. When spliced beams must be connected together to transfer design tension loads (lateral loads parallel to the beams), the connection must be by means other than the post cap.
- Post caps may be installed inverted for post-to-beam applications. The designer is responsible for evaluating the beam to ensure it is capable of receiving all loads applied by the post. (Figure 5)

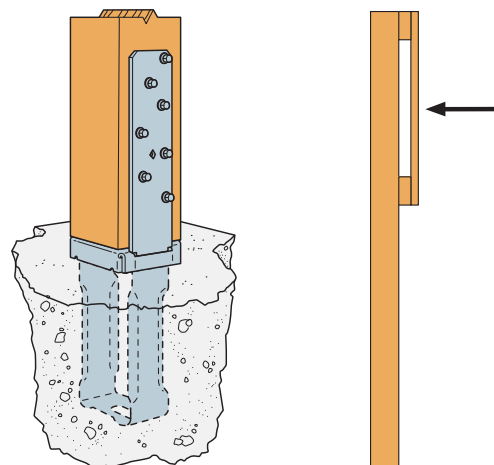


Figure 1 — Post Base with 1" Standoff

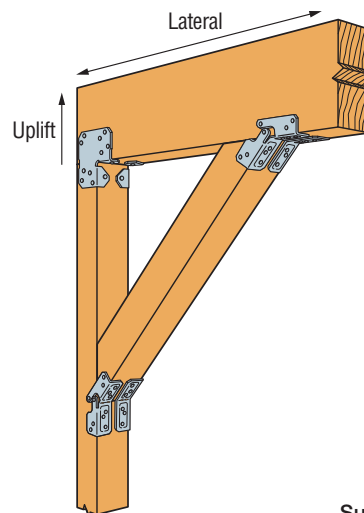


Figure 2 — Typical LCE Post Cap Installation with KBS1Z Knee Bracing

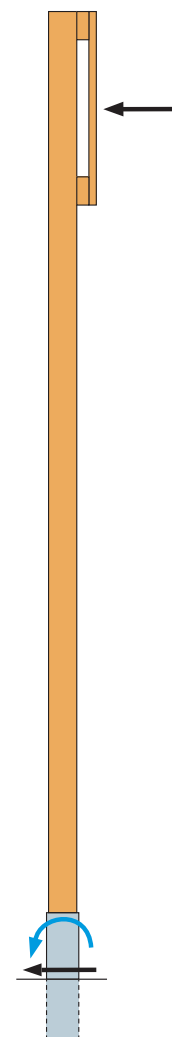


Figure 3 — Non-Top-Supported Post with MPBZ Moment Post Base

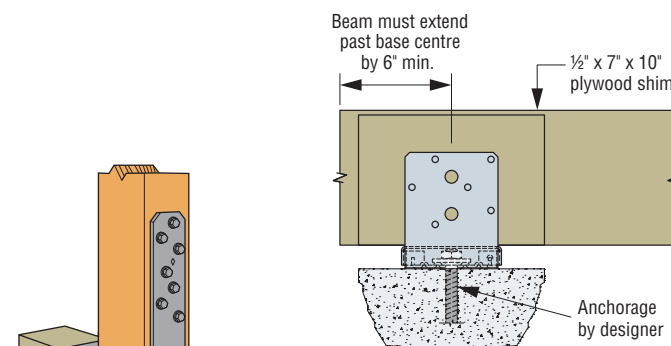


Figure 4 — ABU with Beam Installation

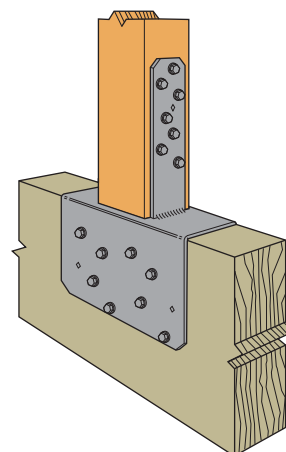


Figure 5 — Typical (Inverted) CCQ44SDS2.5 Post-to-Beam Installation



# MPBZ

## Moment Post Base

The patent-pending MPBZ is specifically designed to provide moment resistance for columns or posts. An innovative overlapping sleeve design encapsulates the post, helping to resist rotation around its base. It is available for 4x4, 6x6 and 8x8 posts. The MPBZ is ideal for outdoor structures, such as carports, fences and decks. Built-in stand-off tabs provide the required 1" stand-off to resist decay of the post while eliminating multiple parts and assembly. Additionally, the MPBZ is available in ZMAX® as the standard finish to meet exposure conditions in many environments.

**Features:**

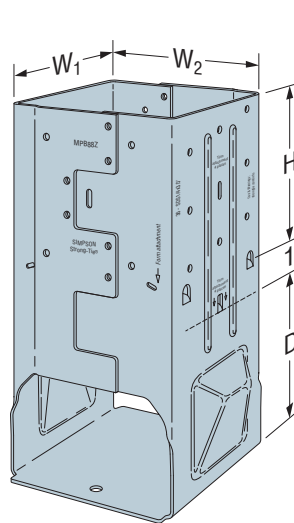
- Internal top-of-concrete tabs
- 1" standoff tabs
- Additional holes provided to attach trim material
- Weep hole provided for water drainage

**Material:** 12 gauge

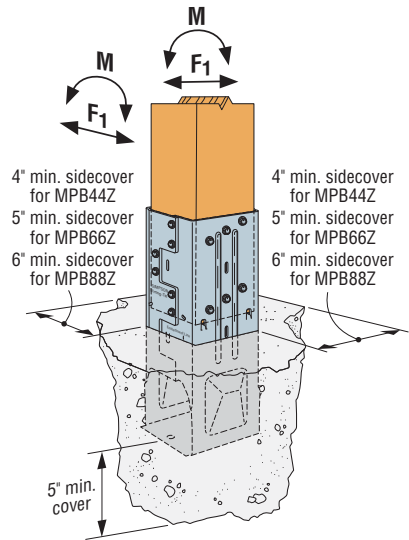
**Finish:** ZMAX coating

**Installation:**

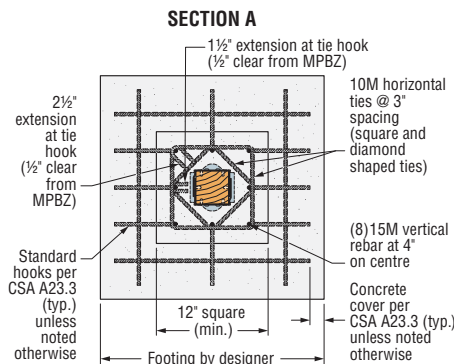
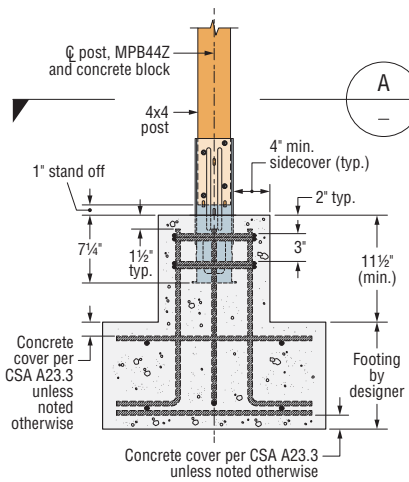
- Use all specified fasteners; see General Notes.
- Install MPBZ before concrete is placed using embedment level indicators and form board attachment holes.
- Place post on tabs 1" above top of concrete.
- Install Strong-Drive SDS Heavy-Duty Connector screws, which are supplied with the MPBZ. (Lag screws will not achieve the same resistance.)
- Concrete level inside the part must not exceed 1/4" above embedment line to allow for water drainage.
- Annual inspection of connectors used in outdoor application is advised. If significant corrosion is apparent or suspected, then the wood, fasteners and connectors should be evaluated by a qualified engineer or inspector.



**MPB88Z**  
(MPB44Z, MPB66Z similar)  
US Patent Pending

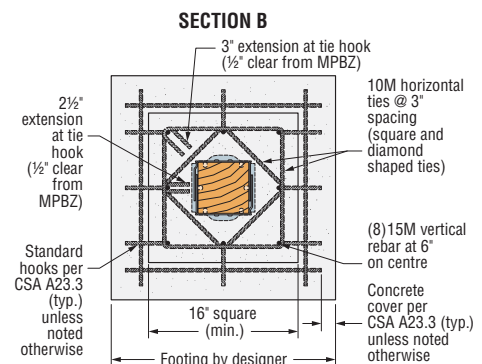
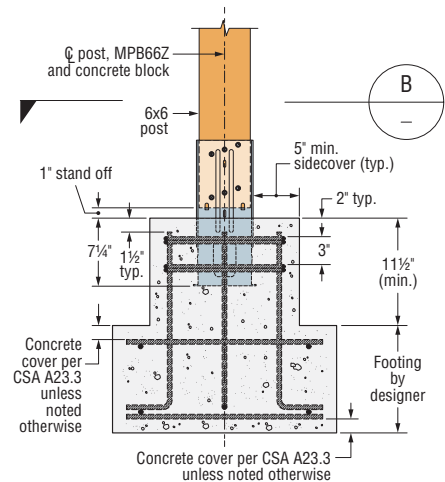


**Typical MPB66Z**  
**Non-Reinforced Installation**  
(others similar)



**MPB44Z**  
**Reinforced Concrete Footing**

Footing (size and reinforcement) by designer. Standard hook geometry in accordance with CSA A23.3 unless noted otherwise.



**MPB66Z**  
**Reinforced Concrete Footing**

Footing (size and reinforcement) by designer. Standard hook geometry in accordance with CSA A23.3 unless noted otherwise.

**MPBZ**

## Moment Post Base (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Bases and Caps

Model No.	Factored Resistance												Download (K <sub>D</sub> = 1.00)		Rotational Stiffness K	
	Concrete Anchorage						Wood (K <sub>D</sub> = 1.15)						D.Fir-L	S-P-F		
	Cracked			Uncracked			D.Fir-L			S-P-F						
	Uplift	F <sub>1</sub>	M <sub>r</sub>	Uplift	F <sub>1</sub>	M <sub>r</sub>	Uplift	F <sub>1</sub>	M <sub>r</sub>	Uplift	F <sub>1</sub>	M <sub>r</sub>	Uplift	F <sub>1</sub>		M <sub>r</sub>
	lb.	lb.	lb.-ft	lb.	lb.	lb.-ft	lb.	lb.	lb.-ft	lb.	lb.	lb.-ft	lb.	lb.		lb.-in./rad.
kN	kN	kN-m	kN	kN	kN-m	kN	kN	kN-m	kN	kN	kN-m	kN	kN	kN-mm/rad.		
<b>Wind and Seismic I<sub>E</sub>F<sub>a</sub>S<sub>a</sub>(0.2) &lt; 0.35</b>																
MPB44Z	5925	1900	1545	8464	2710	2205	7620	4835	2490	6250	3830	1885	10240	8625	1245000	
	26.36	8.45	2.10	37.65	12.06	2.99	33.90	21.51	3.38	27.80	17.04	2.56	45.55	38.37	140671	
MPB66Z	10795	3685	2905	15420	5265	4150	11845	7990	5590	10105	6050	4235	15360	12935	2405000	
	48.02	16.39	3.94	68.59	23.42	5.63	52.69	35.54	7.58	44.95	26.91	5.74	68.33	57.54	271739	
MPB88Z <sup>10</sup>	14445	8620	4515	20635	12315	6450	19430	12345	7310	19035	9510	5535	23830	19990	5500000	
	64.26	38.35	6.12	91.79	54.78	8.75	86.43	54.92	9.91	84.68	42.30	7.51	106.01	88.92	621440	
<b>Seismic I<sub>E</sub>F<sub>a</sub>S<sub>a</sub>(0.2) ≥ 0.35</b>																
MPB44Z	4445	1425	1160	6350	2035	1655	7620	4835	2490	6250	3830	1885	10240	8625	1245000	
	19.77	6.34	1.57	28.25	9.05	2.24	33.90	21.51	3.38	27.80	17.04	2.56	45.55	38.37	140671	
MPB66Z	8095	2765	2180	11565	3950	3110	11845	7990	5590	10105	6050	4235	15360	12935	2405000	
	36.01	12.30	2.96	51.45	17.57	4.22	52.69	35.54	7.58	44.95	26.91	5.74	68.33	57.54	271739	
MPB88Z <sup>10</sup>	10835	6465	3385	15475	9240	4835	19430	12345	7310	19035	9510	5535	23830	19990	5500000	
	48.20	28.76	4.59	68.84	41.10	6.56	86.43	54.92	9.91	84.68	42.30	7.51	106.01	88.92	621440	

1. Factored Wood Uplift, F<sub>1</sub> and M<sub>r</sub> values, have been increased 15% for short-term loading. Reduce where other load durations govern.
2. Factored Download resistances cannot be increased for short-term loading. Reduce where long-term load durations govern.
3. For Uplift, F<sub>1</sub> and M<sub>r</sub>, the factored resistance shall be the lower of the tabulated Concrete Anchorage or the Wood values shown.
4. Concrete shall have a minimum compressive strength f'<sub>c</sub> = 2500 psi (17.25 MPa).
5. For wet service conditions, multiply the Wood factored resistance or the Download by K<sub>SF</sub> = 0.67.
6. Tabulated rotational stiffness accounts for the rotation of the base assembly due to deflection of the connector, fastener slip and post deformation. Designer must account for additional deflection due to bending of the post.
7. Factored resistances shown may be limited by the design capacity of the post.
8. Foundation dimensions are for MPBZ anchorage only. Foundation design (size and reinforcement) is the responsibility of the designer.
9. For loading simultaneously in more than one direction, the factored resistance must be evaluated using the following equation:  
(Factored uplift / Uplift resistance + Factored F<sub>1</sub> / F<sub>1</sub> resistance + Factored moment / M<sub>r</sub>) ≤ 1.0.
10. Tabulated values for MPB88Z require the foundation to be Lightly Reinforced at a minimum (see detail on p. 73).  
Values are not applicable to unreinforced concrete.
11. Tabulated factored resistances may be used for rough sawn lumber or larger size posts without reduction factors. Rough-size and larger-size posts shall be planed uniformly on all four sides such that centreline of post is concentric with the centreline of MPBZ.
12. For designs under NBC2020, replace I<sub>E</sub>F<sub>a</sub>S<sub>a</sub>(0.2) with I<sub>E</sub>S(0.2).

Factored Moment Resistance  
for Reinforced Concrete

Model No.	Concrete Anchorage, M <sub>r</sub>			
	Wind and I <sub>E</sub> F <sub>a</sub> S <sub>a</sub> (0.2) < 0.35		I <sub>E</sub> F <sub>a</sub> S <sub>a</sub> (0.2) ≥ 0.35	
	Cracked	Uncracked	Cracked	Uncracked
	lb.-ft	lb.-ft	lb.-ft	lb.-ft
	kN-m	kN-m	kN-m	kN-m
MPB44Z	2490	2490	2490	2490
	3.38	3.38	3.38	3.38
MPB66Z	4930	5590	3695	5280
	6.69	7.58	5.01	7.16
MPB88Z	7310	7310	5850	7310
	9.91	9.91	7.93	9.91

Model No.	Nominal Column Size	Dimensions (in.)		
		W <sub>1</sub> / W <sub>2</sub>	D	H
MPB44Z	4x4	3 <sup>5</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>4</sub>
MPB66Z	6x6	5 <sup>5</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>4</sub>
MPB88Z	8x8	7 <sup>5</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>4</sub>

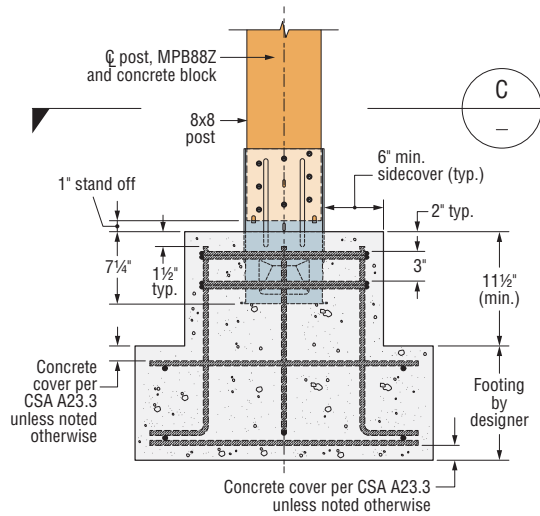
1. Where the foundation is reinforced per the details shown on p. 71 or p. 73, the factored moment resistance for concrete anchorage may be taken as shown in this table.
2. See footnotes above for additional information.





# MPBZ

## Moment Post Base (cont.)

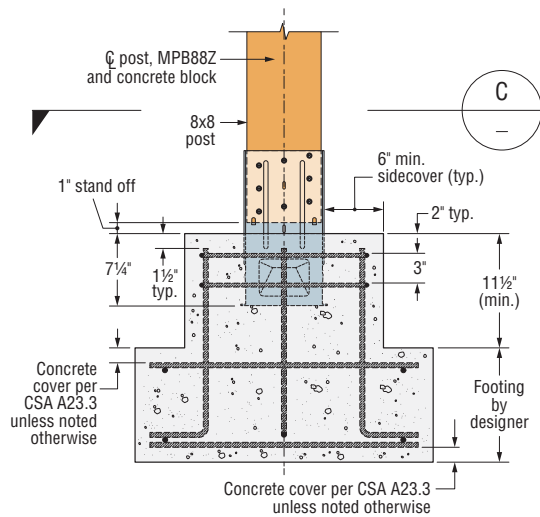
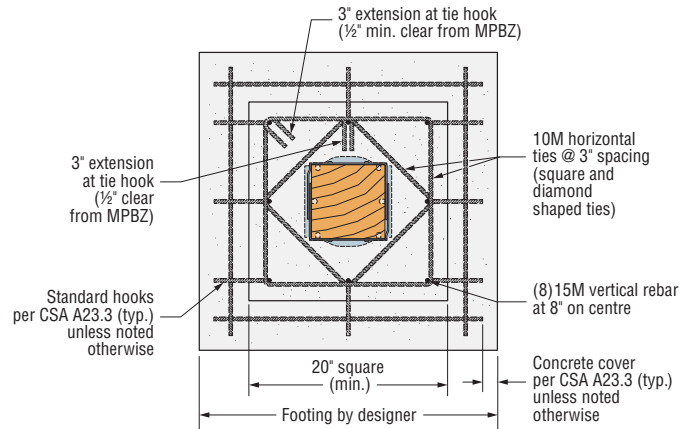


### MPB88Z

#### Reinforced Concrete Footing

Footing (size and reinforcement) by designer. Standard hook geometry in accordance with CSA A23.3 unless noted otherwise.

### SECTION C

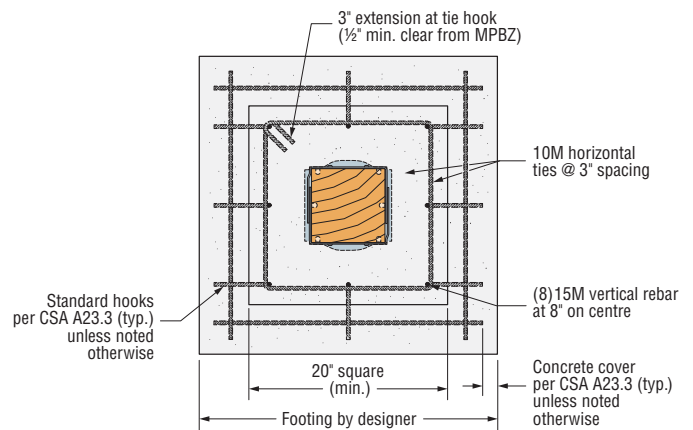


### MPB88Z

#### Lightly Reinforced Concrete Footing

Footing (size and reinforcement) by designer. Standard hook geometry in accordance with CSA A23.3 unless noted otherwise.

### SECTION C





# ABA/ABU/ABW

## Adjustable and Standoff Post Bases

The AB series of retrofit adjustable post bases provide a 1" standoff for the post, are slotted for adjustability and can be installed with nails, Strong-Drive® SD Connector screws or bolts (ABU). Depending on the application needs, these adjustable standoff post bases are designed for versatility, cost-effectiveness and maximum uplift performance.

**Features:**

- The slot in the base enables flexible positioning around the anchor bolt, making precise post placement easier
- The 1" standoff helps prevent rot at the end of the post and meets code requirements for structural posts installed in basements or exposed to weather or water splash

**Material:** Varies (see table)

**Finish:** ZMAX® and some in stainless steel; see Corrosion Information, pp. 16–21

**Installation:**

- Use all specified fasteners; see General Notes.
- See our *Anchoring, Fastening, Restoration and Strengthening Systems for Concrete and Masonry* catalogue, or visit [strongtie.com](http://strongtie.com) for retrofit anchor options.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non-top-supported installations (such as fences or unbraced carports).
- Place the base, cut washer(s) or load transfer plate(s) and nut(s) on the anchor bolt(s). Make any necessary adjustments to post placement and tighten the nut securely on the anchor bolt.
- See [strongtie.com](http://strongtie.com) for information on hollow column installation.

**ABW**

Place the standoff base and then the post in the ABW and fasten on three vertical sides, using nails or Strong-Drive SD Connector screws

- Bend up the fourth side of the ABW and fasten using the correct fasteners

**ABU**

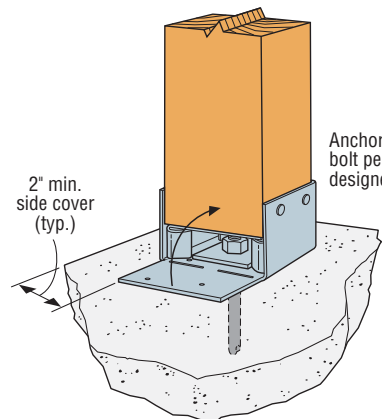
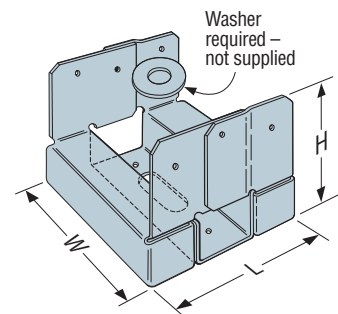
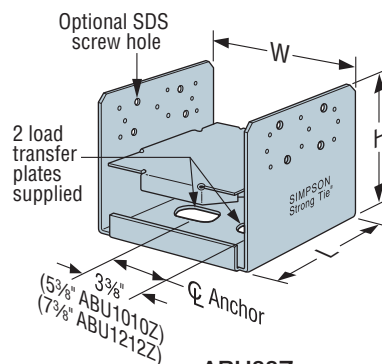
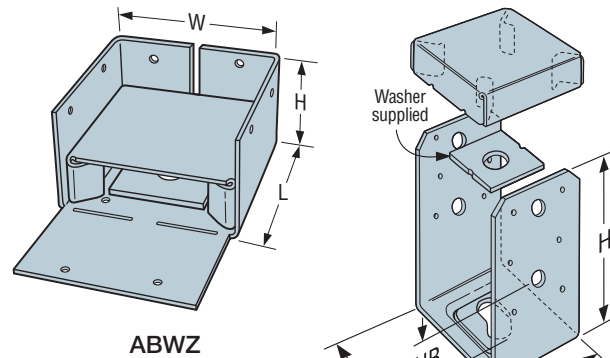
Place the standoff base and then the post in the ABU

- Fasten using nails or Strong-Drive SD Connector screws or bolts (ABU88Z, ABU1010Z, ABU1212Z – SDS optional)

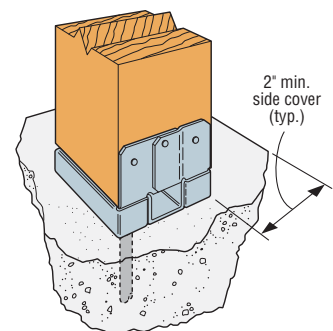
**ABA**

Place the post in the ABA

- Fasten using nails or Strong-Drive SD Connector screws



Typical ABWZ Installation



Typical ABA44Z Installation



## ABA/ABU/ABW

## Adjustable and Standoff Post Bases (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Nominal Post Size	Material (ga.)		Dimensions (in.)			Fasteners		Factored Resistance			
									D.Fir-L		S-P-F	
		Base	Strap	W	L	H	Anchor Dia. (in.)	Nails	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)
									lb.	lb.	lb.	lb.
ABA44Z	4x4	16	16	3 <sup>3</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	½	(6) 10d	1030	10375	730	8610
									4.58	46.15	3.25	38.30
ABW44Z	4x4	16	16	3 <sup>3</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>4</sub>	½	(8) 10d	1635	9965	1160	8260
									7.27	44.33	5.16	36.74
SS ABU44Z	4x4	16	12	3 <sup>3</sup> / <sub>16</sub>	3	5 <sup>1</sup> / <sub>2</sub>	5/8	(12) 16d	2955	10940	2095	9070
									13.15	48.67	9.32	40.35
ABA44RZ	RGH 4x4	16	16	4 <sup>1</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	2 <sup>13</sup> / <sub>16</sub>	½	(6) 10d	925	10630	655	8810
									4.11	47.29	2.91	39.19
ABW44RZ	RGH 4x4	16	16	4	4 <sup>1</sup> / <sub>16</sub>	1 <sup>15</sup> / <sub>16</sub>	½	(8) 10d	1280	9965	905	8260
									5.69	44.33	4.03	36.74
ABA46Z	4x6	14	14	3 <sup>3</sup> / <sub>16</sub>	5 <sup>3</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>8</sub>	5/8	(8) 16d	990	17200	705	14290
									4.40	76.51	3.14	63.57
ABW46Z	4x6	12	16	3 <sup>3</sup> / <sub>16</sub>	5 <sup>3</sup> / <sub>16</sub>	3	½	(10) 10d	1415	6645	1005	5500
									6.29	29.56	4.47	24.47
ABU46Z	4x6	12	12	3 <sup>3</sup> / <sub>16</sub>	5	7	5/8	(12) 16d	3490	20190	2480	16765
									15.52	89.81	11.03	74.58
SS ABA46RZ	RGH 4x6	14	14	4 <sup>1</sup> / <sub>16</sub>	5 <sup>3</sup> / <sub>16</sub>	2 <sup>7</sup> / <sub>8</sub>	5/8	(8) 16d	990	15090	705	12515
									4.40	67.13	3.14	55.67
ABW46RZ	RGH 4x6	14	16	4	6	2 <sup>13</sup> / <sub>16</sub>	½	(10) 10d	1305	6645	925	5500
									5.81	29.56	4.11	24.47
ABA66Z	6x6	14	14	5 <sup>1</sup> / <sub>2</sub>	5 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>8</sub>	5/8	(8) 16d	1280	17635	995	13055
									5.69	78.45	4.27	58.07
ABW66Z	6x6	12	14	5 <sup>1</sup> / <sub>2</sub>	5 <sup>3</sup> / <sub>16</sub>	3	½	(12) 10d	1985	18860	1410	13810
									8.83	83.01	6.27	61.43
SS ABU66Z	6x6	12	10	5 <sup>1</sup> / <sub>2</sub>	5	6 <sup>1</sup> / <sub>16</sub>	5/8	(12) 16d	3590	24880	2550	18445
									15.97	110.68	11.34	82.05
ABA66RZ	RGH 6x6	14	14	6	5 <sup>3</sup> / <sub>16</sub>	2 <sup>7</sup> / <sub>8</sub>	5/8	(8) 16d	1280	17635	995	13055
									5.69	78.45	4.27	58.07
ABW66RZ	RGH 6x6	12	14	6	6	2 <sup>13</sup> / <sub>16</sub>	½	(12) 10d	1780	18660	1265	13810
									7.92	83.01	5.63	61.43
SS ABU88Z	8x8	12	14	7 <sup>1</sup> / <sub>2</sub>	7	7	(2) 5/8	(18) 16d	3555	28275	2525	20805
									15.81	125.78	11.23	92.55
ABU88RZ	RGH 8x8	12	14	8	7	7	(2) 5/8	(18) 16d	3555	28275	2525	20805
									15.81	125.78	11.23	92.55
ABU1010Z	10x10	12	12	9 <sup>1</sup> / <sub>2</sub>	9	7 <sup>1</sup> / <sub>4</sub>	(2) 5/8	(22) 16d	3055	44950	2170	37025
									13.59	199.96	9.65	164.70
ABU1010RZ	RGH 10x10	12	12	10	9	7	(2) 5/8	(22) 16d	3055	44950	2170	37025
									13.59	199.96	9.65	164.70
ABU1212Z	12x12	12	12	11 <sup>1</sup> / <sub>2</sub>	11	7 <sup>1</sup> / <sub>4</sub>	(2) 5/8	(22) 16d	5010	49345	3555	40615
									22.28	219.49	15.81	180.67
ABU1212RZ	RGH 12x12	12	12	12	11	7	(2) 5/8	(22) 16d	5010	49345	3555	40615
									22.28	219.49	15.81	180.67

- Uplift resistances have been increased 15% for short-term loading; no further increase is allowed.
- Factored normal resistances may not be increased for short-term loading.
- Specifier to design concrete for applied loads.
- ABU88Z, ABU88RZ, ABU1010Z, ABU1010RZ, ABU1212Z and ABU1212RZ may be installed with (8) Strong-Drive® ¼" x 3" SDS Heavy-Duty Connector screws for same tabulated values.
- Factored resistances shown assume No. 1/No. 2 for 4x4 and 4x6 and No. 2 for 6x6, 8x8, 10x10 and 12x12.

- Factored resistances shown assume a minimum concrete compressive strength of 15 MPa with a concrete surface area of four times the bearing area of the connector. See 10.8.1 CSA A23.3-14.
- Factored resistances shown assume dry service condition (K<sub>SF</sub> = 1.00). Multiply table values by 0.67 for wet service conditions.
- Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-C-SCLCLMCAN at [strongtie.com](http://strongtie.com) for more information.
- Nails: 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.



# ABA/ABU/ABW

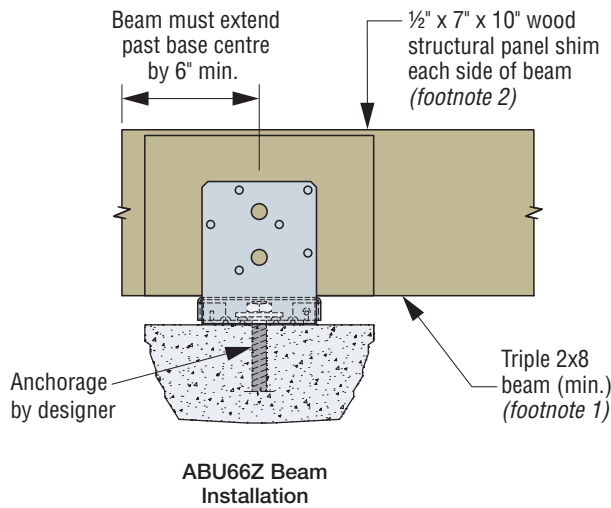
## Adjustable and Standoff Post Bases (cont.)

### Factored Resistances — Beam Installation

Bases and Caps

Model No.	Nominal Beam Size	Fasteners		Factored Resistance			
		Anchor Dia. (in.)	Nails	D.Fir-L		S-P-F	
				Uplift	Normal	Uplift	Normal
				(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
				lb.	lb.	lb.	lb.
kN	kN	kN	kN				
ABU46Z	(2) 2x	5/8	(12) 16d	3355	13965	2815	10175
				14.92	62.12	12.52	45.26
	4x	5/8	(12) 16d	3355	15700	2815	12330
				14.92	69.84	12.52	54.85
ABU46RZ	Rough 4x	5/8	(12) 16d	3355	15700	2815	12330
				14.92	69.84	12.52	54.85
ABU66Z	(3) 2x	5/8	(12) 16d	2645	18215	1880	13785
				11.77	81.03	8.36	61.32
	6x	5/8	(12) 16d	2645	18760	1880	14110
				11.77	83.45	8.36	62.77
ABU66RZ	Rough 6x	5/8	(12) 16d	2645	18760	1880	14110
				11.77	83.45	8.36	62.77

1. Beam depth shall be 7.25" min.
2. Shims are required for (2) 2x and (3) 2x installations as shown in the illustration. Additional fastening of shim to beam is not required.
3. See additional notes and information on p. 75.





# PB/PBS

## Regular and Standoff Post Bases

The PBS features a 1" standoff height. It reduces the potential for decay at post and column ends.

**Material:** PB — 12 gauge; PBS44A, PBS46 — 14 gauge strap, 12 gauge standoff; PBS66 — 12 gauge

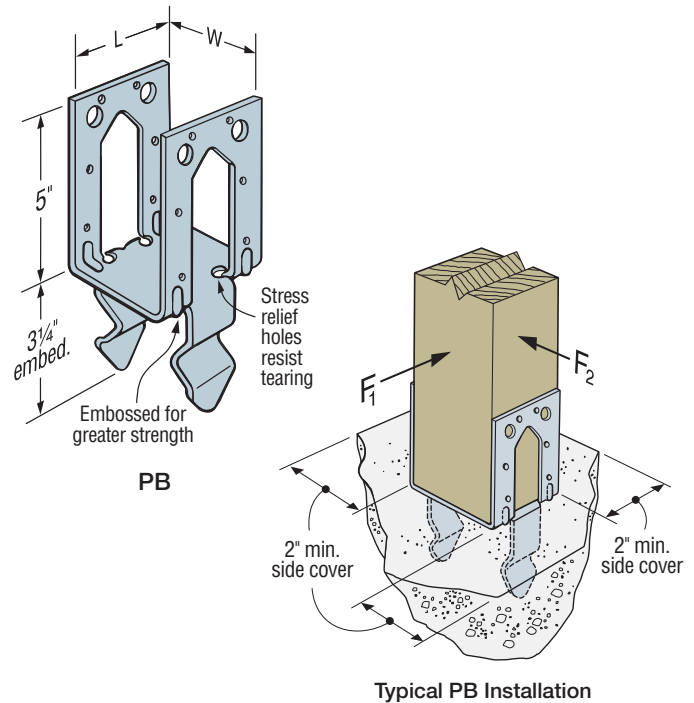
**Finish:** Galvanized. Some products available in ZMAX® or HDG coating; see Corrosion Information, pp. 16–21.

### Installation:

- Use all specified fasteners; see General Notes.
- Install either nails or bolts (see p. 13, note d).
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non-top-supported installations (such as fences or unbraced carports).
- Holes are provided for installation with either 16d common nails or ½" bolts. A 2" minimum sidecover is required to obtain the full capacity.
- PBS — Embed into wet concrete up to the bottom of the 1" standoff base plate. A 2" minimum side cover is required to obtain the full capacity. Holes in the bottom of the straps allow for free concrete flow.

### Options:

- PBS available in rough sizes, contact Simpson Strong-Tie



These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Dimensions (in.)			Fasteners			Factored Resistance ( $K_D = 1.15$ )					
	W	L	H	Nails	Bolts		D.Fir-L			S-P-F		
					Qty.	Dia. (in.)	Uplift	F <sub>1</sub>	F <sub>2</sub>	Uplift	F <sub>1</sub>	F <sub>2</sub>
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	
							kN	kN	kN	kN	kN	kN
PB44	3 <sup>5</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>4</sub>	5	(12) 16d	2	½	1935	1445	1655	1375	1025	1655
							8.61	6.43	7.36	6.12	4.56	7.36
PB44R	4	3 <sup>1</sup> / <sub>4</sub>	5	(12) 16d	2	½	1935	1445	1655	1375	1025	1655
							8.61	6.43	7.36	6.12	4.56	7.36
PB46	5 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>4</sub>	5	(12) 16d	2	½	1935	1445	1655	1375	1025	1655
							8.61	6.43	7.36	6.12	4.56	7.36
PB66	5 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>4</sub>	5	(12) 16d	2	½	1935	1445	1655	1375	1025	1655
							8.61	6.43	7.36	6.12	4.56	7.36
PB66R	6	5 <sup>1</sup> / <sub>4</sub>	5	(12) 16d	2	½	1935	1445	1655	1375	1025	1655
							8.61	6.43	7.36	6.12	4.56	7.36

1. Uplift and lateral resistances have been increased 15% for short-term load duration; no further increase is allowed.
2. Download capacity is the lower of the concrete or post capacity per CSA A23.3-14 or CSA O86-14.
3. Structural composite lumer columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners should be installed through the wide face.
4. Factored resistances shown assume dry service condition ( $K_{SF} = 1.00$ ). Multiply table values by 0.67 for wet service conditions.
5. Factored resistances shown assume a minimum of  $f'_c = 15$  MPa.
6. **Nails:** 16d = 0.162" dia. x 3½" long. See pp. 22–24 for other nail sizes and information.



**PB/PBS**

Regular and Standoff Post Bases (cont.)

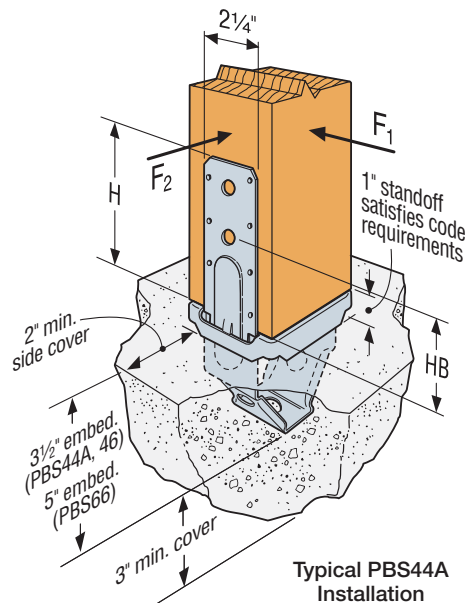
These products are available with additional corrosion protection. For more information, see p. 20.

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Bases and Caps

Model No.	Dimensions (in.)			Nails	Fasteners		Factored Resistance							
	W	L	H		Qty.	Dia. (in.)	D.Fir-L				S-P-F			
							Uplift	F <sub>1</sub>	F <sub>2</sub>	Normal	Uplift	F <sub>1</sub>	F <sub>2</sub>	Normal
							(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
				lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.			
				kN	kN	kN	kN	kN	kN	kN	kN			
PBS44A	3 <sup>5</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>4</sub>	(14) 16d	2	1/2	2745	1650	1345	10920	1950	1170	955	9125
							12.21	7.34	5.98	48.58	8.67	5.20	4.25	40.59
PBS46	3 <sup>5</sup> / <sub>16</sub>	5 <sup>7</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>16</sub>	(14) 16d	2	1/2	2745	1650	1345	15835	1950	1170	955	13155
							12.21	7.34	5.98	70.44	8.67	5.20	4.25	58.52
PBS66	5 <sup>1</sup> / <sub>2</sub>	5 <sup>5</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>2</sub>	(14) 16d	2	1/2	2745	1650	1345	15835	1950	1170	955	13155
							12.21	7.34	5.98	70.44	8.67	5.20	4.25	58.52

1. Uplift and lateral resistances have been increased 15% for short-term load duration. No further increase is allowed.
2. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. For SCL columns, the fasteners should be installed through the wide face.
3. Specifier shall design concrete for shear capacity.
4. Normal loads (gravity) may not be increased for short-term load duration.
5. PBS66 factored uplift resistance is 4650 lb. (20.68 kN) D.Fir-L and 3720 lb. (16.55 kN) S-P-F when installed with two 1/2"-diameter bolts.
6. Factored resistances shown assume dry service condition (K<sub>SF</sub> = 1.00). Multiply table values by 0.67 for wet service conditions.
7. Factored resistances shown assume a minimum of f'<sub>c</sub> = 15MPa.
8. Nails: 16d = 0.162" dia. x 3 1/2" long. See pp. 22–24 for other nail sizes and information.





# CPTZ

## Concealed Post Tie

The CPTZ post base incorporates a knife plate with a standoff base. It achieves a clean, concealed look while providing a 1"-standoff height above concrete. The CPTZ is installed with ½"-diameter galvanized dowels (supplied). The 1"-standoff height is code-required when supporting permanent structures that are exposed to weather or water splash, or in basements. The standoff reduces the potential for decay at post or column ends. It is part of a system of concealed connectors that includes the CBTZ and CJTZ.

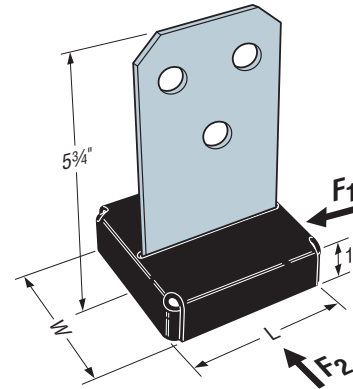
The anchorage for the CPTZ can be either cast-in-place or retrofit with adhesive or mechanical anchors. See our *Anchoring and Fastening Systems for Concrete and Masonry* catalogue for additional information concerning retrofit solutions.

**Material:** 10 gauge

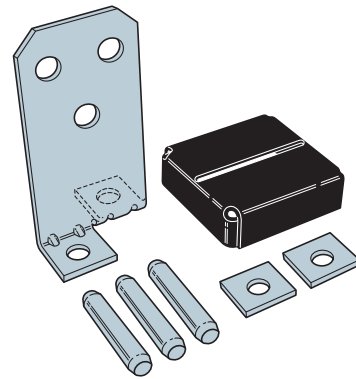
**Finish:** ZMAX® coating

**Installation:**

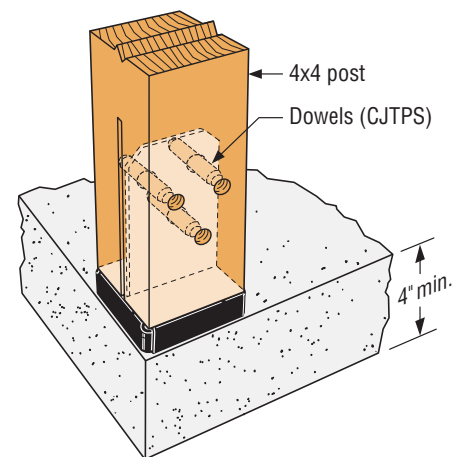
- Use all specified fasteners; see General Notes.
- Use knife blade portion of CPTZ as a template to mark dowel/bolt locations on post.
- Drill ½"-diameter holes perpendicular to post at marked locations.
- Cut a ¾"-wide slot in the end of the post. Cut slot on face adjacent to the one with the holes. If using a circular saw cut the slot roughly 6½" up the post. Test that the knife blade slides freely in the slot.
- Install the knife blade portion of the connector on the anchor bolts and then place the supplied washers over top of the connector's tabs and on the anchor bolt. Use nuts to attach the knife blade and washers to the anchors.
- The designer must specify anchor bolt type, length and embedment.
- Slide the stand off base on to the knife blade assembly.
- Stand the post on the knife blade and drive in the dowels supplied with the connector.
- See flier F-C-CPTZ at [strongtie.com](http://strongtie.com) for additional installation information and details.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non-top-supported installations (such as fences or unbraced carports).



**CPT44Z**  
(others similar)



**CPTZ Components**



**Typical CPT44Z Installation**



# CPTZ

## Concealed Post Tie (cont.)

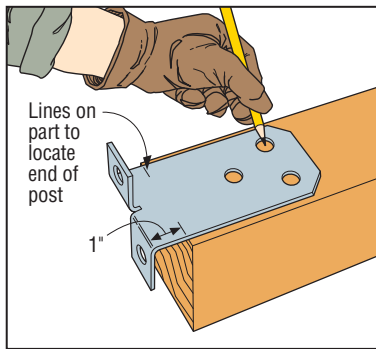
These products are available with additional corrosion protection. For more information, see p. 20.

Bases and Caps

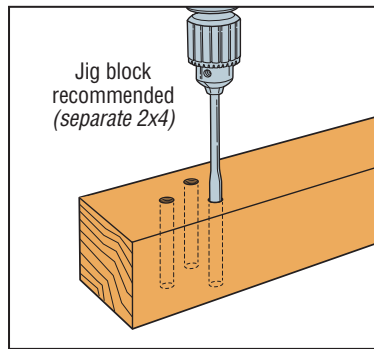
Model No.	Nominal Post Size	Dimensions (in.)			Fasteners				Factored Resistance							
		W	L	H	Anchor		Post		D.Fir-L				S-P-F			
					Qty.	Dia. (in.)	Qty.	Type	(K <sub>D</sub> = 1.15)			Normal <sup>7</sup> (K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)			Normal <sup>7</sup> (K <sub>D</sub> = 1.00)
		Uplift	F <sub>1</sub>	F <sub>2</sub>					Uplift	F <sub>1</sub>	F <sub>2</sub>					
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.			
kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN			
CPT66Z	6x6 6x6 RGH	5%	5%	5¾	2	½	3	½" x 4¾" dowel	4300	1095	1120	30465	3680	995	1120	22695
									19.13	4.87	4.98	135.52	16.37	4.43	4.98	100.96
CPT88Z	8x8 8x8 RGH	7¼	7¼	5¾	2	½	3	½" x 4¾" dowel	4600	1235	1800	30465	3680	1120	1800	30465
									20.46	5.49	8.01	135.52	16.37	4.98	8.01	135.52

- Uplift resistances have been increased 15% for short-term loading; no further increase is allowed.
- Factored normal resistances may not be increased for short-term loading.
- Factored resistances shown assume No. 2 grade minimum.
- Factored resistances shown assume a minimum concrete compressive strength of 20 MPa.
- Factored resistances shown assume seasoned lumber under dry service condition (K<sub>SF</sub> = 1.00). Multiply table values by 0.67 for wet service conditions.
- ½"-diameter ASTM A307 Grade A bolts may be substituted for the ½" x 4¾" dowels with no reduction in capacity. Standard cut washers are required between the head/nut and the wood.
- Factored normal resistances for installation flush with the corner edge of concrete is 14975 lb. (66.61 kN) for all applications.
- Factored resistances assume ½"-diameter cast-in-place hex head anchor bolts with 4" embedment. Contact Simpson for post-install solutions.
- When anchoring to a round concrete pier, a minimum 12" diameter is required to achieve tabulated uplift and lateral capacities.

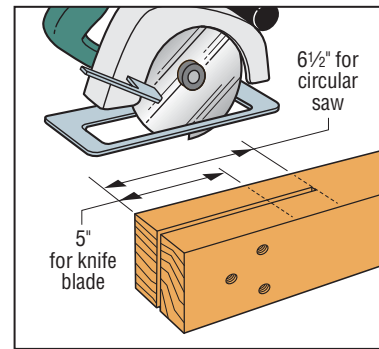
### Installation Sequences



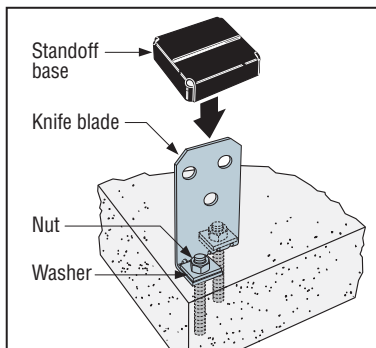
1. Using parts as template



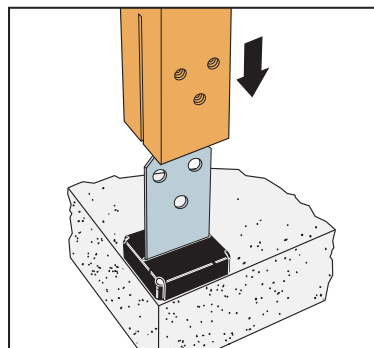
2. Drilling holes



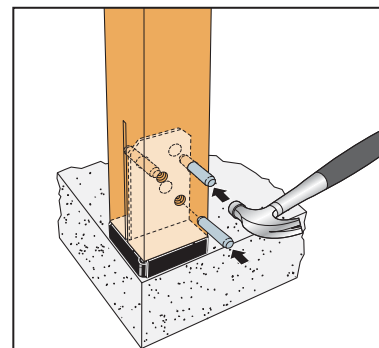
3. Cutting slot



4. Installing CPTZ on concrete



5. Installing post on CPTZ



6. Installing dowels





# RPBZ

## Retrofit Post Base

The RPBZ Retrofit Post Base is designed to reinforce existing posts and columns. The single, versatile model will fit on any size post consisting of a double 2x4 or larger. RPBZ can also be used to reinforce new post-base connections, such as braced carports, patio covers, decks and other structures. The RPBZ can be installed with the CPS composite plastic standoff to meet a 1" post standoff code requirement (see p. xxx for more information about CPS). A single RPBZ can be installed on a post that is flush to a corner, and two RPBZs can be installed at away-from-edge conditions to fortify the post-base connection to resist both wind and seismic forces.

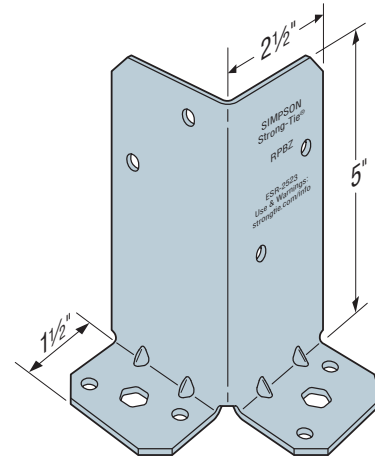
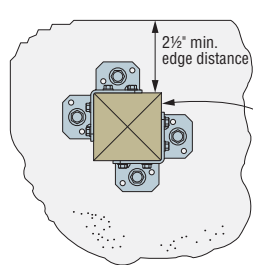
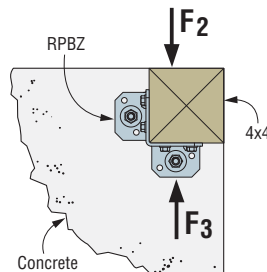
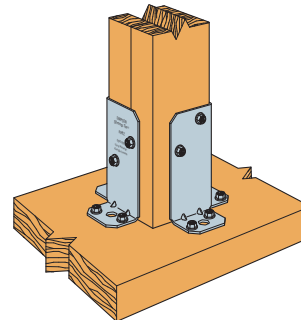
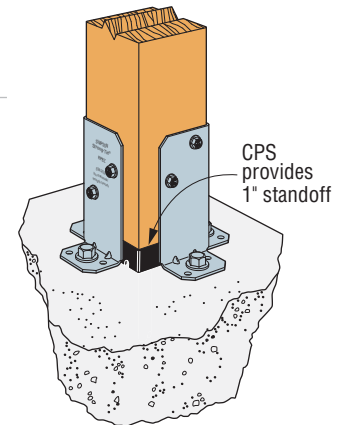
Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws install easily and provide excellent holding strength for post-to-flange connections. Additionally, the RPBZ can be purposed as a temporary base fixture for posts when shoring beams. RPBZ comes standard in ZMAX® finish to meet exposure conditions in many environments. See additional Corrosion information at [strongtie.com/corrosion](http://strongtie.com/corrosion).

**Material:** 12 gauge

**Finish:** ZMAX coating

**Installation:**

- Use all specified fasteners; see General Notes.
- Simpson Strong-Tie ¼" x 1½" Strong-Drive SDS Heavy-Duty Connector and base connection fasteners are not provided with RPBZ. Simpson Strong-Tie CPS series Composite Post Stand-Off sold separately.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non-top-supported installations, such as fences or unbraced carports.

**RPBZ****RPBZ Installation  
Away from Edge  
on Concrete****RPBZ Corner  
Installation Post  
Flush to Edge****RPBZ Installation  
on Wood****RPBZ Installation with  
CPS Away from Edge  
on Concrete**

These products are available with additional corrosion protection. For more information, see p. 20.

## RPBZ Connector Resistances

Model No.	Post Size	Part Qty.	Fasteners		Factored Resistance ( $K_D = 1.15$ )					
					D.Fir-L			S-P-F		
			Base	Post	Uplift lb.	F <sub>2</sub> lb.	F <sub>3</sub> lb.	Uplift lb.	F <sub>2</sub> lb.	F <sub>3</sub> lb.
<b>Connection to Wood Framing</b>										
RPBZ	4x or 6x	1	(4) ¼" x 1½" SDS	(4) ¼" x 1½" SDS	1125	560	660	855	505	475
					5.00	2.49	2.94	3.80	2.25	2.11
			(4) ¼" x 3" SDS	(4) ¼" x 1½" SDS	1860	560	660	1700	505	475
		2			8.27	2.49	2.94	7.56	2.25	2.11
			(8) ¼" x 1½" SDS	(8) ¼" x 1½" SDS	2255	1965	1965	1710	1415	1415
					10.03	8.74	8.74	7.61	6.29	6.29
		(8) ¼" x 3" SDS	(8) ¼" x 1½" SDS	3715	1965	1965	3155	1415	1415	
				16.53	8.74	8.74	14.03	6.29	6.29	

See footnotes on p. 82.



**RPBZ**

Bases and Caps

## Retrofit Post Base (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

### RPBZ Anchorage to Concrete Resistances

Model No.	Post Size	Part Qty.	Fasteners		Factored Resistance						
					Cracked Concrete			Uncracked Concrete			
			Base	Post	Uplift	F <sub>2</sub>	F <sub>3</sub>	Uplift	F <sub>2</sub>	F <sub>3</sub>	
					lb.	lb.	lb.	lb.	lb.	lb.	
						kN	kN	kN	kN	kN	kN
<b>Corner Condition — Post Flush to Edge</b>											
RPBZ	4x or 6x	1	(2) 3/8"-diameter anchor	(4) 1/4" x 1 1/2" SDS	1730	1325	645	1500	1440	905	
					7.70	5.89	2.87	6.67	6.41	4.03	
<b>Away from Edge</b>											
RPBZ	4x or 6x	1	(2) 3/8"-diameter anchor	(4) 1/4" x 1 1/2" SDS	1975	1440	500	1720	1440	740	
					8.79	6.41	2.22	7.65	6.41	3.29	
		2	(4) 3/8"-diameter anchor	(8) 1/4" x 1 1/2" SDS	3335	1440	500	2900	1440	740	
					14.84	6.41	2.22	12.90	6.41	3.29	

- Factored connector resistances have been increased 15% for wind or earthquake loading with no further increase allowed. Reduce where other load durations govern.
- For anchorage to concrete applications, the factored resistance of the connection shall be the lower of the Anchorage to Concrete Resistance values and the Connector Resistance values.
- Minimum 28-day-concrete compressive strength (f<sub>c</sub>) shall be 20 MPa.
- Away from Edge values require the face of the post to be a minimum of 2 3/4" from the edge of the concrete.
- Factored anchorage to concrete resistances are based on CSA A23.3 Annex D. Values are applicable to low seismic (I<sub>E</sub>F<sub>a</sub>S<sub>a</sub>(0.2) < 0.35 for NBC2015, I<sub>E</sub>S(0.2) < 0.35 for NBC2020) or wind designs.
- Minimum concrete anchor embedment depth shall be 3". Minimum concrete slab thickness shall be 5".
- Threads on Strong-Drive® SDS Heavy-Duty connector screws into wood framing must be fully engaged into a structural wood member.

## UB/WUB

### Post Brackets

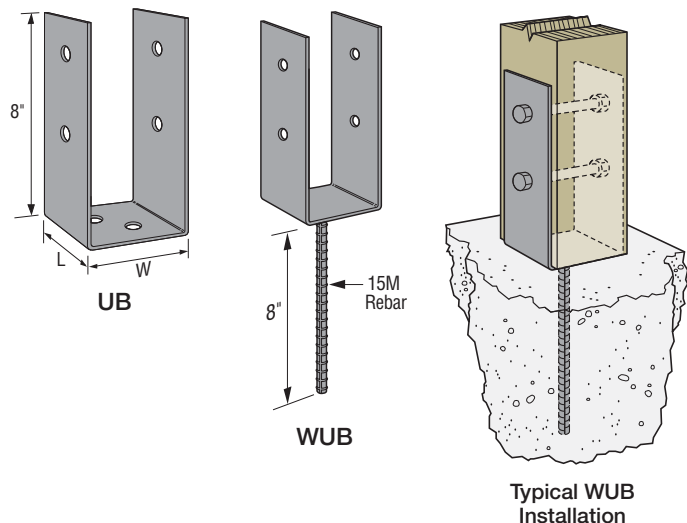
Saddle bracket for connecting post to concrete.

**Material:** 3 gauge

**Finish:** Hot-dip galvanized, use HDG fasteners

**Installation:**

- Use all specified fasteners; see General Notes
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non-top-supported installations (such as fences or unbraced carports)



Model No.	Post Size	Dimensions (in.)		Fasteners
		W	L	Post
UB44HDG	4x4	3 5/8	3	(2) 1/2" MB
UB44RHDG	4x4R	4 1/8	3	(2) 1/2" MB
UB66HDG	6x6	5 5/8	4	(2) 1/2" MB
UB66RHDG	6x6R	6 1/8	4	(2) 1/2" MB
WUB44HDG	4x4	3 5/8	3	(2) 1/2" MB
WUB44RHDG	4x4R	4 1/8	3	(2) 1/2" MB
WUB66HDG	6x6	5 5/8	3	(2) 1/2" MB
WUB66RHDG	6x6R	6 1/8	3	(2) 1/2" MB

- Provide notched out area to accommodate the anchor bolts into the wood post for UB series only. Holes sized for 1/2" diameter anchor bolts.
- WUBs do not require fasteners into concrete. Refer to the application drawing for installation.



# EPB

## Elevated Post Base

The EPB44A is a single-piece, non-welded elevated post base. The EPB44PHDG can be used both for pier block and cast-in-place installations for 4x4 posts.

**Material:** EPB44A — 14 gauge; EPB44, EPB46, EPB66 — 12 gauge base plate, 1 1/16" OD x 8" pipe; EPB44PHDG — 12 gauge base plate, 3/4" x 6" threaded rod support (nut and washer are shipped assembled)

**Finish:** EPB44A — Galvanized; EPB44, EPB46, EPB66 — Simpson Strong-Tie® gray paint (may be ordered HDG); EPB44PHDG — Hot-dip galvanized, see Corrosion Information, pp. 16–21.

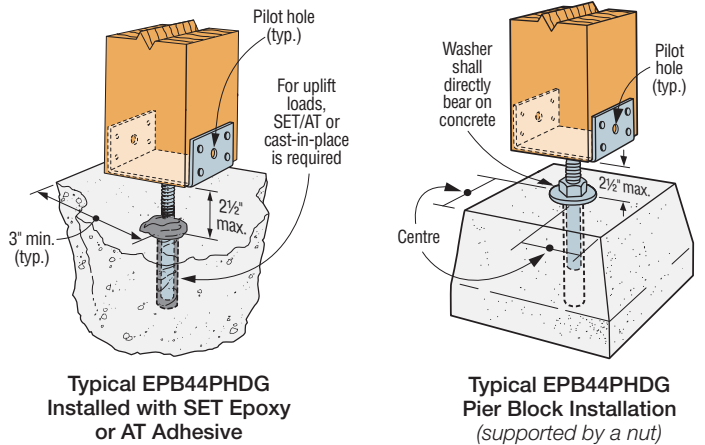
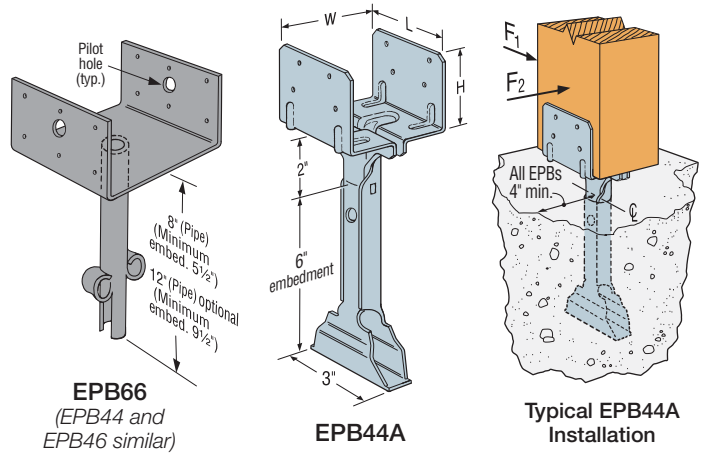
### Installation:

- Use all specified fasteners; see General Notes.
- Allows 1" to 2 1/2" clearance above concrete, 2" for EPB44A. Insert EPB into concrete after screeding.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non-top-supported installations (such as fences or unbraced carports).
- Provide a minimum side cover of 3" for EPB44PHDG and 4" for all others.

### EPB44PHDG

- Secured with epoxy — Drill a 7/8"-diameter hole 4" deep minimum and fill the hole halfway with SET epoxy or drill a 1 3/16"-diameter hole 4" deep minimum and fill the hole halfway with AT adhesive. Insert the EPB44PHDG and adjust to the desired height. The threaded rod shall be embedded a minimum of 3 1/2".
- Supported by a nut — Drill a 1"-diameter hole 3 1/2" deep minimum. Insert the EPB44PHDG and adjust to the desired height.
- Embedded in wet concrete — Embed the 3/4"-diameter rod a minimum of 3 1/2". Ensure nut and washer are flush with the top of the concrete.
- Fully engage at least three threads in the base.

**Options:** 12" long pipe available for EPB44, EPB46, EPB66; specify "-12" after model number.



These products are available with additional corrosion protection. For more information, see p. 20.

SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Dimensions (in.)			Nails	Factored Resistance							
	W	L	H		D.Fir-L				S-P-F			
					Uplift	F <sub>1</sub>	F <sub>2</sub>	Down	Uplift	F <sub>1</sub>	F <sub>2</sub>	Down
					(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.			
kN	kN	kN	kN	kN	kN	kN	kN	kN	kN			
EPB44PHDG	3 3/16	3 1/4	2 1/4	(8) 16d	1045 <sup>3</sup>	—	—	5660	1045 <sup>3</sup>	—	—	5660
					4.65	—	—	25.18	4.65	—	—	25.18
EPB44A	3 3/16	3	2 3/8	(8) 16d	1965	1340	1530	4370	1395	950	1085	3640
					8.74	5.96	6.81	19.44	6.21	4.23	4.83	16.19
EPB44	3 3/16	3 1/4	2 5/16	(8) 16d	1270	1945	1700	8465	900	1380	1205	6995
					5.65	8.65	7.56	37.66	4.00	6.14	5.36	31.12
EPB46	5 1/2	3 3/16	3	(12) 16d	1270	1390	1635	8465	900	990	1160	6980
					5.65	6.18	7.27	37.66	4.00	4.40	5.16	31.05
EPB66	5 1/2	5 1/2	3	(12) 16d	1570	1390	1635	8465	1115	990	1160	6225
					6.98	6.18	7.27	37.66	4.96	4.40	5.16	27.69

1. Uplift and lateral resistances have been increased 15% for short-term loading; no further increase is allowed.
2. EPB44 and EPB46 have extra nail holes; only eight must be filled to achieve the resistances shown.
3. Uplift resistances for EPB44PHDG require the threaded rod to be set in wet concrete or attached to cured concrete with SET epoxy or AT adhesive. Uplift values do not apply to connection with pier block.
4. Specifier shall design concrete for applied loads.

5. Factored resistances shown assume dry service condition (K<sub>SF</sub> = 1.00). Multiply table values by 0.67 under wet service conditions.
6. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face.
7. Minimum f'<sub>c</sub> shall be 15 MPa.
8. **Nails:** 16d = 0.162" dia. x 3 1/2" long (HDG). See pp. 22–24 for other nail sizes and information.



# RCPS

## Rebar Carport Saddles

The popular RCPS rebar carport saddle works as a cast in place or post-installed saddle for connecting posts to concrete. Now it has been redesigned with added features that offer greater installation flexibility and strength. Along with these design improvements, the RCPS is also available in a black powder-coat for applications that call for a more finished look.

**Features:**

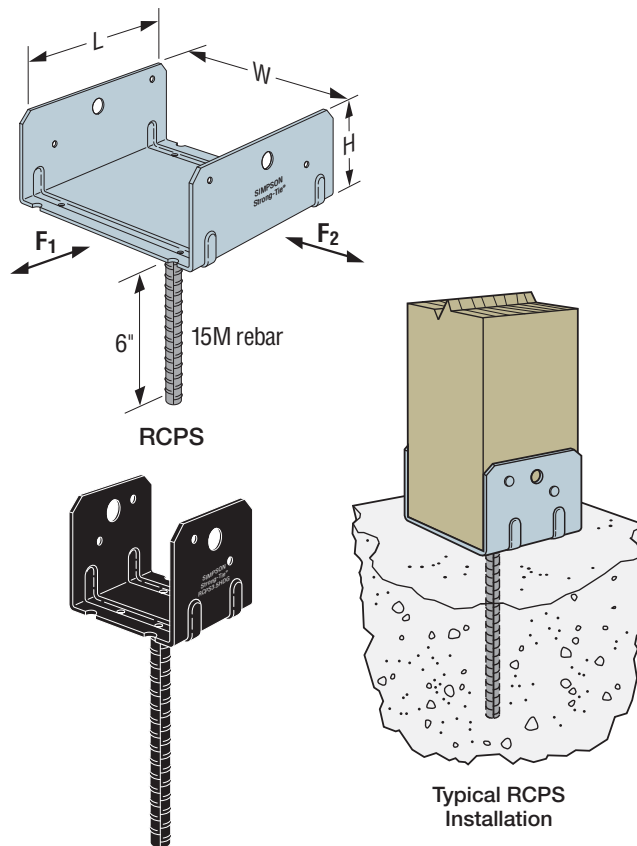
- Meets the intent of 9.23.6.2.1 of the National Building Code of Canada 2015 for resisting uplift and lateral movement
- Hot-dipped galvanization provides additional corrosion protection
- Chamfered corners create a sleeker-looking product
- Steel embossments provide added strength
- Drainage outlets help reduce the possibility of water accumulation that can potentially rot the post

**Material** RCPS — 14 gauge;  
RCPS7.5HDG, RCPS8HDG — 12 gauge

**Finish:** RCPS — HDG; RCPSxxHDGPC — Black, powder-coat finish over HDG; available in 3.5, 4, 5.5 and 6 sizes

**Installation:**

- Use all specified fasteners; see General Notes.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non-top-supported installations (such as fences or unbraced carports).



These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Dimensions (in.)			Fasteners	Factored Resistance (K <sub>D</sub> = 1.15)					
	W	L	H		D.Fir-L			S-P-F		
					Uplift	F <sub>1</sub>	F <sub>2</sub>	Uplift	F <sub>1</sub>	F <sub>2</sub>
					lb.	lb.	lb.	lb.	lb.	lb.
					kN	kN	kN	kN	kN	kN
RCPS3.5HDG	3½	3¾	3	(4) 16d	990	615	1050	705	570	960
					4.40	2.74	4.67	3.14	2.54	4.27
RCPS4HDG	4½	3¾	3	(4) 16d	990	615	1050	705	570	960
					4.40	2.74	4.67	3.14	2.54	4.27
RCPS46HDG	4½	5¾	3	(4) 16d	990	615	1050	705	570	960
					4.40	2.74	4.67	3.14	2.54	4.27
RCPS4.5HDG	4½	3¾	3	(4) 16d	990	615	1050	705	570	960
					4.40	2.74	4.67	3.14	2.54	4.27
RCPS5.5HDG	5½	5¾	3	(4) 16d	990	615	1050	705	570	960
					4.40	2.74	4.67	3.14	2.54	4.27
RCPS6HDG	6½	5¾	3	(4) 16d	990	615	1050	705	570	960
					4.40	2.74	4.67	3.14	2.54	4.27
RCPS7.5HDG	7½	7¾	3	(4) 16d	990	615	1050	705	570	960
					4.40	2.74	4.67	3.14	2.54	4.27
RCPS8HDG	8½	7¾	3	(4) 16d	990	615	1050	705	570	960
					4.40	2.74	4.67	3.14	2.54	4.27

1. Factored resistances have been increased 15% for seismic or wind loading with no further increase allowed; reduce where other loads govern.  
 2. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the table reflect installation into the wide face (see technical bulletin T-SCLCLMCAN at [strongtie.com](http://strongtie.com) for details).  
 3. Factored resistances shown assume dry service condition (K<sub>SF</sub> = 1.00). Multiply table values by 0.67 under wet service conditions.  
 4. **Nails:** 16d = 0.162" dia. x 3½" long. See pp. 22–24 for other nail sizes and information.



# CB/CBGT

## Column Bases

CB — For columns that require high structural values and rugged performance.

**Material:** See table

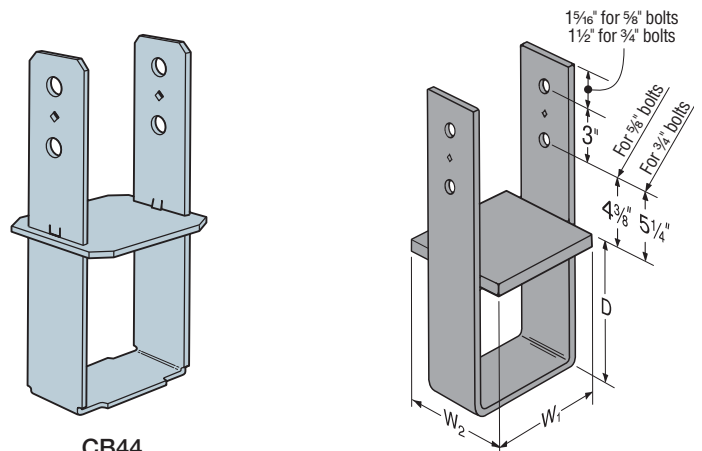
**Finish:** CB44, CB46, CB48, CB66, CB68, CB610 — galvanized; all others (including all CBGT) — Simpson Strong-Tie® gray paint. Some models available in HDG, stainless steel or black powder coat (Note: when ordering powder coat, model number is CBxxPC.)

**Installation:**

- Use all specified fasteners; see General Notes.
- For full capacities, minimum 3" side cover is required.
- Install all models with bottom of base plate flush with concrete.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non-top-supported installations (such as fences or unbraced carports).
- Contact engineered wood manufacturers for connections that are not through the wide face.

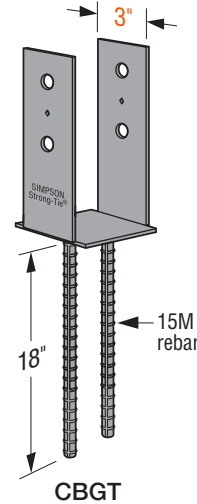
**Options:**

- Other sizes available, specify  $W_1$  and  $W_2$  dimensions. Consult Simpson Strong-Tie for bolt sizes and factored resistances.
- For rebar option add "GT" to the model name, i.e., CBGT44. (Base plate comes 3 ga. for all CBGTs).

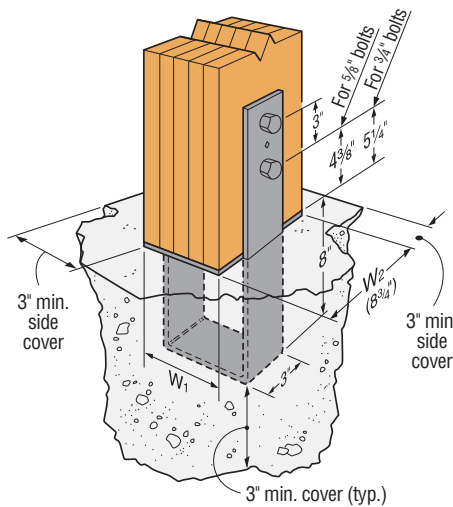


**CB44**  
(CB46, CB48, CB64, CB66, CB68, CB86, CB88, CB610 similar)  
(standard finish – G90)

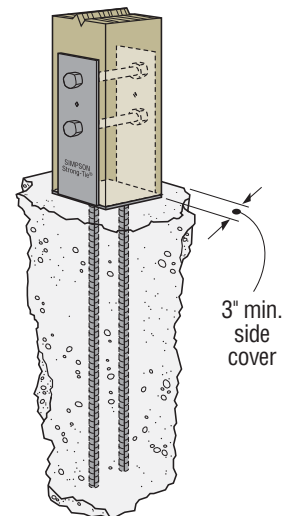
**Configuration of all other CB sizes**  
(standard finish – gray paint)



**CBGT**



**CB9**  
(CB5, CB7 similar)  
for Glulam Column



**Typical CBGT Installation**



# CB/CBGT

## Column Bases (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Bases and Caps

Model No.	Nominal Column Size	Material		Dimensions (in.)			Column Bolts		Factored Uplift Resistance ( $K_D = 1.15$ )	
		Strap (ga. x W)	Base (ga.)	W <sub>1</sub>	W <sub>2</sub>	D	Qty.	Dia. (in.)	D.Fir-L	S-P-F
									lb.	lb.
									kN	kN
SS CB44	4x4	7 ga. x 2	7	3 <sup>9</sup> / <sub>16</sub>	3 <sup>9</sup> / <sub>16</sub>	8	2	5/8	5582	4407
									24.83	19.60
SS CB46	4x6	7 ga. x 2	7	3 <sup>9</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>2</sub>	8	2	5/8	5582	4407
									24.83	19.60
CB48	4x8	7 ga. x 2	7	3 <sup>9</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>2</sub>	8	2	5/8	5582	4407
									24.83	19.60
CB5-4.5	Glulam	7 ga. x 3	7	4 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>8</sub>	8	2	5/8	5940	4690
									26.42	20.86
CB5-6	Glulam	7 ga. x 3	7	6	5 <sup>1</sup> / <sub>8</sub>	8	2	5/8	5940	4690
									26.42	20.86
CB64	6x4	7 ga. x 3	7	5 <sup>1</sup> / <sub>2</sub>	3 <sup>9</sup> / <sub>16</sub>	8	2	5/8	5940	4690
									26.42	20.86
SS CB66	6x6	7 ga. x 3	7	5 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	8	2	5/8	5940	4690
									26.42	20.86
CB6-7	6x	7 ga. x 3	7	5 <sup>1</sup> / <sub>2</sub>	7	8	2	5/8	5940	4690
									26.42	20.86
CB68	6x8	7 ga. x 3	7	5 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	8	2	5/8	5940	4690
									26.42	20.86
CB610	6x10	7 ga. x 3	7	5 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>2</sub>	8	2	5/8	5940	4690
									26.42	20.86
CB612	6x12	7 ga. x 3	7	5 <sup>1</sup> / <sub>2</sub>	11 <sup>1</sup> / <sub>2</sub>	8	2	5/8	5940	4690
									26.42	20.86
CB7-6	Glulam	3 ga. x 3	7	6	6 <sup>3</sup> / <sub>4</sub>	8	2	3/4	9410	7530
									41.86	33.50
CB7-7.5	Glulam	3 ga. x 3	7	7 <sup>1</sup> / <sub>2</sub>	6 <sup>3</sup> / <sub>4</sub>	8	2	3/4	9410	7530
									41.86	33.50
CB7-9	Glulam	3 ga. x 3	7	9	6 <sup>3</sup> / <sub>4</sub>	8	2	3/4	9410	7530
									41.86	33.50
CB7-10.5	Glulam	3 ga. x 3	7	10 <sup>1</sup> / <sub>2</sub>	6 <sup>3</sup> / <sub>4</sub>	8	2	3/4	9410	7530
									41.86	33.50
CB7 <sup>1</sup> / <sub>8</sub> -4	PSL	3 ga. x 3	7	7 <sup>1</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	8	2	3/4	8470	—
									37.68	—
CB7 <sup>1</sup> / <sub>8</sub> -6	PSL	3 ga. x 3	7	7 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>	8	2	3/4	8470	—
									37.68	—
CB7 <sup>1</sup> / <sub>8</sub> -7	PSL	3 ga. x 3	7	7 <sup>1</sup> / <sub>8</sub>	7	8	2	3/4	9410	—
									41.86	—
CB86	8x6	3 ga. x 3	7	7 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	8	2	3/4	9410	7530
									41.86	33.50
CB88	8x8	3 ga. x 3	7	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	8	2	3/4	9410	7530
									41.86	33.50
CB9-6	Glulam	3 ga. x 3	7	6	8 <sup>3</sup> / <sub>4</sub>	8	2	3/4	9410	7530
									41.86	33.50
CB9-7.5	Glulam	3 ga. x 3	7	7 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>4</sub>	8	2	3/4	9410	7530
									41.86	33.50
CB9-9	Glulam	3 ga. x 3	7	9	8 <sup>3</sup> / <sub>4</sub>	8	2	3/4	9410	7530
									41.86	33.50
CB9-10.5	Glulam	3 ga. x 3	7	10 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>4</sub>	8	2	3/4	9410	7530
									41.86	33.50
CB1010	10x10	3 ga. x 3	3	9 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>2</sub>	8	2	3/4	9410	7530
									41.86	33.50
CB1012	10x12	3 ga. x 3	3	9 <sup>1</sup> / <sub>2</sub>	11 <sup>1</sup> / <sub>2</sub>	8	2	3/4	9410	7530
									41.86	33.50
CB1212	12x12	3 ga. x 3	3	11 <sup>1</sup> / <sub>2</sub>	11 <sup>1</sup> / <sub>2</sub>	8	2	3/4	9410	7530
									41.86	33.50

1. Factored uplift resistances have been increased 15% for earthquake or wind loading, with no further increase allowed; reduce where other loads govern.
2. PSL is parallel strand lumber.
3. Factored resistances shown assume dry service condition ( $K_{SF} = 1.00$ ). Multiply table values by 0.67 for uplift under wet service conditions.
4. Factored uplift resistance for CBGT option is 4350 lb. (19.35 kN).
5. Designer is responsible for concrete design.
6. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face.
7.  $f'_c$  shall be 20 MPa minimum.
8. **Nails:** 16d = 0.162" dia. x 3<sup>1</sup>/<sub>2</sub>" long. See pp. 22–24 for other nail sizes and information.



## CBSQ

## Column Bases



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

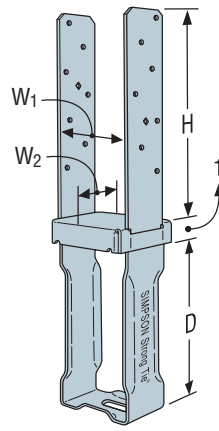
The CBSQ uses Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws, which allow for fast installation, reduced reveal and high capacity, provides a greater net section area of the column compared to bolts.

**Material:** See table

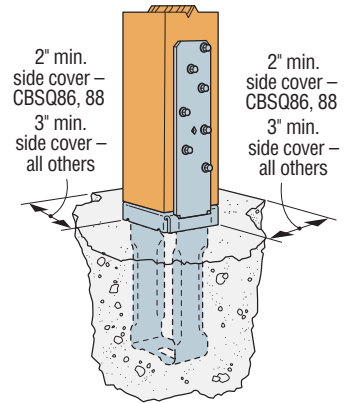
**Finish:** Galvanized; available in HDG

**Installation:**

- Use all specified fasteners; see General Notes.
- CBSQ installs with ¼" x 2" Strong-Drive SDS Heavy-Duty Connector screws, which are provided with the column base. (Lag screws will not achieve the same load.)
- Minimum of 3" side cover on concrete is required.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non-top-supported installations (such as fences or unbraced carports).



CBSQ-SDS2



Typical CBSQ-SDS2 Installation

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Nominal Column Size	Material		Dimensions (in.)				Number of Simpson Strong-Tie ¼" x 2" SDS Screws	Factored Resistance			
									D-Fir-L		S-P-F	
									Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)
									lb.	lb.	lb.	lb.
SS CBSQ44-SDS2	4x4	12	10 ga. x 2¼"	3⅞	3½	7⅞	8⅞	14	7310	16195	5265	11660
									32.56	72.14	23.45	51.94
SS CBSQ46-SDS2	4x6	12	10 ga. x 3"	3⅞	5⅞	7¾	8⅞	14	7310	21280	5265	15320
									32.56	94.79	23.45	68.24
SS CBSQ66-SDS2	6x6	12	10 ga. x 3"	5½	5½	6⅞	8¾	14	7310	21280	5265	15320
									32.56	94.79	23.45	68.24
CBSQ86-SDS2	6x8	12	7 ga. x 3"	7½	5⅞	6⅞	8⅞	12	6220	25140	4475	18100
									27.71	111.98	19.93	80.62
CBSQ88-SDS2	8x8	12	7 ga. x 3"	7½	7⅞	6⅞	8⅞	12	6730	26545	4845	19115
									29.98	118.24	21.58	85.14

1. For higher factored normal resistances, solidly pack grout under 1"-standoff plate before installing CBSQ into concrete. Base factored normal resistances on column or concrete, according to the code.
2. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face.
3. Designer is responsible for concrete and column design.
4. Factored resistances shown assume dry service condition (K<sub>SF</sub> = 1.00). Multiply table values by 0.67 under wet service conditions.
5. Minimum f<sub>c</sub> shall be 20 MPa.



# CBQGT

## Column Bases

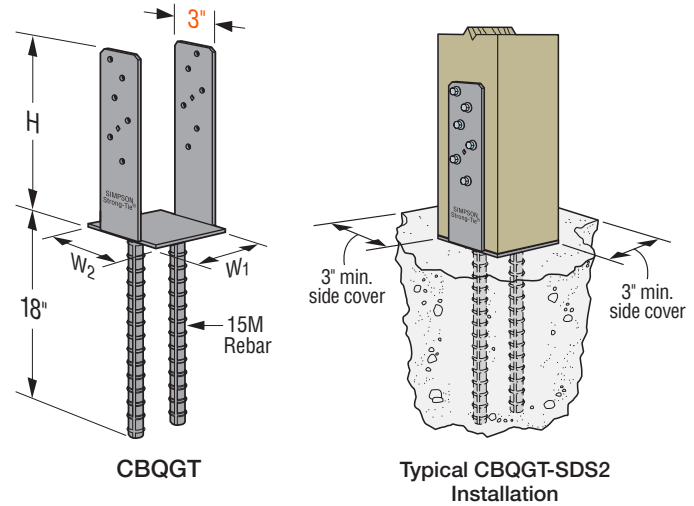
The CBQGT uses Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws, which allows for fast installation, reduced reveal, high capacity and provides a greater net section area of the column compared to bolts.

**Material:** 7 gauge

**Finish:** Simpson Strong-Tie® gray paint, available in HDG

**Installation:**

- Use all specified fasteners; see General Notes.
- Install 1/4" x 2" Strong-Drive SDS Heavy-Duty Connector screws, which are provided with the column base. (Lag screws will not achieve the same load.)
- Minimum 3" side cover on concrete is required.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non-top-supported installations (such as fences or unbraced carports).
- Other sizes available. Check with Simpson Strong-Tie for details.



These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Nominal Post Size	Dimensions (in.)			Number of Simpson Strong-Tie 1/4" x 2" SDS Screws	Factored Uplift Resistance (K <sub>0</sub> = 1.15)	
		W <sub>1</sub>	W <sub>2</sub>	H		D.Fir-L	S-P-F
						lb.	lb.
							kN
CBQGT44-SDS2	4x4	3 3/16	3 3/16	8 1/16	12	4350	4350
						19.35	19.35
CBQGT46-SDS2	4x6	3 3/16	5 1/2	8 1/16	12	4350	4350
						19.35	19.35
CBQGT66-SDS2	6x6	5 1/2	5 1/2	8 1/16	12	4350	4350
						19.35	19.35

1. Factored uplift resistances have been increased 15% for earthquake or wind loading, with no further increase allowed; reduce where other loads govern.
2. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face.
3. Designer is responsible for concrete design.
4. Factored resistances shown assume dry service condition (K<sub>SF</sub> = 1.00). Multiply table values by 0.67 under wet service conditions.
5. Minimum f<sub>c</sub> shall be 20 MPa.





# PPBF/PPBZ

## Porch Post Base

The porch post bases are designed to be installed once and will support permanent porch framing throughout all stages of construction, eliminating the need for temporary vertical support and providing full access to installers/inspectors.

The seat height of the PPBF adjusts to accommodate porch slab thicknesses from 4" to 12", enabling the contractor to set the post base at the correct height for the porch slab pour.

The PPBZ is available in two heights, which can accommodate a slab thickness of either 4" or 6", and comes with a 1" standoff.

### Features:

- Increases jobsite safety for contractors during construction
- Tested and load rated for conditions during framing and after the post base has been embedded in concrete
- Pre-pour installation eliminates temporary support
- No disruption in scheduling
- Available in sizes to accommodate nominal 4x4 and 6x6 posts

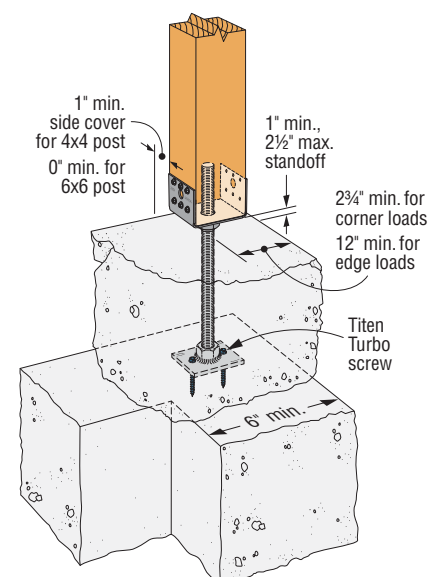
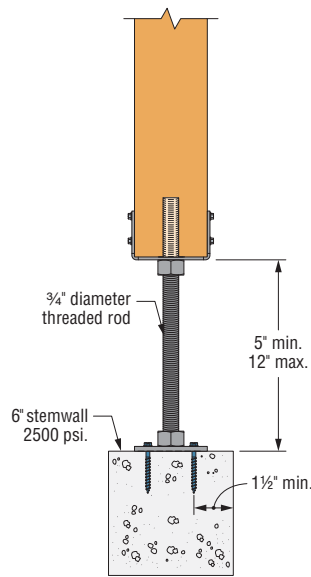
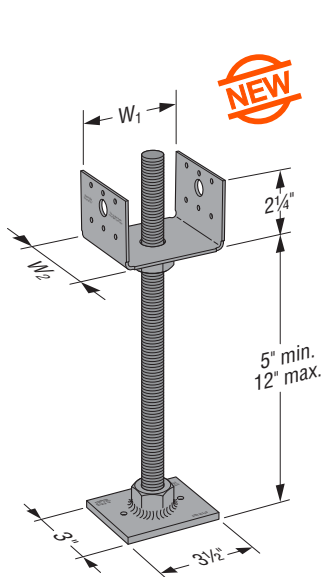
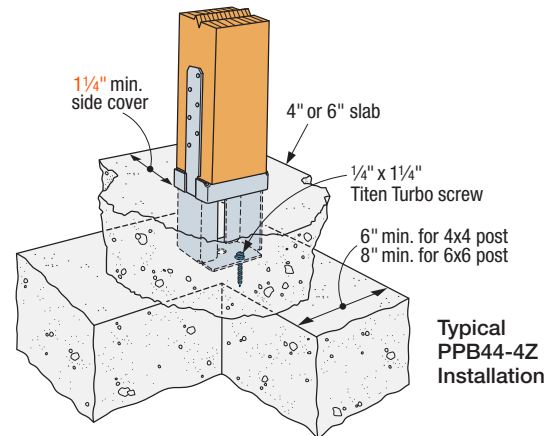
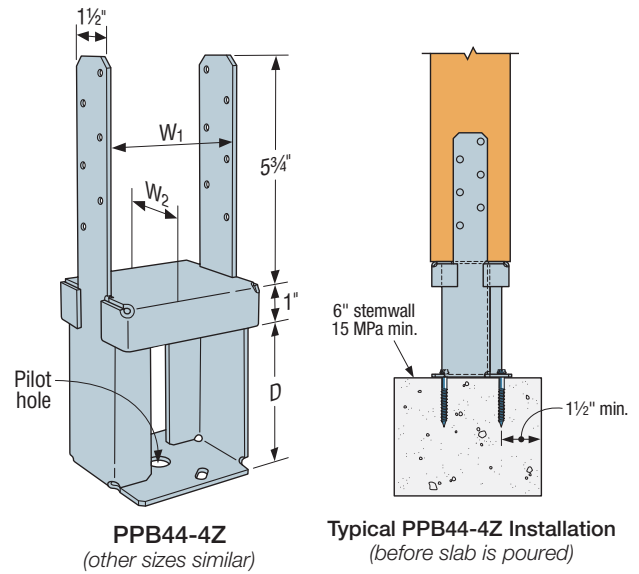
**Material:** PPBZ — 12 gauge;

PPBF — 12 gauge seat, 3 gauge base plate, 3/4"-diameter threaded rod

**Finish:** PPBZ — ZMAX® coating; PPBF — Simpson Strong-Tie gray paint

### Installation:

- Use all specified fasteners; see General Notes.
- Align PPB to ensure a minimum concrete side cover to wood post of 1 1/4" for PPBZ and 1" for PPBF44. Wood post can be aligned with the edge of the concrete when using PPBF66.
- Secure PPBF or PPBZ to foundation with two (2) Titen Turbo™ hex-head screws (see load table for size).
- Titen Turbo hex-head screws are not included with the base. See p. 27 for screw information and installation instructions.
- Adjust PPBF seat height to accommodate porch slab thickness and standoff height (1" min. to 2 1/2" max.). Drill a 7/8"-diameter hole into bottom of post if necessary or cut all thread rod flush to seat.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and are not recommended for non-top supported installations (i.e., fences or unbraced carports).





## PPBF/PPBZ

## Porch Post Base (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Nominal Post Size	Dimensions (in.)			Anchors	Fasteners	Factored Resistance				
		W <sub>1</sub>	W <sub>2</sub>	Slab Depth			Prior to Pour		Embedded into Concrete		
							Uplift	Down	Uplift (K <sub>D</sub> = 1.15)		Down
		lb.	lb.	D.Fir-L					S-P-F	lb.	
kN	kN	kN	kN	kN							
PPB44-4Z	4x4	3½	3¾	4	(2) ¼" x 1 ¼" TNT	(12) 10d x 1 ½"	350	6610	1025	1025	10970
							1.56	29.40	4.56	4.56	48.80
PPB44-6Z	4x4	3½	3¾	6	(2) ¼" x 1 ¼" TNT	(12) 10d x 1 ½"	350	6020	1175	1175	14715
							1.56	26.78	5.23	5.23	65.46
PPBF44	4x4	3½	3¼	4" min.	(2) ¾" x 1 ¾" TNT	(12) 10d x 1 ½"	630	6790	2265	1610	6790
							2.80	30.20	10.08	7.16	30.20
PPB66-4Z	6x6	5½	5¾	4	(2) ¼" x 1 ¼" TNT	(12) 10d x 1 ½"	265	7695	1025	1025	10970
							1.18	34.23	4.56	4.56	48.80
PPB66-6Z	6x6	5½	5¾	6	(2) ¼" x 1 ¼" TNT	(12) 10d x 1 ½"	265	7185	1175	1175	14715
							1.18	31.96	5.23	5.23	65.46
PPBF66	6x6	5½	5½	6" min.	(2) ¾" x 1 ¾" TNT	(12) 10d x 1 ½"	630	6790	1515	1075	7945
							2.80	30.20	6.74	4.78	35.34

1. Factored uplift resistances shown for Embedded into Concrete are for short-term loading (K<sub>D</sub> = 1.15). Reduce where other load durations govern.
2. Factored uplift resistances shown for Embedded into Concrete are for wet service conditions (K<sub>SF</sub> = 0.67). For dry service conditions multiply the tabulated values x 1.5 to a maximum of 2435 lb. (10.83 kN) for corner installation and 2530 lb. (11.25 kN) for installation near one edge.
3. The minimum 28-day concrete compressive strength shall be 15 MPa for Prior-to-Pour applications and 20 MPa when embedded into concrete.
4. Factored uplift resistances shown do not apply to earthquake loads where  $I_e F_a S_a(0.2) \geq 0.35$  (NBC2015) or  $I_e S(0.2) \geq 0.35$  (NBC2020). Uplift values in the table reflects installation into the wide face.
5. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers.
6. **Nails:** 10d x 1 ½" = 0.148" dia. x 1 ½" long. Use hot dipped galvanized nails. See pp. 22–24 for other nail sizes and information.
7. **Anchors:** ¾" x 1 ¾" TNT = ¾" dia. x 1 ¾" long Titen Turbo™ hex-head screw anchors (TNT18134H). ¼" x 1 ¼" TNT = ¼" dia. x 1 ¼" long Titen Turbo hex-head screw anchors (TNT25114H).



# CBTZ

## Concealed Beam Tie

CBTZ, the newest addition to the concealed structural connector line, combines structural strength with invisibility. Designed to connect horizontal beams atop a vertical post, the CBTZ continues the structural load path into the foundation through the CPTZ. The simplistic cylindrical design allows installations with a common drill bit, eliminating challenging kerf cuts. The CBTZ is available in two models designed to connect beams and posts of a variety of sizes. It is part of a concealed connector system that includes the CPTZ and CJT.

**Features:**

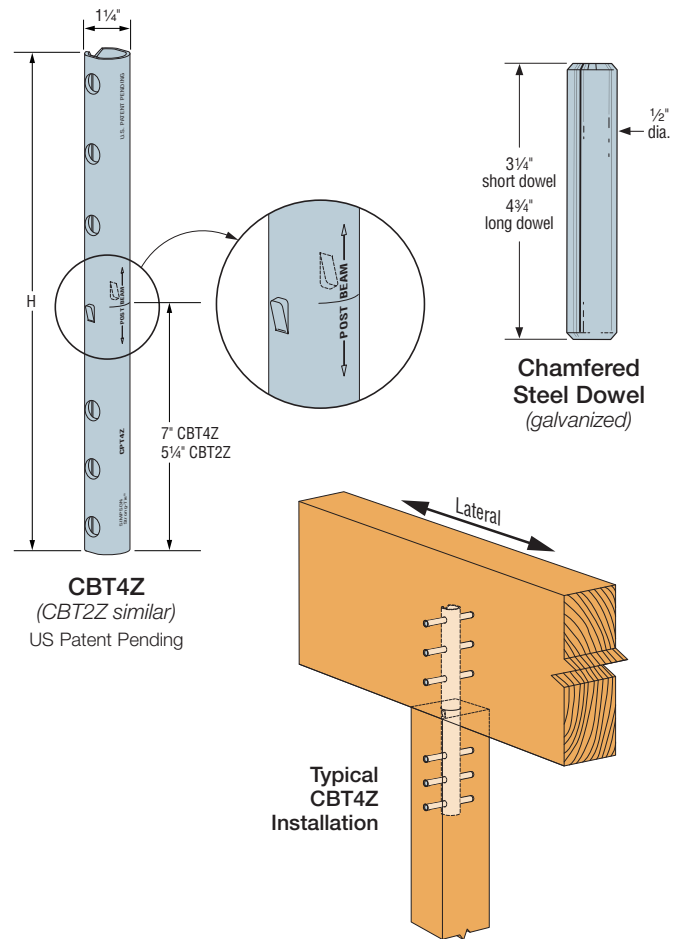
- Flattened sides assist installer while using the CBTZ as a template
- Locator tabs provide proper dimensional layout
- Required dowel pins included
- Orientation markings distinguish which end installs into the post and which end goes into the beam

**Material:** 12 gauge

**Finish:** CBT — ZMAX® coating; the 1/2"-diameter drift dowels are mechanically galvanized in accordance with ASTM B695, Class 55

**Installation:**

- Use all specified fasteners; see General Notes.
- 1/2" dowels included.
- CBT2Z requires a minimum 4x10 nominal beam.
- CBT4Z requires a minimum 6x12 nominal beam.
- For step-by-step installation instructions, see technical bulletin T-C-CBTZINS or view our video on [strongtie.com](http://strongtie.com).



These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Nominal Post Size (min.)	Nominal Beam Size (min.)	Dimensions (in.)		Fasteners			Factored Resistance					
								D	H	Quantity		Type	D.Fir-L
			Post	Beam	Uplift	Lateral	Down			Uplift	Lateral		Down
					(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)			(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)		(K <sub>D</sub> = 1.00)
								lb.	lb.	lb.	lb.	lb.	lb.
								kN	kN	kN	kN	kN	kN
<b>Continuous Beam</b>													
▶ CBT2Z	4x4	4x10	1 1/4	10	2	2	1/2" x 3 1/4" dowel	1395	1215	8950	1100	980	6775
								6.21	5.40	39.81	4.89	4.36	30.14
▶ CBT4Z	6x6	6x12	1 1/4	14	3	3	1/2" x 4 3/4" dowel	2335	2040	23565	1870	1635	17835
								10.39	9.07	104.83	8.32	7.26	79.34
<b>End of Beam</b>													
▶ CBT2Z	4x4	4x10	1 1/4	10	2	2	1/2" x 3 1/4" dowel	1395	925	8950	1100	825	6775
								6.21	4.11	39.81	4.89	3.67	30.14
▶ CBT4Z	6x6	6x12	1 1/4	14	3	3	1/2" x 4 3/4" dowel	2335	1980	23565	1870	1585	17835
								10.39	8.81	104.83	8.32	7.05	79.34

1. Factored lateral and uplift resistances have been increased 15% for wind or earthquake loading. Reduce where other load durations govern.
2. Factored lateral resistances are for loads applied in the plane parallel to the beam.
3. 1/2" diameter ASTM A307 bolts may be substituted for the specified dowels and achieve full tabulated values.
4. Lag screws or carriage bolts are not permitted.



# BC/HBC/BCS

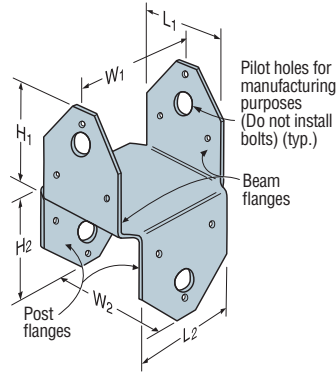
The BCS allows for the connection of (2) 2x's to a 4x post or (3) 2x's to a 6x post. Double-shear nailing between beam and post gives added strength. The BC/HBC series offers dual purpose post cap/base for light cap or base connections.

**Material:** HBC — 14 gauge; all others — 18 gauge

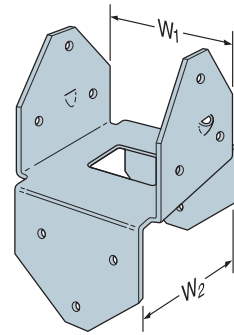
**Finish:** HBC — HDG; all others — galvanized. Some products available in ZMAX® coating; see Corrosion Information, pp. 16–21.

**Installation:**

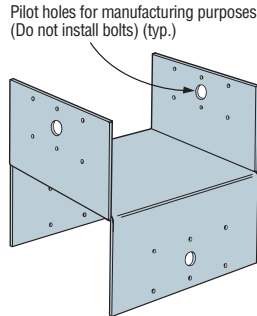
- Use all specified fasteners; see General Notes.
- Do not install bolts into pilot holes.
- BCS — install dome nails on beam; drive nails at an angle through the beam into the post below to achieve the table values.
- BC — install with 16d commons or 16d x 2½" nails.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non-top-supported installations (such as fences or unbraced carports).



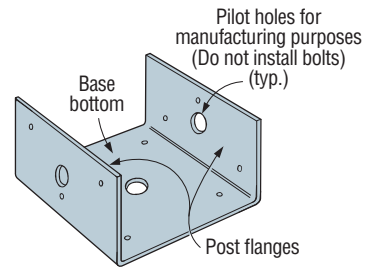
**BC4 Cap/Base**  
(BC46, BC6 similar)



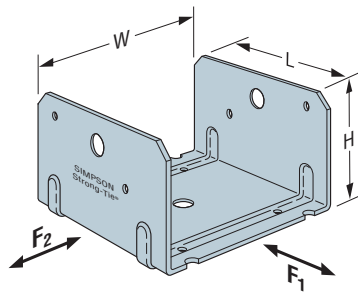
**BCS2-2/4**



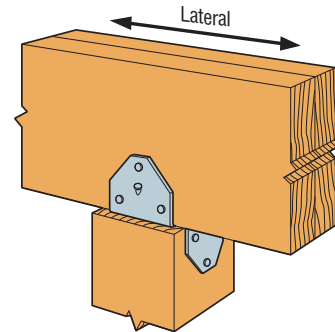
**BC8 Cap/Base**  
(BC4R, BC6R similar)



**BC60 Half Base**  
(other similar)



**HBC**



**Typical BCS Installation**



## BC/HBC/BCS

## Post Caps (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.



Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Dimensions (in.)						Fasteners			Factored Resistance ( $K_D = 1.15$ )			
	W <sub>1</sub>	W <sub>2</sub>	L <sub>1</sub>	L <sub>2</sub>	H <sub>1</sub>	H <sub>2</sub>	Beam	Post	Base Bottom	D.Fir-L		S-P-F	
										Uplift	Lateral	Uplift	Lateral
										lb.	lb.	lb.	lb.
										kN	kN	kN	kN
<b>Caps</b>													
SS BC4	3 <sup>3</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	2 <sup>7</sup> / <sub>8</sub>	2 <sup>7</sup> / <sub>8</sub>	3	3	(6) 16d	(6) 16d	—	875	1495	620	1060
										3.90	6.66	2.76	4.72
BC46	3 <sup>3</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>2</sub>	4 <sup>7</sup> / <sub>8</sub>	2 <sup>7</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	(12) 16d	(6) 16d	—	1415	1495	1005	1060
										6.30	6.66	4.48	4.72
BC4R	4	4	4	4	3	3	(12) 16d	(12) 16d	—	875	1495	620	1060
										3.90	6.66	2.76	4.72
SS BC6	5 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	4 <sup>3</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>	(12) 16d	(12) 16d	—	1450	3145	1030	2765
										6.46	14.01	4.59	12.32
BC6R	6	6	6	6	3	3	(12) 16d	(12) 16d	—	1560	3145	1110	2765
										6.94	14.01	4.94	12.32
BC8	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	4	4	(12) 16d	(12) 16d	—	2545	3145	1810	2765
										11.34	14.01	8.06	12.32
SS BCS2- <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>16</sub>	2 <sup>7</sup> / <sub>8</sub>	2 <sup>7</sup> / <sub>8</sub>	2 <sup>15</sup> / <sub>16</sub>	2 <sup>15</sup> / <sub>16</sub>	(8) 10d	(6) 10d	—	1190	1560	845	1370
										5.30	6.95	3.76	6.09
SS BCS2- <sup>3</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>8</sub>	5 <sup>9</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>8</sub>	2 <sup>7</sup> / <sub>8</sub>	3 <sup>5</sup> / <sub>16</sub>	2 <sup>15</sup> / <sub>16</sub>	(12) 16d	(6) 16d	—	1370	2445	970	1735
										6.10	10.89	4.32	7.73
<b>Bases</b>													
SS BC40	3 <sup>3</sup> / <sub>16</sub>	—	3 <sup>1</sup> / <sub>4</sub>	—	2 <sup>1</sup> / <sub>4</sub>	—	(6) 16d	—	(4) 16d	510	1050	360	960
										2.27	4.68	1.60	4.28
HBC40HDG	3 <sup>3</sup> / <sub>16</sub>	—	3 <sup>1</sup> / <sub>4</sub>	—	2 <sup>1</sup> / <sub>4</sub>	—	(4) 16d	—	(4) 16d	510	1050	360	960
										2.27	4.68	1.60	4.28
BC40R	4	—	4	—	3	—	(6) 16d	—	(4) 16d	510	1050	360	960
										2.27	4.68	1.60	4.28
BC460	5 <sup>1</sup> / <sub>2</sub>	—	3 <sup>3</sup> / <sub>8</sub>	—	3	—	(6) 16d	—	(4) 16d	510	1050	360	960
										2.27	4.68	1.60	4.28
BC60	5 <sup>1</sup> / <sub>2</sub>	—	5 <sup>1</sup> / <sub>2</sub>	—	3	—	(6) 16d	—	(4) 16d	510	1050	360	960
										2.27	4.68	1.60	4.28
HBC60HDG	5 <sup>1</sup> / <sub>2</sub>	—	5 <sup>1</sup> / <sub>2</sub>	—	3	—	(4) 16d	—	(4) 16d	510	1050	360	960
										2.27	4.68	1.60	4.28
BC60R	6	—	6	—	3	—	(6) 16d	—	(4) 16d	510	1050	360	960
										2.27	4.68	1.60	4.28
BC80	7 <sup>1</sup> / <sub>2</sub>	—	7 <sup>1</sup> / <sub>2</sub>	—	4	—	(6) 16d	—	(4) 16d	510	1050	360	960
										2.27	4.68	1.60	4.28
BC80R	8	—	8	—	4	—	(6) 16d	—	(4) 16d	510	1050	360	960
										2.27	4.68	1.60	4.28

1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other loads govern.
2. Uplift values shown for BCO are only applicable for short-term loading. Do not use these products for other load durations.
3. Uplift resistances do not apply where Bases are nailed into the end grain of post as per 12.9.3.4 CSA O86-14.
4. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face (see technical bulletin T-SCLCLMCAN at [strongtie.com](http://strongtie.com) for details).
5. Factored resistances shown assume dry service condition ( $K_{SF} = 1.00$ ). Multiply table values by 0.67 under wet service conditions.
6. **Nails:** 16d = 0.162" dia. x 3<sup>1</sup>/<sub>2</sub>" long, 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.



# AC/LPCZ/LCE

## Post Caps

The LCE4's universal design provides high capacity while eliminating the need for rights and lefts. For use with 4x or 6x lumber.

The AC max. design allows for higher load capacity to match comparable post bases.

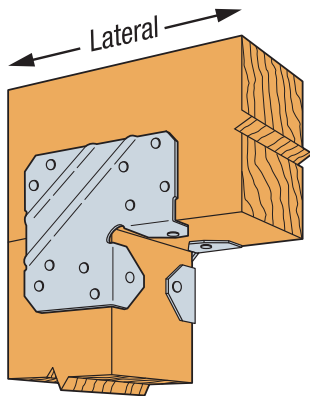
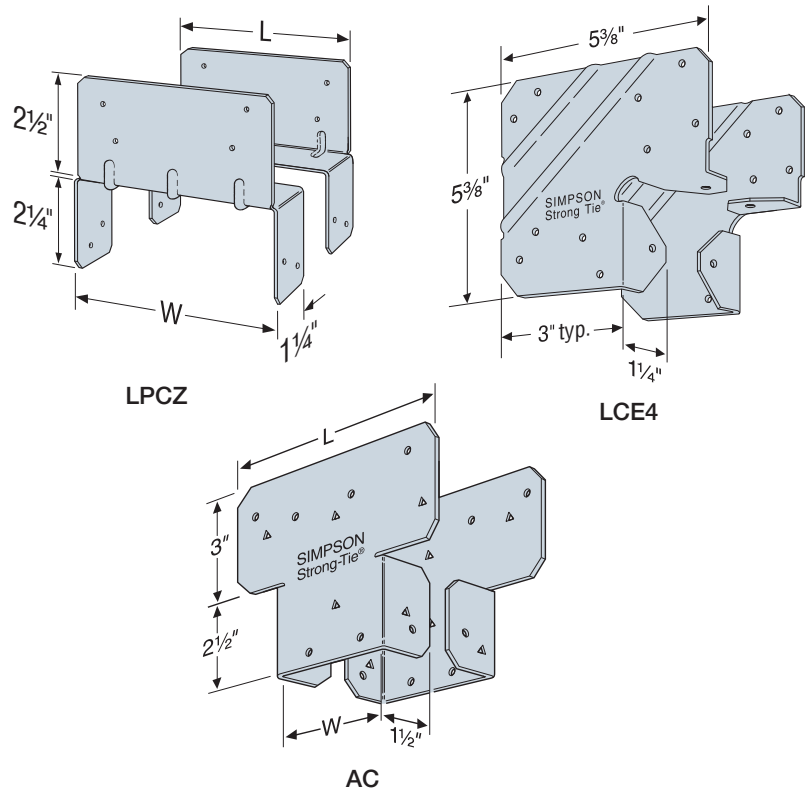
LPCZ — Adjustable design allows greater connection versatility.

**Material:** LCE4 — 20 gauge; AC, LPC4Z — 18 gauge; LPC6Z — 16 gauge

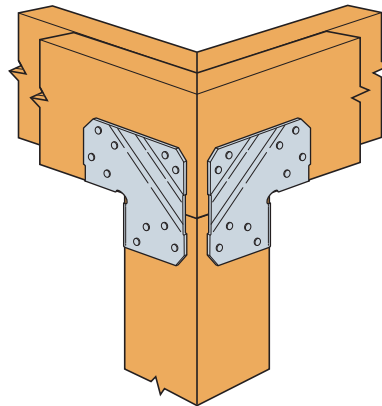
**Finish:** Galvanized. Some products available in ZMAX® coating and stainless steel; see Corrosion Information, pp. 16–21.

**Installation:**

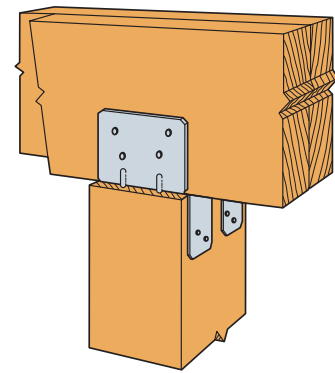
- Use all specified fasteners; see General Notes
- Install all models in pairs



Typical LCE4 Installation



Typical LCE4 Corner Installation  
(see footnote 6 on p. 95)



Typical LPCZ Installation



## AC/LPCZ/LCE

## Post Caps (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Dimensions (in.)		Fasteners		Factored Resistance ( $K_D = 1.15$ )			
					D.Fir-L		S-P-F	
	W	L	Beam	Post	Uplift	Lateral	Uplift	Lateral
					lb.	lb.	lb.	lb.
				kN	kN	kN	kN	
LPC4Z	3 $\frac{3}{16}$	3 $\frac{1}{2}$	(8) 10d	(8) 10d	1225	460	870	325
					5.46	2.05	3.88	1.45
LCE4	—	5%	(14) 16d	(10) 16d	2560	2300	2315	1910
					11.40	10.24	10.31	8.51
AC4 (Min.)	3 $\frac{3}{16}$	6 $\frac{1}{2}$	(8) 16d	(8) 16d	2095	2290	1920	1625
					9.33	10.20	8.55	7.24
AC4 (Max.)	3 $\frac{3}{16}$	6 $\frac{1}{2}$	(14) 16d	(14) 16d	3670	2850	3360	2025
					16.35	12.69	14.97	9.02
AC4RZ (Min.)	4	7	(8) 16d	(8) 16d	2095	2290	1920	1625
					9.33	10.20	8.55	7.24
AC4RZ (Max.)	4	7	(14) 16d	(14) 16d	3670	2850	3360	2025
					16.35	12.69	14.97	9.02
LPC6Z	5 $\frac{3}{16}$	5 $\frac{1}{2}$	(8) 10d	(8) 10d	1040	695	735	495
					4.63	3.10	3.27	2.20
AC6 (Min.)	5 $\frac{1}{2}$	8 $\frac{1}{2}$	(8) 16d	(8) 16d	2095	1925	1855	1365
					9.33	8.57	8.26	6.08
AC6 (Max.)	5 $\frac{1}{2}$	8 $\frac{1}{2}$	(14) 16d	(14) 16d	3670	3670	3030	2845
					16.35	16.35	13.50	12.67
AC6RZ (Min.)	6	9	(8) 16d	(8) 16d	2095	1925	1920	1365
					9.33	8.57	8.55	6.08
AC6RZ (Max.)	6	9	(14) 16d	(14) 16d	3670	3670	3360	2845
					16.35	16.35	14.97	12.67

1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other loads govern.
2. Factored resistances and fastener quantities shown are for two parts.
3. LPCZ lateral resistance is in the direction parallel to the beam.
4. Min. nailing quantity and resistances — fill all round holes;  
Max. nailing quantities and resistances — fill round and triangle holes.
5. Uplift values do not apply to splice conditions.
6. LCE4 uplift capacity for mitered corner conditions is 1615 lb. (7.18 kN) D.Fir-L and 1145 lb. (5.09 kN) S-P-F. Lateral resistances do not apply.
7. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCLMCAN at [strongtie.com](http://strongtie.com) for values on the narrow face (edge).
8. **Nails:** 16d = 0.162" dia. x 3 $\frac{1}{2}$ " long, 10d = 0.148" dia. x 3" long.  
See pp. 22–24 for other nail sizes and information.



# PCZ/EPCZ

## Post Caps

PCZ/EPCZ post caps are designed with their post and beam flanges in-line so that one PCZ/EPCZ model can accommodate several post sizes. The PCZ/EPCZ now uses easier-to-install 10d common nails. An alternate choice of fasteners is Strong-Drive® #9 x 1 1/2" SD Connector screws. ZMAX® finish is standard to meet exposure conditions in many environments. See additional corrosion information at [strongtie.com/info](http://strongtie.com/info).

**Material:** 16 gauge

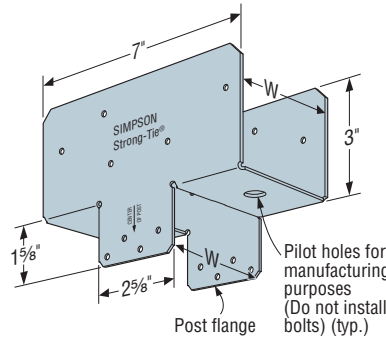
**Finish:** ZMAX coating

**Installation:**

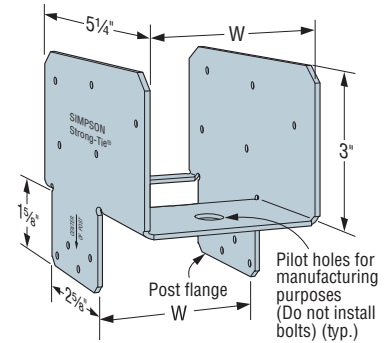
- Use all specified fasteners; see General Notes
- Do not install bolts into pilot holes

**Options:**

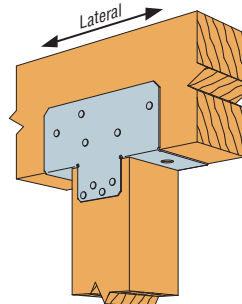
- For end conditions, specify EPCZ post caps
- For heavy-duty applications, see CCQ and CC Series



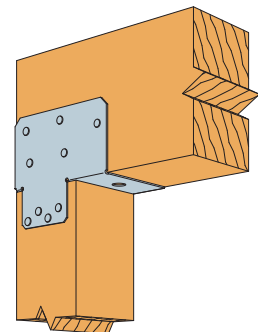
PCZ



EPCZ



Typical PCZ Post Cap Installation



Typical EPCZ End Post Cap Installation

These products are available with additional corrosion protection. For more information, see p. 20.

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	W (in.)	Fasteners		Factored Resistance (K <sub>D</sub> = 1.15)			
				D.Fir-L		S-P-F	
		Beam	Post	Uplift	Lateral	Uplift	Lateral
				lb.	lb.	lb.	lb.
		kN	kN	kN	kN		
PC4Z	3 5/8	(10) 10d	(8) 10d	1920	1920	1785	1515
				8.54	8.54	7.94	6.74
EPC4Z	3 5/8	(10) 10d	(8) 10d	1920	1795	1450	1315
				8.54	7.98	6.45	5.85
PC4RZ	4	(10) 10d	(8) 10d	1920	1920	1785	1515
				8.54	8.54	7.94	6.74
EPC4RZ	4	(10) 10d	(8) 10d	1920	1795	1450	1315
				8.54	7.98	6.45	5.85
PC6Z	5 1/2	(10) 10d	(8) 10d	1920	1920	1785	1515
				8.54	8.54	7.94	6.74
EPC6Z	5 1/2	(10) 10d	(8) 10d	1920	1795	1485	1315
				8.54	7.98	6.61	5.85
PC6RZ	6	(10) 10d	(8) 10d	1920	1920	1785	1515
				8.54	8.54	7.94	6.74
EPC6RZ	6	(10) 10d	(8) 10d	1920	1795	1485	1315
				8.54	7.98	6.61	5.85
PC8Z	7 1/2	(10) 10d	(8) 10d	1920	1920	1785	1515
				8.54	8.54	7.94	6.74
EPC8Z	7 1/2	(10) 10d	(8) 10d	1920	1795	1485	1315
				8.54	7.98	6.61	5.85
PC8RZ	8	(10) 10d	(8) 10d	1920	1920	1785	1515
				8.54	8.54	7.94	6.74
EPC8RZ	8	(10) 10d	(8) 10d	1920	1795	1485	1315
				8.54	7.98	6.61	5.85

1. Factored resistances have been increased 15% for earthquake or wind loading. No further increase is permitted. Reduce where other load durations govern.
2. Factored uplift resistances do not apply to beams spliced over the column.
3. Spliced conditions must be detailed by the designer to transfer tension loads between spliced members by means other than the post cap.
4. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the table are only applicable to installation into the wide face of the post.
5. 10d nails may be substituted with Strong-Drive #9 x 1 1/2" SD Connector screws for full capacities shown.
6. Multiply the tabulated values x 0.67 for wet service conditions.
7. **Nails:** 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.  
**Screws:** SD #9 x 1 1/2" = 0.131" dia. x 1 1/2" long (SD9112).





# CCQ/ECCQ

## Column Caps



This product is preferable to similar connectors because of (a) easier installation, (b) higher capacities, (c) lower installed cost, or a combination of these features.

Column caps provide a strong connection for column-beam combinations. This design uses Strong-Drive® SDS Heavy-Duty Connector screws to provide faster installation and provides a greater net section area of the column compared to bolts. The SDS screws provide for a lower profile compared to standard through bolts.

**Material:** CCQ3, ECCQ3, CCQ4, CCQ4.62, ECCQ4, ECCQ4.62, CCQ6, ECCQ6 — 7 gauge; all others — 3 gauge

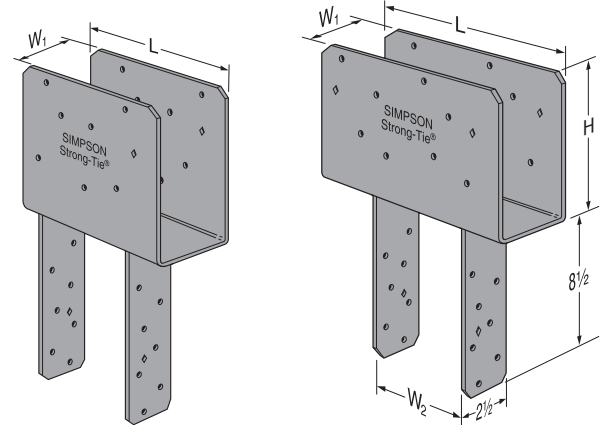
**Finish:** Simpson Strong-Tie gray paint; available in HDG and stainless steel; CCOQ and ECCOQ — no coating

**Installation:**

- Fasteners provided. See General Notes.
- Install ¼" x 2½" Strong-Drive SDS Heavy-Duty Connector screws, which are provided with the column cap. (Lag screws will not achieve the same load.) Install stainless-steel Strong-Drive SDS Heavy Duty Connector screws with stainless-steel connectors.

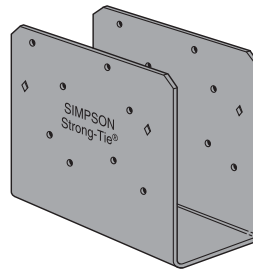
**Options:**

- For end conditions, specify ECCQ.
- Straps may be rotated 90° where  $W_1 \geq W_2$  and for CCQ5-6.
- CCOQ and ECCOQ column caps only (no straps) may be ordered for field-welding to pipe or other columns. Dimensions are same as CCQ and ECCQ. Weld by designer.
- Other custom column caps are available. Contact Simpson Strong-Tie.

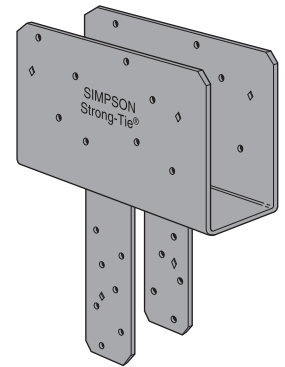


ECCQ46SDS2.5

CCQ46SDS2.5

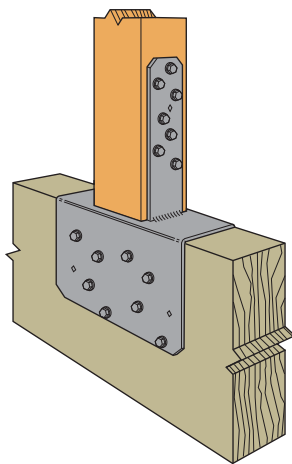


CCOQ4-SDS2.5  
(no coating)

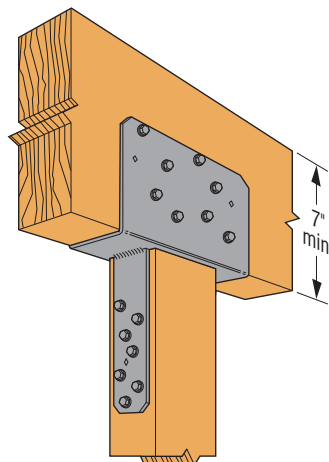


Optional CCQ with Straps Rotated 90°

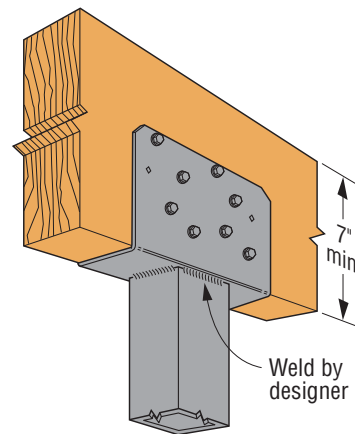
Bases and Caps



Inverted CCQ44SDS2.5  
Post-to-Beam Installation



Typical CCQ46SDS2.5  
Installation



CCOQ Installation  
on Steel Column

**PBS** Post-to-Beam Selector

Specify post-to-beam connections



# Column Caps (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Bases and Caps

Model No.	Dimensions (in.)		No. of 1/4" x 2 1/2" SDS Screws		Factored Resistance				
					Uplift (K <sub>D</sub> = 1.15)		Normal (K <sub>D</sub> = 1.00)		
	W <sub>1</sub>	W <sub>2</sub>	Beam	Post	D.Fir-L lb. kN	S-P-F lb. kN	D.Fir-L lb. kN	S-P-F lb. kN	SCL lb. kN
SS	3 1/4	3%	16	14	9500	7705	23075	18955	—
					42.26	34.27	102.65	84.32	—
SS	3 1/4	5 1/2	16	14	9500	8855	27915	22545	—
					42.26	39.39	124.18	100.29	—
SS	3%	3%	16	14	9500	7705	25845	21230	39100
					42.26	34.27	114.97	94.44	173.93
SS	3%	5 1/2	16	14	9500	8855	31260	23660	42040
					42.26	39.39	139.06	105.25	187.01
SS	3%	7 1/2	16	14	9500	8855	31260	23660	42040
					42.26	39.39	139.06	105.25	187.01
■	4%	3%	16	14	9500	7705	33230	27295	—
					42.26	34.27	147.82	121.42	—
■	4%	4%	16	14	9500	7705	40195	30420	—
					42.26	34.27	178.80	135.32	—
■	4%	5 1/2	16	14	9500	8855	40195	30420	—
					42.26	39.39	178.80	135.32	—
SS	5 1/4	3%	16	14	10700	7705	37845	31090	—
					47.60	34.27	168.35	138.30	—
SS	5 1/4	5 1/2	16	14	13285	9500	45775	36975	—
					59.10	42.26	203.63	164.48	—
SS	5 1/4	7 1/2	16	14	13285	9500	45775	37885	—
					59.10	42.26	203.63	168.53	—
SS	5 1/2	3%	16	14	9500	7705	40615	33360	58660
					42.26	34.27	180.67	148.40	260.94
SS	5 1/2	5 1/2	16	14	9500	8855	49125	37175	63065
					42.26	39.39	218.53	165.37	280.54
SS	5 1/2	7 1/8	16	14	9500	8855	49125	37175	63065
					42.26	39.39	218.53	165.37	280.54
SS	5 1/2	7 1/2	16	14	9500	8855	49125	37175	63065
					42.26	39.39	218.53	165.37	280.54
SS	6%	3%	16	14	10700	7705	49845	40940	—
					47.60	34.27	221.73	182.12	—
SS	6%	5 1/2	16	14	13285	9500	60290	48695	—
					59.10	42.26	268.19	216.61	—
■	6%	6%	16	14	13285	9500	60290	49895	—
					59.10	42.26	268.19	221.95	—
■	6%	7 1/2	16	14	13285	9500	60290	49895	—
					59.10	42.26	268.19	221.95	—
SS	7 1/8	3%	16	14	10700	7705	—	—	78205
					47.60	34.27	—	—	347.89
SS	7 1/8	5 1/2	16	14	13285	9500	—	—	84085
					59.10	42.26	—	—	374.04
■	7 1/8	7 1/8	16	14	13285	9500	—	—	84085
					59.10	42.26	—	—	374.04
■	7 1/8	7 1/2	16	14	13285	9500	—	—	84085
					59.10	42.26	—	—	374.04
■	7 1/2	3%	16	14	13285	9500	53540	43970	—
					59.10	42.26	238.16	195.60	—
■	7 1/2	5 1/2	16	14	13285	9500	66990	50695	—
					59.10	42.26	298.00	225.51	—
■	7 1/2	7 1/2	16	14	13285	9500	66990	50695	—
					59.10	42.26	298.00	225.51	—
■	8%	3%	16	14	13285	9500	64615	53070	—
					59.10	42.26	287.43	236.08	—
■	8%	5 1/2	16	14	13285	9500	75920	61320	—
					59.10	42.26	337.72	272.78	—
■	8%	7 1/2	16	14	13285	9500	75920	62830	—
					59.10	42.26	337.72	279.49	—
■	9 1/2	5 1/2	16	14	13285	9500	84855	64215	—
					59.10	42.26	377.47	285.65	—

**Note:** Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Uplift values in the tables reflect installation into the wide face.

- Factored down resistances are determined using  $\phi F_{CP}$  equal to: 812 psi (5.6 MPa) for D.Fir-L and 672 psi (4.64 MPa) for Spruce-Pine glulam sizes; 1,092 psi (7.53 MPa) for SCL sizes; reduce where end grain bearing or buckling capacity of post governs.
- Spliced conditions must be detailed by the designer to transfer tension loads between spliced members by means other than the column cap.
- Factored uplift resistances do not apply to splice conditions.
- Post sides are assumed to lie in the same vertical plane as the beam sides.
- Loads may not be increased for short-term loading.
- Uplift loads have been increased 15% for earthquake or wind loading; reduce for other loading conditions in accordance with the code.
- Designer to design beam for factored uplift resistance based on effective shear depth as per 12.2.1.4 CSA O86-14.
- SCL assumes SG = 0.50.
- Beam depth must be greater than 7 1/4".
- For uplift values when using SCL, use either D.Fir-L or S-P-F factored resistances based on SCL manufacturers' recommendations.



## Column Caps (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Dimensions (in.)		No. of 1/4" x 2 1/2" SDS Screws		Factored Resistance					
					Uplift ( $K_D = 1.15$ )		Normal ( $K_D = 1.00$ )			
	W1	W2	Beam	Post	D.Fir-L	S-P-F	D.Fir-L	S-P-F	SCL	
					lb.	lb.	lb.	lb.	lb.	
					kN	kN	kN	kN	kN	
SS	ECCQ3-4SDS2.5	3 1/4	3%	14	14	6965	5015	8880	7350	—
						30.98	22.31	39.50	32.70	—
SS	ECCQ3-6SDS2.5	3 1/4	5 1/2	14	14	7615	5480	13955	11550	—
						33.87	24.38	62.08	51.38	—
SS	ECCQ44SDS2.5	3%	3%	14	14	6965	5015	9945	7530	13375
						30.98	22.31	44.24	33.50	59.50
SS	ECCQ46SDS2.5	3%	5 1/2	14	14	7615	5480	15630	11830	21020
						33.87	24.38	69.53	52.62	93.51
SS	ECCQ48SDS2.5	3%	7 1/2	14	14	7615	5480	21315	16130	28665
						33.87	24.38	94.82	71.75	127.51
ECCQ4.62-3.62SDS2.5	4%	3%	14	14	6965	5015	12790	9680	—	
					30.98	22.31	56.90	43.06	—	
ECCQ4.62-4.62SDS2.5	4%	4%	14	14	6965	5015	16445	12445	—	
					30.98	22.31	73.15	55.36	—	
ECCQ4.62-5.5SDS2.5	4%	5 1/2	14	14	7615	5480	20095	15210	—	
					33.87	24.38	89.39	67.66	—	
SS	ECCQ5-4SDS2.5	5 1/4	3%	14	14	6965	5015	14565	12055	—
						30.98	22.31	64.79	53.63	—
SS	ECCQ5-6SDS2.5	5 1/4	5 1/2	14	14	7835	5640	22890	18490	—
						34.85	25.09	101.82	82.25	—
SS	ECCQ5-8SDS2.5	5 1/4	7 1/2	14	14	7835	5640	31210	25830	—
						34.85	25.09	138.83	114.90	—
SS	ECCQ64SDS2.5	5 1/2	3%	14	14	6965	5015	15630	11830	20065
						30.98	22.31	69.53	52.62	89.26
SS	ECCQ66SDS2.5	5 1/2	5 1/2	14	14	7615	5480	24565	18590	30100
						33.87	24.38	109.27	82.70	133.90
SS	ECCQ6-7.1SDS2.5	5 1/2	7 1/4	14	14	7615	5480	31260	23660	40130
						33.87	24.38	139.06	105.25	178.51
SS	ECCQ68SDS2.5	5 1/2	7 1/2	14	14	7615	5480	33495	25350	43000
						33.87	24.38	149.00	112.77	191.28
SS	ECCQ74SDS2.5	6%	3%	14	14	6965	5015	19185	15875	—
						30.98	22.31	85.34	70.62	—
SS	ECCQ76SDS2.5	6%	5 1/2	14	14	7835	5640	30145	24950	—
						34.85	25.09	134.10	110.99	—
ECCQ77SDS2.5	6%	6%	14	14	7835	5640	36995	30620	—	
					34.85	25.09	164.57	136.21	—	
ECCQ78SDS2.5	6%	7 1/2	14	14	7835	5640	41110	34020	—	
					34.85	25.09	182.87	151.33	—	
SS	ECCQ71-4SDS2.5	7 1/4	3%	14	14	6965	5015	—	—	26755
						30.98	22.31	—	—	119.02
SS	ECCQ71-6SDS2.5	7 1/4	5 1/2	14	14	7835	5640	—	—	40130
						34.85	25.09	—	—	178.51
ECCQ71-7.1SDS2.5	7 1/4	7 1/4	14	14	7835	5640	—	—	53510	
					34.85	25.09	—	—	238.03	
ECCQ71-8SDS2.5	7 1/4	7 1/2	14	14	7835	5640	—	—	57330	
					34.85	25.09	—	—	255.03	
ECCQ84-SDS2.5	7 1/2	3%	14	14	7835	5640	21315	16130	—	
					34.85	25.09	94.82	71.76	—	
ECCQ86-SDS2.5	7 1/2	5 1/2	14	14	7835	5640	33495	25350	—	
					34.85	25.09	149.00	112.77	—	
ECCQ88-SDS2.5	7 1/2	7 1/2	14	14	7835	5640	45675	34565	—	
					34.85	25.09	203.18	153.76	—	
ECCQ94-SDS2.5	8%	3%	14	14	7835	5640	24155	19990	—	
					34.85	25.09	107.46	88.93	—	
ECCQ96-SDS2.5	8%	5 1/2	14	14	7835	5640	37960	31415	—	
					34.85	25.09	168.86	139.75	—	
ECCQ98-SDS2.5	8%	7 1/2	14	14	7835	5640	51765	42840	—	
					34.85	25.09	230.27	190.57	—	
ECCQ106-SDS2.5	9 1/2	5 1/2	14	14	7835	5640	42425	32110	—	
					34.85	25.09	188.72	142.84	—	

**Note:** Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Uplift values in the tables reflect installation into the wide face.

- Factored down resistances are determined using  $\phi F_{CP}$  equal to: 812 psi (5.6 MPa) for D.Fir-L and 672 psi (4.64 MPa) for Spruce-Pine glulam sizes; 1092 psi (7.53 MPa) for SCL sizes; reduce where end grain bearing or buckling capacity of post governs.
- Spliced conditions must be detailed by the designer to transfer tension loads between spliced members by means other than the column cap.
- Factored uplift resistances do not apply to splice conditions.
- Post sides are assumed to lie in the same vertical plane as the beam sides.
- Loads may not be increased for short-term loading.
- Uplift loads have been increased 15% for earthquake or wind loading; reduce for other loading conditions in accordance with the code.
- ECCQ downloads assume a post of  $W_1 \times W_2$ .
- Designer to design beam for factored uplift resistance based on effective shear depth as per 12.2.1.4 CSA O86-14.
- SCL assumes equivalent  $SG = 0.50$ .
- Beam depth must be greater than  $7/4"$ .
- For uplift values when using SCL, use either D.Fir-L or S-P-F factored resistances based on SCL manufacturers' recommendations.



# ECCLQ/CCCQ/CCTQ

## Column Caps

The ECCLQ, CCCQ and CCTQ column caps provide high-capacity, multiple beam-to-column connector options. The design uses Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws to provide faster installation and a lower profile compared to standard through bolts. Screws are configured to provide high uplift design values.

**Material:** 7 gauge

**Finish:** Simpson Strong-Tie gray paint, also available in HDG

**Installation:**

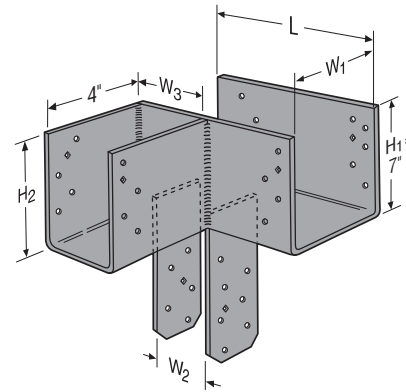
- Install 1/4" x 2 1/2" Strong-Drive SDS Heavy-Duty Connector screws, which are provided, in all round holes. (Lag screws will not achieve the same load.)
- No additional welding is allowed.

**Options:**

- Many combinations of beam and post sizes can be manufactured. Refer to worksheet T-CCQLTC-WS at [strongtie.com](http://strongtie.com).
- Available in widths up to 8" wide.
- ECCLQ is available in left or right side beam orientations. Specify ECCLLQ or ECCLRQ.
- Straps may be rotated where  $W_1 > W_2$ .
- Column caps may be ordered without the column straps for field welding to a steel column. Specify CCCOQ/CCTOQ/ECCLQO. Welding shall be per designer.

**Ordering:**

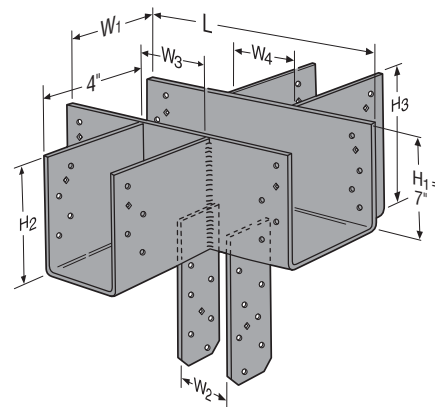
- The L dimension varies depending on the width of the side stirrup ( $W_3$  or  $W_4$ ). Contact Simpson Strong-Tie for exact dimensions.
- Main beam stirrup height ( $H_1$ ) is 7". Side beam stirrups ( $H_2$  or  $H_3$ ) can vary in height with the minimum height of 7". Specify the side stirrup height from the top of the cap.
- Example Order: End condition with a 4x main beam, 4x side beam and 4x post oriented to the left is an ECCLLQ44.



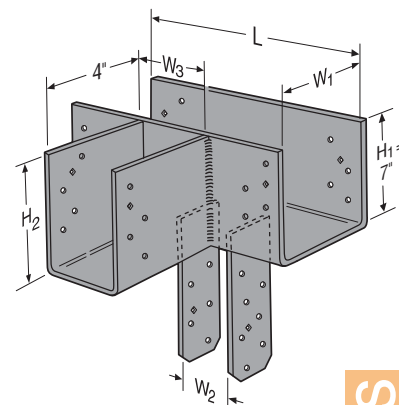
**ECCLQ-SDS2.5**

(left direction shown)

Order ECCLRQ-SDS2.5 for right direction



**CCCQ-SDS2.5**



**CCTQ-SDS2.5**

Model No.	Factored Uplift Resistance ( $K_D = 1.15$ )					
	Main Beam		Side Beam		Total	
	D.Fir-L	S-P-F	D.Fir-L	S-P-F	D.Fir-L	S-P-F
	lb.	lb.	lb.	lb.	lb.	lb.
	kN	kN	kN	kN	kN	kN
ECCLQ-SDS2.5	5345	3845	3075	2215	6335	4560
	23.78	17.10	13.68	9.85	28.18	20.28
CCCQ-SDS2.5	7200	5185	3920	2825	7200	5185
	32.03	23.06	17.44	12.57	32.03	23.06
CCTQ-SDS2.5	8140	5900	3920	2825	8875	6390
	36.21	26.25	17.44	12.57	39.48	28.43

1. Factored resistances are per seat. Side beams must be loaded symmetrically for the CCCQ.
2. The combined uplift loads applied to all beams in the connector must not exceed the total factored resistance listed in the table.
3. The combined factored download for all of the carried beams shall not exceed the factored normal resistance for the unmodified product on pp. 98–99 (CCQ value for CCCQ and CCTQ, or ECCQ value for ECCLQ). The maximum factored download for each side beam shall not exceed 35% of the maximum factored normal resistance for the unmodified product or 11100 lb. (49.38 kN).

**PBS** Post-to-Beam Selector

**Specify post-to-beam connections**



# CC/ECC/ECCU

## Column Caps

The industry standard column caps. Precision factory gang-punched holes speed installation on this product line.

**Material:** CC3¼, CC44, CC4.62, CC6, ECC3¼, ECC4, ECC4.62, ECC6 — 7 gauge; all others — 3 gauge

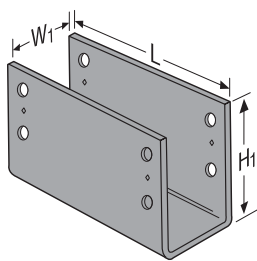
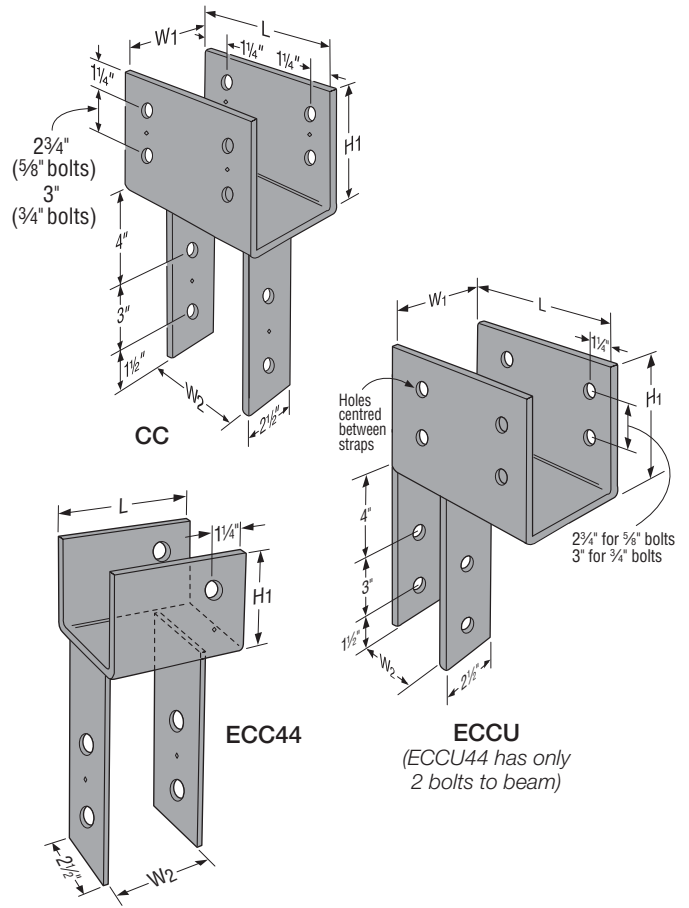
**Finish:** Some products available in HDG, stainless steel or black powder coat; CCO, ECCO — no coating

**Installation:**

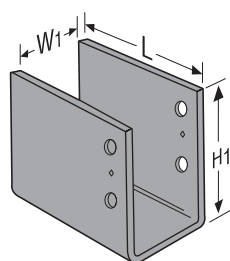
- Use all specified fasteners; see General Notes.
- Bolt holes shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt diameter (per 12.4.1.2 CSA O86-14).
- Contact engineered wood manufacturer for connections that are not through the wide face.

**Options:**

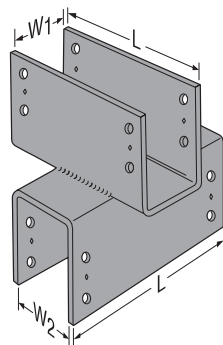
- Straps may be rotated 90° where  $W_1 \geq W_2$  (see illustration).
- For special, custom, or rough cut lumber sizes, provide dimensions. An optional  $W_2$  dimension may be specified with any column size given (note that the  $W_2$  dimension on straps rotated 90° is limited by the  $W_1$  dimension).
- CCO/ECCO — Column cap only (no straps) may be ordered for field-welding to pipe or other columns. No resistances apply. CCO/ECCO dimensions are the same as CC/ECC.
- CCOB — Any two CCOs may be specified for back-to-back welding to create a cross beam connector. Use the tabulated resistances; the resistance is no greater than that of the lesser element employed.
- ECCU — Order when uplift resistance is required for end column cap applications.
- See p. 104 for CCC, CCT and ECCL options.



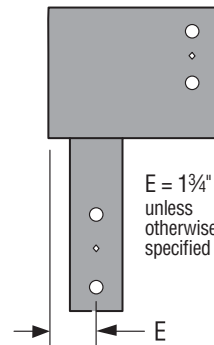
CCO



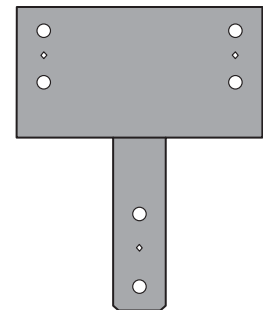
ECCO



CCOB



Optional ECC with Straps Rotated 90°



Optional CC with Straps Rotated 90°

**PBS** Post-to-Beam Selector

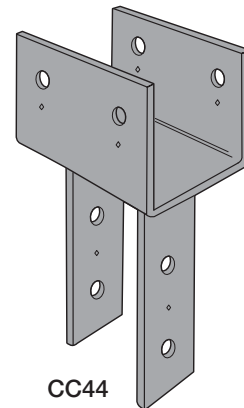
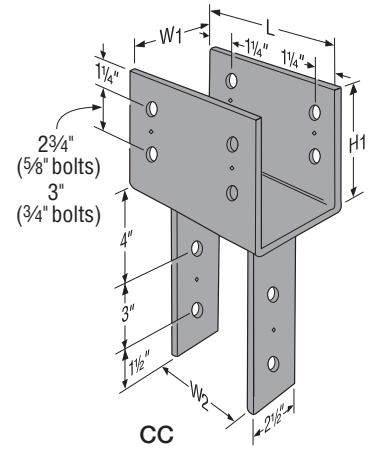
Specify post-to-beam connections

**CC/ECC/ECCU**

## Column Caps (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Dimensions (in.)				Bolts				Factored Normal Resistance ( $K_D = 1.00$ )		
	W <sub>1</sub>	W <sub>2</sub>	L	H <sub>1</sub>	Beam		Post		D.Fir-L	S-P-F	SCL
					Qty.	Dia. (in.)	Qty.	Dia. (in.)	lb.	lb.	lb.
SS CC3¼-4	3¼	3¾	11	6½	4	⅝	2	⅝	23080	18955	—
									102.67	84.32	—
CC3¼-6	3¼	5½	11	6½	4	⅝	2	⅝	27915	23100	—
									124.18	102.76	—
SS CC44	3¾	3¾	7	4	2	⅝	2	⅝	19895	15055	26755
									88.50	66.97	119.02
CC46	3¾	5½	11	6½	4	⅝	2	⅝	31260	23660	42040
									139.06	105.25	187.01
CC48	3¾	7½	11	6½	4	⅝	2	⅝	31260	23660	42040
									139.06	105.25	187.01
CC4.62-3.62	4¾	3¾	11	6½	4	⅝	2	⅝	33235	27295	—
									147.84	121.42	—
CC4.62-4.62	4¾	4¾	11	6½	4	⅝	2	⅝	40195	30420	—
									178.80	135.32	—
CC4.62-5.5	4¾	5½	11	6½	4	⅝	2	⅝	40195	30420	—
									178.80	135.32	—
CC5¼-4	5¼	3¾	13	8	4	¾	2	¾	37850	31085	—
									168.37	138.28	—
CC5¼-6	5¼	5½	13	8	4	¾	2	¾	51810	36980	—
									230.47	164.50	—
CC5¼-8	5¼	7½	13	8	4	¾	2	¾	54100	44770	—
									240.66	199.15	—
CC64	5½	3¾	11	6½	4	⅝	2	⅝	40620	33360	58655
									180.69	148.40	260.92
SS CC66	5½	5½	11	6½	4	⅝	2	⅝	49125	37175	63065
									218.53	165.37	280.54
CC6-7½	5½	7½	11	6½	4	⅝	2	⅝	49125	37175	63065
									218.53	165.37	280.54
CC68	5½	7½	11	6½	4	⅝	2	⅝	49125	37175	63065
									218.53	165.37	280.54
CC74	6¾	3¾	13	8	4	¾	2	¾	49850	40940	—
									221.75	182.12	—
CC76	6¾	5½	13	8	4	¾	2	¾	68235	48710	—
									303.54	216.68	—
CC77	6¾	6¾	13	8	4	¾	2	¾	71255	58970	—
									316.97	262.32	—
CC78	6¾	7½	13	8	4	¾	2	¾	71255	58970	—
									316.97	262.32	—
CC7½-4	7½	3¾	13	8	4	¾	2	¾	—	—	78205
									—	—	347.89
CC7½-6	7½	5½	13	8	4	¾	2	¾	—	—	99370
									—	—	442.04
CC7½-7½	7½	7½	13	8	4	¾	2	¾	—	—	99370
									—	—	442.04
CC86	7½	5½	13	8	4	¾	2	¾	75820	54120	—
									337.28	240.75	—
CC88	7½	7½	13	8	4	¾	2	¾	79170	59915	—
									352.18	266.53	—
CC96	8¾	5½	13	8	4	¾	2	¾	85925	61335	—
									382.23	272.84	—
CC98	8¾	7½	13	8	4	¾	2	¾	89725	74255	—
									399.13	330.32	—
CC106	9½	5½	13	8	4	¾	2	¾	96035	68550	—
									427.20	304.94	—



1. Post sides are assumed to lie in the same vertical plane as the beam sides.
2. Factored resistances may not be increased for short-term load duration.
3. Factored resistances are determined using  $\phi F_{cp}$  equal to: 812 psi (5.6 MPa) for D.Fir-L and 672 psi (4.64 MPa) for Spruce-Pine glulam sizes; 1092 psi (7.53 MPa) for SCL sizes; reduce where end grain bearing or buckling capacity of post governs.
4. Spliced conditions must be detailed by the designer to transfer tension loads between spliced members by means other than the column cap.
5. SCL assumes equivalent SG = 0.50.
6. Beam depth must be greater than H<sub>1</sub>.
7. Contact Simpson Strong-Tie for uplift resistances.
8. All references to bolts are for structural quality through bolts equal to or better than ASTM A307 Grade A.

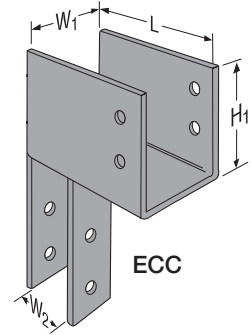


## CC/ECC/ECCU

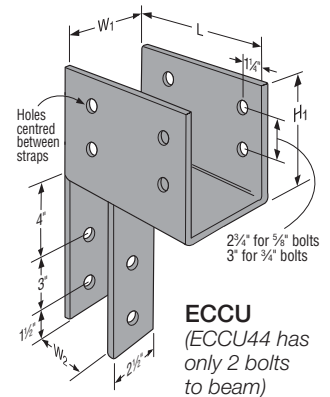
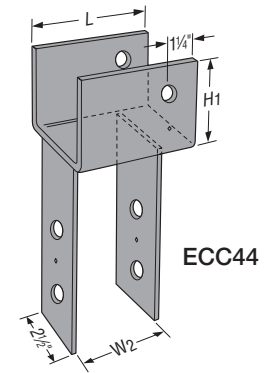
## Column Caps (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Dimensions (in.)					Bolts						Factored Normal Resistance ( $K_D = 1.00$ )		
	W <sub>1</sub>	W <sub>2</sub>	L		H <sub>1</sub>	Beam			Post			D.Fir-L	S-P-F	SCL
			ECC	ECCU		Qty.	Dia. (in.)	Qty.	Dia. (in.)	lb.	lb.	lb.		
										ECC	ECCU	kn	kn	kn
SS ECC3¼-4	3¼	3½	7½	9½	6½	2	4	⅝	2	⅝	8880	7350	—	
SS ECC3¼-6	3¼	5½	7½	9½	6½	2	4	⅝	2	⅝	13955	11550	—	
ECC44	3⅝	3⅝	5½	6½	4	1	2	⅝	2	⅝	9945	7530	13375	
ECC46	3⅝	5½	8½	9½	6½	2	4	⅝	2	⅝	15630	11830	21020	
ECC48	3⅝	7½	8½	9½	6½	2	4	⅝	2	⅝	21315	16130	28665	
ECC4.62-3.62	4⅝	3⅝	8½	9½	6½	2	4	⅝	2	⅝	12780	9680	—	
ECC4.62-4.62	4⅝	4⅝	8½	9½	6½	2	4	⅝	2	⅝	16445	12445	—	
ECC4.62-5.5	4⅝	5½	8½	9½	6½	2	4	⅝	2	⅝	20095	15210	—	
ECC5¼-4	5¼	3⅝	9½	10½	8	2	4	¾	2	¾	14565	12055	—	
ECC5¼-6	5¼	5½	9½	10½	8	2	4	¾	2	¾	22890	18940	—	
ECC5¼-8	5¼	7½	9½	10½	8	2	4	¾	2	¾	31210	25830	—	
ECC64	5½	3⅝	7½	9½	6½	2	4	⅝	2	⅝	15630	11830	20065	
SS ECC66	5½	5½	7½	9½	6½	2	4	⅝	2	⅝	24565	18590	30100	
ECC6-7½	5½	7½	9½	9½	6½	2	4	⅝	2	⅝	109.27	82.70	133.90	
ECC68	5½	7½	9½	9½	6½	2	4	⅝	2	⅝	31260	23660	40130	
ECC74	6⅞	3⅝	10½	10½	8	2	4	¾	2	¾	139.06	105.25	178.51	
ECC76	6⅞	5½	10½	10½	8	2	4	¾	2	¾	33495	25350	43000	
ECC77	6⅞	6⅞	10½	10½	8	2	4	¾	2	¾	149.00	112.77	191.28	
ECC78	6⅞	7½	10½	10½	8	2	4	¾	2	¾	19185	15875	—	
ECC7½-4	7⅞	3⅝	10½	10½	8	2	4	¾	2	¾	85.34	70.62	—	
ECC7½-6	7⅞	5½	10½	10½	8	2	4	¾	2	¾	30145	24950	—	
ECC7½-7½	7⅞	7½	10½	10½	8	2	4	¾	2	¾	134.10	110.99	—	
ECC86	7½	5½	10½	10½	8	2	4	¾	2	¾	36995	30620	—	
ECC88	7½	7½	10½	10½	8	2	4	¾	2	¾	164.57	136.21	—	
ECC96	8⅞	5½	10½	10½	8	2	4	¾	2	¾	41110	34020	—	
ECC98	8⅞	7½	10½	10½	8	2	4	¾	2	¾	182.87	151.33	—	
ECC106	9½	5½	10½	10½	8	2	4	¾	2	¾	—	—	26755	
											—	—	119.02	
											—	—	42040	
											—	—	187.01	
											—	—	53510	
											—	—	238.03	
											33495	25350	—	
											149.00	112.77	—	
											45675	34565	—	
											203.18	153.76	—	
											37960	31415	—	
											168.86	139.75	—	
											51765	42840	—	
											230.27	190.57	—	
											42425	32110	—	
											188.72	142.84	—	



ECC

ECCU  
(ECCU44 has only 2 bolts to beam)

ECC44

1. Post sides are assumed to lie in the same vertical plane as the beam sides.
2. Factored resistances may not be increased for short-term load duration.
3. Factored resistances are determined using  $\phi F_{CP}$  equal to: 812 psi (5.6 MPa) for D.Fir-L and 672 psi (4.64 MPa) for Spruce-Pine glulam sizes; 1092 psi (7.53 MPa) for SCL sizes; reduce where end bearing or buckling capacity of post governs.
4. ECC downloads assume a post of  $W_1 \times W_2$ .
5. SCL assumes equivalent SG = 0.50.
6. Beam depth must be greater than  $H_1$ .
7. Contact Simpson Strong-Tie for uplift resistances.
8. All references to bolts are for structural quality through bolts equal to or better than ASTM A307 Grade A.



# ECCL/CCC/CCT

## Column Caps

Column-to-beam connections often have multiple beams framing on top of a column. L, T, and cross-column caps provide design solutions for this application. Many combinations of beam and post sizes can be manufactured (refer to worksheet T-CCLTC-WS at [strongtie.com](http://strongtie.com) for details) with the following criteria applied:

**Material:** 7 gauge

**Finish:** Simpson Strong-Tie® gray paint, also available in HDG

**Installation:**

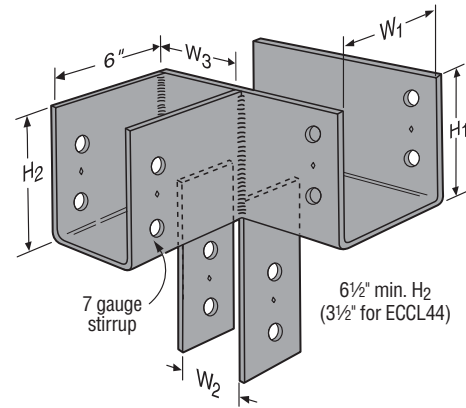
- Use all specified fasteners; see General Notes
- Bolt holes shall be a minimum of 1/32" to a maximum of 1/16" larger than bolt diameter (per 12.4.1.2 CSA O86-14)

**Options:**

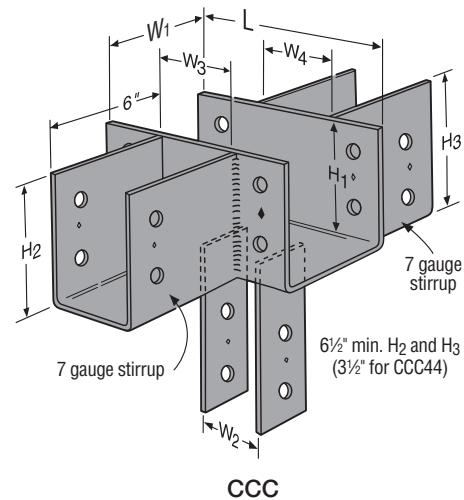
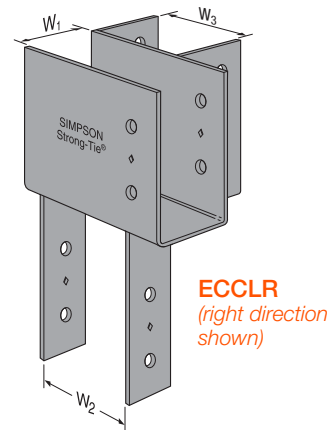
- Many combinations of beam and post sizes can be manufactured. Refer to worksheet T-C-CCQLTC at [strongtie.com](http://strongtie.com).
- The factored resistance shall be determined from the capacity for the unmodified product (see pp. 102–103). The side beam can take a maximum of 40% of the download and shall not exceed 13640 lb. (60.68 kN). The sum of the loads for the side beam(s) and main beam can not exceed the tabulated values.
- Uplift resistances do not apply for ECCL caps. For CCC and CCT, uplift resistances from table apply for main beam only.
- The column width in the direction of the main beam width must be the same as the main beam width (W<sub>1</sub>).
- Specify the stirrup height from the top of the cap. The minimum side stirrup heights (H<sub>2</sub> or H<sub>3</sub>) is 6 1/2" (3 1/2" for 44s).
- The L dimension may vary depending on the width of the side stirrup (W<sub>3</sub> or W<sub>4</sub>).
- Column caps may be ordered without the column straps for field welding to a steel column. No loads apply. Specify CCOC/CCOT/ECCOL. Welding shall be per designer.

**Ordering Examples:**

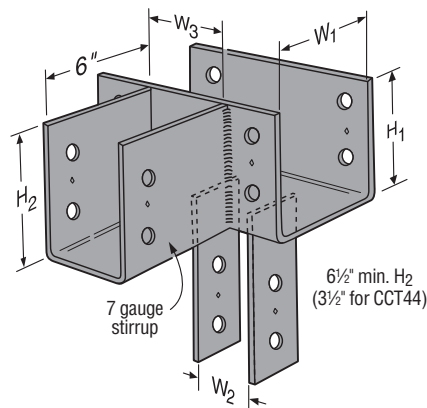
- A CCC66 with W<sub>3</sub> = 5 1/2", H<sub>2</sub> and H<sub>3</sub> = 6 1/2" is a CC66 column cap with 5 1/2" beams on each side with all beam seats flush.
- An ECCLR66 with W<sub>3</sub> = 3 5/8", H<sub>2</sub> = 7 1/2" is an ECC66 end column cap with a 4x beam on the right side (specify direction left (which is shown) or right for stirrup) and stirrup seat 1" below the cap seat.



**ECCL**  
(left direction shown)  
Order ECCLR for right direction



**CCC**



**CCT**

**PBS** Post-to-Beam Selector

Specify post-to-beam connections

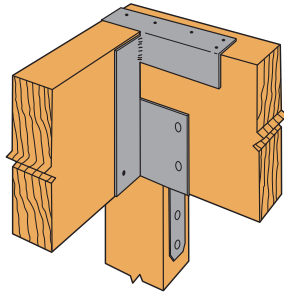




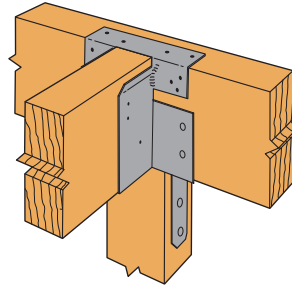
# ECCL/CCC/CCT

## Column Caps (cont.)

There are cost-effective alternatives for replacing column caps by using a combination of connectors. Designer must specify the options required. For column cap clearance, allow 3" for the hanger flange depth.



**ECC and HWP**  
(top flange offset right)



**CC and HWP**

## Ordering Multiple-Beam Column Caps

Ordering bolted column caps incorporate several key steps that are important to ensure the highest-capacity solution for your project. Here are some common steps to begin that process. For more information, refer to worksheet T-CCLTC-WS for bolted connections and worksheet T-CCQLTC for Quick Install connections. See p. 2 of these worksheets for model numbers for common post and beam width combinations. These worksheets are available at [strongtie.com](http://strongtie.com).

### 1. Choose Column Cap Style.

Look at the configuration of the column caps to determine which style column cap you require. If you don't know which style column cap is required, refer to your plans to determine the correct configuration.

### 2. Determine Column Cap Dimensions.

Fill in the dimensions of the column cap on the worksheet. If you don't know the dimensions of the column cap, go directly to the "Post and Beam Dimensions" section.

### 3. Provide Post and Beam Dimensions.

The "Post and Beam Dimensions" section of this worksheet is required. Fill in all applicable dimensions in actual inches, not as nominal dimensions.

### 4. Determine Beam Orientation.

Refer to your plans or check the configuration of the column cap you selected in order to determine the orientation of the beam. Check the box for the beam orientation that best describes your beam configuration: Beam B flush at bottom of Beam A; Beam B flush at both the top and bottom of Beam A; or Beam B flush at top of Beam A.

### 5. Check the Box for the Required Style and Strap Orientation.

### 6. Select Finish.

Standard finish is Simpson Strong-Tie® gray paint, available in HDG (specify HDG).

### 7. Place Order.

Contact Simpson Strong-Tie for ordering information.





# GLB/HGLB

## Beam Seats

The GLB Series provides a connection between beam and concrete or CMU pilaster.

**Finish:** Simpson Strong-Tie® gray paint.  
Hot-dip galvanized available; specify HDG.

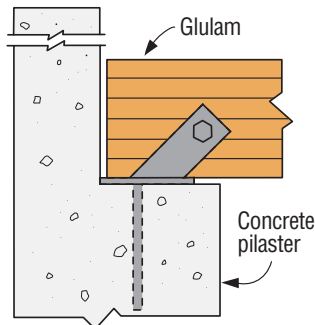
**Installation:**

- Use all specified fasteners; see General Notes.
- Bolt holes in wood shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt diameter (per 12.4.1.2 CSA O86-14).
- Check the rebar spacing requirements on all installations.

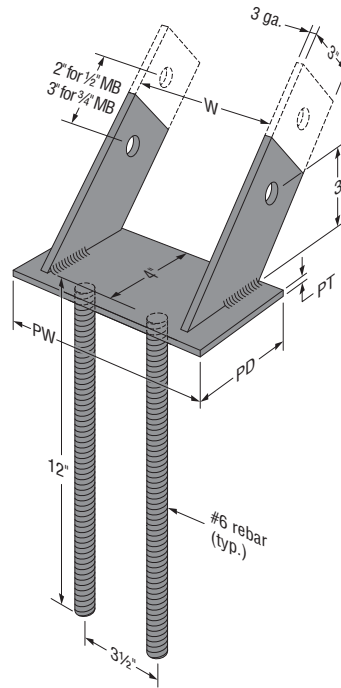
**Options:**

- Beam seats for sawn timber and other sizes may be ordered by specifying special dimensions; use the letter designations shown on the illustrations
- Specify if two-bolt GLB model is desired; see illustration

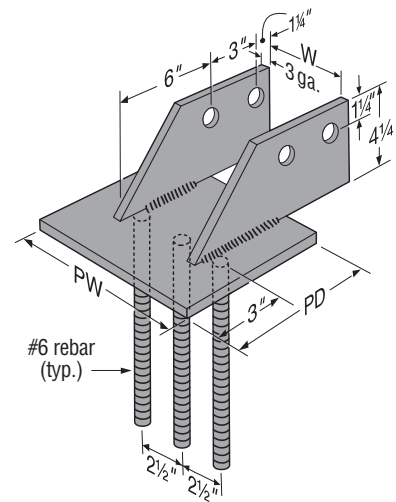
Bases and Caps



Typical GLB Installation



GLB



HGLB



## GLB/HGLB

## Beam Seats (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Dimensions (in.)				Bolts		Factored Bearing Resistance (K <sub>D</sub> = 1.00)				Factored Horizontal Resistance (K <sub>D</sub> = 1.15)	
	W <sup>6</sup>	PD	PW	PT	Qty.	Dia. (in.)	Concrete Block Masonry <sup>1</sup>		Concrete <sup>2</sup>		D.Fir-L Glulam	Spruce-Pine Glulam
							Type N Mortar	Type S Mortar	D.Fir-L Glulam	Spruce-Pine Glulam		
							lb.	lb.	lb.	lb.		
kN	kN	kN	kN	kN	kN							
GLB5A	5¼	5	7	3 ga.	1	½	7765	9700	23930	19805	—	—
							34.54	43.15	106.45	88.10	—	—
GLB5B	5¼	6	7	¾	1	½	9320	11640	28715	23765	—	—
							41.46	51.78	127.74	105.72	—	—
GLB5C	5¼	7	7	¾	1	½	10870	13580	33500	27725	—	—
							48.35	60.41	149.02	123.33	—	—
GLB5D	5¼	8	7	¾	1	½	12425	15520	38285	31685	—	—
							55.27	69.04	170.31	140.95	—	—
GLB7A	6¾	5	9	3 ga.	1	¾	9985	12475	31040	26565	—	—
							44.42	55.49	138.08	118.17	—	—
GLB7B	6¾	6	9	¾	1	¾	11980	14970	38520	31880	—	—
							53.29	66.59	171.35	141.81	—	—
GLB7C	6¾	7	9	¾	1	¾	13975	17465	44940	37190	—	—
							62.17	77.69	199.91	165.44	—	—
GLB7D	6¾	8	9	¾	1	¾	15975	19955	51360	42505	—	—
							71.06	88.77	228.47	189.08	—	—
HGLBA	3¼	5	10	¾	2	¾	7625	9530	14590	12075	4680	4620
							33.92	42.39	64.90	53.71	20.82	20.55
	5¼	5	10	¾	2	¾	9845	12300	23930	19805	4680	4680
							43.79	54.72	106.45	88.10	20.82	20.82
7	5	10	¾	2	¾"	11095	13860	32100	26565	4680	4680	
						49.35	61.65	142.79	118.17	20.82	20.82	
8¾	5	10	¾	2	¾	11095	13860	39685	32845	4680	4680	
						49.35	61.65	176.53	146.11	20.82	20.82	
HGLBB	3¼	6	10	¾	2	¾	9150	11435	17510	14490	5280	4620
							40.70	50.87	77.89	64.46	23.49	20.55
	5¼	6	10	¾	2	¾	11815	14760	28715	23765	8580	7510
							52.56	65.66	127.74	105.72	38.17	33.41
7	6	10	¾	2	¾	13310	16630	38520	31880	11555	10110	
						59.21	73.98	171.35	141.81	51.40	44.97	
8¾	6	10	¾	2	¾	13310	16630	47625	39415	14060	12420	
						59.21	73.98	211.85	175.33	62.54	55.25	
HGLBC	3¼	7	10	¾	2	¾	10675	13340	20425	16905	5280	4620
							47.49	59.34	90.86	75.20	23.49	20.55
	5¼	7	10	¾	2	¾	13780	17220	33500	27725	8580	7510
							61.30	76.60	149.02	123.33	38.17	33.41
7	7	10	¾	2	¾	15530	19405	44940	37190	11555	10110	
						69.08	86.32	199.91	165.44	51.40	44.97	
8¾	7	10	¾	2	¾	15530	19405	55560	45980	14060	12420	
						69.08	86.32	247.15	204.54	62.54	55.25	
HGLBD	3¼	8	10	¾	2	¾	12200	15245	23345	19320	5280	4620
							54.27	67.82	103.85	85.94	23.49	20.55
	5¼	8	10	¾	2	¾	15750	19680	38285	31685	8580	7510
							70.06	87.54	170.31	140.95	38.17	33.41
7	8	10	¾	2	¾	17750	22175	51360	42505	11555	10110	
						78.96	98.64	228.47	189.08	51.40	44.97	
8¾	8	10	¾	2	¾	17750	22175	63500	52550	14060	12420	
						78.96	98.64	282.47	233.76	62.54	55.25	

1. Factored bearing resistances for concrete block masonry assume a compressive unit strength of 15.0 MPa (net area) using solid or grouted units as per Table 4 of CSA S304-14.

2. Factored bearing resistances for concrete assume a 28-day compressive strength (f'<sub>c</sub>) of 20 MPa as per CSA A23.3-14.

3. Bearing resistances shown assume a glulam width of 10½". For smaller widths, ensure that the factored bearing resistance of the wood member does not govern.

4. Specify "W" dimension when ordering HGLB.

5. Factored horizontal resistances include a 15% increase for short-term loading; reduce if masonry or concrete is limiting.

6. For beam widths greater than or equal to 6¾", the factored horizontal resistance is 11025 lb. (49.04 kN).



# Hanger Index

Solid Sawn Joist Hangers

**Hanger Options Matrix** ..... 112–113

**Solid Sawn Joist Hangers**

- Face Mount ..... 114–125
- Sloped and Skewed ..... 136–142
- Top Flange ..... 126–136
- Specialty ..... 143–147

**Fire Wall Hangers** ..... 222–223

## I-Joist, Glulam and Structural Composite Lumber Connectors

- Face Mount ..... 148–165
- Adjustable ..... 207
- Sloped and Skewed ..... 208–213
- Top Flange ..... 166–206

## Plated Truss Connectors

## Masonry and Concrete Connectors

# Hanger Load Table Explanation

**Min./Max.:** Refers to min. or max. nailing for products with round and triangle holes. Min. nailing uses round holes, and max. nailing uses round and triangle holes to achieve maximum factored resistance.

**Load Duration:** Assumed duration factor used to determine the factored resistance.

**Factored Resistances:** The maximum resistance that a connection is designed to provide. There may be multiple design loads acting in different directions (up, down, lateral, perpendicular, etc.) imposed on a connection.

**Installed Cost Index:** This indicates the products relative installed cost (combined cost and installation cost).

**Joist Size:** This shows the size of joist member.

**Model No.:** This is the Simpson Strong-Tie product name.

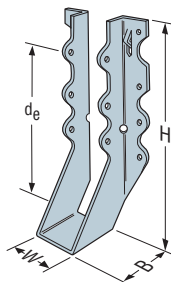
**Gauge:** Product material

**Nails:** This shows the fastener quantity and type required to achieve the table values.

Joist Size	Model No.	Ga.	Dimensions (in.)				d <sub>e</sub> <sup>6</sup>	Fasteners		Factored Resistance				Installed Cost Index	
			W	H	B	Min./Max.		Header	Joist	D.Fir-L		S-P-F			
										Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)		
										lb.	lb.	lb.	lb.		
										kN	kN	kN	kN		
<b>Sawn Lumber Sizes</b>															
DBL 2x6	LU26-2L	20	3 3/8	5	1 5/8	4 1 9/32	—	(6) 10d	(4) 10d x 1 1/2"	760	1605	680	1140	Lowest	
	LUS26-2	18	3 3/8	4 7/8	2	4 1/32	—	(4) 16d	(4) 16d	3.38	7.14	3.02	5.07		
	U26-2	16	3 3/8	5	2	3 1 5/16	—	(8) 10d	(4) 10d	1720	2595	1545	1920	+24%	
	HU26-2/ HUC26-2		14	3 3/8	5 3/8	2 1/2	5	Min.	(8) 16d	(4) 10d	7.65	11.54	6.87	8.54	+124%
								Max.	(12) 16d	(6) 10d	960	2675	890	2475	+358%
										4.27	11.90	3.96	11.01	+372%	
										1055	3420	980	2845		
										4.69	15.21	4.36	12.66		
										1580	4415	1470	3135		
										7.03	19.64	6.54	13.95		

This icon identifies products that are available with additional corrosion protection. See pp. 16–21 for additional information.

**Dimensions W, H, B, d<sub>e</sub>:** This shows the product dimensions (width, height and base in this case) referenced in the product drawing.



**Product Drawing:** Provides a graphic presentation of the product with dimensional information (often cross referenced to the table).

**Nails:** 10d = 0.148" dia. x 3" long, 16d = 0.162" dia. x 3 1/2" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.

Throughout this catalogue a footnote will typically be provided indicating the required nail diameter and length.

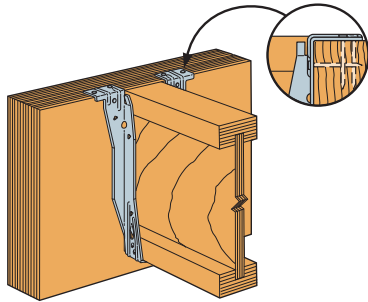
All installations should be designed only in accordance with the factored resistance values set forth in this catalogue.



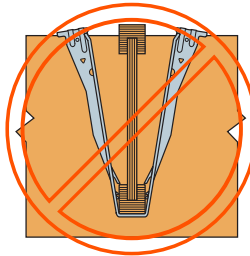
# Hanger Installation Notes

Illustrations shown on pp. 109–110 apply to solid sawn lumber as well as I-joist and structural composite lumber.

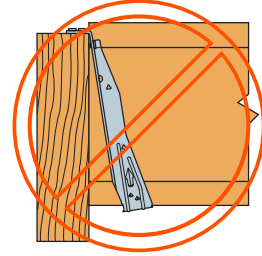
## Top-Flange Hangers



**Flush Framing**  
Top-flange configuration and thickness of top flange need to be considered for flush frame conditions.



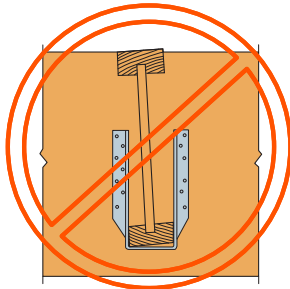
**Hanger Overspread**  
If the hanger is over-spread, it can raise the I-joist above the header and may cause uneven surfaces and squeaky floors. The ITS and IUS with up to 1/4" overspread (both sides combined) will not result in reduced download resistance. It will reduce the factored uplift resistance.



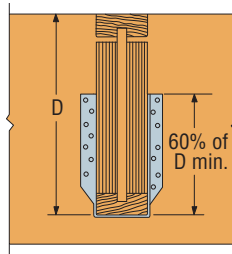
**Hanger not Plumb**  
A hanger "kicked out" from the header can cause uneven surfaces and squeaky floors.

## Prevent Rotation

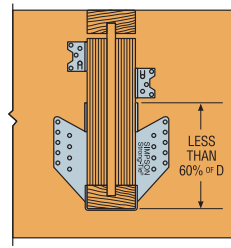
Hangers provide some joist rotation resistance; however, additional lateral restraint may be required for deep joists.



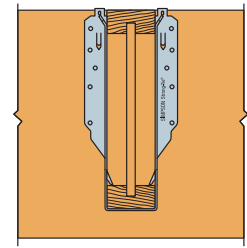
**No Rotation Resistance**  
Lack of web stiffeners combined with short hanger allows unwanted rotation.



**Rotation Prevented by Web Stiffeners or Solid Joist and Hanger Height**  
Hanger height should be at least 60% of the joist height.

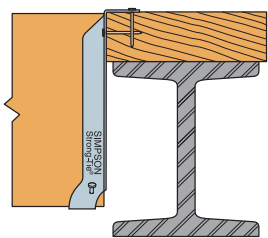


**Rotation Prevented by Web Stiffeners or Solid Joist and Clips or Blocking**  
If hanger height is less than 60% of the joist height, add clips or blocking near the top.

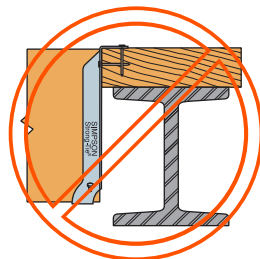


**Rotation Prevented by Lateral Flange Support**  
Sides of hanger laterally support the top flange of the I-joist. No web stiffeners required.

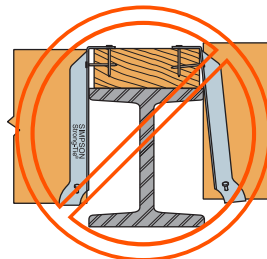
## Wood Nailers



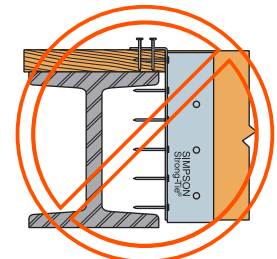
**Correct Attachment**



**Nailer Too Wide**  
The loading may cause cross-grain bending. As a general rule, the maximum allowable overhang is 1/4", depending on nailer thickness.



**Nailer Too Narrow**  
Nailer should be full width.

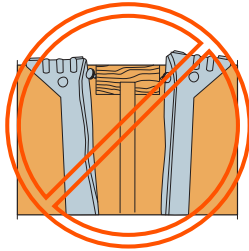


**Nailer Too Thin**  
Or the wrong hanger for the application.



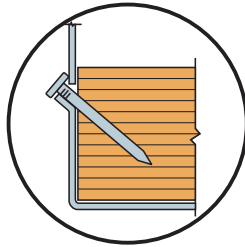
# Hanger Installation Notes

## Toenailing

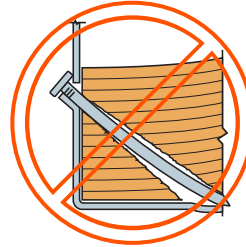


Toenailing causes squeaks and improper hanger installations. Do not toenail I-joists before installing top-flange or face-mount hangers.

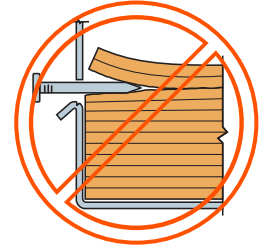
## Positive Angle Nailing



Correct Nailing  
Approx. 45° Angle



Nail Too Long



Nail at Wrong Angle

## Other Applications

### Sloped Joists

For sloped joists up to ¼:12, there is no reduction in capacity. For slopes greater than ¼:12, see individual product pages or refer to technical bulletin T-C-SLOPEJST at [strongtie.com](http://strongtie.com).

### Multiple Joists

Multiple joists should be adequately connected together to act as one unit.

### Fasteners

Use the correct nails. Wood may split if the nails are too large. Hanger nails into flanges should not exceed 0.148" x 1½". Nails into web stiffeners should not exceed 0.162" diameter.

### Eccentrically Loaded I-Joists

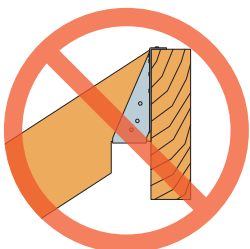
Supporting a top-flange hanger may require bottom flange restraining straps, blocking or directly-applied ceiling systems to prevent rotation at the hanger location.

### Skewed Joists

Joists may be skewed up to 2.5° in a non-skewed hanger without any reduction in capacity. Refer to individual hanger descriptions for information allowing any further skew applications.

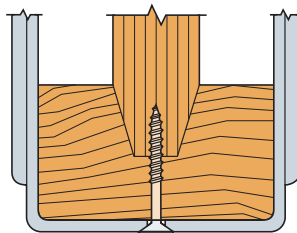
### Notching Joists

Notching of joists/rafters to accommodate sloped conditions in standard (non-sloped) hangers is not recommended and can lead to premature splitting.



Do Not Notch Joist

## LF and LT Installation



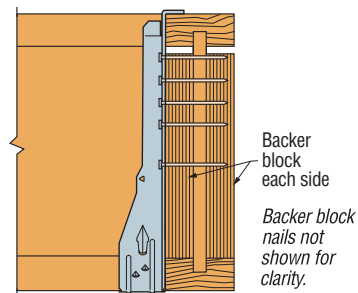
Use #8 x 1¼" wood screw (0.164" dia. x 1¼" long) to secure joist to hanger. (Two screws required for joist widths > 2½".)

To avoid stripping of the bottom chord screw hole, do not over tighten screw.

Use specified screw to seat joist into hanger (required only for LF and LT hangers).

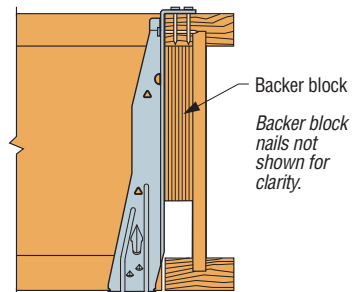
### I-Joist As a Header Installation

When face-mount hangers are attached to I-joist headers, backer blocks must be installed to provide a nailing surface for the hanger nails. The backer blocks should be installed on both sides of the web and attached together with a minimum of (10) 0.148" x 3" nails. The hanger nails should extend through the web. Contact the I-Joist manufacturer for additional design considerations.



Face-Mount Hanger

When top-flange hangers are attached to I-joist headers, a backer block must be installed to prevent the top flange from rotating under load. The backer blocks should be installed with a minimum of (10) 0.148" x 3" nails clinched. Check with the joist manufacturer for additional design considerations.



Top-Flange Hanger



# Hanger Options General Notes

## Hanger Modification Options and Applications

The Hanger Options Matrix for Face Mount and Top Flange Hangers in each of the respective hanger sections shows hanger modifications and special applications (uplift, nailers and weldability) that are available for each model series. Modifications may not be available for all models in the series, and some combinations of hanger options are not available. Many hanger modifications result in reduced capacities. For all modifications, refer to the listed hanger option pages

for additional information regarding the availability of each modification, associated load reductions, and installation requirements. For sloped joists up to 1/4:12, there is no reduction in capacity. For slopes greater than 1/4:12, see individual product pages or refer to technical bulletin T-C-SLOPEJST at [strongtie.com](http://strongtie.com). For more information regarding the applications, refer to the individual product pages throughout the catalogue.

## Hanger Option General Notes

This information applies only to the hangers manufactured by Simpson Strong-Tie and installed per our instructions. Some combinations of these options on a single hanger have not been evaluated. In some cases, combinations of these options cannot be manufactured. A qualified designer must always evaluate each connection, including header and joist limitations, before specifying the product.

Testing is performed using a standardized hanger test method. The joist in the test setup may include the minimum amount of structural stability where appropriate. For example, the sloped down hanger tests are assembled with a joist cut on the lower end to lie flush with a wood member attached with three 8d common toenails. Header and other attached structural members are assumed fixed in actual installations. Horizontal loads induced by sloped joists must be resisted by other members in the structural system.

**Material:** Gauge may vary from that specified depending on the manufacturing process used. U, HU, WP and BA hangers normally have single-piece stirrups; occasionally, the seat may be welded. Hanger configurations, height and fastener schedules may vary from the tables depending on the joist size, skew and slope.

**Finish:** See specific hanger tables. Welded specials: Simpson Strong-Tie® gray paint. Specials that are not galvanized before fabrication can be hot-dip galvanized after fabrication; specify HDG.

**Codes:** Modified hangers, due to their numerous variations, are not on code reports.

**Resistances:** For multiple modifications on the same connector, use the single multiplier factor that yields the lowest factored resistance.

**To Order:** Use the abbreviations below to order specials. The example shows an HWP3.56 hanger and illustrates most available options; most special hangers have only a few of these features. For assistance, contact Simpson Strong-Tie.

### Installation:

- Fastener quantities may be increased beyond the amount specified in the standard hanger table.
- Fill all holes with the table-specified fastener types.
- Some skewed hangers require bevel cut joists; refer to the specific notes provided for each product.

<b>HWP3.56</b>	<b>X</b>	<b>H<sub>1</sub> = Specify</b>	<b>SLD30</b>	<b>SKL20</b>	<b>TFDL20</b>	<b>TFO20</b>	<b>OSR</b>
Base Model		Height	Seat Sloped Down (30°) (SLU = Seat Up)	Skewed Left (20°) (SKR = Skewed Right)	Top Flange Down Left (20°) (TFDR = Top Flange Down Right)	Top Flange Open (20°) (TFC = Top Flange Closed)	Offset Top Flange Right (OSL = Offset Top Flange Left)
	<b>X = Modification</b>						

The Hanger Selector software enables you to select the optimal product for your project. The software takes into consideration all the characteristics seen in this catalogue. Visit [strongtie.com/hs](http://strongtie.com/hs).

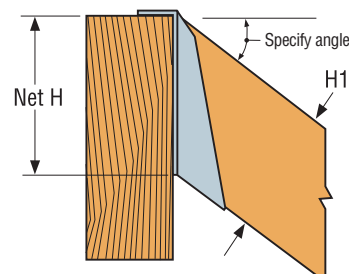
## Height for Sloped Hangers

**Height 1 (H<sub>1</sub>)** is the joist height before the slope cut has been made.

**Net Height (Net H)** is the joist height after the slope cut has been made.




Provide **H<sub>1</sub>** when ordering a connector. Connectors are made assuming dry lumber is being used in continuously dry conditions.

Simpson Strong-Tie will calculate the **Net H** dimension based on the mathematical formula of  $H_1/\cos$  angle.





# Face-Mount Hanger Option Matrix

Base Model Series	Hanger Modification Options							Applications	Hanger Option Page(s)
	Skewed Seat		Sloped Seat	Skewed and Sloped Seat	Concealed Flange(s)	Alternate Widths	Alternate Heights		
	Allowable Skew 	Square Cut Joist Allowed 						Uplift 	
DHU	≤ 45°	●			○			U	220–221
HGU	≤ 45°	See Note 4			○	●	●	U	153
HGUM	≤ 45°	See Note 4			●	●	●	U	308
HGUS	≤ 45°	○						U	117, 152, 224
HHGU					●	●	●	U	153
HHUS	≤ 45°		≤ 45°	●				U	117, 152, 224
HSUL / HSUR	45° Std.	●			○			U	136, 210
HSULC / HSURC	45° Std.	●			Std.			U	136, 210
HTU	≤ 67½°	●						U	227
HU	≤ 67½° ○	●	≤ 45°	●	○	○	○	U, W	115, 150, 306
HUC	See Note 3	●	≤ 45°		Std.	○	○	U, W	115, 150, 306
HUCQ					Std.			U, W	114, 150
HUS								U	117, 152, 224
IUS								U	148
LGU	≤ 45°	●			○	●	●	U	153
LGUM	≤ 45°	See Note 4						U	308
LSSJ / LSSR	Field skewable and slopeable to 45°							U	142
LTHJA								U	238
LU								U	115
LUC					Std.			U	115
LUS								U	117, 224
MGU	≤ 45°	See Note 4			○	●	●	U	153
MIU								U	148
SUL / SUR	45° Std.	●						U	136, 210
SULC / SURC	45° Std.	●			Std.			U	136, 210
THGB / THGBH	≤ 45°	See Note 4				○		U	251
THGBV / THGBHV	≤ 45°	See Note 4						U	253
THGQH	45°	●						U	248
THJA								U	238
THJU						○		U	236
U	≤ 67½°	●	≤ 45°	●		○	○	U	115, 150

1. Refer to the specific product pages for uplift, nailer, and weld information.
2. Refer to the listed pages for each model series for restrictions, required load reductions, and additional information regarding the hanger modifications.
3. HUC less than 3¼" wide cannot be skewed 45°. See pp. 116 and 151 for allowable skews for narrower widths.
4. Square cut allowed for beams up to 5½" and four-ply trusses.
5. For sloped and skewed combinations on top-flange hangers, specify whether the beam will be high side, low side, or centre flush with carrying member.

● = Available for all models    ○ = Available for some models    Std. = Available with standard model (no modification required)





## Top-Flange Hanger Option Matrix

Base Model Series	Hanger Modification Options											Applications Uplift Nailers Weldability  	Hanger Option Page(s)		
	Skewed Seat		Sloped Seat	Skewed and Sloped Seat	Concealed Flange(s)	Alternate Widths	Alternate Heights	Sloped Top Flange	Open Top Flange	Closed Top Flange	Offset Top Flange			Saddle Hanger	Ridge Hanger
	Allowable Skew 	Square Cut Joist Allowed 													
BA	●		●	●		●	●	●	●	●				U, N, W	126, 170
DGF / DGBF						●	●							U, N, W	222
DGHF	≤ 45°					●					●			U, N, W	222
DHUTF	≤ 45°	●			●	●								U	220
EG	≤ 45°		≤ 45°			●	●							—	182
EGQ	≤ 45°		≤ 45°			●	●							U	181
GLS	≤ 50°		≤ 45°	●		●	●	●			●	●		U, W	178
HB	≤ 45°		≤ 45°	●		●	●	●	●			●		U, N, W	126, 170
HGLS	≤ 50°		≤ 45°			●	●	●			●	●		U, W	178
HGLT	≤ 50°		≤ 45°			●	●	●			●			U, W	176
HGLTV	≤ 50°		≤ 45°			●	●	●			●			U, W	176
HIT														U, N	166
HUSTF														U	132
HWP / HWPH	≤ 45°		≤ 45°	●		●	●	●			●			U, N, W	129, 173
ITS														U, N	166
JB / JBA														U, N	126
LB / LBAZ														U, N, W	126
LEG	≤ 45°	●	≤ 45°			●	●				●			—	182
MEG	≤ 45°	●	≤ 45°			●	●				●			—	182
MIT														U, N	166
MSC	20°–45° ●	●	≤ 45°	●		●	●							—	214
THA					●									U, N	230
THAC					Std.									U, N	230
THAI														N	207
THAR/L	45° Std.	●												U, N	229
THASR/L	22°–75° Field Skewable	●												U	234
WMU	≤ 45°		≤ 45°			●					●			—	312
WP	≤ 84°	●	≤ 45°	●		●	●	●	●	●	●	●	●	N, W	129, 173

See footnotes on p. 112.

● = Available for all models

● = Available for some models

Std. = Available with standard model (no modification required)



# HUCQ

## Heavy-Duty Joist Hanger

The HUCQ series are heavy-duty joist hangers that incorporate Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws. Designed and tested for installation at the end of a beam or on a post, they provide a strong connection with fewer fasteners than nailed hangers.

**Features:**

- Fire-resistant F (flame) and T (temperature) rated in Intertek Design No. SST/WPCF 120-01.

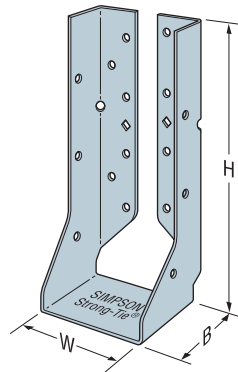


**Material:** 14 gauge

**Finish:** Galvanized. Most models available in stainless steel or ZMAX® coating.

**Installation:**

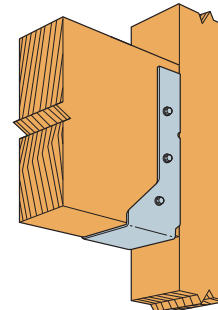
- Use all specified fasteners; see General Notes.
- Install 1/4" x 2 1/2" Strong-Drive SDS Heavy-Duty Connector screws, which are provided, in all round holes. (Lag screws will not achieve the same load.)
- HUCQ hangers can be welded to a steel member. Factored resistances are the lesser of the values in the hanger table below or the weld capacity — refer to technical bulletin T-C-HUHUC-W at [strongtie.com](http://strongtie.com).



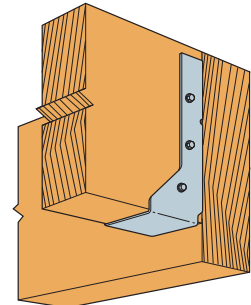
**HUCQ410-SDS**



**1/4" x 2 1/2" SDS HEAVY-DUTY CONNECTOR Screw**  
(see p. 387 for more information)



**Typical HUCQ Installation on a Post**



**Typical HUCQ Installation on a Beam**

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Dimensions (in.)			Fasteners		Factored Resistance			
	W	H	B	Header	Joist	D.Fir-L		S-P-F	
						Uplift	Normal	Uplift	Normal
						(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.						
kN	kN	kN	kN						
<b>SS</b> HUCQ310-SDS	2 9/16	9	3	(8) 1/4" x 2 1/2" SDS	(4) 1/4" x 2 1/2" SDS	2120	5675	1525	5375
						9.43	25.24	6.78	28.91
<b>SS</b> HUCQ210-2-SDS	3 1/4	9	3	(12) 1/4" x 2 1/2" SDS	(6) 1/4" x 2 1/2" SDS	3210	6825	2900	6825
						14.28	30.36	12.09	30.36
<b>SS</b> HUCQ410-SDS	3 9/16	9	3	(12) 1/4" x 2 1/2" SDS	(6) 1/4" x 2 1/2" SDS	3210	6825	2900	6825
						14.28	30.36	12.90	30.36
<b>SS</b> HUCQ412-SDS	3 9/16	11	3	(14) 1/4" x 2 1/2" SDS	(6) 1/4" x 2 1/2" SDS	3210	9090	2900	7645
						14.28	40.43	12.90	34.01
<b>SS</b> HUCQ210-3-SDS	4 5/8	9	3	(12) 1/4" x 2 1/2" SDS	(6) 1/4" x 2 1/2" SDS	3210	6825	2900	6825
						14.28	30.36	12.90	30.36
<b>SS</b> HUCQ610-SDS	5 1/2	9	3	(12) 1/4" x 2 1/2" SDS	(6) 1/4" x 2 1/2" SDS	3210	7270	2900	6825
						14.28	32.34	12.90	30.36
<b>SS</b> HUCQ612-SDS	5 1/2	11	3	(14) 1/4" x 2 1/2" SDS	(6) 1/4" x 2 1/2" SDS	3210	9090	2900	7645
						14.28	40.43	12.90	34.01

1. Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce by 15% for standard term loading such as cantilever construction.
2. When using structural composite lumber columns, Strong-Drive SDS Heavy-Duty Connector screws must be applied to the wide face of the column.

## Joist Factored Shear Resistances

The maximum capacity of a horizontal joist or rafter may be limited by its factored shear resistance (V<sub>r</sub>). This table gives the capacity for common sizes.

Joist or Rafter	Factored Shear Resistance (V <sub>r</sub> )			
	D.Fir-L		S-P-F	
	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)
	lb.	lb.	lb.	lb.
	kN	kN	kN	kN
2x4	1470	1695	1160	1335
	6.54	7.54	5.18	5.95
2x6	1900	2200	1505	1730
	8.51	9.79	6.71	7.71
2x8	2150	2475	1695	1945
	9.59	11.02	7.54	8.67
2x10	2515	2895	1985	2280
	11.21	12.89	8.83	10.16
2x12	2785	3205	2195	2525
	12.41	14.27	9.78	11.25

1. Factored shear resistances shown assume a single member system factor (K<sub>H</sub> = 1.00). Resistances may be increased as per 6.4.4 CSA O86-14 for Case 1 and Case 2 systems.
2. Resistances shown are for No. 1/No. 2 grades.



# Face-Mount Hangers LUCZ/LU/U/HU/HUC

## Standard Joist Hangers

LUCZ concealed flange hanger available for 2x6, 2x8, 2x10 and 2x12 lumber. Ideal for end of ledger/header or post conditions, the LUCZ also provides cleaner lines for exposed conditions such as overhead decks.

See Hanger tables on pp. 119–125. See Hanger Options on p. 116 for hanger modifications, which may result in reduced resistances.

LU — Value engineered for strength and economy. Precision-formed — engineered for installation ease and design value.

U — The standard U hanger provides flexibility of joist to header installation. Versatile fastener selection with tested factored resistances.

HU/HUC — Most models have triangle and round holes. To achieve maximum resistances, fill both round and triangle holes with common nails. These heavy-duty connectors are designed for schools and other structures requiring additional strength, longevity and safety factors.

**Material:** See tables on pp. 119–125.

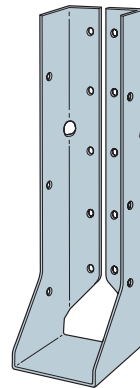
**Finish:** Galvanized. Some products available in ZMAX® coating or stainless steel.

### Installation:

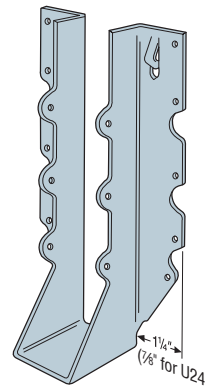
- Use all specified fasteners; see General Notes.
- HU — Can be installed filling round holes only, or filling round and triangle holes for maximum values.
- Joists sloped up to 1/4:12 achieve tabulated values.
- For installations to masonry or concrete, see pp. 306–307.
- HU hangers can be welded to a steel member. Refer to technical bulletin T-C-HUHUC-W at [strongtie.com](http://strongtie.com).

### Options:

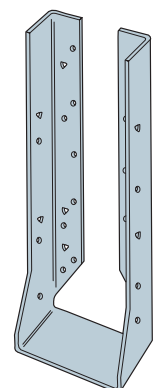
- HU hangers available with the header flanges turned in for 2 3/16" width and larger, with no reduction in resistances — order HUC hanger.
- When the HUC is skewed, the header flange opposite the skew direction is not concealed. See p. 116.
- HU only — rough beam sizes available by special order.
- See p. 125 for stocked U hanger rough sizes tables. Rough sizes are not available in 8x.
- Also see LUS and HUS series.
- For ease of ordering, refer to technical bulletin T-C-U-HU-WS at [strongtie.com](http://strongtie.com).



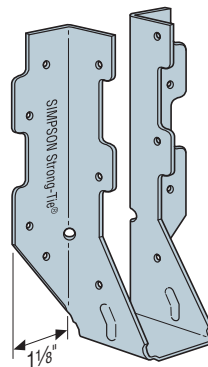
**LUC210Z**  
(LUC26Z similar)



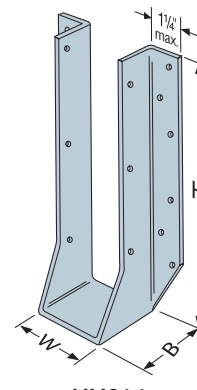
**U210**



**HUC412**  
Concealed flanges

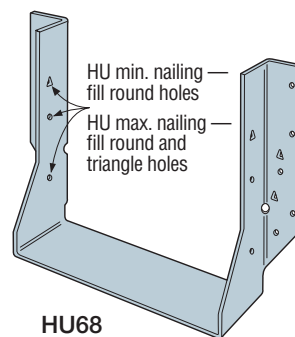


**LU28L**  
(except LU roughs)

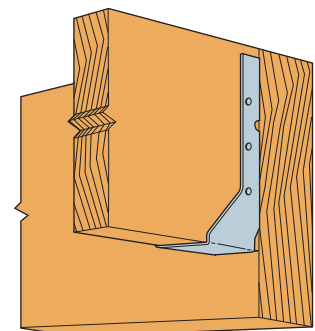


**HU214**  
Projection seat on most models for maximum bearing and section economy.

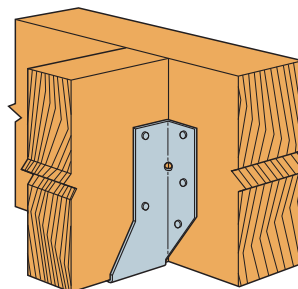
Model configurations may differ from those shown. Some HU models do not have triangle holes. Contact Simpson Strong-Tie.



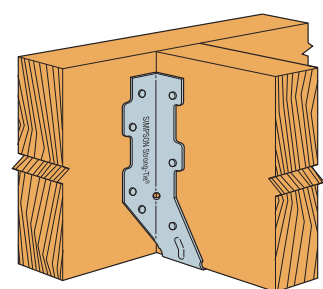
**HU68**



Typical LUCZ Installation



Typical HU Installation



Typical LU28L Installation



# Face-Mount Hangers LUCZ/LU/U/HU/HUC

## Standard Joist Hangers (cont.)

### U/HU/HUC Series Reduction Factors for Modified Hangers

Seat			Flange	Fastener Substitutions			
Seat Sloped Up or Down 45° Max.	Seat Skewed 67½° Max. <sup>3</sup> for W ≤ 6 45° Max. for W ≥ 6	Seat Sloped and Skewed	One or Both HU Flanges Concealed <sup>2</sup>	For Stainless-Steel Hangers 16d Stainless-Steel Nails		Other Fastener Substitutions	
1.00	0.65	0.65	1.00	Ring shank (all conditions)	1.00	16d → 16d x 2½"	1.00
				Smooth shank (normal seat)	0.80	16d → 10d	0.83
				Smooth shank (modified seat <sup>1</sup> )	0.43	16d → 10d x 1½"	0.64

1. Modified seat is sloped, skewed or both. For stainless-steel hangers, if sloped only or skewed only, use a smooth shank stainless steel reduction of 0.65.
2. For both flanges concealed, W must be at least 2⅝". To order ask for HUCXXX. For skewed HUC, only flange on acute side is concealed.
3. Skews over 50° require a square-cut joist.
4. HU1.81/5 can be skewed to a maximum of 50°.
5. Skewed hangers may have joist nails on one side.

### Reduction Factor Instructions

**Factored Down Resistance** = Seat x Flange x Stainless-Steel Nails x Other Fastener Substitutions x (Table Value)

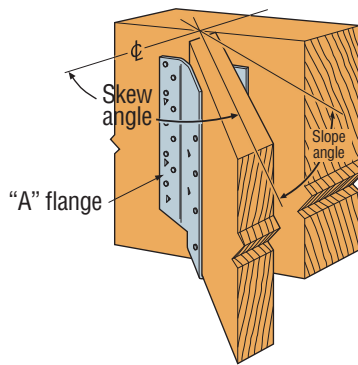
**Factored Uplift Resistance** = 0.75 x Face Fastener Type x (Table Value) for skewed or sloped  
1.00 x Face Fastener Type x (Table Value) for non-skewed or sloped

Solid Sawn Joist Hangers

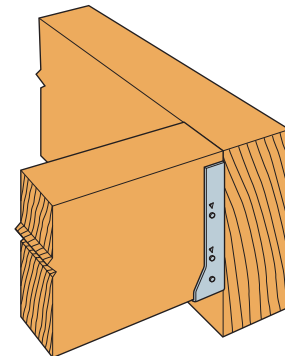
### Maximum Skew Degree for Skewed HUC Hangers

Hanger Width (in.)	Maximum Skew (degree)
2⅝	31
2⅞	31
2⅞	34
2¾	37
3⅞	41
3¼	42

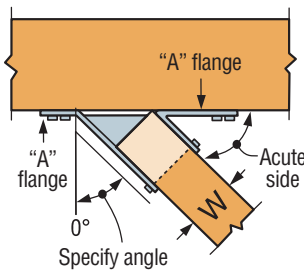
1. Widths greater than 3¼", maximum skew is 45°.



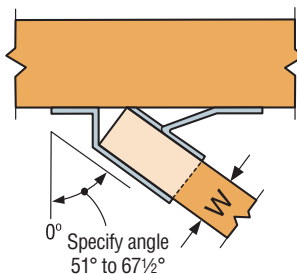
Typical HU Sloped Down, Skewed Right Installation



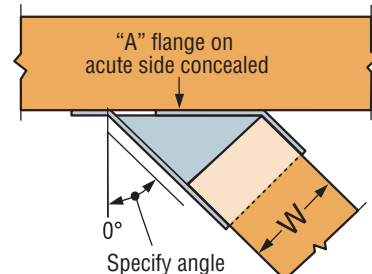
Typical HUC Installed on a Beam



Top View U Hanger Skewed Right < 51° (square cut)



Top View U Hanger Skewed Right ≥ 51° (square cut)



Top View HUC Concealed Hanger Skewed Right (square cut)



# Face-Mount Hangers LUS/HUS/HHUS/HGUS

## Double-Shear Joist Hangers



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

See Hanger tables on pp. 119–125. See Hanger Options on p. 118 for hanger modifications, which may result in reduced resistances.

All hangers in this series have double-shear nailing. This patented innovation distributes the load through two points on each joist nail for greater strength. It also allows the use of fewer nails, faster installation and the use of standard nails for all connections. (Do not bend or remove tabs.)

**Material:** See tables, pp. 119–125.

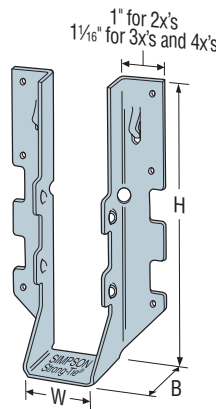
**Finish:** Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, pp. 16–21.

### Installation:

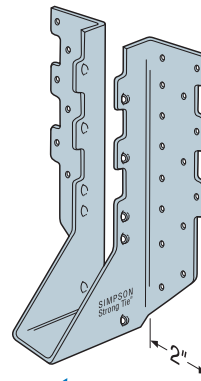
- Use all specified fasteners; see General Notes.
- Nails must be driven at an angle through the joist or truss into the header to achieve the tabulated resistances.
- Not designed for welded or nailer applications.
- With 3x carrying members: when 16d nails are specified, use 16d x 2½" nails into the header and 16d nails into the joist with no reduction in resistance. When 10d nails are specified, use 10d x 2½" nails into the header and 10d nails into the joist with no reduction in resistance.
- With 2x carrying members: when 16d nails are specified, use 10d x 1½" nails into the header and 10d nails into the joist and reduce the resistance x 0.64. When 10d nails are specified, use 10d x 1½" nails into the header and 10d nails into the joist and reduce the resistance x 0.77.

### Options:

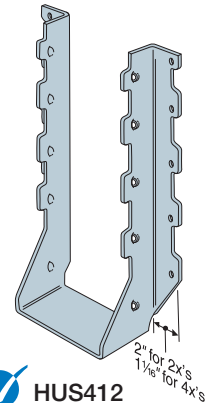
- LUS and HUS hangers cannot be modified.
- See next page for HHUS/HGUS modifications.



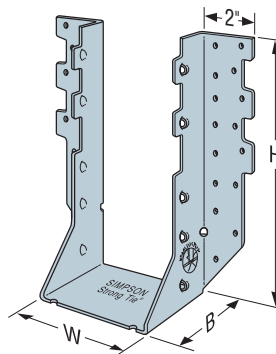
**LUS28**



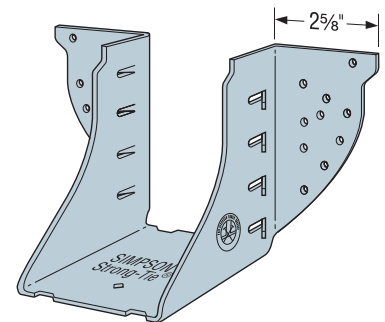
**HUS210**  
(HUS26 and HUS28 similar)



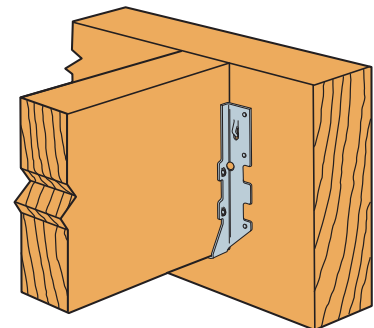
**HUS412**



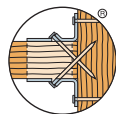
**HHUS410**



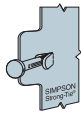
**HGUS46**



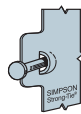
**Typical LUS28 Installation**  
Standard LUS28 installation use 0.148" x 3" (10d common)



Double-Shear Nailing Top View



Double-Shear Nailing Side View  
Do not bend tab



Dome Double-Shear Nailing Side View  
(available on some models)



# Face-Mount Hangers LUS/HUS/HHUS/HGUS

## Double-Shear Joist Hangers (cont.)

### HHUS/HGUS

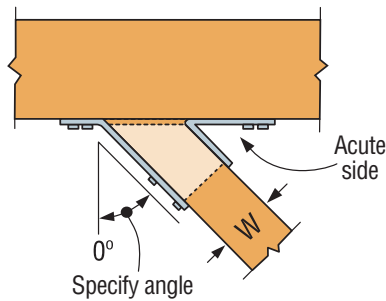
#### HHUS – Sloped and/or Skewed Seat

- HHUS hangers can be skewed to a maximum of 45° and/or sloped to a maximum of 45°
- For skew only, maximum factored down resistance is 0.85 of the table value
- For sloped only or sloped and skewed hangers, the maximum factored down resistance is 0.72 of the table value
- Uplift resistances for sloped/skewed conditions are 0.62 of the table value
- The joist must be bevel-cut to allow for double-shear nailing

#### HGUS – Skewed Seat

- HGUS hangers can be skewed only to a maximum of 45°. Factored resistances are:

HGUS Seat Width	Joist	Download	Uplift
W < 2"	Bevel or square cut	0.62 of table value	0.46 of table value
2" < W < 6"	Bevel cut	0.67 of table value	0.41 of table value
2" < W < 6"	Square cut	0.46 of table value	0.41 of table value
W > 6"	Bevel cut	0.75 of table value	0.41 of table value



**Top View HHUS Hanger Skewed Right**  
*(joist must be bevel cut)*  
 All joist nails installed on the outside angle (*non-acute side*).



## Face-Mount Hangers — Solid Sawn Lumber

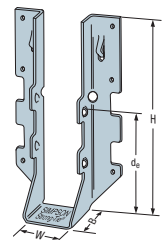
These products are available with additional corrosion protection. For more information, see p. 20. **SS** For stainless-steel fasteners, see p. 21. **SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Joist Size	Model No.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance				Installed Cost Index
			W	H	B	d <sub>e</sub> <sup>6</sup>	Min./Max.	Header	Joist	D.Fir-L		S-P-F		
										Uplift	Normal	Uplift	Normal	
										(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	
lb.	lb.	lb.	lb.											
								kN	kN	kN	kN			
<b>Sawn Lumber Sizes</b>														
2x4	LU24L	22	1 9/16	3 3/8	1 5/8	2 11/16	—	(4) 10d	(2) 10d x 1 1/2"	360 1.60	1020 4.54	320 1.42	725 3.22	Lowest
	LUS24	18	1 9/16	3 3/8	1 3/4	2 1/4	—	(4) 10d	(2) 10d	710 3.16	1625 7.23	645 2.87	1155 5.14	3%
	U24	16	1 9/16	3 3/8	1 1/2	1 13/16	—	(4) 10d	(2) 10d x 1 1/2"	450 2.00	1340 5.96	355 1.58	1030 4.58	67%
	HU26	14	1 9/16	3 1/16	2 1/4	1 1/16	—	(4) 16d	(2) 10d x 1 1/2"	490 2.18	1525 6.78	450 2.00	1080 4.80	295%
DBL 2x4	LUS24-2	18	3 1/8	3 3/8	2	1 7/32	—	(4) 16d	(2) 16d	835 3.71	2020 8.99	590 2.62	1435 6.38	Lowest
	U24-2	16	3 1/8	3	2	1 15/16	—	(4) 10d	(2) 10d	480 2.14	1340 5.96	445 1.98	1030 4.58	33%
	HU24-2/ HUC24-2	14	3 1/8	3 1/16	2 1/2	2 11/16	—	(4) 16d	(2) 10d	525 2.34	1710 7.61	490 2.18	1585 7.05	240%
2x6	LU26L	22	1 9/16	5	1 5/8	4 19/32	—	(6) 10d	(4) 10d x 1 1/2"	720 3.20	1605 7.14	645 2.87	1140 5.07	6%
	LUS26	18	1 9/16	4 3/4	1 3/4	3 25/32	—	(4) 10d	(4) 10d	1420 6.32	2170 9.65	1290 5.74	1630 7.25	Lowest
	U26	16	1 9/16	4 3/4	2	3 15/16	—	(6) 10d	(4) 10d x 1 1/2"	895 3.98	2005 8.92	780 3.47	1860 8.27	43%
	LUC26Z	18	1 9/16	4 3/4	1 3/4	4	—	(6) 10d	(4) 10d x 1 1/2"	830 3.69	1605 7.14	710 3.16	1140 5.07	160%
	HUS26	16	1 5/8	5 3/8	3	3 15/16	—	(14) 16d	(6) 16d	2705 12.03	4940 21.97	2065 9.20	3875 17.24	276%
DBL 2x6	LU26-2L	20	3 1/8	5	1 5/8	4 19/32	—	(6) 10d	(4) 10d x 1 1/2"	760 3.38	1605 7.14	680 3.02	1140 5.07	Lowest
	LUS26-2	18	3 1/8	4 7/8	2	4 1/32	—	(4) 16d	(4) 16d	1720 7.65	2595 11.54	1545 6.87	1920 8.54	Lowest
	U26-2	16	3 1/8	5	2	3 15/16	—	(8) 10d	(4) 10d	960 4.27	2675 11.90	890 3.96	2475 11.01	65%
	HU26-2/ HUC26-2	14	3 1/8	4 15/16	2 1/2	4 1/2	Min.	(8) 16d	(4) 10d	1055 4.69	3420 15.21	980 4.36	2845 12.66	233%
							Max.	(12) 16d	(6) 10d	1580 7.03	4415 19.64	1470 6.54	3135 13.95	
TPL 2x6	LUS26-3	18	4 5/8	4 1/8	2	3 3/32	—	(4) 16d	(4) 16d	1720 7.65	2595 11.54	1545 6.87	2340 10.41	*
										960 4.27	2675 11.90	890 3.96	2475 11.01	*
	HU26-3/ HUC26-3	14	4 1/16	4 9/16	2 1/2	4 3/16	Min.	(8) 16d	(4) 10d	1055 4.69	3420 15.21	980 4.36	2845 12.66	*
							Max.	(12) 16d	(6) 10d	1580 7.03	4415 19.64	1470 6.54	3135 13.95	*

- 10d common nails may be used instead of the specified 16d nails at 0.83 of the tabulated value.
- Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce by 15% for standard term loading such as in cantilever construction.
- Min. nailing quantity and factored resistances — fill all round holes; max. nailing quantity and factored resistances — fill all round and triangle holes.

- D.Fir-L factored resistances can be used for most LVL. Verify with manufacturer prior to selecting hanger.
- See p. 23 for hangers with reduced capacity due to installation with different nails.
- d<sub>e</sub> is the distance from the bearing seat to the top joist nail.
- Nails:** 16d = 0.162" dia. x 3 1/2" long, 10d = 0.148" dia. x 3" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.

\*Hangers do not have an Installed Cost Index.





# Face-Mount Hangers — Solid Sawn Lumber

These products are available with additional corrosion protection. For more information, see p. 20. **SS** For stainless-steel fasteners, see p. 21. **SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Solid Sawn Joist Hangers

Joist Size	Model No.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance				Installed Cost Index			
			W	H	B	d <sub>e</sub> <sup>6</sup>	Min./Max.	Header	Joist	D.Fir-L		S-P-F					
										Uplift	Normal	Uplift	Normal				
										(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)				
lb.	lb.	lb.	lb.														
														kN	kN	kN	kN
<b>Sawn Lumber Sizes</b>																	
<b>SS</b>  <b>SS</b>  <b>SS</b>  <b>SS</b>  <b>SS</b>	2x8	LU26L	22	1 <sup>9</sup> / <sub>16</sub>	5	1 <sup>5</sup> / <sub>8</sub>	4 <sup>19</sup> / <sub>32</sub>	—	(6) 10d	(4) 10d x 1 <sup>1</sup> / <sub>2</sub> "	720	1605	645	1140	6%		
		LUS26	18	1 <sup>9</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>4</sub>	3 <sup>25</sup> / <sub>32</sub>	—	(4) 10d	(4) 10d	3.20	7.14	2.87	5.07		Lowest	
		LU28L	20	1 <sup>9</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>4</sub>	1 <sup>5</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	—	(8) 10d	(6) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1420	2170	1290	1630	29%		
		LUS28	18	1 <sup>9</sup> / <sub>16</sub>	6 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	3 <sup>25</sup> / <sub>32</sub>	—	(6) 10d	(4) 10d	6.32	9.65	5.74	7.25		23%	
		U26	16	1 <sup>9</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>	2	3 <sup>15</sup> / <sub>16</sub>	—	(6) 10d	(4) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1140	2185	1020	1550	43%		
		LUC26Z	18	1 <sup>9</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>4</sub>	4	—	(6) 10d	(4) 10d x 1 <sup>1</sup> / <sub>2</sub> "	5.07	9.72	4.54	6.89		160%	
		HU28	14	1 <sup>9</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	4 <sup>7</sup> / <sub>8</sub>	—	(6) 16d	(4) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1420	2520	1290	1790	251%		
		HUS28	16	1 <sup>5</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>32</sub>	3	6 <sup>3</sup> / <sub>32</sub>	—	(22) 16d	(8) 16d	895	2005	780	1860		409%	
										3.98	8.92	3.47	8.27				
										830	1605	710	1140				
										3.69	7.14	3.16	5.07				
										980	2565	905	2380				
										4.36	11.41	4.03	10.59				
										3605	5365	2675	4345				
										16.04	23.86	11.90	19.33				
<b>SS</b>  <b>SS</b>  <b>SS</b>  <b>SS</b>  <b>SS</b>	DBL 2x8	LUS26-2	18	3 <sup>1</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>	2	4 <sup>1</sup> / <sub>32</sub>	—	(4) 16d	(4) 16d	1720	2595	1545	1920	Lowest		
		LU28-2L	20	3 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>4</sub>	1 <sup>5</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	—	(8) 10d	(6) 10d x 1 <sup>1</sup> / <sub>2</sub> "	7.65	11.54	6.87	8.54		5%	
		LUS28-2	18	3 <sup>1</sup> / <sub>8</sub>	7	2	4 <sup>1</sup> / <sub>32</sub>	—	(6) 16d	(4) 16d	1140	2185	1020	1550	8%		
		U26-2	16	3 <sup>1</sup> / <sub>8</sub>	5	2	3 <sup>1</sup> / <sub>16</sub>	—	(8) 10d	(4) 10d	5.07	9.72	4.54	6.89		65%	
		HUS28-2	14	3 <sup>1</sup> / <sub>8</sub>	7 <sup>9</sup> / <sub>16</sub>	2	5 <sup>15</sup> / <sub>16</sub>	—	(6) 16d	(6) 16d	1720	3325	1545	2575	188%		
		HU28-2/ HUC28-2	14	3 <sup>1</sup> / <sub>8</sub>	6 <sup>9</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub>	Min.	(10) 16d	(4) 10d	960	2675	890	2475		397%	
		Max.						(14) 16d	(6) 10d	4.27	11.90	3.96	11.01				
												2540	3620	1805	2570		
										11.30	16.10	8.03	11.43				
										1055	4270	980	3135				
										4.69	18.99	4.36	13.95				
										1580	5780	1470	4225				
										7.03	25.71	6.54	18.79				
<b>SS</b>  <b>SS</b>	TPL 2x8	LUS28-3	18	4 <sup>5</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>4</sub>	2	3 <sup>9</sup> / <sub>32</sub>	—	(6) 16d	(4) 16d	1720	3325	1545	2375	*		
		HU26-3/ HUC26-3	14	4 <sup>1</sup> / <sub>16</sub>	4 <sup>9</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>2</sub>	4 <sup>3</sup> / <sub>16</sub>	—	(8) 16d	(4) 10d	7.65	14.79	6.87	10.56			
										1055	3420	980	2845				
										4.69	15.21	4.36	12.66				
<b>SS</b>  <b>SS</b>  <b>SS</b>	QUAD 2x8	HU28-4/ HUC28-4	14	6 <sup>1</sup> / <sub>8</sub>	7	2 <sup>1</sup> / <sub>2</sub>	6 <sup>7</sup> / <sub>16</sub>	Min.	(10) 16d	(4) 16d	1230	4270	1140	3135	*		
		Max.						(14) 16d	(6) 16d	5.47	18.99	5.07	13.95				
												1840	5780	1710	4225		
												8.18	25.71	7.61	18.79		
<b>SS</b>  <b>SS</b>  <b>SS</b>  <b>SS</b>  <b>SS</b>	2x10	LU28L	20	1 <sup>9</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	—	(8) 10d	(6) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1140	2185	1020	1550	13%		
		LUS28	18	1 <sup>9</sup> / <sub>16</sub>	6 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	3 <sup>25</sup> / <sub>32</sub>	—	(6) 10d	(4) 10d	5.07	9.72	4.54	6.89		Lowest	
		LU210L	20	1 <sup>9</sup> / <sub>16</sub>	8	1 <sup>5</sup> / <sub>8</sub>	7 <sup>15</sup> / <sub>32</sub>	—	(10) 10d	(6) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1420	2520	1290	1790	28%		
		LUS210	18	1 <sup>9</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>4</sub>	3 <sup>7</sup> / <sub>8</sub>	—	(8) 10d	(4) 10d	6.32	11.21	5.74	7.96		15%	
		LUC210Z	18	1 <sup>9</sup> / <sub>16</sub>	7 <sup>3</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	—	(10) 10d	(6) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1140	2495	1020	1770	180%		
		U210	16	1 <sup>9</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>16</sub>	2	5 <sup>3</sup> / <sub>4</sub>	—	(10) 10d	(6) 10d x 1 <sup>1</sup> / <sub>2</sub> "	5.07	11.10	4.54	7.87		76%	
		HU210	14	1 <sup>9</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>4</sub>	6 <sup>3</sup> / <sub>4</sub>	—	(8) 16d	(4) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1420	2785	1290	2210	225%		
		HUS210	16	1 <sup>5</sup> / <sub>8</sub>	9 <sup>3</sup> / <sub>32</sub>	3	7 <sup>3</sup> / <sub>32</sub>	—	(30) 16d	(10) 16d	6.32	12.39	5.74	9.83		450%	
										980	3420	905	2865				
										4.36	15.21	4.03	12.74				
										4505	5795	4010	4740				
										20.04	25.78	17.84	21.08				

See footnotes on p. 119.





## Face-Mount Hangers — Solid Sawn Lumber

These products are available with additional corrosion protection. For more information, see p. 20. **SS** For stainless-steel fasteners, see p. 21. **SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Joist Size	Model No.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance				Installed Cost Index	
			W	H	B	d <sub>e</sub> <sup>6</sup>	Min./Max.	Header	Joist	D.Fir-L		S-P-F			
										Uplift	Normal	Uplift	Normal		
										(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)		
lb.	lb.	lb.	lb.												
kN	kN	kN	kN												
Sawn Lumber Sizes															
DBL 2x10	LUS28-2	18	3 1/8	7	2	4 1/2	—	(6) 16d	(4) 16d	1720	3325	1545	2575	Lowest	
										7.65	14.79	6.87	11.45		
	LU210-2L	20	3 1/8	8	1 5/8	7 1/2	—	(10) 10d	(6) 10d x 1 1/2"	1140	2495	1020	1770	16%	
										5.07	11.10	4.54	7.87		
	LUS210-2	18	3 1/8	9	2	6 1/2	—	(8) 16d	(6) 16d	2580	4500	2320	3195	34%	
										11.48	20.02	10.32	14.21		
	U210-2	16	3 1/8	8 1/2	2	6 1/4	—	(14) 10d	(6) 10d	1440	4355	1340	3090	88%	
										6.41	19.37	5.96	13.75		
HUS210-2	14	3 1/8	9 1/8	2	7 1/4	—	(8) 16d	(8) 16d	3795	5690	3450	4570	217%		
									16.88	25.31	15.35	20.33			
	HU210-2/ HUC210-2	14	3 1/8	8 3/8	2 1/2	7 3/4	Min.	(14) 16d	(6) 10d	1580	5780	1470	4225	441%	
							Max.	(18) 16d	(10) 10d	7.03	25.71	6.54	18.79		
										2635	5780	2450	4690	467%	
										11.72	25.71	10.90	20.86		
	HHUS210-2	14	3 5/8	9 3/8	3	8	—	(30) 16d	(10) 16d	4670	9660	4235	7000	*	
										20.77	42.97	18.84	31.14		
TPL 2x10	LUS28-3	18	4 5/8	6 1/4	2	3 3/4	—	(6) 16d	(4) 16d	1720	3325	1545	2375	*	
										7.65	14.79	6.87	10.56		
	LUS210-3	18	4 5/8	8 3/8	2	5 9/16	—	(8) 16d	(6) 16d	2580	3345	2320	2375	*	
										11.48	14.88	10.32	10.56		
	U210-3	16	4 5/8	7 3/4	2	5 3/4	—	(14) 10d	(6) 10d	1440	4355	1340	3090	*	
										6.41	19.37	5.96	13.75		
		HU210-3/ HUC210-3	14	4 1/8	8 1/8	2 1/2	7 3/8	Min.	(14) 16d	(6) 10d	1580	5780	1470	4225	*
								Max.	(18) 16d	(10) 10d	7.03	25.71	6.54	18.79	
										2635	5780	2450	4690	*	
										11.72	25.71	10.90	20.86		
	HHUS210-3	14	4 1/8	9	3	7 1/8	—	(30) 16d	(10) 16d	4670	9670	4235	6865	*	
										20.77	43.02	18.84	30.54		
Quad 2x10	HU210-4/ HUC210-4	14	6 1/8	8 3/8	2 1/2	8 3/8	Min.	(14) 16d	(6) 16d	1840	5780	1710	4225	*	
							Max.	(18) 16d	(8) 16d	8.18	25.71	7.61	18.79		
										2455	5780	2280	4690	*	
										10.92	25.71	10.14	20.86		
	HHUS210-4	14	6 1/8	8 7/8	3	7 1/8	—	(30) 16d	(10) 16d	4670	10155	4235	7210	*	
										20.77	45.17	18.84	32.07		
2x12	LU210L	20	1 9/16	7 13/16	1 5/8	7 15/32	—	(10) 10d	(6) 10d x 1 1/2"	1140	2495	1020	1770	11%	
										5.07	11.10	4.54	7.87		
	LUS210	18	1 9/16	7 13/16	1 3/4	3 7/8	—	(8) 10d	(4) 10d	1420	2785	1290	2210	Lowest	
										6.32	12.39	5.74	9.83		
	LUC210Z	18	1 9/16	7 3/4	1 3/4	5 1/2	—	(10) 10d	(6) 10d x 1 1/2"	1240	2495	1130	1770	180%	
										5.52	11.10	5.03	7.87		
	U210	16	1 9/16	7 13/16	2	5 3/4	—	(10) 10d	(6) 10d x 1 1/2"	1345	2755	1235	1955	53%	
										5.98	12.25	5.49	8.70		
HUS210	16	1 9/16	9 3/32	3	7 31/32	—	(30) 16d	(10) 16d	4505	5795	4010	4740	378%		
									20.04	25.78	17.84	21.08			
HU212	14	1 9/16	9	2 1/4	8 5/8	—	(10) 16d	(6) 10d x 1 1/2"	1470	4020	1360	3135	347%		
									6.54	17.88	6.05	13.95			

See footnotes on p. 119.



## Face-Mount Hangers — Solid Sawn Lumber

These products are available with additional corrosion protection. For more information, see p. 20.

**SS** For stainless-steel fasteners, see p. 21.

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Solid Sawn Joist Hangers

Joist Size	Model No.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance				Installed Cost Index
			W	H	B	d <sub>e</sub> <sup>6</sup>	Min./Max.	Header	Joist	D.Fir-L		S-P-F		
										Uplift	Normal	Uplift	Normal	
										(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	
										lb.	lb.	lb.	lb.	
kN	kN	kN	kN											
Sawn Lumber Sizes														
DBL 2x12	LU210-2L	20	3 1/8	8	1 5/8	7 1/2	—	(10) 10d	(6) 10d x 1 1/2"	1140	2495	1020	1770	Lowest
										5.07	11.10	4.54	7.87	
	LUS210-2	18	3 1/8	9	2	6 1/2	—	(8) 16d	(6) 16d	2580	4500	2320	3195	Lowest
										11.48	20.02	10.32	14.21	
	U210-2	16	3 1/8	8 1/2	2	6 1/16	—	(14) 10d	(6) 10d	1440	4355	1340	3090	40%
										6.41	19.37	5.96	13.75	
	LUS214-2	18	3 1/8	10 1/16	2	6 1/16	—	(10) 16d	(6) 16d	2580	5355	2320	3875	56%
										11.48	23.82	10.32	17.24	
	HUS210-2	14	3 1/8	9 9/16	2	7 1/16	—	(8) 16d	(8) 16d	3795	5690	3450	4570	*
										16.88	25.31	15.35	20.33	
	HUS212-2	14	3 1/8	10 3/4	2	9 7/8	—	(10) 16d	(10) 16d	4745	7015	3650	4980	*
										21.11	31.20	16.24	22.15	
HU212-2/ HUC212-2	14	3 1/8	10 9/16	2 1/2	7 3/4	Min.	(16) 16d	(6) 10d	1580	5780	1470	4225	*	
									7.03	25.71	6.54	18.79		
						Max.	(22) 16d	(10) 10d	2635	5780	2450	4690	411%	
									11.72	25.71	10.90	20.86		
TPL 2x12	LUS210-3	18	4 5/8	8 3/16	2	5 9/16	—	(8) 16d	(6) 16d	2580	3345	2320	2375	*
										11.48	14.88	10.32	10.56	
	U210-3	16	4 5/8	7 3/4	2	5 3/4	—	(10) 10d	(6) 10d	1440	4355	1340	3090	*
										6.41	19.37	5.96	13.75	
	HU212-3/ HUC212-3	14	4 1/16	9 13/16	2 1/2	7 5/16	Min.	(16) 16d	(6) 10d	1580	5780	1470	4225	*
										7.03	25.71	6.54	18.79	
						Max.	(22) 16d	(10) 10d	2635	5780	2450	4690	*	
									11.72	25.71	10.90	20.86		
Quad 2x12	HHUS210-4	14	6 1/8	8 7/8	3	7 13/16	—	(30) 16d	(10) 16d	4670	10155	4235	7210	*
										20.77	45.17	18.84	32.07	
3x4	U34	16	2 5/8	3 3/8	2	2 3/8	—	(4) 10d	(2) 10d x 1 1/2"	450	1340	355	1030	*
										2.00	5.96	1.58	4.58	
	HU34/ HUC34	14	2 5/8	3 3/8	2 1/2	3	—	(4) 16d	(2) 10d x 1 1/2"	490	1710	455	1585	*
										2.18	7.61	2.02	7.05	
3x6	U36	16	2 5/8	5 3/8	2	4 1/16	—	(8) 10d	(4) 10d x 1 1/2"	895	2675	780	2475	*
										3.98	11.90	3.47	11.01	
	LUS36	18	2 5/8	5 1/4	2	4 5/16	—	(4) 16d	(4) 16d	1720	2290	1545	1630	*
7.65										10.19	6.87	7.25		
HU36/ HUC36	14	2 5/8	5 3/8	2 1/2	4 13/16	—	(8) 16d	(4) 10d x 1 1/2"	980	3420	905	2845	*	
									4.36	15.21	4.03	12.66		
3x8	U36	16	2 5/8	5 3/8	2	4 15/16	—	(8) 10d	(4) 10d x 1 1/2"	895	2675	780	2475	*
										3.98	11.90	3.47	11.01	
HU38/ HUC38	14	2 5/8	6 3/16	2 1/2	4 13/16	—	10-16d	(4) 10d x 1 1/2"	980	4270	905	3135	*	
									4.36	18.99	4.03	13.95		
3x10	LUS310	18	2 5/8	7 1/4	2	4 5/16	—	(6) 16d	(4) 16d	1720	3325	1545	2575	*
										7.65	14.79	6.87	11.45	
	U310	16	2 5/8	8 7/8	2	5 3/4	—	(14) 10d	(6) 10d x 1 1/2"	1345	4355	1235	3090	*
5.98										19.37	5.49	13.75		
HU310/ HUC310	14	2 5/8	8 7/8	2 1/2	8 1/16	—	(14) 16d	(6) 10d x 1 1/2"	1470	5780	1360	4225	*	
									6.54	25.71	6.05	18.79		
3x12	U310	16	2 5/8	8 7/8	2	5 3/4	—	(14) 10d	(6) 10d x 1 1/2"	1345	4355	1235	3090	*
										5.98	19.37	5.49	13.75	
	HU312/ HUC312	14	2 5/8	10 13/16	2 1/2	8 1/16	—	(16) 16d	(6) 10d x 1 1/2"	1470	5780	1360	4225	*
6.54										25.71	6.05	18.79		

See footnotes on p. 119.



# Face-Mount Hangers — Solid Sawn Lumber

These products are available with additional corrosion protection. For more information, see p. 20. **SS** For stainless-steel fasteners, see p. 21. **SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Joist Size	Model No.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance				Installed Cost Index
			W	H	B	d <sub>e</sub> <sup>6</sup>	Min./Max.	Header	Joist	D.Fir-L		S-P-F		
										Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	
			lb.	lb.	lb.	lb.	kN	kN	kN	kN				
<b>Sawn Lumber Sizes</b>														
4x4	LUS44	18	3 <sup>9</sup> / <sub>16</sub>	3	2	12 <sup>3</sup> / <sub>32</sub>	—	(4) 16d	(2) 16d	835	2020	590	1435	Lowest
	U44	16	3 <sup>9</sup> / <sub>16</sub>	2 <sup>7</sup> / <sub>8</sub>	2	11 <sup>1</sup> / <sub>16</sub>	—	(4) 10d	(2) 10d	3.71	8.99	2.62	6.38	
	HU44/ HUC44	14	3 <sup>9</sup> / <sub>16</sub>	2 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>5</sup> / <sub>16</sub>	—	(4) 16d	(2) 10d	480	1340	445	1030	20%
4x6	LUS46	18	3 <sup>9</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>	2	3 <sup>13</sup> / <sub>16</sub>	—	(4) 16d	(4) 16d	2.14	5.96	1.98	4.58	Lowest
	U46	16	3 <sup>9</sup> / <sub>16</sub>	4 <sup>7</sup> / <sub>8</sub>	2	3 <sup>13</sup> / <sub>16</sub>	—	(8) 10d	(4) 10d	525	1710	490	1585	
	HUS46	14	3 <sup>9</sup> / <sub>16</sub>	5	2	3 <sup>3</sup> / <sub>8</sub>	—	(4) 16d	(4) 16d	2.34	7.61	2.18	7.05	161%
	HU46/ HUC46	14	3 <sup>9</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>2</sub>	4 <sup>9</sup> / <sub>16</sub>	Min.	(8) 16d	(4) 10d	1720	2595	1545	1920	163%
						Max.	(12) 16d	(6) 10d	7.65	11.54	6.87	8.54		
4x8	LUS46	18	3 <sup>9</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>	2	3 <sup>13</sup> / <sub>16</sub>	—	(4) 16d	(4) 16d	960	2675	890	2475	Lowest
	LUS48	18	3 <sup>9</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>4</sub>	2	3 <sup>13</sup> / <sub>16</sub>	—	(6) 16d	(4) 16d	4.27	11.90	3.96	11.01	
	U46	16	3 <sup>9</sup> / <sub>16</sub>	4 <sup>7</sup> / <sub>8</sub>	2	3 <sup>13</sup> / <sub>16</sub>	—	(8) 10d	(4) 10d	1745	2845	1240	2570	152%
	HUS48	14	3 <sup>9</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>16</sub>	2	5 <sup>3</sup> / <sub>4</sub>	—	(6) 16d	(6) 16d	7.76	12.66	5.52	11.43	
							Min.	(8) 16d	(4) 10d	1055	3420	980	2845	185%
							Max.	(14) 16d	(6) 10d	4.69	15.21	4.36	12.66	
4x10	LUS46	18	3 <sup>9</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>	2	3 <sup>13</sup> / <sub>16</sub>	—	(4) 16d	(4) 16d	1580	4415	1470	3135	Lowest
	LUS48	18	3 <sup>9</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>4</sub>	2	3 <sup>13</sup> / <sub>16</sub>	—	(6) 16d	(4) 16d	7.03	19.64	6.54	13.95	
	U46	16	3 <sup>9</sup> / <sub>16</sub>	4 <sup>7</sup> / <sub>8</sub>	2	3 <sup>13</sup> / <sub>16</sub>	—	(8) 10d	(4) 10d	960	2675	890	2475	37%
	HUS48	14	3 <sup>9</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>16</sub>	2	5 <sup>3</sup> / <sub>4</sub>	—	(6) 16d	(6) 16d	4.27	11.90	3.96	11.01	
							Min.	(10) 16d	(4) 10d	2540	3620	1805	2570	203%
							Max.	(14) 16d	(6) 10d	11.30	16.10	8.03	11.43	
4x12	LUS48	18	3 <sup>9</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>4</sub>	2	3 <sup>13</sup> / <sub>16</sub>	—	(6) 16d	(4) 16d	1055	4270	980	3135	Lowest
	LUS410	18	3 <sup>9</sup> / <sub>16</sub>	8 <sup>3</sup> / <sub>4</sub>	2	5 <sup>27</sup> / <sub>32</sub>	—	(8) 16d	(6) 16d	4.69	18.99	4.36	13.95	
	U410	16	3 <sup>9</sup> / <sub>16</sub>	8 <sup>3</sup> / <sub>8</sub>	2	6 <sup>1</sup> / <sub>4</sub>	—	(14) 10d	(6) 10d	1580	5780	1470	4225	235%
	HUS410	14	3 <sup>9</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>16</sub>	2	7 <sup>3</sup> / <sub>4</sub>	—	(8) 16d	(8) 16d	7.03	25.71	6.54	18.79	
							Min.	(14) 16d	(6) 10d	1720	3325	1545	2575	Lowest
							Max.	(18) 16d	(10) 10d	7.65	14.79	6.87	11.45	
4x12	LUS410	18	3 <sup>9</sup> / <sub>16</sub>	8 <sup>3</sup> / <sub>4</sub>	2	5 <sup>27</sup> / <sub>32</sub>	—	(8) 16d	(6) 16d	2580	4500	2320	3195	19%
	LUS414	18	3 <sup>9</sup> / <sub>16</sub>	10 <sup>3</sup> / <sub>4</sub>	2	5 <sup>9</sup> / <sub>11</sub>	—	(10) 16d	(6) 16d	11.48	20.02	10.32	14.21	
	U410	16	3 <sup>9</sup> / <sub>16</sub>	8 <sup>3</sup> / <sub>8</sub>	2	6 <sup>1</sup> / <sub>4</sub>	—	(14) 10d	(6) 10d	1440	4355	1340	3090	151%
	HUS410	14	3 <sup>9</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>16</sub>	2	7 <sup>3</sup> / <sub>4</sub>	—	(8) 16d	(8) 16d	6.41	19.37	5.96	13.75	
							Min.	(14) 16d	(6) 10d	3795	5690	3450	4570	232%
							Max.	(18) 16d	(10) 10d	16.88	25.31	15.35	20.33	
4x12	LUS410	18	3 <sup>9</sup> / <sub>16</sub>	8 <sup>3</sup> / <sub>4</sub>	2	5 <sup>27</sup> / <sub>32</sub>	—	(8) 16d	(6) 16d	1580	5780	1470	4225	Lowest
	LUS414	18	3 <sup>9</sup> / <sub>16</sub>	10 <sup>3</sup> / <sub>4</sub>	2	5 <sup>9</sup> / <sub>11</sub>	—	(10) 16d	(6) 16d	7.03	25.71	6.54	18.79	
	U410	16	3 <sup>9</sup> / <sub>16</sub>	8 <sup>3</sup> / <sub>8</sub>	2	6 <sup>1</sup> / <sub>4</sub>	—	(14) 10d	(6) 10d	11.72	25.71	10.90	20.86	46%
	HUS410	14	3 <sup>9</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>16</sub>	2	7 <sup>3</sup> / <sub>4</sub>	—	(8) 16d	(8) 16d	2580	4500	2320	3195	
							Min.	(16) 16d	(6) 10d	11.48	23.82	10.32	17.24	114%
							Max.	(22) 16d	(10) 10d	11.48	23.82	10.32	17.24	
4x12	HUS412	14	3 <sup>9</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>	2	9 <sup>3</sup> / <sub>4</sub>	—	(10) 16d	(10) 16d	1440	4355	1340	3090	129%
	HU412/ HUC412	14	3 <sup>9</sup> / <sub>16</sub>	10 <sup>9</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>2</sub>	7 <sup>9</sup> / <sub>16</sub>	Min.	(16) 16d	(6) 10d	3795	5690	3450	4570	
						Max.	(22) 16d	(10) 10d	16.88	25.31	15.35	20.33	268%	
									11.72	25.71	10.90	20.86		

See footnotes on p. 119.



# Face-Mount Hangers — Solid Sawn Lumber

These products are available with additional corrosion protection. For more information, see p. 20. **SS** For stainless-steel fasteners, see p. 21. **SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Solid Sawn Joist Hangers

Joist Size	Model No.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance				Installed Cost Index	
			W	H	B	d <sub>e</sub> <sup>6</sup>	Min./Max.	Header	Joist	D.Fir-L		S-P-F			
										Uplift	Normal	Uplift	Normal		
										(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)		
										lb.	lb.	lb.	lb.		
kN	kN	kN	kN												
Sawn Lumber Sizes															
<b>SS</b> 6x6	U66	16	5½	5	2	4%	—	(8) 10d	(4) 10d	960	2675	890	2475	*	
										4.27	11.90	3.96	11.01		
	HU66/ HUC66	14	5½	4¾	2½	3¾	—	(8) 16d	(4) 16d	1230	3420	1140	2845	*	
										5.47	15.21	5.07	12.66		
										Max.	(12) 16d	(6) 16d	1840		4415
										8.18	19.64	7.61	13.95		
<b>SS</b> 6x8	U66	16	5½	5	2	4%	—	(8) 10d	(4) 10d	960	2675	890	2475	*	
										4.27	11.90	3.96	11.01		
	HU68/ HUC68	14	5½	5¾	2½	3¾	—	(10) 16d	(4) 16d	1230	4270	1140	3135	*	
										5.47	18.99	5.07	13.95		
										Max.	(14) 16d	(6) 16d	1840		5780
										8.18	25.71	7.61	18.79		
<b>SS</b> 6x10	U610	16	5½	8½	2	7¾	—	(14) 10d	(6) 10d	1440	4355	1340	3090	*	
										6.41	19.37	5.96	13.75		
	HU610/ HUC610	14	5½	7%	2½	7	—	(14) 16d	(6) 16d	1840	5780	1710	4225	*	
										8.18	25.71	7.61	18.79		
										Max.	(18) 16d	(8) 16d	2455		5780
										10.92	25.71	10.14	20.86		
<b>SS</b> 6x12	HU612/ HUC612	14	5½	9%	2½	7	—	(16) 16d	(6) 16d	1840	5780	1710	4225	*	
										8.18	25.71	7.61	18.79		
											2455	5780	2280	4690	*
											10.92	25.71	10.14	20.86	
											Max.	(22) 16d	(8) 16d	2455	
										10.92	25.71	10.14	20.86		
<b>SS</b> 6x14	HU614/ HUC614	14	5½	11%	2½	11	—	(18) 16d	(8) 16d	2455	5780	2280	4690	*	
										10.92	25.71	10.14	20.86		
											3685	7025	3420	6185	*
											16.39	31.25	15.21	27.51	
											Max.	(24) 16d	(12) 16d	2455	
										10.92	25.71	10.14	20.86		
<b>SS</b> 6x16	HU616/ HUC616	14	5½	12¼	2½	11	—	(20) 16d	(8) 16d	2455	5780	2280	4690	*	
										10.92	25.71	10.14	20.86		
											3685	7025	3420	6185	*
											16.39	31.25	15.21	27.51	
											Max.	(26) 16d	(12) 16d	2455	
										16.39	31.25	15.21	27.51		
<b>SS</b> 8x8	HU88/ HUC88	14	7½	6%	2½	6¼	—	(10) 16d	(4) 16d	1230	4270	1140	3135	*	
										5.47	18.99	5.07	13.95		
											1840	5780	1710	4225	*
											8.18	25.71	7.61	18.79	
											Max.	(14) 16d	(6) 16d	1840	
										8.18	25.71	7.61	18.79		
<b>SS</b> 8x10	HU810/ HUC810	14	7½	8%	2½	8	—	(14) 16d	(6) 16d	1840	5780	1710	4225	*	
										8.18	25.71	7.61	18.79		
											2455	5780	2280	4690	*
											10.92	25.71	10.14	20.86	
											Max.	(18) 16d	(8) 16d	2455	
										10.92	25.71	10.14	20.86		
<b>SS</b> 8x12	HU812/ HUC812	14	7½	10%	2½	9¾	—	(16) 16d	(6) 16d	1840	5780	1710	4225	*	
										8.18	25.71	7.61	18.79		
											2455	5780	2280	4690	*
											10.92	25.71	10.14	20.86	
											Max.	(22) 16d	(8) 16d	2455	
										10.92	25.71	10.14	20.86		
<b>SS</b> 8x14	HU814/ HUC814	14	7½	11%	2½	11½	—	(18) 16d	(8) 16d	2455	5780	2280	4690	*	
										10.92	25.71	10.14	20.86		
											3685	7025	3420	6185	*
											16.39	31.25	15.21	27.51	
											Max.	(24) 16d	(12) 16d	2455	
										16.39	31.25	15.21	27.51		
<b>SS</b> 8x16	HU816/ HUC816	14	7½	13%	2½	13¼	—	(20) 16d	(8) 16d	2455	5780	2280	4690	*	
										10.92	25.71	10.14	20.86		
											3685	7025	3420	6185	*
											16.39	31.25	15.21	27.51	
											Max.	(26) 16d	(12) 16d	2455	
										16.39	31.25	15.21	27.51		

See footnotes on p. 119.



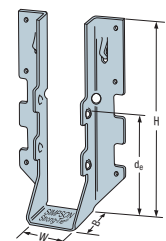
## Face-Mount Hangers — Rough Lumber

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Joist Size	Model No.	Ga.	Dimensions (in.)				Fasteners		Factored Resistance			
			W	H	B	d <sub>e</sub> <sup>5</sup>	Header	Joist	D.Fir-L		S-P-F	
									Uplift	Normal	Uplift	Normal
									(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.									
kN	kN	kN	kN									
2x4 (R)	LU24R-18	18	2	3 <sup>1</sup> / <sub>16</sub>	1½	2½	(4) 10d	(2) 10d x 1½"	415	1020	355	725
	U24R	16	2	3 <sup>5</sup> / <sub>16</sub>	2	2 <sup>5</sup> / <sub>16</sub>	(4) 16d	(2) 10d x 1½"	1.65	4.54	1.58	3.22
2x6 (R)	LU26R-18	18	2	4 <sup>9</sup> / <sub>16</sub>	1½	3 <sup>13</sup> / <sub>16</sub>	(6) 10d	(4) 10d x 1½"	450	1340	355	1030
	U26R	16	2	5 <sup>5</sup> / <sub>16</sub>	2	4 <sup>5</sup> / <sub>16</sub>	(8) 16d	(4) 10d x 1½"	2.00	5.96	1.58	4.58
2x8 (R)	LU28R-18	18	2	6 <sup>3</sup> / <sub>16</sub>	1½	5 <sup>5</sup> / <sub>16</sub>	(8) 10d	(6) 10d x 1½"	830	1605	710	1140
	U26R	16	2	5 <sup>5</sup> / <sub>16</sub>	2	4 <sup>5</sup> / <sub>16</sub>	(8) 16d	(4) 10d x 1½"	3.69	7.14	3.16	5.07
2x10 (R)	LU210R-18	18	2	7 <sup>9</sup> / <sub>16</sub>	2	5 <sup>9</sup> / <sub>16</sub>	(10) 16d	(6) 10d x 1½"	895	2675	780	2475
	U210R	16	2	9 <sup>1</sup> / <sub>16</sub>	2	7 <sup>1</sup> / <sub>4</sub>	(14) 16d	(6) 10d x 1½"	3.98	11.90	3.47	11.01
2x12 (R)	LU210R-18	18	2	7 <sup>9</sup> / <sub>16</sub>	2	5 <sup>9</sup> / <sub>16</sub>	(10) 16d	(6) 10d x 1½"	1240	2495	1130	1770
	U210R	16	2	9 <sup>1</sup> / <sub>16</sub>	2	7 <sup>1</sup> / <sub>4</sub>	(14) 16d	(6) 10d x 1½"	5.52	11.10	5.03	7.87
2x14 (R)	LU210R-18	18	2	7 <sup>9</sup> / <sub>16</sub>	2	5 <sup>9</sup> / <sub>16</sub>	(10) 16d	(6) 10d x 1½"	1345	4355	1235	3090
	U210R	16	2	9 <sup>1</sup> / <sub>16</sub>	2	7 <sup>1</sup> / <sub>4</sub>	(14) 16d	(6) 10d x 1½"	5.98	19.37	5.49	13.75
4x4 (R)	LU44R	16	4	2 <sup>5</sup> / <sub>16</sub>	2	11 <sup>1</sup> / <sub>16</sub>	(4) 16d	(2) 16d	1345	4355	1235	3090
	U44R	16	4	2 <sup>5</sup> / <sub>16</sub>	2	11 <sup>1</sup> / <sub>16</sub>	(4) 16d	(2) 16d	5.98	19.37	5.49	13.75
4x6 (R)	LU46R	16	4	4 <sup>5</sup> / <sub>16</sub>	2	3 <sup>3</sup> / <sub>4</sub>	(8) 16d	(4) 16d	1345	4355	1235	3090
	U46R	16	4	4 <sup>5</sup> / <sub>16</sub>	2	3 <sup>3</sup> / <sub>4</sub>	(8) 16d	(4) 16d	5.98	19.37	5.49	13.75
4x8 (R)	LU48R	16	4	4 <sup>5</sup> / <sub>16</sub>	2	3 <sup>3</sup> / <sub>4</sub>	(8) 16d	(4) 16d	565	1340	520	1030
	U48R	16	4	4 <sup>5</sup> / <sub>16</sub>	2	3 <sup>3</sup> / <sub>4</sub>	(8) 16d	(4) 16d	2.51	5.96	2.31	4.58
4x10 (R)	LU410R	16	4	8 <sup>1</sup> / <sub>16</sub>	2	6 <sup>1</sup> / <sub>4</sub>	(14) 16d	(6) 16d	1130	3150	1045	2475
	U410R	16	4	8 <sup>1</sup> / <sub>16</sub>	2	6 <sup>1</sup> / <sub>4</sub>	(14) 16d	(6) 16d	5.03	14.01	4.65	11.01
4x12 (R)	LU410R	16	4	8 <sup>1</sup> / <sub>16</sub>	2	6 <sup>1</sup> / <sub>4</sub>	(14) 16d	(6) 16d	1130	3150	1045	2475
	U410R	16	4	8 <sup>1</sup> / <sub>16</sub>	2	6 <sup>1</sup> / <sub>4</sub>	(14) 16d	(6) 16d	5.03	14.01	4.65	11.01
6x6 (R)	LU66R	16	6	5	2	3 <sup>13</sup> / <sub>16</sub>	(8) 16d	(4) 16d	1695	4355	1495	3090
	U66R	16	6	5	2	3 <sup>13</sup> / <sub>16</sub>	(8) 16d	(4) 16d	7.54	19.37	6.65	13.75
6x8 (R)	LU66R	16	6	5	2	3 <sup>13</sup> / <sub>16</sub>	(8) 16d	(4) 16d	1695	4355	1495	3090
	U66R	16	6	5	2	3 <sup>13</sup> / <sub>16</sub>	(8) 16d	(4) 16d	7.54	19.37	6.65	13.75
6x10 (R)	LU610R	16	6	8½	2	8	(14) 16d	(6) 16d	1695	4355	1495	3090
	U610R	16	6	8½	2	8	(14) 16d	(6) 16d	7.54	19.37	6.65	13.75
6x12 (R)	LU610R	16	6	8½	2	8	(14) 16d	(6) 16d	1695	4355	1495	3090
	U610R	16	6	8½	2	8	(14) 16d	(6) 16d	7.54	19.37	6.65	13.75
6x14 (R)	LU610R	16	6	8½	2	8	(14) 16d	(6) 16d	1695	4355	1495	3090
	U610R	16	6	8½	2	8	(14) 16d	(6) 16d	7.54	19.37	6.65	13.75

- 10d common nails may be used instead of the specified 16d nails at 0.83 of the tabulated value.
- Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce by 15% for standard term loading such as in cantilever construction.
- D.Fir-L factored resistances can be used for most LVL. Verify with manufacturer prior to selecting hanger.

- See p. 23 for hangers with reduced capacity due to installation with different nails.
- d<sub>e</sub> is the distance from the bearing seat to the top joist nail.
- HU rough beam sizes are available by special order. Contact Simpson Strong-Tie for more information.
- Nails:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.





# JB/JBA/LB/LBAZ/BA/HB

## Joist, Beam and Purlin Top-Flange Hangers



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

Solid Sawn Joist Hangers

The BA hanger is a cost-effective hanger featuring min./max. joist nailing option. Min. nailing featuring positive angle nailing targets moderate load conditions whereas the Max. nailing generates capacities for higher loads. The unique two level embossment provides added stiffness to the top flange.

The LBAZ and JBA hangers provide higher capacities for 2x10 and 2x12 members in 14-gauge and 18-gauge steel, respectively. The nail locations on the JBA enable effective use with nailers.

See tables on p. 127.

**Material:** JB/JBA — 18 gauge; LB/LBAZ — 14 gauge; BA — 14 gauge or 12 gauge.

For modified hangers, gauge may increase from that specified for non-modified hangers. Hanger configurations, height and fastener quantity may increase from the tables depending on joist size, skew and slope. Embossments may be omitted.

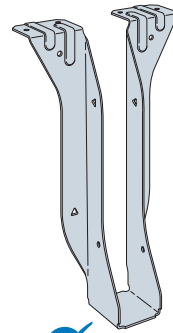
**Finish:** Galvanized; LB, BA and HB may be ordered hot-dip galvanized; specify HDG.

### Installation:

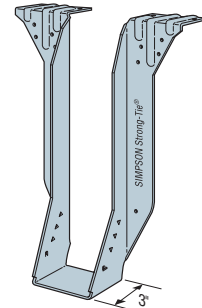
- Use specified fasteners; see General Notes and nailer table notes.
- LB, LBAZ and BA may also be welded to steel headers with weld size to match material thickness. The minimum required weld to the top flanges is 2" (17/16" for LBAZ) fillet weld to each side of each top flange tab. Distribute the weld equally on both top flanges. Welding cancels the top and face nailing requirements. Consult the code for special considerations when welding galvanized steel. The area should be well-ventilated (see p. 15, note m for welding information). Weld-on applications produce the maximum factored download listed. For uplift capacities, refer to technical bulletin T-C-WELDUPLFT at [strongtie.com](http://strongtie.com).
- Ledgers must be evaluated for each application separately. Check TF dimension, nail length and nail location on ledger.
- For modified hangers, fastener quantity may increase from the tables depending on the joist size, skew and slope.
- Bevel cut the carried member for skewed applications.

### Options:

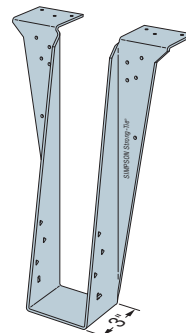
- See modification tables for allowed options and associated reductions in capacities on p. 128.



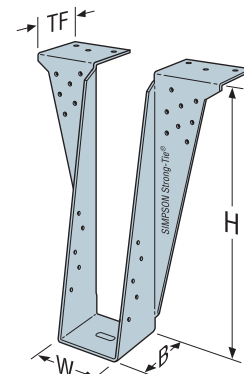
**JBA**  
(LBAZ similar)



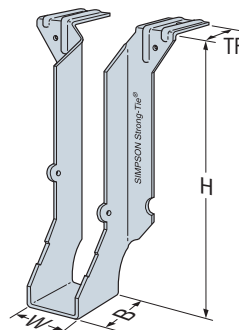
**BA**  
(14 gauge)  
US Patent: 7,334,372



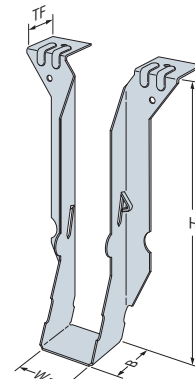
**BA**  
(12 gauge)



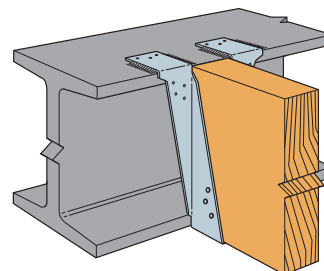
**HB**



**LB**



**JB**



LBAZ and BA are acceptable for weld-on applications. See Installation Information.



## JB/JBA/LB/LBAZ/BA/HB

## Joist, Beam and Purlin Top-Flange Hangers (cont.)

## B Series with Various Header Applications

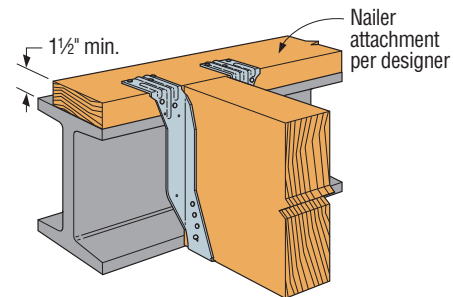
Model Series	Fasteners			Factored Resistance					
				Uplift ( $K_D = 1.00$ )	Normal ( $K_D = 1.00$ )				
	Top	Face	Joist		D.Fir-L	S-P-F	LVL	PSL	LSL
					lb.	lb.	lb.	lb.	lb.
kN	kN	kN	kN	kN	kN	kN			
JB	(2) 10d	(2) 10d	(2) Prong	—	1555	1385	—	—	—
				—	6.92	6.16	—	—	—
JBA	(4) 16d	(4) 16d	(2) 10d x 1½"	415	2430	1725	—	—	—
				1.85	10.81	7.67	—	—	—
LB	(2) 16d	(2) 16d	(2) 10d x 1½"	490	2080	1405	—	—	—
				2.18	9.25	6.25	—	—	—
LBAZ	(4) 16d	(2) 16d	(2) 10d x 1½"	490	2710	1935	—	—	—
				2.18	12.06	8.61	—	—	—
BA (Min.)	(6) 10d	(10) 10d	(2) 10d x 1½"	395	3915	3665	4695	5385	5820
				1.76	17.42	16.30	20.89	23.95	25.89
	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820
				1.76	20.17	17.93	25.96	23.95	25.89
BA (Max.)	(6) 10d	(10) 10d	(8) 10d x 1½"	1735	4855	3720	5375	5480	5980
				7.72	21.60	16.55	23.91	24.38	26.60
	(6) 16d	(10) 16d	(8) 10d x 1½"	1735	5480	4030	7125	6520	6795
				7.72	24.38	17.93	31.69	29.00	30.23
HB	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475
				15.81	41.53	26.45	42.37	41.10	46.60

1. Factored uplift resistances shown are for D.Fir-L. Multiply tabulated loads x 0.71 for either SPF joist or header.
2. Factored resistances shown are for header connection only. The designer must ensure the joist is capable of generating the factored resistances shown.
3. Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from Spruce-Pine-Fir or similar less dense veneers, use the values found in the SPF column.
4. **Nails:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22-24 for other nail sizes and information.

## Nailer Table

This table also applies to sloped-seat hangers.

Model No.	Nailer	Header Fasteners	Factored Resistance ( $K_D = 1.00$ )	
			D.Fir-L	S-P-F
			lb.	lb.
			kN	kN
LB/JB	2x	(4) 10d x 1½"	1420	855
			6.32	3.80
JBA	2x	(6) 10d x 1½"	1785	1395
			7.94	6.21
LBA	2x	(6) 10d x 1½"	1835	1545
			8.16	6.87
BA	2x	(10) 10d x 1½"	2860	2720
			12.72	12.10
	(2) 2x	(14) 10d	3915	3660
			17.41	16.28
	3x	(14) 16d x 2½"	4055	—
			18.04	—
	4x	(14) 16d	4055	—
			18.04	—
Steel	(6) 0.157" x ⅝" PAT	4700	4700	
		20.91	20.91	



Typical BA Installation on Wood Nailer (LB similar)

1. Maximum factored uplift resistance ( $K_D = 1.15$ ) is the lesser of the value shown in the adjoining table or 385 lb (1.71kN).
2. Steel nailer factored resistances apply to steel header material with thickness between ¼" and ¾" with minimum  $F_y = 250$  MPa. Design of steel header by designer.
3. 0.157" x ⅝"-long powder-actuated fastener — PDPAT-62KP. A red (level 5) or purple (level 6) load may be required to achieve specified penetration. See installation on p. 168.
4. **Nails:** 16d = 0.162" dia. x 3½" long, 16d x 2½" = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22-24 for other nail sizes and information.



# JB/JBA/LB/LBAZ/BA/HB

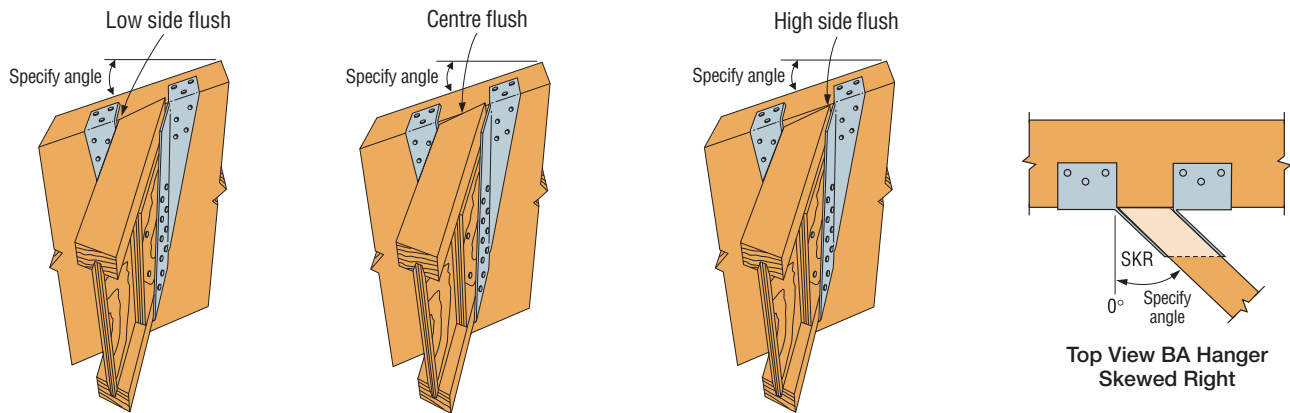
## Joist, Beam and Purlin Top-Flange Hangers (cont.)

### Reduction Factors for Modified Hangers

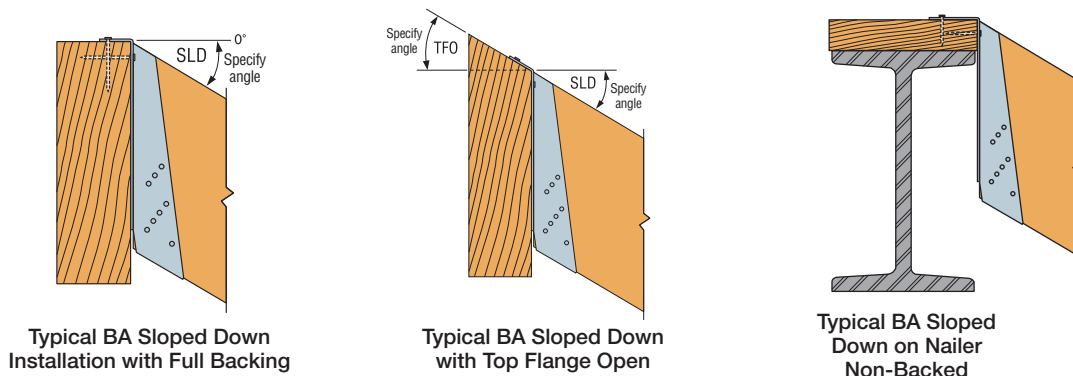
Hanger Series	Condition		Sloped Down 45° Max.	Sloped Up 45° Max.	Skewed 45° Max.		Sloped Down and Skewed		Sloped Up and Skewed	Top Flange Sloped 35° Max.	Top Flange Open/Closed 30° Max.
					7 1/4	9 1/4	9 1/4	9 1/4			
BA	Minimum Height		7 1/4	7 1/4	7 1/4	9 1/4	9 1/4	9 1/4	9 1/4	14 <sup>6</sup>	9 1/4
	All Widths	Download	0.70	0.46	0.80	0.80	0.74	0.46	0.57	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	0.71	0.85	1.00	0.57	0.75	0.84	
HB	Minimum Height		8	8	8		11 1/4	14	11 1/4	14	11 1/4
	W < 2 1/2"	Download	0.69	0.51	0.95		0.55	0.52	0.51	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	0.53		0.82	1.00	0.53	1.00	1.00
	W ≥ 2 1/2"	Download	0.69	0.51	0.95		0.55	0.52	0.51	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	0.53		0.82	1.00	0.53	1.00	1.00

Solid Sawn Joist Hangers

1. BA hangers use 10d x 1 1/2" joist nails for all sizes.
2. HB hangers use 10d x 1 1/2" joist nails for widths < 2 1/2" and 16d x 2 1/2" or 16d common nails for widths ≥ 2 1/2".
3. Reduction factors are not cumulative. Use the lowest factors that apply.
4. Web stiffeners are required for sloped and/or skewed conditions.
5. For straight-line interpolation, "x" is the specified angle.
6. Slope top flange option with reduction is permitted for BA hangers with a minimum height of 11 1/4" when using factored resistances for minimum nailing (see standard load tables).



BA hanger sloped down and skewed left with sloped top-flange installation. When ordering, specify low side flush, centre flush or high side flush.







# WP/HWP/HWPH

## Beam and Purlin Top-Flange Hangers

The WP, HWP and HWPH series beam and purlin hangers offer the greatest design flexibility and versatility.

The HWP and HWPH high-wind purlin hangers have enhanced uplift. They are ideal for high-wind applications.

**Material:** (Top flange /stirrup): WP — 7/12 gauge; HWP — 7/12 gauge; HWPH — 3/7 gauge

**Finish:** Simpson Strong-Tie gray paint; hot-dip galvanized available: specify HDG, contact Simpson Strong-Tie

### Installation:

- Use all specified fasteners.
- H dimensions are sized to account for normal joist shrinkage. W dimensions are for dressed timber widths.
- Hangers may be welded to steel headers with a minimum 1 1/2"-long fillet weld on each side of the top flange to the header. Weld sizes: WP = 3/16", HWP = 3/16", HWPH = 1/4" (see p. 15, note m for weld information). Weld-on applications achieve maximum factored normal resistances. Uplift resistances do not apply (contact Simpson Strong-Tie for uplift information).
- Hangers can support multi-ply carried members; the individual members must be secured together to work as a single unit before installation into the hanger.
- If joist is shorter than hanger by more than 1/2", then use only 50% of the tabulated resistances.

### Options:

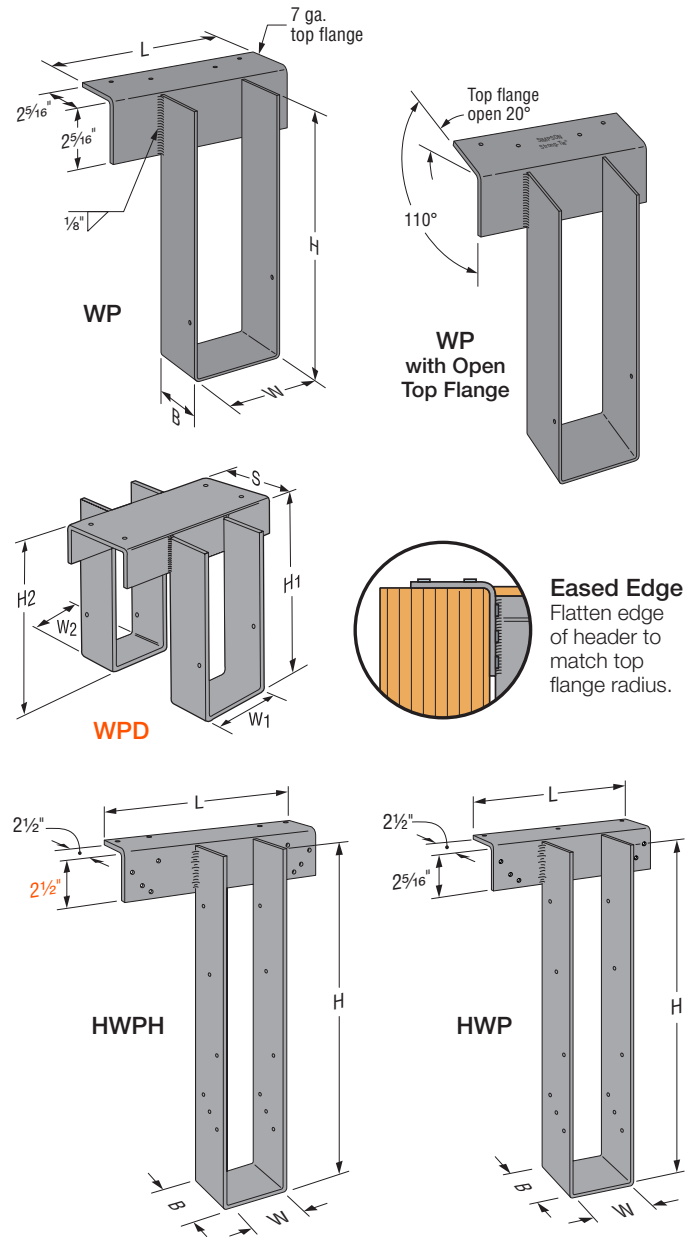
- See Hanger Options General Notes on p. 111.
- Refer to technical bulletin T-C-SLOPEJST at [strongtie.com](http://strongtie.com) for information regarding load reductions on selected hangers which can be used without modification to support joists which have shallow slopes ( $\leq 3/4:12$ ).
- Some model configurations may differ from those shown. Contact Simpson Strong-Tie for details. **For special order WP hangers, see technical bulletin T-C-WP-WS at [strongtie.com](http://strongtie.com).**
- WP models are available in Type A (bevel-cut) or Type B (square-cut) style. Contact Simpson Strong-Tie when ordering.
- **HWPH is available in Type B configurations (square cut) for skews up to 84°.**
- Hangers with a skew greater than 15° may have all the joist nails on the outside angle.
- **For skewed condition, top flange width can increase up to 18". Contact Simpson Strong-Tie for specific application.**
- Specify the slope up or down in degrees from the horizontal plane and/or the skew right or left in degrees from the perpendicular vertical plane. Specify whether low side, high side or centre of joist will be flush with the top of the header (see illustration).
- Uplift resistances are not available for open/closed TF, TF sloped and offset options.

### Saddle Hanger (only available for WP)

- To order, add D to model and specify S dimension (see illustration).
- **WPD** saddle hangers achieve tabulated factored resistances listed for each stirrup. Saddle hangers on stud walls do not achieve tabulated factored resistances.
- Recommended S dimension is 1/16" oversized for carrying members 2 1/2" wide and less or 1/8" oversized for greater than 2 1/2" wide.

### Ridge Hanger (only available for WP)

- Top flange may be sloped to a maximum of 35° to accommodate a ridge (see illustration). Specify angle of the slope. Reduce tabulated factored resistances using straight-line interpolation. See Open/Closed example.
- **Specify H/L/C flush when ordering sloped top flange.**



Model	Stirrup Width (W) (in.)	Stirrup Seat Depth (B) (in.)	Top Flange Length (L) (in.)
WP	1 9/16 – 2 1/16	See load table	7
	2 1/8 – 3 3/8	2 1/2	7
	3 1/16 – 7 1/8	2 1/2	8
	7 3/16 – 7 1/2	2 1/2	10
HWP	1 9/16	5	10
	1 13/16	4	10
	2 3/8 – 5 3/8	3	10
	5 1/16 – 7 1/8	3	12
HWPH	1 9/16 – 2 1/2	See load table	10
	2 9/16 – 2 3/4	4	10
	3 1/4 – 3 3/16	3 1/4	10
	3 13/16 – 6 3/4	3 1/4	12
	6 13/16 – 7 1/2	3 1/4	14



## WP/HWP/HWPH

## Beam and Purlin Top-Flange Hangers (cont.)

## Various Header Applications

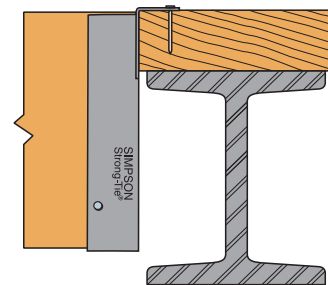
Model No.	Joist		Fasteners			Factored Resistance					
	Width (in.)	Depth (in.)	Top	Face	Joist	Uplift! (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)				
						lb.	D.Fir-L	S-P-F	LVL	PSL	LSL
							kN	kN	kN	kN	kN
WP	1½ to 7½	3½ to 30	(4) 10d x 1½"	—	(2) 10d x 1½"	—	4095	3550	4695	4720	—
	—	—	—	—	—	—	18.22	15.79	20.89	21.00	—
	—	—	—	—	—	—	4095	3550	3885	4720	5980
HWP	1½ to 7	6 to 15%	(3) 16d	(6) 16d	(10) 10d x 1½"	—	4430	3855	5950	5430	5980
	—	—	—	—	—	—	19.71	17.15	26.47	24.15	26.60
	—	—	—	—	—	—	2125	5210	5210	5210	5870
HWPH	2½ to 7½	6 to 15%	(4) 16d	(8) 16d	(10) 10d x 1½"	—	9.45	23.18	23.18	23.18	26.11
	—	—	—	—	—	—	2240	5210	5210	5210	5870
	—	—	—	—	—	—	9.96	23.18	23.18	23.18	26.11
HWP	1½ to 7	15¾ to 28	(3) 16d	(6) 16d	(12) 10d x 1½"	—	2740	7905	5970	8310	8850
	—	—	—	—	—	—	12.19	35.16	26.56	36.97	39.37
	—	—	—	—	—	—	2815	7905	5970	8310	8850
HWPH	2½ to 7½	6 to 15%	(4) 16d	(8) 16d	(10) 10d x 1½"	—	12.52	35.16	26.56	36.97	39.37
	—	—	—	—	—	—	2740	7905	5970	8310	8850
	—	—	—	—	—	—	12.19	35.16	26.56	36.97	39.37

1. Factored uplift resistances shown are for D.Fir-L. Multiply tabulated values x 0.71 for either SPF joist or header.
2. Factored resistances shown are for header connection only. The designer must ensure the joist is capable of generating the factored resistances shown.
3. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase allowed. Reduce by 15% for standard term loading like cantilever construction.
4. Nails: 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22-24 for other nail sizes and information.

## Nailer Table

The table indicates the maximum factored normal resistances for hangers used on wood nailers. Nailers are wood members attached to the top of a steel I-beam, concrete or masonry wall. This table also applies to sloped-seat hangers.

Model	Nailer	Top Flange Nailing	Factored Resistance (K <sub>D</sub> = 1.00)		
			D.Fir-L	S-P-F	LSL
			lb.	lb.	lb.
			kN	kN	kN
WP	2x	(4) 10d x 1½"	3775	3775	4900
			16.79	16.79	21.82
	(2) 2x	(4) 10d	4580	4580	—
			20.37	20.37	—
3x	(4) 16d x 2½"	4125	4110	—	
		18.35	18.28	—	
4x	(4) 16d	4785	—	—	
		21.29	—	—	
HWP	(2) 2x	(9) 10d	6020	—	—
			26.78	—	—
	3x	(9) 16d x 2½"	6020	—	—
			26.78	—	—
4x	(9) 16d x 2½"	6710	—	—	
		29.85	—	—	
HWPH	(2) 2x	(12) 16d x 2½"	8065	—	—
			35.87	—	—
	3x	(12) 16d x 2½"	8150	—	—
			36.25	—	—
4x	(12) 16d	8150	—	—	
		36.25	—	—	



Installation on Wood Nailer



## WP/HWP/HWPH

## Beam and Purlin Top-Flange Hangers (cont.)

## Reduction Factors for Modified Hangers

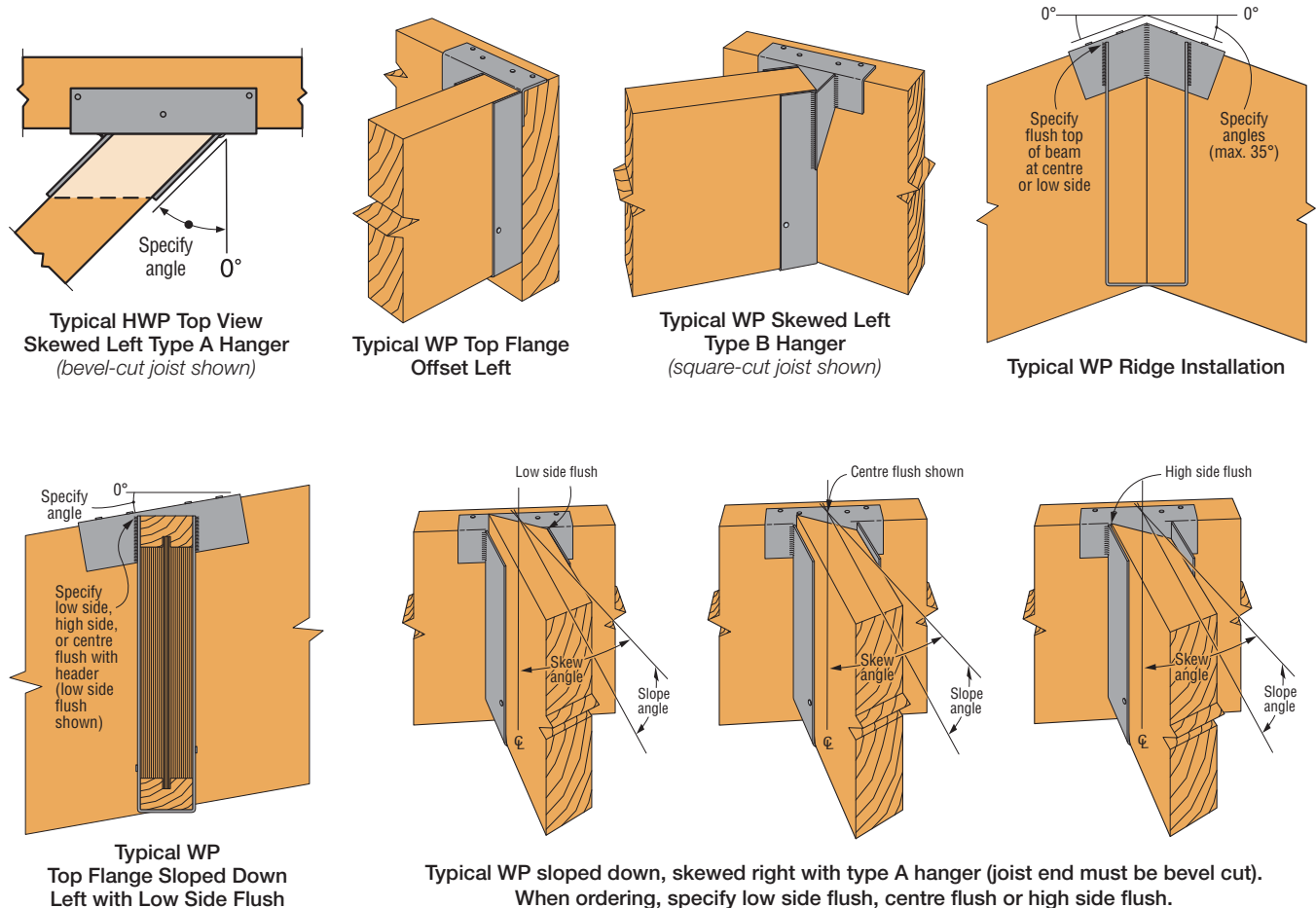
Model	Capacity	Seat									Top Flange					
		Seat Sloped Up or Down 45° Max.			Seat Skewed 1°–45°		Seat Skewed 46°–84°		Seat Sloped Up or Down and Skewed 45° Max.		Top Flange Sloped 30° Max.		Top Flange Opened/Closed 30° Max.		Top Flange Offset or Offset and Skewed 45°	
		Uplift	Up	Down	Uplift	Normal	Uplift	Normal	Uplift	Normal	Uplift	Normal	Uplift	Normal	Uplift	Normal
			Normal	Normal												
WP	Reduction	—	1.00	1.00	—	1.00	—	1.00	—	1.00	—	(90-x)/90	—	(90-x)/90	—	0.50
HWP	Reduction	0.69	1.00	0.60	0.84	0.86	—	—	0.73	0.55	1.00	1.00	0.92	1-sin(x)	0.40	0.47
	Max. Value	—	—	—	—	—	—	—	—	2880	—	—	—	4185	—	2782
HWPH	Reduction	1.00	0.83	0.71	0.65	0.72	0.52	0.59	0.72	0.73	1.00	0.87	1.00	1-sin(x)	0.48	0.43
	Max. Value	—	—	—	—	—	—	—	—	5415	—	—	—	5355	—	3830

- For straight line interpolation or the sin function, x is the specified angle.
- Reduction factors are not cumulative. Use the lowest factor that applies.
- For HWP or HWPH hangers  $\geq 3\frac{1}{2}$ " wide, the Top Flange Offset or Offset and Skewed 45° factored normal reductions and max. values are:
  - 0.5 to a maximum of 3015 lb. for HWP
  - 0.5 to a maximum of 4670 lb. for HWPH.
- For hanger heights exceeding the joist heights by greater than  $\frac{1}{2}$ " the factored normal resistance is 0.50 of the tabulated value.

## Reduction Factor Instructions

**Factored Down Resistance** = (lowest of Seat, Top Flange, or Joist Height)  $\times$  (Table Value)

**Factored Uplift Resistance** = (lowest of Top Flange or Joist Height)  $\times$  (Table Value),  
but not available when the Top Flange is open/closed, sloped or offset





# HUSTF

## Heavy-Duty and Double-Shear Joist Hangers

See table on pp. 133–136 for dimensions, material and capacities.

HUSTF has the double-shear nailing advantage — distributing the joist load through two points on each nail for greater strength.

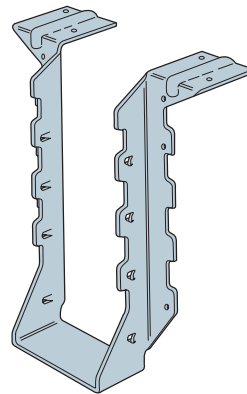
**Finish:** Galvanized. Some products available with ZMAX® coating. See Corrosion Information, pp. 16–21.

**Installation:**

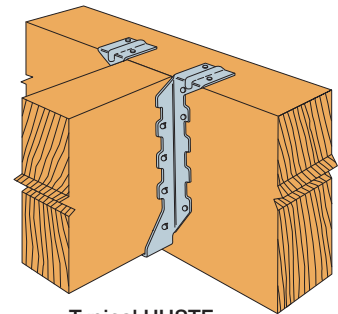
- Use all specified fasteners; see General Notes
- Not acceptable for nailer or welded applications; see W and B hangers
- HUSTF — With 3x carrying members, use 16d x 2½" nails into the header and 16d commons into the joist

**Options:**

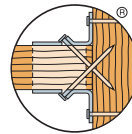
- These hangers cannot be modified.



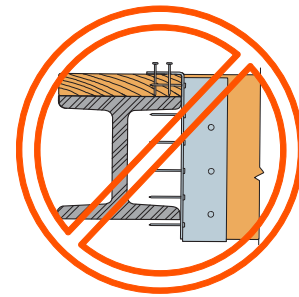
HUSTF



Typical HUSTF Installation



Double-Shear Nailing Top View



Nailer application is not acceptable. Fasteners cannot be installed.



### Hanger Selector

Find the most cost-effective joist, truss and multi-truss hangers based on installation type, hanger options and demand load, with the assistance of 3D visualization. This application is the web-based version of the Joist, Truss and Multi-Truss tabs in Connector Selector.

Visit [strongtie.com/software](http://strongtie.com/software) for more information.



Simpson Strong-Tie Connector Selector™ (Limit States Design) software tells you which products are appropriate for your connection then sorts them by least installed cost. Automatically applies connector load adjustment factors for modifications (i.e., slopes, skews, etc.) and specifies proper model numbers for easy order placement. The built-in Job List can track your projects and print a shopping list, including nails! An easy to use stock list identifies which products you keep in stock. Visit [strongtie.com/software](http://strongtie.com/software) for more information.

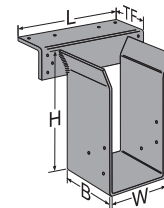


## Top-Flange Hangers — Solid Sawn Lumber

These products are available with additional corrosion protection. For more information, see p. 20.

Joist Size	Model No.	Ga.	Dimensions (in.)				Fasteners		Factored Resistance			
			W	H	B	TF	Header	Joist	D.Fir-L		S-P-F	
									Uplift	Normal	Uplift	Normal
			(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)						
lb.	lb.	lb.	lb.									
kN	kN	kN	kN									
2x6	JB26	18	1 <sup>5</sup> / <sub>16</sub>	5 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>5</sup> / <sub>16</sub>	(4) 10d	(2) Prong	—	1595	—	1385
	LB26	14	1 <sup>5</sup> / <sub>16</sub>	5 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	(4) 16d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	490	2255	455	1405
	WP26	7	1 <sup>5</sup> / <sub>16</sub>	5 <sup>5</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>16</sub>	(2) 10d	(2) 10d	—	4095	—	3550
DBL 2x6	HUS26-2TF	14	3 <sup>1</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>	2	1 <sup>3</sup> / <sub>4</sub>	(6) 16d	(4) 16d	1745	5130	1240	3645
	WP26-2	7	3 <sup>1</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>16</sub>	(2) 10d	(2) 10d	—	4095	—	3550
2x8	JB28	18	1 <sup>5</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>5</sup> / <sub>16</sub>	(4) 10d	(2) Prong	—	1555	—	1385
	LB28	14	1 <sup>5</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	(4) 16d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	490	2080	455	1405
	WP28	7	1 <sup>5</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>16</sub>	(2) 10d	(2) 10d	—	4095	—	3550
DBL 2x8	HUS28-2TF	14	3 <sup>1</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>4</sub>	2	1 <sup>7</sup> / <sub>8</sub>	(8) 16d	(6) 16d	2800	6285	1805	4480
	WP28-2	7	3 <sup>1</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>16</sub>	(2) 10d	(2) 10d	—	4095	—	3550
2x10	JB210A	18	1 <sup>5</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>	2	1 <sup>7</sup> / <sub>16</sub>	(6) 16d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	415	2430	370	1725
	LB210AZ	14	1 <sup>5</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>	2	1 <sup>7</sup> / <sub>16</sub>	(6) 16d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	490	2710	490	1935
	WP210	7	1 <sup>5</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>16</sub>	(16) 16d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	—	4095	—	3550
DBL 2x10	BA210-2 (Min.)	12	3 <sup>1</sup> / <sub>8</sub>	9 <sup>3</sup> / <sub>16</sub>	3	2 <sup>1</sup> / <sub>2</sub>	(16) 16d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	395	4535	280	4030
	(16) 16d						(8) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1740	5480	1235	4030	
	BA210-2 (Max.)	14	3 <sup>1</sup> / <sub>8</sub>	9 <sup>3</sup> / <sub>4</sub>	2	1 <sup>1</sup> / <sub>2</sub>	(10) 16d	8-16d	7.74	24.38	5.50	17.93
	(10) 16d						8-16d	3795	6755	3450	5435	
WP210-2	7	3 <sup>1</sup> / <sub>8</sub>	9 <sup>3</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>16</sub>	(2) 10d	(2) 10d	—	4095	—	3550	
2x12	JB212A	18	1 <sup>5</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>8</sub>	2	1 <sup>7</sup> / <sub>16</sub>	(6) 16d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	415	2430	370	1725
	LB212AZ	14	1 <sup>5</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>8</sub>	2	1 <sup>4</sup> / <sub>8</sub>	(6) 16d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	490	2710	455	1935
	WP212	7	1 <sup>5</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	(2) 10d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	—	4095	—	3550
DBL 2x12	BA212-2 (Min.)	12	3 <sup>1</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>8</sub>	3	2 <sup>1</sup> / <sub>2</sub>	(16) 16d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	395	4535	280	4030
	(16) 16d						(8) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1740	5480	1235	4030	
	BA212-2 (Max.)	14	3 <sup>1</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>8</sub>	2	2 <sup>1</sup> / <sub>4</sub>	(10) 16d	(8) 16d	7.74	24.38	5.50	17.93
	(10) 16d						(8) 16d	3765	6755	2675	5435	
WP212-2	7	3 <sup>1</sup> / <sub>8</sub>	11	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>16</sub>	(2) 10d	(2) 10d	—	4095	—	3550	
									—	18.22	—	15.79

- Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed. Reduce by 15% for standard term loading such as in cantilever construction.
- Nails:** 16d = 0.162" dia. x 3<sup>1</sup>/<sub>2</sub>" long, 10d = 0.148" dia. x 3" long, 10d x 1<sup>1</sup>/<sub>2</sub>" = 0.148" dia. x 1<sup>1</sup>/<sub>2</sub>" long. See pp. 22–24 for other nail sizes and information.





# Top-Flange Hangers — Solid Sawn Lumber

These products are available with additional corrosion protection. For more information, see p. 20.

Solid Sawn Joist Hangers

Joist Size	Model No.	Ga.	Dimensions (in.)				Fasteners		Factored Resistance								
			W	H	B	TF	Header	Joist	D.Fir-L		S-P-F						
									Uplift	Normal	Uplift	Normal					
			(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)											
lb.	lb.	lb.	lb.														
kN	kN	kN	kN														
3x6	WP36	7	2 <sup>5</sup> / <sub>16</sub>	5 <sup>7</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>16</sub>	(4) 10d	(2) 10d	—	4095	—	3550					
									—	18.22	—	15.79					
3x8	BA38 (Min.)	12	2 <sup>5</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>	3	2 <sup>1</sup> / <sub>2</sub>	(16) 16d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	395	4535	280	4030					
									1.76	20.17	1.25	17.93					
	BA38 (Max.)						(16) 16d	(8) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1740	5480	1235	4030					
									7.74	24.38	5.50	17.93					
	WP38	7	2 <sup>5</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>16</sub>	(4) 10d	(2) 10d	—	4095	—	3550					
									—	18.22	—	15.79					
3x10	BA310 (Min.)	12	2 <sup>5</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>8</sub>	3	2 <sup>1</sup> / <sub>2</sub>	(16) 16d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	395	4535	280	4030					
									1.76	20.17	1.25	17.93					
	BA310 (Max.)						(16) 16d	(8) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1740	5480	1235	4030					
									7.74	24.38	5.50	17.93					
	WP38	7	2 <sup>5</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>16</sub>	(2) 10d	(2) 10d	—	4095	—	3550					
									—	18.22	—	15.79					
3x12	BA312 (Min.)	12	2 <sup>5</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>8</sub>	3	2 <sup>1</sup> / <sub>2</sub>	(16) 16d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	395	4535	280	4030					
									1.76	20.17	1.25	17.93					
	BA312 (Max.)						(16) 16d	(8) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1740	5480	1235	4030					
									7.74	24.38	5.50	17.93					
	WP312	7	2 <sup>5</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>16</sub>	(4) 10d	(2) 10d	—	4095	—	3550					
									—	18.22	—	15.79					
4x6	HUS46TF	14	3 <sup>3</sup> / <sub>16</sub>	5 <sup>3</sup> / <sub>8</sub>	2	1 <sup>1</sup> / <sub>2</sub>	(6) 16d	(4) 16d	1745	5130	1240	3645					
									7.76	22.82	5.52	16.21					
	WP46						7	3 <sup>3</sup> / <sub>16</sub>	5 <sup>3</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>16</sub>	(4) 10d	(2) 10d	—	4095	—	3550
														—	18.22	—	15.79
4x8	BA48 (Min.)	14	3 <sup>3</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>	3	2 <sup>1</sup> / <sub>2</sub>	(16) 16d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	395	4535	280	4030					
									1.76	20.17	1.25	17.93					
	BA48 (Max.)						(16) 16d	(8) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1740	5480	1235	4030					
									7.74	24.38	5.50	17.93					
	HUS48TF	14	3 <sup>3</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>4</sub>	2	1 <sup>1</sup> / <sub>16</sub>	(8) 16d	(6) 16d	2800	6305	1805	4480					
									11.23	28.04	8.03	19.93					
	WP48	7	3 <sup>3</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>16</sub>	(4) 10d	(2) 10d	—	4095	—	3550					
									—	18.22	—	15.79					
HWPH48	3	3 <sup>3</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	(12) 16d	(10) 10d x 1 <sup>1</sup> / <sub>2</sub> "	2740	7905	1945	5970						
								12.19	35.16	8.65	26.56						
4x10	BA410 (Min.)	14	3 <sup>3</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>4</sub>	3	2 <sup>1</sup> / <sub>2</sub>	(16) 16d	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	395	4535	280	4030					
									1.76	20.17	1.25	17.93					
	BA410 (Max.)						(16) 16d	(8) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1740	5480	1235	4030					
									7.74	24.38	5.50	17.93					
	HUS410TF	14	3 <sup>3</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>4</sub>	2	1 <sup>1</sup> / <sub>4</sub>	(10) 16d	(8) 16d	3735	7565	3450	5435					
									16.61	33.65	15.35	24.18					
	WP410	7	3 <sup>3</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	(4) 10d	(2) 10d	—	4095	—	3550					
									—	18.22	—	15.79					
HB410	10	3 <sup>3</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	3	(22) 16d	(10) 16d	3555	9335	2525	5945						
								15.81	41.53	11.22	26.45						
HWPH410	3	3 <sup>3</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	(12) 16d	(10) 10d x 1 <sup>1</sup> / <sub>2</sub> "	2740	7905	1945	5970						
								12.19	35.16	8.65	26.56						

See footnotes on p. 133.



## Top-Flange Hangers — Solid Sawn Lumber

These products are available with additional corrosion protection. For more information, see p. 20.

Joist Size	Model No.	Ga.	Dimensions (in.)				Fasteners		Factored Resistance				
			W	H	B	TF	Header	Joist	D.Fir-L		S-P-F		
									Uplift	Normal	Uplift	Normal	
			(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)							
lb.	lb.	lb.	lb.										
kN	kN	kN	kN										
4x12	BA412 (Min.)	14	3 <sup>9</sup> / <sub>16</sub>	11	3	2 <sup>1</sup> / <sub>2</sub>	(16) 16d	(2) 10d x 1 1/2"	395	4535	280	4030	
	BA412 (Max.)						(16) 16d	(8) 10d x 1 1/2"	1.76	20.17	1.25	17.93	
	HUS412TF	14	3 <sup>9</sup> / <sub>16</sub>	11 1/8	2	2	(10) 16d	(8) 16d	1740	5480	1235	4030	
	WP412	7	3 <sup>9</sup> / <sub>16</sub>	11 1/8	2 1/2	2 <sup>3</sup> / <sub>16</sub>	(4) 10d	(2) 10d	7.74	24.38	5.50	17.93	
	HB412	10	3 <sup>9</sup> / <sub>16</sub>	11 1/8	3 1/2	3	(22) 16d	(10) 16d	3735	7565	2675	5435	
	HWP412	3	3 <sup>9</sup> / <sub>16</sub>	11 1/8	3 1/4	2 1/2	(12) 16d	(10) 10d x 1 1/2"	16.61	33.65	11.90	24.18	
6x8	BA68 (Min.)	12	5 1/2	7 1/8	3	2 1/2	(16) 16d	(2) 10d x 1 1/2"	—	4095	—	3550	
	BA68 (Max.)						(16) 16d	(8) 10d x 1 1/2"	—	18.22	—	15.79	
	HWP68	3	5 1/2	7 1/8	3 1/4	2 1/2	(12) 16d	(10) 10d x 1 1/2"	3555	9335	2525	5945	
	6x10	BA610 (Min.)	12	5 1/2	7 1/8	3	2 1/2	(16) 16d	(2) 10d x 1 1/2"	15.81	41.53	11.22	26.45
		BA610 (Max.)						(16) 16d	(8) 10d x 1 1/2"	7.74	24.38	5.50	17.93
		WP610	7	5 <sup>9</sup> / <sub>16</sub>	9 <sup>9</sup> / <sub>16</sub>	2 1/2	2 <sup>3</sup> / <sub>16</sub>	(4) 10d	(2) 10d	2740	7905	1945	5970
HB610		10	5 1/2	9 <sup>9</sup> / <sub>16</sub>	3 1/2	3	(22) 16d	(10) 16d	12.19	35.16	8.65	26.56	
HWP610		3	5 1/2	9 <sup>9</sup> / <sub>16</sub>	3 1/4	2 1/2	(12) 16d	(10) 10d x 1 1/2"	395	4535	280	4030	
6x12		BA612 (Min.)	12	5 1/2	11 1/8	3	2 1/2	(16) 16d	(2) 10d x 1 1/2"	1.76	20.17	1.25	17.93
	BA612 (Max.)	(16) 16d						(8) 10d x 1 1/2"	7.74	24.38	5.50	17.93	
	WP612	7	5 <sup>9</sup> / <sub>16</sub>	11 1/8	2 1/2	2 <sup>3</sup> / <sub>16</sub>	(4) 10d	(2) 10d	—	4095	—	3550	
	HB612	10	5 1/2	11 1/8	3 1/2	3	(22) 16d	(10) 16d	—	18.22	—	15.79	
	HWP610	3	5 1/2	11 1/8	3 1/4	2 1/2	(12) 16d	(10) 10d x 1 1/2"	3555	9335	2525	5945	
	6x14	BA614 (Min.)	12	5 1/2	13 1/16	3	2 1/2	(16) 16d	(2) 10d x 1 1/2"	15.81	41.53	11.22	26.45
BA614 (Max.)		(16) 16d						(8) 10d x 1 1/2"	7.74	24.38	5.50	17.93	
WP614		7	5 <sup>9</sup> / <sub>16</sub>	13 1/16	2 1/2	2 <sup>3</sup> / <sub>16</sub>	(4) 10d	(2) 10d	2740	7905	1945	5970	
HB614		10	5 1/2	13 1/16	3 1/2	3	(22) 16d	(10) 16d	12.19	35.16	8.65	26.56	
HWP614		3	5 1/2	13 1/16	3 1/4	2 1/2	(12) 16d	(10) 10d x 1 1/2"	395	4535	280	4030	
										1.76	20.17	1.25	17.93

See footnotes on p. 133.



# Top-Flange Hangers — Solid Sawn Lumber

Solid Sawn Joist Hangers

These products are available with additional corrosion protection. For more information, see p. 20.

Joist Size	Model No.	Ga.	Dimensions (in.)				Fasteners		Factored Resistance			
			W	H	B	TF	Header	Joist	D.Fir-L		S-P-F	
									Uplift	Normal	Uplift	Normal
									(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.									
								kN		kN		
6x16	BA616 (Min.)	12	5½	15	3	2½	(16) 16d	(2) 10d x 1½"	395	4535	280	4030
								1.76	20.17	1.25	17.93	
	BA616 (Max.)	10	5½	15	3½	3	(16) 16d	(8) 10d x 1½"	1740	5480	1235	4030
								7.74	24.38	5.50	17.93	
	HB616						(22) 16d	(10) 16d	3555	9335	2525	5945
								15.81	41.53	11.22	26.45	
8x8 to 8x16	WP7.50X	7	7½	7½ to 16	2½	2¾	(4) 10d	(2) 10d	—	4095	—	3550
			—	—	—	—	—	—	—	18.22	—	15.79
8x10 to 8x16	HWP7.50X	3	7½	7½ to 16	3¼	2½	(12) 16d	(10) 10d x 1½"	2740	7905	1945	5970
			12.19	35.16	8.65	26.56						
8x10 to 8x16	HB7.50X	10	5½	8 to 16	3½	3	(22) 16d	(10) 16d	3555	9335	2525	5945
			15.81	41.53	11.22	26.45						

See footnotes on p. 133.

## SUR/SUL/HSUR/HSUL

### Skewed 45° Hangers



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

The SUR/L and HSUR/L series of hangers are skewed 45° left or right. Angled nail slots direct nails for proper installation.

**Material:** SUR and SUL — 16 gauge;  
HSUR and HSUL — 14 gauge

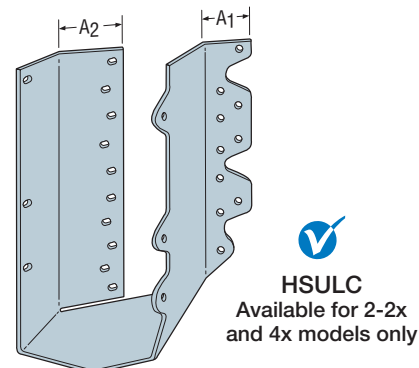
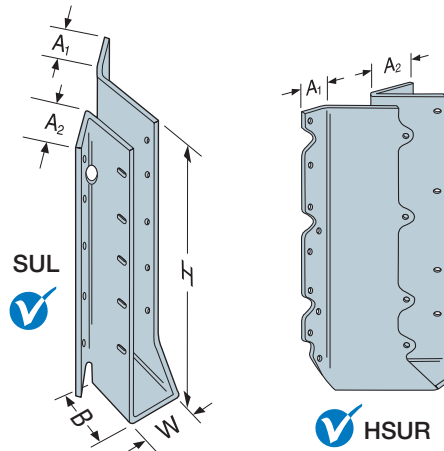
**Finish:** Galvanized. Some products available in ZMAX® coating; see Corrosion Information, pp. 16–21.

**Installation:**

- Use all specified fasteners; see General Notes
- These hangers will normally accommodate a 40° to 50° skew
- Illustration shows left and right skews SUR/L (SUR = skewed right; SUL = skewed left)
- The joist end may be square cut or bevel cut

**Options:**

- Available with the A2 flange turned in on the 2-2x and 4x models only (see illustration)
- To order, add "C" (for concealed) to the product name
- For example, specify HSURC46, HSULC46, SURC46, or SULC46







## SUR/SUL/HSUR/HSUL

## Skewed 45° Hangers (cont.)

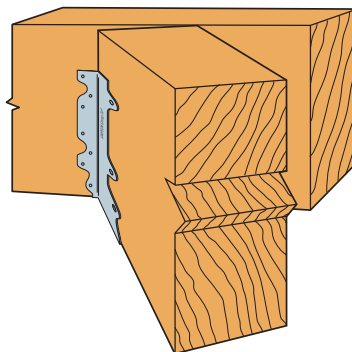
These products are available with additional corrosion protection. For more information, see p. 20.

Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

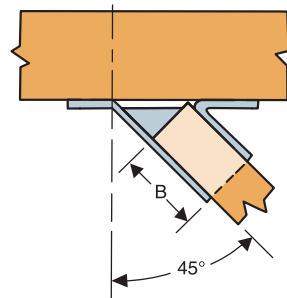
Joist Size	Model No.	Dimensions (in.)					Fasteners		Factored Resistance			
		W	H	B	A <sub>1</sub>	A <sub>2</sub>	Face	Joist	D.Fir-L		S-P-F	
									Uplift	Normal	Uplift	Normal
		(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)							
lb.	lb.	lb.	lb.									
kN	kN	kN	kN									
2x4	SUR/L24	1 <sup>9</sup> / <sub>16</sub>	3½	2	1½	1¼	(4) 16d	(4) 10d x 1½"	850	1210	600	860
									3.78	5.38	2.67	3.83
SS 2x6 2x8	SUR/L26	1 <sup>9</sup> / <sub>16</sub>	5	2	1½	1 <sup>9</sup> / <sub>16</sub>	(6) 16d	(6) 10d x 1½"	1255	2130	890	1530
									5.58	9.47	3.96	6.81
SS 2x10 2x12	SUR/L210	1 <sup>9</sup> / <sub>16</sub>	8½	2	1½	1 <sup>5</sup> / <sub>16</sub>	(10) 16d	(10) 10d x 1½"	2085	3820	1480	2710
									9.27	16.99	6.58	12.05
2x12	SUR/L214	1 <sup>9</sup> / <sub>16</sub>	10	2	1½	1 <sup>5</sup> / <sub>16</sub>	(12) 16d	(12) 10d x 1½"	2690	4585	2175	3255
									11.97	20.40	9.67	14.48
3x10 3x12	SUR/L2.56/9	2 <sup>9</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	1½	2½	(14) 16d	(2) 10d x 1½"	385	3950	275	2805
									1.71	17.57	1.22	12.48
(2) 2x6 (2) 2x8	SUR/L26-2	3½	4 <sup>5</sup> / <sub>16</sub>	2½	1 <sup>7</sup> / <sub>16</sub>	2½	(8) 16d	(4) 16d x 2½"	1130	2035	1045	1380
									5.03	9.05	4.65	6.14
	HSUR/L26-2	3½	4 <sup>5</sup> / <sub>16</sub>	2 <sup>7</sup> / <sub>16</sub>	1¼	2 <sup>3</sup> / <sub>16</sub>	(12) 16d	(4) 16d x 2½"	1230	2750	1090	1955
									5.47	12.23	4.85	8.70
(2) 2x10 (2) 2x12	SUR/L210-2	3½	8 <sup>1</sup> / <sub>16</sub>	2½	1 <sup>7</sup> / <sub>16</sub>	2½	(14) 16d	(6) 16d x 2½"	1695	4065	1540	2875
									7.54	18.08	6.85	12.81
	HSUR/L210-2	3½	8 <sup>1</sup> / <sub>16</sub>	2 <sup>7</sup> / <sub>16</sub>	1¼	2 <sup>3</sup> / <sub>16</sub>	(20) 16d	(6) 16d x 2½"	1840	5270	1540	3745
									8.18	23.44	6.85	16.66
4x6 4x8	SUR/L46	3 <sup>9</sup> / <sub>16</sub>	4¾	2½	1	2½	(8) 16d	(4) 16d	1130	2035	1045	1380
									5.03	9.05	4.65	6.14
	HSUR/L46	3 <sup>9</sup> / <sub>16</sub>	4¾	2 <sup>7</sup> / <sub>16</sub>	1	2 <sup>3</sup> / <sub>16</sub>	(12) 16d	(4) 16d	1230	2750	1090	1955
									5.47	12.23	4.85	8.70
4x10 4x12	SUR/L410	3 <sup>9</sup> / <sub>16</sub>	8½	2 <sup>7</sup> / <sub>16</sub>	1	2 <sup>3</sup> / <sub>16</sub>	(14) 16d	(6) 16d	1695	4065	1540	2875
									7.54	18.08	6.85	12.81
	HSUR/L410	3 <sup>9</sup> / <sub>16</sub>	8½	2 <sup>7</sup> / <sub>16</sub>	1	2 <sup>3</sup> / <sub>16</sub>	(20) 16d	(6) 16d	1840	5270	1540	3745
									8.18	23.44	6.85	16.66

1. Factored uplift resistances have been increased by 15% for earthquake or wind loading with no further increase allowed; reduce for other load durations as required by code.

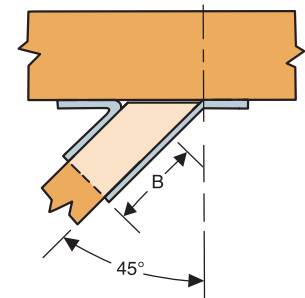
2. **Nails:** 16d = 0.162" dia. x 3½" long, 16d x 2½" = 0.162" dia. x 2½" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.



Typical SUR410 Installation



Typical SUR Installation  
with Square Cut Joist  
(HSUR similar)



Typical SUL Installation  
with Bevel Cut Joist  
(HSUL similar)



# LRUZ

## Rafter Hanger

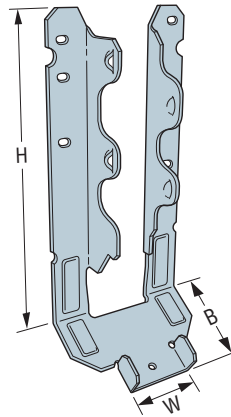
The LRUZ offers an economic alternative for those applications requiring a sloped hanger for rafter-to-ridge connections. Used with solid sawn rafters, the LRUZ's unique design enables the hanger to be installed either before or after the rafter is in place. The field-adjustable seat helps improve job efficiency by eliminating mismatched angles in the field and lead times associated with special orders. The LRUZ offers comparable or better load capacity to other rafter hangers at a reduced cost while using fewer fasteners.

**Features:**

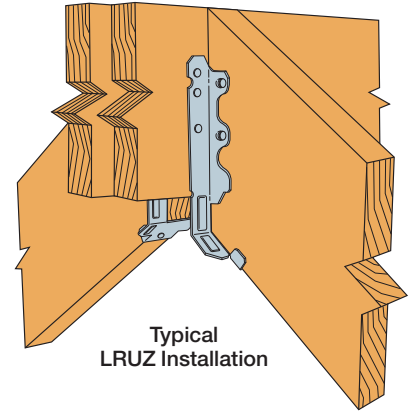
- The open design and ability to field-adjust the slope makes the LRUZ ideal for both retrofit or new applications.
- Accommodates roof pitches from 0:12 to 14:12.
- Slopes up or down to 45° (12:12). For downward slopes greater than 45° up to 49° (14:12), factored normal resistance is 0.85 of table values.
- For added versatility, the fasteners on the face of the hanger are placed high enabling the bottom of the rafter to hang below the ridge beam (see "Max. C<sub>1</sub>" dimension).
- Can be installed using nails or Simpson Strong-Tie® Strong-Drive® SD Connector screws.

**Material:** 18 gauge**Finish:** ZMAX® coating**Installation:**

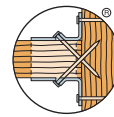
- Use all specified fasteners; see General Notes.
- Joist fasteners must be installed at an angle through the rafter or joist into the header to achieve the table values.
- See alternate installation on p. 139 for retrofit applications.



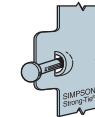
**LRUZ28Z**  
(other models similar)



**Typical LRUZ Installation**



Double-Shear Nailing Top View



Dome Double-Shear Nailing Side View

These products are available with additional corrosion protection. For more information, see p. 20.



Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

### Standard Installation<sup>1,2,3</sup>

Model No.	Dimensions (in.)				Fasteners <sup>4,5</sup>		Factored Resistance			
							D.Fir-L		S-P-F	
	W	H	B	Max. C <sub>1</sub>	Header	Joist	Uplift	Normal	Uplift	Normal
							(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
LRU26Z	1½"	5¼"	1½"	1¾"	(4) 10d	(5) 10d	945	1360	670	965
							4.20	6.05	2.98	4.29
					(4) 16d	(5) 16d	1130	1985	800	1410
LRU28Z	1½"	6½"	1½"	2½"	(6) 10d	(5) 10d	1180	1360	840	965
							5.25	6.05	3.74	4.29
					(6) 16d	(5) 16d	1180	1985	840	1410
LRU210Z	1½"	8¾"	1½"	1¾"	(6) 10d	(7) 10d	1610	2095	1145	1485
							7.16	9.32	5.09	6.61
					(6) 16d	(7) 16d	1610	2375	1145	1685
LRU212Z	1½"	10½"	1½"	3½"	(6) 10d	(7) 10d	1910	2095	1355	1485
							8.50	9.32	6.03	6.61
					(6) 16d	(7) 16d	1910	2805	1355	1990
							8.50	12.48	6.03	8.85

1. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed. Reduce where other load durations govern.
2. Factored resistances shown are applicable for roof slopes up to and including 45° (12:12). For roof slopes greater than 45° up to and including 49° (14:12) multiply the tabulated resistances by 0.85.
3. LRUZ's may be installed using Strong-Drive® #10 x 1½" SD Connector screws into the header and Strong-Drive #10 x 2½" SD Connector screws into the joist at full 16d capacity.
4. For single 2x headers, use 10d x 1½" nails into the header and 10d commons into the joist. Multiply the tabulated 10d capacity x 0.77. Alternately, install Strong-Drive SD Connector screws (see footnote 3 above).
5. For alternate installation under retrofit applications, Strong-Drive #10 x 2½" SD Connector screws may be installed sloped upwards to match the roof slope (45° max.). Multiply the tabulated 16d values x 0.73. See Alternate Installation for Retrofit Applications detail on p. 139.
6. **Nails:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long; 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.
7. **Screws:** #10 x 2½" SD = 0.161" dia. x 2½" long (SD10212); #10 x 1½" SD = 0.161" dia. x 1½" long (SD10112).



## LRUZ

## Rafter Hanger (cont.)

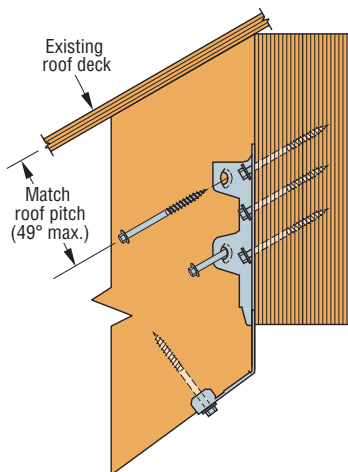
## Alternate Installation for Retrofit Applications

When an existing roof deck prevents the horizontal installation of fasteners, Strong-Drive® #10 x 2½" SD Connector screws may be installed sloped upward to match the roof pitch (45° max.). Use table values for an installation with 16d nails x 0.73 (see footnote 5) when SD screws are sloped. Nails may not be installed sloped upward.

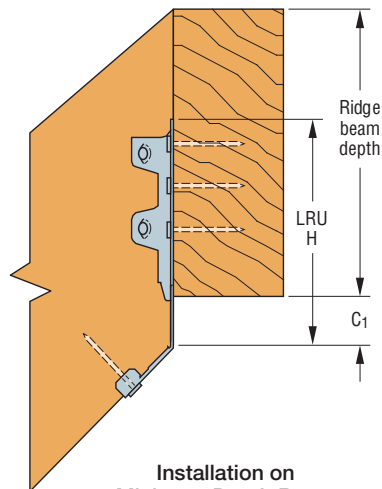
## Minimum Ridge Beam Depth (in.)

Roof Pitch	LRU26Z		LRU28Z			LRU210Z			LRU212Z	
	Rafter Size		Rafter Size			Rafter Size			Rafter Size	
	2x6	2x8	2x6	2x8	2x10	2x8	2x10	2x12	2x10	2x12
2:12	4½	5¾	—	5	7	—	7¾	9¾	—	8½
3:12	4¼	6	—	5½	7½	—	8	10½	—	8¾
4:12	4¾	6½	—	5¼	7¾	—	8¼	10¾	—	8½
5:12	4½	6¾	—	5½	7¾	—	8½	10¾	—	9
6:12	4¾	6¾	—	5¾	8	—	8¾	11½	—	9¾
7:12	4¾	6¾	—	6	8¾	6¾	9¼	11½	7½	9¾
8:12	5½	7¼	—	6¾	8¾	7¼	9¾	12	7¾	10¼
9:12	5¾	7¾	—	6¾	9¼	7¾	10½	12¾	8¾	10¾
10:12	5¾	8	4¾	7½	9¾	8	10¾	13½	8¾	11¾
11:12	6	8¾	5½	7½	10¼	8¾	11½	13¾	9¾	12
12:12	6¼	8¾	5¾	7¾	10¾	8¾	11¾	14¾	9¾	12¾
13:12	6¾	9¼	5¾	8¾	11¼	9¼	12¾	15¾	10¾	13¾
14:12	7	9¾	6½	8¾	11¾	9¾	12¾	15¾	11	14

1. Minimum ridge-beam depths shown assume rafter and ridge beam are flush at the top.
2. Minimum ridge-beam depths have been determined to ensure the Max. C<sub>1</sub> dimension for the LRU is not exceeded. Deeper ridge beams may be required to support the rafter loads as determined by the designer.



Alternate Installation for Retrofit Applications



Installation on Minimum Depth Beam



# LSSR

## Slopeable/Skewable Rafter Hanger

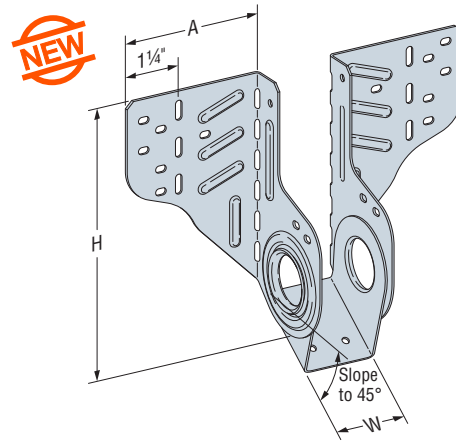
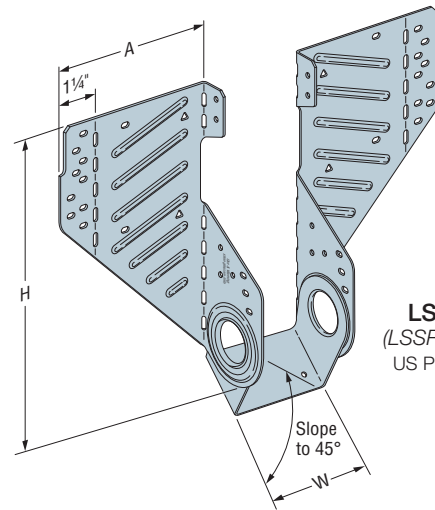
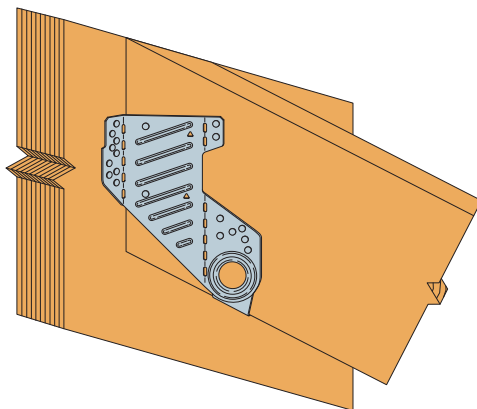
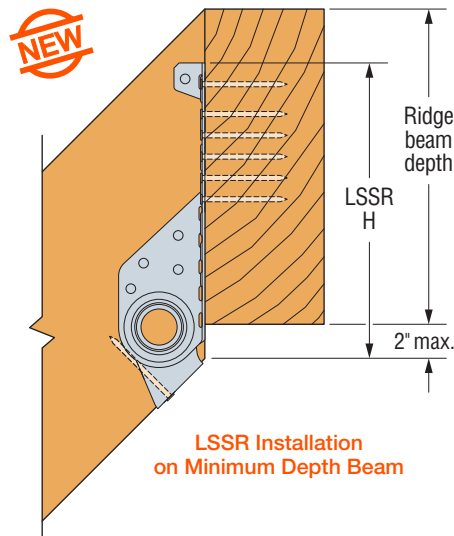
The patent-pending LSSR light slopeable/skewable rafter hanger is the next generation of field-adjustable rafter hangers. One of its key features is that it can be installed after the rafter has been tacked into place. A versatile hanger, it is field adjustable for skews up to 45° and features an innovative hinged swivel seat which adjusts up to a 45° slope. **New models are now available for 2x lumber.**

**Features:**

- Makes it possible to install after the rafters are already in place
- Flange design allows for easy skew adjustment, from 0° to 45°
- Swivel seat adjusts easily from 0° to 45° up or down

**Material:** See table**Finish:** ZMAX® coating**Installation:**

- Use all specified fasteners; see General Notes
- **Limit on-centre spacing of rafters and joists with LSSR210-2Z and LSSR410Z to 14" o.c. minimum; for the LSSR26Z, LSSR28Z and LSSR210Z, limit on-centre spacing to 8" o.c. minimum.**
- For a common rafter:
  - Slide hanger into position; adjust seat and install seat nails
  - Make sure side stirrups are snug close to the joist, bend lines are plumb
  - Install a face nail on each side to hold in place
  - Install all round and obround holes on the header and joist
- For jack rafters:
  - Fold acute side forward
  - Slide hanger into position; adjust seat and install seat nails
  - Make sure hanger is snug close to the joist, bend line is plumb
  - Install obround nails on acute side, both header and joist
  - Make sure hanger is snug close to the joist and header; bend line is plumb
  - Install joist nails on obtuse side
  - Bend obtuse side flange back so that header flange is flush against header
  - Install header nails

**LSSR26Z****LSSR210-2**  
(LSSR410Z similar)  
US Patent Pending**Typical Sloped and Skewed LSSR Installation****LSSR Installation on Minimum Depth Beam**

For more information and to watch an installation video, go to [strongtie.com/lssr](http://strongtie.com/lssr).



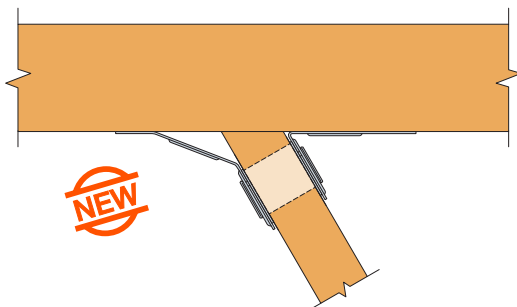
## LSSR

## Slopeable/Skewable Rafter Hanger (cont.)

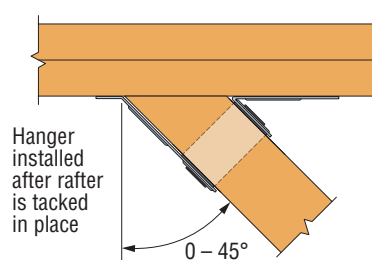
These products are available with additional corrosion protection. For more information, see p. 20.

Actual Joist Width (in.)	Model No.	Ga.	Dimensions (in.)			Fasteners		Factored Resistance			
			W	H	A	Header	Joist	D.Fir-L		S-P-F	
								Uplift	Normal	Uplift	Normal
			(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)					
lb.	lb.	lb.	lb.								
								lb.	lb.	lb.	lb.
								kN	kN	kN	kN
<b>Sloped Only Hangers</b>											
1 1/2	LSSR26Z	18	1 1/8	5 3/8	2 1/2	(12) 10d	(8) 10d x 1 1/2"	645	1550	505	1100
								2.87	6.90	2.25	4.89
1 1/2	LSSR28Z	18	1 1/8	7 1/2	2 1/2	(14) 10d	(10) 10d x 1 1/2"	1105	2035	865	1590
								4.92	9.05	3.85	7.07
1 1/2	LSSR210Z	18	1 1/8	9 1/2	2 1/2	(14) 10d	(10) 10d x 1 1/2"	1105	2035	865	1590
								4.92	9.05	3.85	7.07
2 1/2	LSSR2.56Z	18	2 9/16	8 15/16	4 1/8	(14) 10d	(12) 10d x 1 1/2"	715	2200	510	1560
								3.18	9.79	2.27	6.94
3	LSSR210-2Z	16	3 1/4	8 15/16	5 1/8	(22) 16d	(18) 16d x 2 1/2"	990	3375	705	2395
								4.40	15.01	3.14	10.65
3 1/2	LSSR410Z	16	3 5/8	8 15/16	5 1/8	(22) 16d	(18) 16d x 2 1/2"	990	3375	705	2395
								4.40	15.01	3.14	10.65
<b>Skewed Hangers or Sloped and Skewed Hangers</b>											
1 1/2	LSSR26Z	18	1 1/8	5 3/8	2 1/2	(11) 10d	(7) 10d x 1 1/2"	645	990	505	775
								2.87	4.40	2.25	3.45
1 1/2	LSSR28Z	18	1 1/8	7 1/2	2 1/2	(13) 10d	(8) 10d x 1 1/2"	1105	1300	865	1015
								4.92	5.78	3.85	4.52
1 1/2	LSSR210Z	18	1 1/8	9 1/2	2 1/2	(13) 10d	(8) 10d x 1 1/2"	1105	1300	865	1015
								4.92	5.78	3.85	4.52
2 1/2	LSSR2.56Z	18	2 9/16	8 15/16	4 1/8	(13) 10d	(9) 10d x 1 1/2"	715	1695	510	1200
								3.18	7.54	2.27	5.34
3	LSSR210-2Z	16	3 1/4	8 15/16	5 1/8	(20) 16d	(13) 16d x 2 1/2"	990	2585	705	1835
								4.40	11.50	3.14	8.16
3 1/2	LSSR410Z	16	3 5/8	8 15/16	5 1/8	(20) 16d	(13) 16d x 2 1/2"	990	2585	705	1835
								4.40	11.50	3.14	8.16

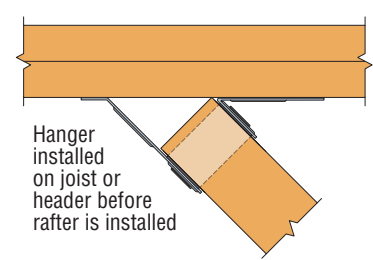
1. Factored uplift resistances shown have been increased 15% for short-term load-duration. Reduce where other durations govern.
2. For 16 ga. LSSR in slope-only installations, the four triangle holes may be filled for a factored resistance of 4325 lb. (19.24 kN) D.Fir-L or 3070 lb. (13.66 kN) S-P-F.
3. Factored uplift resistances include a 15% increase for earthquake or wind loading; no further increase is allowed; reduce when other loads govern.
4. On the acute side of the skewed LSSR hangers, fill obround holes only.
5. **Nails:** 10d = 0.148" dia. x 3" long, 16d = 0.162" dia. x 3 1/2" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long, 16d x 2 1/2" = 0.162" dia. x 2 1/2" long. See pp. 22-24 for other nail sizes and information.



**Typical LSSR 2x Installation**  
Between 0° and 45° Skew  
(compound miter cut, plumb cut similar)



**Typical LSSR Installation**  
(compound miter cut)



**Alternate LSSR Installation**  
(plumb cut)

**LSSJZ**

## Adjustable Light Slopeable/Skewable Jack Hanger



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

The new and innovative LSSJ is ideal for connecting jack rafters to hip members. Featuring a one-sided connection point for ease of installation and a versatile, hinged seat, the LSSJ is easily field adjustable to all typical rafter slopes ranging from 0:12 to 12:12. The LSSJ's header flange allows for easy skew adjustment, from 0° to 45°. It ships pre-bent at 45° so is ready to place for most typical applications. Specify left (L) or right (R) model when ordering.

**Features:**

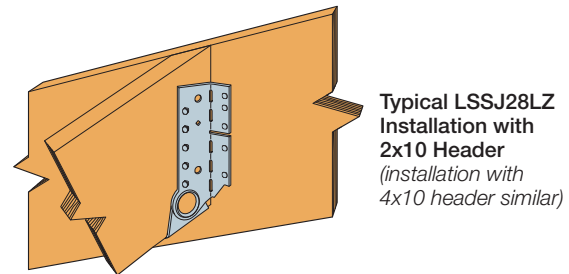
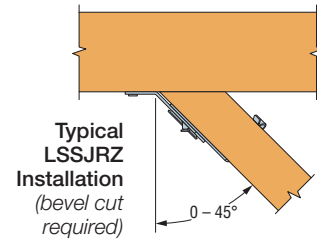
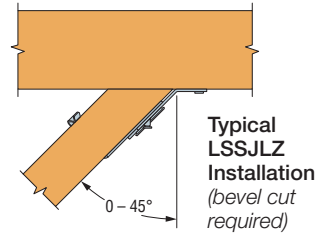
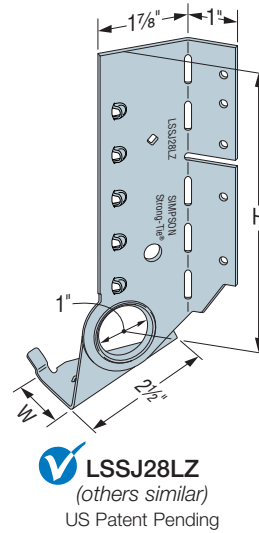
- Hanger installs from one side with all fastener holes easily accessible
- Can be installed as a retrofit
- Seat grip makes setting the hanger quick and easy
- Accommodates roof pitches from 0:12 to 12:12
- Swivel seat adjusts easily and provides more support to joist, allowing for a higher load than fasteners alone

**Material:** 18 gauge

**Finish:** ZMAX® coating (G-185)

**Installation:**

- Use all specified fasteners; see General Notes
- Joist end needs to be bevel cut
- Table and illustration shows left and right skews LSSJR/L (LSSJR = skewed right; LSSJL = skewed left)



These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Dimensions (in.)		Fasteners		Factored Resistance			
					D.Fir-L		S-P-F	
	W	H	Header	Joist	Uplift	Normal	Uplift	Normal
					(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
					lb.	lb.	lb.	lb.
					kN	kN	kN	kN
<b>0°-19° Skew</b>								
LSSJ26LZ LSSJ26RZ	1 5/16	4 3/4	(4) 10d x 1 1/2"	(4) 10d x 1 1/2"	575	500	410	355
					2.56	2.22	1.82	1.58
LSSJ28LZ LSSJ28RZ	1 5/16	6	(5) 10d x 1 1/2"	(5) 10d x 1 1/2"	950	825	715	725
					4.23	3.67	3.18	3.23
LSSJ210LZ LSSJ210RZ	1 5/16	8	(6) 10d x 1 1/2"	(6) 10d x 1 1/2"	1140	990	970	840
					5.07	4.40	4.31	3.74
<b>20°-45° Skew</b>								
LSSJ26LZ LSSJ26RZ	1 5/16	4 3/4	(4) 10d	(4) 10d	1100	955	780	680
					4.89	4.25	3.47	3.02
LSSJ28LZ LSSJ28RZ	1 5/16	6	(5) 10d	(5) 10d	1590	1385	1205	1050
					7.07	6.16	5.36	4.67
LSSJ210LZ LSSJ210RZ	1 5/16	8	(6) 10d	(6) 10d	1910	1660	1375	1195
					8.50	7.38	6.12	5.32

1. Factored uplift resistances have been increased 15% for wind or earthquake loading with no further increase allowed.
2. For skews 20° and greater, the specified 10d nails may be substituted with 10d x 1 1/2". Use the tabulated values for 0°-19° Skew.
3. LSSJ26Z installed with an extra 10d x 1 1/2" nail in the under side of the seat has a factored normal resistance of 630 lb. (2.8kN) D.Fir-L and 445 lb. (1.98 kN) S-P-F.
4. **Nails:** 10d = 0.148" diameter x 3" long, 10d x 1 1/2" = 0.148" diameter x 1 1/2" long. See pp. 22-24 for other nail sizes and information.



## VPA

## Variable Pitch Connector

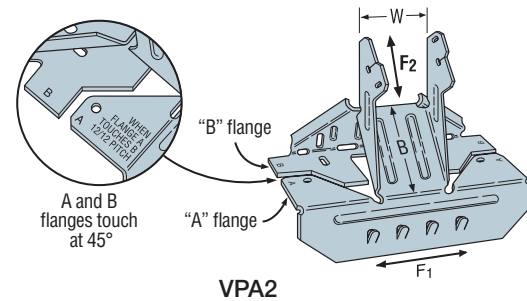
The VPA may be sloped in the field, offering a versatile solution for attaching rafters to the top plate. It will adjust to accommodate slopes between 3:12 and 12:12, making it a complement to the versatile LSSU. This connector eliminates the need for notched rafters, beveled top plates and toe nailing.

**Material:** 18 gauge

**Finish:** Galvanized

**Installation:**

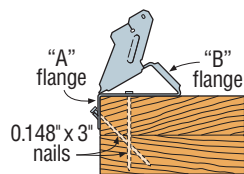
- Use all specified fasteners; see General Notes



Model No.	Actual Joist Width (in.)	W (in.)	Fasteners		Factored Resistance							
					D.Fir-L				S-P-F			
			Carrying Member	Carried Member	Wind/Earthquake (K <sub>D</sub> = 1.15)			Normal (K <sub>D</sub> = 1.00)	Wind/Earthquake (K <sub>D</sub> = 1.15)			Normal (K <sub>D</sub> = 1.00)
					Uplift	F <sub>1</sub>	F <sub>2</sub>		Uplift	F <sub>1</sub>	F <sub>2</sub>	
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.				
kN	kN	kN	kN	kN	kN	kN	kN	kN				
VPA2	1½	1⅙	(8) 10d	(2) 10d x 1½"	405	695	405	1695	370	615	370	1555
					1.80	3.09	1.80	7.54	1.65	2.74	1.65	6.92
VPA3	2½	2⅙	(9) 10d	(2) 10d x 1½"	405	695	405	2050	370	615	370	1855
					1.80	3.09	1.80	9.12	1.65	2.74	1.65	8.25
VPA4	3½	3⅙	(11) 10d	(2) 10d x 1½"	405	695	405	2050	370	615	370	1855
					1.80	3.09	1.80	9.12	1.65	2.74	1.65	8.25

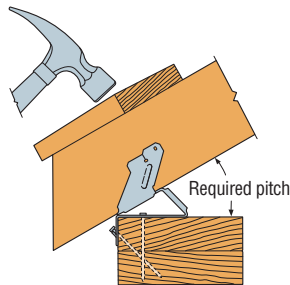
1. Factored uplift and lateral resistances have been increased 15% for earthquake or wind loading; no further increase is allowed.
2. Resistances may not be increased for short-term load duration.
3. **Nails:** 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.

## VPA Installation Sequence



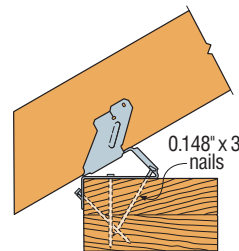
**Step 1**

Install top nails and face PAN nails in "A" flange to outside wall top plate.



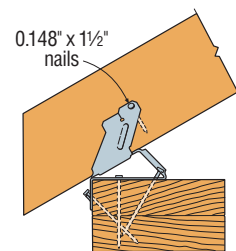
**Step 2**

Seat rafter with a hammer, adjusting "B" flange to the required pitch.



**Step 3**

Install "B" flange nails in the pre-drilled nail holes, locking the pitch.



**Step 4**

Install 10d x 1½" nail into tab nail hole. Hammer nail in at a slight angle to prevent splitting.



# HRC/HHRC

## Hip Ridge Connectors

The HRC series are field slopeable connector that attaches hip roof beams to the end of a ridge beam. The HRC may be sloped downward a maximum of 45°.

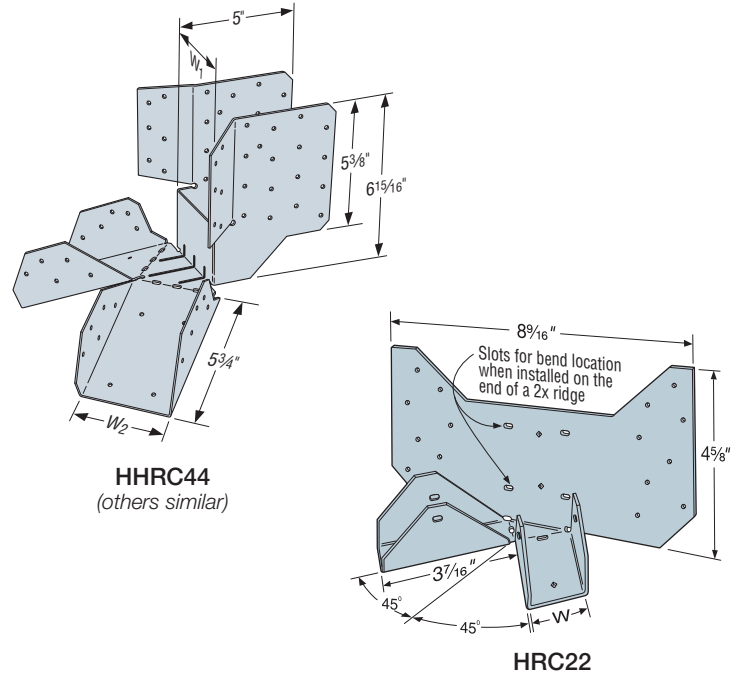
HHRC accommodates higher loads and uses Simpson Strong-Tie® Strong-Drive® SD Connector screws.

**Material:** HRC22, HRC42 — 16 gauge;  
HRC44 — 14 gauge; HHRC — 12 gauge

**Finish:** Galvanized

**Installation:**

- Use all specified fasteners (included with HHRC); see General Notes.
- On end of ridge — use optional diamond holes on HRC22 and HRC42 to secure the HRC. Bend face flanges on HRC22 back flush with ridge, and complete nailing.
- HRC22 on face of ridge — adjust to correct height and install nails.
- Double bevel-cut hip members to achieve full bearing capacity with HRC.
- See pp. 216–217 for SCL sizes.



Solid Sawn Joist Hangers

## HHRC Factored Resistances

Model No.	Member Width (in.)		Dimensions (in.)		Fasteners		Factored Resistance per Hip			
							D.Fir-L		S-P-F	
	Ridge	Hip	W <sub>1</sub>	W <sub>2</sub>	Ridge	Each Hip	Uplift	Normal	Uplift	Normal
							(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
HHRC2-2	3	3	3 1/8	3 1/8	(40) #10 x 2 1/2" SD	(22) #10 x 2 1/2" SD	3365	3480	2530	2470
							14.97	15.48	11.25	10.99
HHRC42	3 1/2	1 1/2	3 5/8	1 9/16	(40) #10 x 2 1/2" SD	(22) #10 x 1 1/2" SD	2180	3620	1550	2570
							9.70	16.10	6.90	11.43
HHRC42-2	3 1/2	3	3 5/8	3 1/8	(40) #10 x 2 1/2" SD	(22) #10 x 2 1/2" SD	3365	3480	2530	2470
							14.97	15.48	11.25	10.99
HHRC44	3 1/2	3 1/2	3 5/8	3 5/8	(40) #10 x 2 1/2" SD	(22) #10 x 2 1/2" SD	3365	4185	2530	2970
							14.97	18.62	11.25	13.21
HHRC64	5 1/2	3 1/2	5 5/8	3 5/8	(40) #10 x 2 1/2" SD	(22) #10 x 2 1/2" SD	3930	4205	2790	2985
							17.48	18.71	12.41	13.28
HHRC66	5 1/2	5 1/2	5 5/8	5 5/8	(40) #10 x 2 1/2" SD	(27) #10 x 2 1/2" SD	3930	4485	2790	3185
							17.48	19.95	12.41	14.17

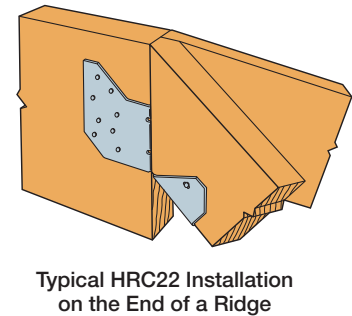
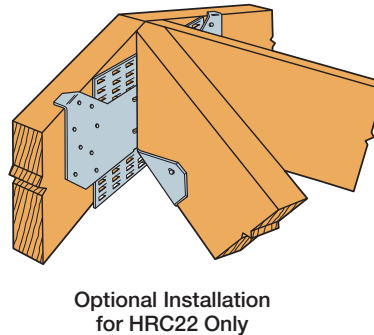
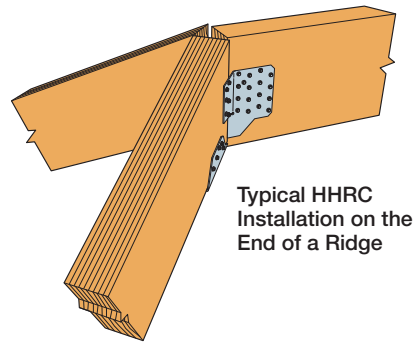
1. Factored resistances shown are per hip, the total load carried by the connector is double this number. Load must be equally distributed to both hips.
2. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed. Reduce where other load durations govern.
3. Factored resistances shown are applicable for roof slopes up to and including 45° (12:12).
4. Do not attach HHRC to columns or studs.
5. **Screws:** #10 x 2 1/2" SD = 0.161" dia. x 2 1/2" long (SD10212).





## HRC/HHRC

## Hip Ridge Connectors (cont.)



## HRC Factored Resistances

Model No.	Member Size (in.)		Fasteners		Factored Resistance							
	W	Ridge	Carrying Member	Each Hip	D.Fir-L		S-P-F					
					Uplift	Down	Uplift	Down				
					(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)				
lb.	lb.	lb.	lb.	kN	kN	kN	kN					
HRC22	1 <sup>5</sup> / <sub>16</sub>	2x or 1 <sup>3</sup> / <sub>4</sub>	(16) 10d x 1 <sup>1</sup> / <sub>2</sub> "	(2) 10d x 1 <sup>1</sup> / <sub>2</sub> "	445	1340	400	950	1.98	5.96	1.78	4.23

- Factored resistances shown are for each hip. Total resistance carried by the connector is double this number.
- Factored uplift resistances include a 15% increase for earthquake or wind loading; no further increase allowed; reduce where other loads govern.
- Nails:** 16d = 0.162" dia. x 3<sup>1</sup>/<sub>2</sub>" long, 10d x 1<sup>1</sup>/<sub>2</sub>" = 0.148" dia. x 1<sup>1</sup>/<sub>2</sub>" long. See pp. 22–24 for other nail sizes and information.

## HCP

## Hip Corner Plate

The HCP connects a rafter or joist to double top plates at a 45° angle.

**Material:** 18 gauge

**Finish:** HCP2 — galvanized or ZMAX® coating; HCP4Z — ZMAX coating

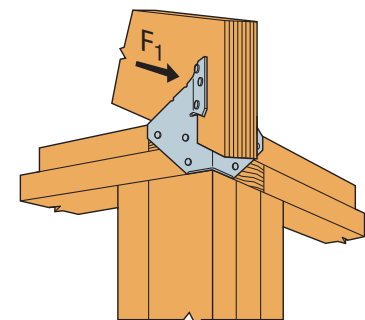
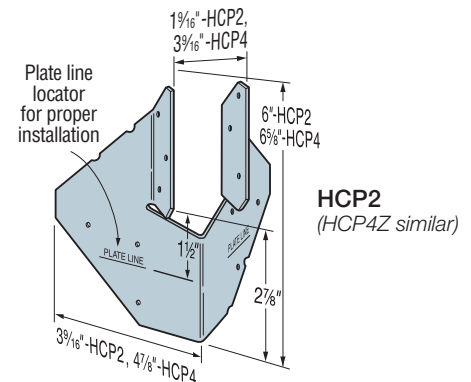
**Installation:**

- Use all specified fasteners; see General Notes.
- Attach HCP to double top plates; birdsmouth not required for table values.
- Install rafter and complete nailing. Rafter may be sloped to 45°.

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Hip Size	Fasteners		Factored Resistance							
		To Hip	To Plates	D.Fir-L		S-P-F					
				Uplift	F <sub>1</sub>	Uplift	F <sub>1</sub>				
				(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)				
lb.	lb.	lb.	lb.	kN	kN	kN	kN				
HCP2	2x	(6) 10d x 1 <sup>1</sup> / <sub>2</sub> "	(6) 10d x 1 <sup>1</sup> / <sub>2</sub> "	1020	355	890	325	4.54	1.58	3.96	1.45
HCP4Z	4x	(8) 10d	(8) 10d	1485	435	1300	310	6.61	1.94	5.78	1.38

- The HCP can be installed on the inside and the outside of the wall with a flat bottom chord truss and achieve twice the factored resistance.
- Factored uplift resistances include a 15% increase for earthquake or wind loading; no further increase allowed.
- Nails:** 10d = 0.148" dia. x 3" long, 10d x 1<sup>1</sup>/<sub>2</sub>" = 0.148" dia. x 1<sup>1</sup>/<sub>2</sub>" long. See pp. 22–24 for other nail sizes and information.





# HH

## Header Hanger

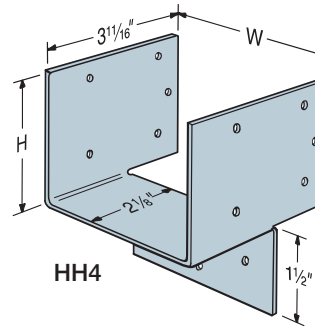
For fast, accurate installation of door and window headers and other cross members. HH header hangers can speed up the job, strengthen the frame, and eliminate the need for trimmers.

**Material:** 16 gauge

**Finish:** Galvanized

**Installation:**

- Use all specified fasteners; see General Notes.
- Attachment to 2x studs will result in two round holes not being filled in the studs and reduction in capacity. See table for capacities and nailing requirements.



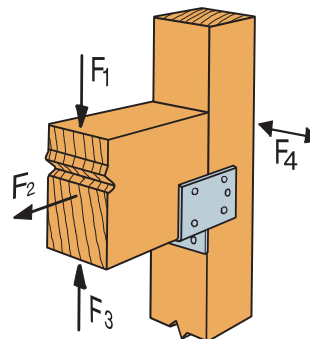
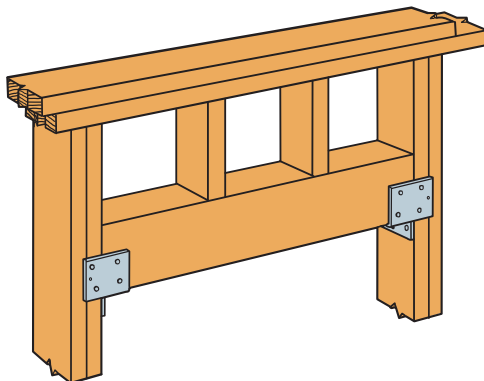
Solid Sawn Joist Hangers

Model No.	Dimensions (in.)		Post Size	Fasteners		Factored Resistance							
	W	H		Post	Header	D.Fir-L				S-P-F			
						F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>
						(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)			(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)		
						lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
kN	kN	kN	kN	kN	kN	kN	kN						
HH4	3 1/2	2 1/8	2x	(7) 10d x 1 1/2"	(4) 10d x 1 1/2"	1240	—	890	1370	1125	—	765	970
						5.52	—	3.96	6.09	5.00	—	3.40	4.31
			(2) 2x	(7) 16d x 2 1/2"	(4) 16d x 2 1/2"	1715	—	1125	1410	1580	—	965	1000
						7.63	—	5.00	6.27	7.03	—	4.29	4.45
			4x	(9) 16d	(4) 16d	2205	1125	1125	2140	2035	1040	965	1520
						9.81	5.00	5.00	9.52	9.05	4.63	4.29	6.76
HH6	5 1/2	5 1/8	2x	(10) 10d x 1 1/2"	(6) 10d x 1 1/2"	1930	—	1330	1930	1585	—	1155	1370
						8.59	—	5.92	8.59	7.05	—	5.14	6.09
			(2) 2x	(10) 16d x 2 1/2"	(6) 16d x 2 1/2"	2450	—	1690	2405	2260	—	1480	1705
						10.90	—	7.52	10.70	10.05	—	6.58	7.58
			4x	(12) 16d	(6) 16d	2940	1690	1690	2405	2710	1370	1510	1705
						13.08	7.52	7.52	10.70	12.06	6.09	6.72	7.58

1. F<sub>2</sub>, F<sub>3</sub> and F<sub>4</sub> factored resistances have been increased 15% for earthquake or wind loading; no further increase is allowed.

2. **Nails:** 16d = 0.162" dia. x 3 1/2" long, 16d x 2 1/2" = 0.162" dia. x 2 1/2" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long.

See pp. 22-24 for other nail sizes and information.





## RR

## Ridge Rafter Connector

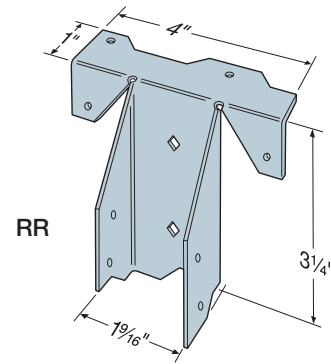
An interlock provides alignment control and correct nailing locations. For a rafter-to-face connector, flatten the top flange into the face plane. The RR may be used with any rafter sloped up to 30°.

**Material:** 18 gauge

**Finish:** Galvanized

**Installation:**

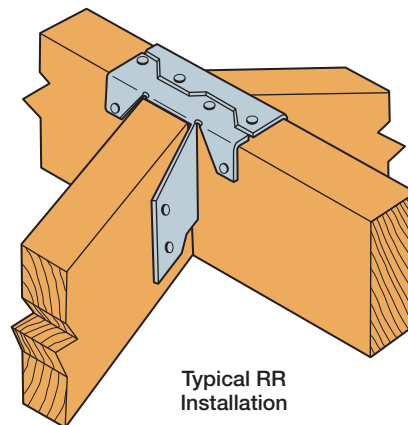
- Use all specified fasteners; see General Notes



**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Joist Size	Fasteners		Factored Resistance			
				D.Fir-L		S-P-F	
		Header	Joist	Uplift	Normal	Uplift	Normal
				(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
				lb.	lb.	lb.	lb.
		kN	kN	kN	kN		
RR	2x6	(4) 10d x 1½"	(4) 10d x 1½"	185	685	130	490
				0.82	3.05	0.58	2.18

1. Factored uplift resistances have been increased 15% for wind loading; no further increase is allowed.
2. **Nails:** 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.





# IUS/LF/MIU

## I-Joist Hangers



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

The IUS is a hybrid hanger that incorporates the advantages of the face-mount and top-mount hanger. Installation is fast with the Strong-Grip™ seat, easy-to-reach face nails and self-jigging locator tabs.

The MIU series hangers are designed for commercial and high-load I-joist applications without requiring web stiffeners. The MIU features Positive Angle Nailing (PAN), which minimizes splitting of the flanges while permitting time-saving nailing from a better angle.

The LF series is ideal for applications not requiring web stiffeners. The economical LF series comes with a height designed to support the top flange of the I-joist. This feature reduces installation time as well as material costs.

**Material:** See table on pp. 154–165.

**Finish:** Galvanized

**Uplift Resistances:**

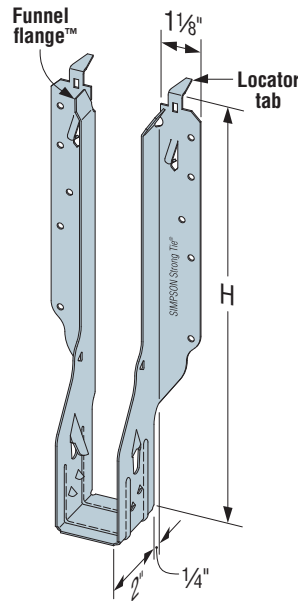
- Models have optional triangle joist nail holes for additional uplift. Properly attached web stiffeners are required.
- LF/IUS — add two additional 10d x 1½" joist nails for a total factored uplift resistance of 415 lb. D.Fir-L and 375 lb. S-P-F (K<sub>D</sub> = 1.15).
- MIU — add four additional 10d x 1½" joist nails for a total factored uplift resistance of 1345 lb. D.Fir-L and 1175 lb. S-P-F (K<sub>D</sub> = 1.15).

**Installation:**

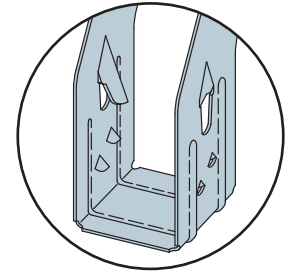
- Use all specified fasteners. Verify that the header can take the required fasteners specified in the table. See pp. 109–110 for more installation information.
- IUS — fasten hanger to header. Position I-joist into hanger and snap into place. No joist nailing required. Some IUS models have triangle and round header nail holes. To achieve Max. download, fill both round and triangle holes.
- IUS — Locator tabs are not structural. They may be bent back to adjust for hanger placement.
- IUS — I-joists with web stiffeners or rectangular sections can be used with the installation of two 10d x 1½" nails into the optional triangle joist nails.
- Web stiffeners are not required with I-joists when the joist top flange is laterally supported by the sides of the hanger, unless required by the I-joist manufacturer.

**Options:**

- These hangers cannot be modified. However, these models will normally accommodate a skew of up to 5°. For a sloping joist to ½ :12, tests show a 10% reduction in ultimate hanger strength. Local crushing of the bottom flange or excessive deflection may be limiting; check with joist manufacturer for specific limitations on bearing of this type.

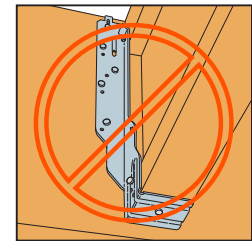


**IUS**  
(some IUS models have triangle holes in header flanges for min./max. nailing)

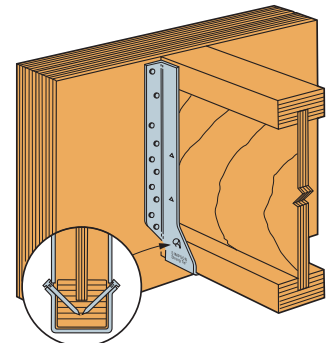
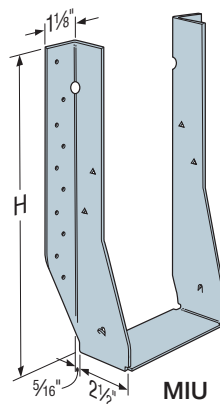


The Strong-Grip seat secures I-joists in position without joist nails.

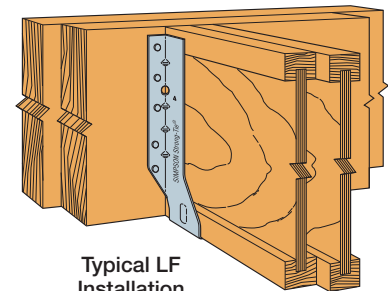
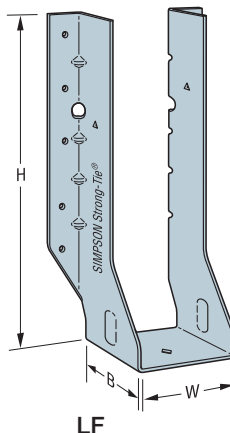
**Avoid a Misinstallation**



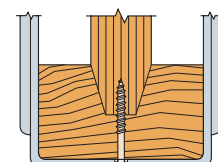
Do not make your own holes. Do not nail the bottom flange.



MIU with Correct PAN Installation



Typical LF Installation



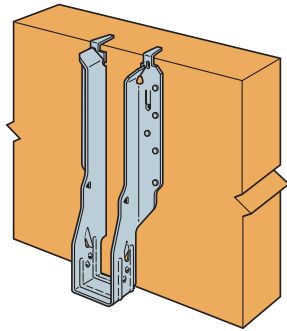
LF Installation (two screws required for joist widths > 2½")



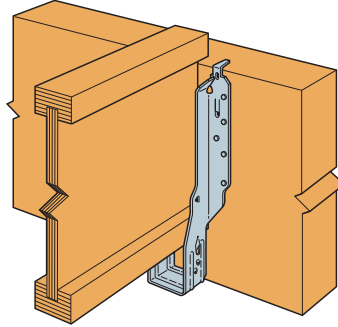
# IUS/LF/MIU

## I-Joist Hangers (cont.)

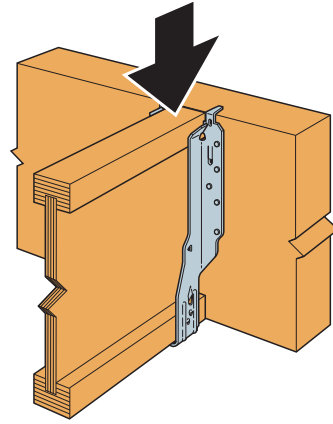
### IUS Installation Sequence



**Step 1**  
Attach the IUS to the header.



**Step 2**  
Slide the I-joist downward into the IUS until it rests above the large teardrop.



**Step 3**  
Firmly push or snap I-joist fully into the seat of the IUS.

I-Joist, Glulam and Structural Composite Lumber Connectors

# CSC/FSS

## Ceiling Support Clip / Furring Stabilizer Strap

Provides 1" separation between the furring channel and joist to allow for the use of Thermafiber® insulation and the attachment of the furring channel to all joists. Provides an efficient sound barrier, and a one hour U.L. listed fire rating.

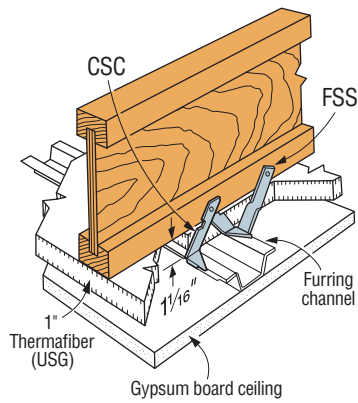
- UL-listed. See Underwriters Laboratory, Inc. Design No. L530 for USG gypsum board and Weyerhaeuser/TJI® joists.
- Check ICC-ES reports for individual I-joist manufacturer approvals.

**Material:** 24 gauge (minimum)

**Finish:** Galvanized

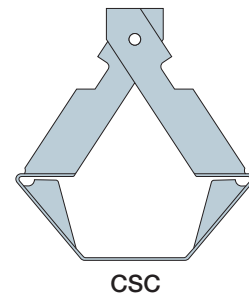
**Installation:**

- For CSC use one 8d x 1 1/2" nail
- For FSS use #8 self-tapping steel screw (not provided) into channel, twist 90°, bend upward and fasten to the side of joist bottom flange with screw or nail

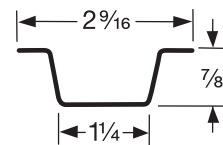


**Typical CSC and FSS Installation**

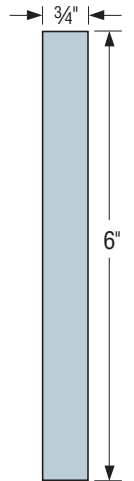
Thermafiber and TJI are registered trademarks of US Gypsum Company and Weyerhaeuser, respectively.



**CSC**



**Furring Channel Detail**



**FSS**  
(see Installation Notes)



# U/HU/HUC/HUCQ

## Face-Mount Hangers

See hanger tables on pp. 154–165.

**U** — The standard U hanger provides flexibility of joist to header installation. Versatile fastener selection with tested allowable loads.

**HU/HUC** — Most models have triangle and round holes. To achieve maximum values, fill both round and triangle holes with common nails.

**HUCQ** — Features concealed flanges so it can be installed close to the end of the supporting beam or on a post. They install with Strong-Drive® SDS Heavy-Duty Connector screws (supplied with the hanger) for high capacity and ease of installation.

**Material:** U — 16 gauge; HU/HUC/HUCQ — 14 gauge

**Finish:** Galvanized

**Installation:**

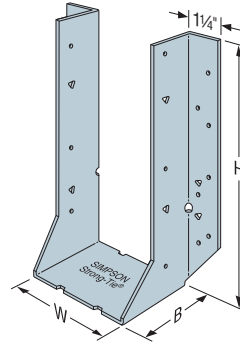
- Use all specified fasteners; see General Notes.
- HU/HUC — Can be installed filling round holes only, or filling round and triangle holes for maximum values.
- HUCQ — When using structural composite lumber columns, the capacities shown in the tables are for fasteners applied to the wide face of the column.
- Web stiffeners are required for all I-joists used with these hangers.
- For installation to masonry or concrete, see pp. 306–307.
- HU/HUC/HUCQ hangers can be welded to a steel member. Factored resistances are the lesser of the values in the hanger tables on pp. 154–165 or the weld capacity — refer to technical bulletin T-HUHUC-W at [strongtie.com](http://strongtie.com).

**Options:**

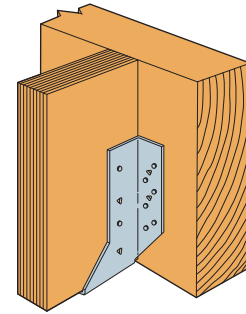
- Order HUC\_X hanger. For both flanges concealed, order HUC.

**Sloped, Skewed and Sloped/Skewed:**

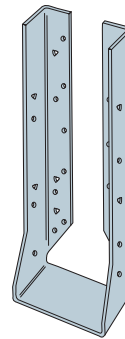
- For low-cost, 45° skewed hangers, see SUR/SUL on pp. 210–212.
- See modification table for available options and associated reductions in resistance for U and HU hangers.
- HUCQ cannot be modified.



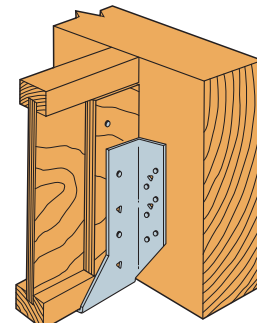
**HU410**



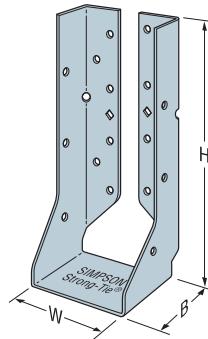
**Typical HU7 Installation**



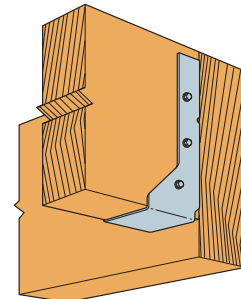
**HUC412  
Concealed Flanges**



**Typical HU7 Installation**

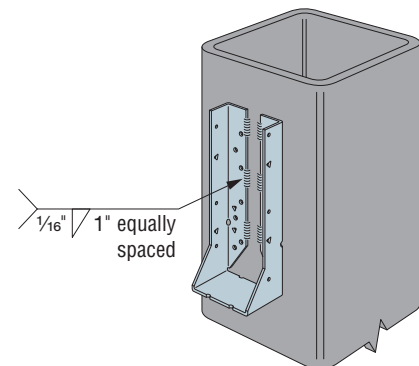


**HUCQ**



**Typical HUCQ Installed  
on End of a Beam**

Model configurations may differ from those shown. Some HU models do not have triangle holes. Contact Simpson Strong-Tie for details.



**HUC Welded to Steel Column**



# U/HU/HUC/HUCQ

## Face-Mount Hangers (cont.)

### U/HU/HUC Series Reduction Factors for Modified Hangers

Seat			Flange	Fastener Substitutions			
Seat Sloped Up or Down 45° Max.	Seat Skewed 67½° Max. <sup>3</sup> for W ≤ 6 45° Max. for W ≥ 6	Seat Sloped and Skewed	One or Both HU Flanges Concealed <sup>2</sup>	For Stainless-Steel Hangers 16d Stainless-Steel Nails		Other Fastener Substitutions	
1.00	0.65	0.65	1.00	Ring shank (all conditions)	1.00	16d → 16d x 2½"	1.00
				Smooth shank (normal seat)	0.80	16d → 10d	0.83
				Smooth shank (modified seat <sup>1</sup> )	0.43	16d → 10d x 1½"	0.64

- Modified seat is sloped, skewed, or both. For stainless-steel hangers, if sloped only or skewed only, use a smooth shank stainless steel reduction of 0.65.
- For both flanges concealed, W must be at least 2⅝". To order ask for HUCXXX. For skewed HUC, only flange on acute side is concealed.
- Skews over 50° require a square-cut joist.
- HU1.81/5 can be skewed to a maximum of 50°.
- Skewed hangers may have joist nails on one side.

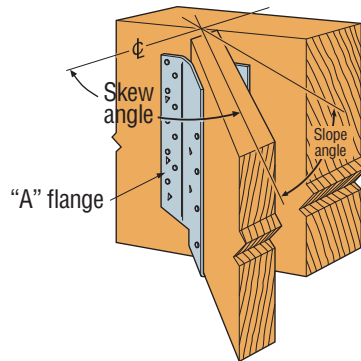
### Reduction Factor Instructions

**Factored Down Resistance** = Seat x Flange x Stainless-Steel Nails x Other Fastener Substitutions x (Table Value)

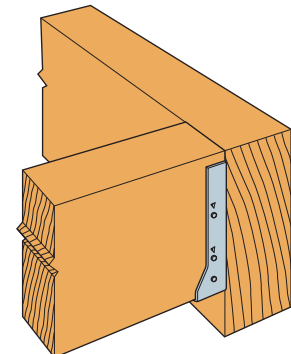
**Factored Uplift Resistance** = 0.75 x Face Fastener Type x (Table Value) for skewed or sloped  
1.00 x Face Fastener Type x (Table Value) for non-skewed or sloped

### Maximum Skew Degree for Skewed HUC Hangers

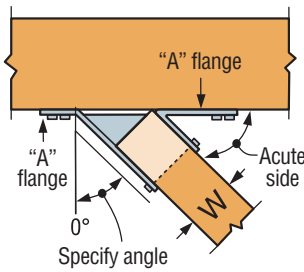
Hanger Width (in.)	Maximum Skew (degree)
2⅝	31
2⅞	31
3	34
3¼	37
3½	41
3¾	42
> 3¾	45



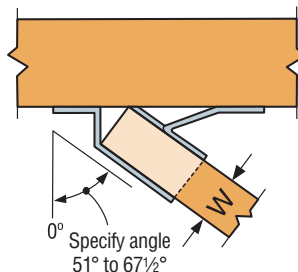
Typical HU Sloped Down, Skewed Right Installation



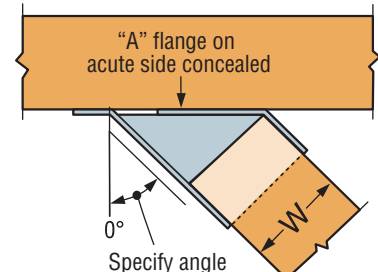
Typical HUC Installed on a Beam



Top View U Hanger Skewed Right < 51° (square cut)



Top View U Hanger Skewed Right ≥ 51° (square cut)



Top View HUC Concealed Hanger Skewed Right (square cut)



# HUS/HHUS/HGUS

## Double-Shear Face-Mount Hangers

These hangers are designed for applications where higher factored resistances are needed.

All hangers in this series have double-shear nailing. This patented innovation distributes the load through two points on each joist nail for greater strength. It also allows the use of fewer nails, faster installation, and the use of common nails for all connections. (Do not bend or remove tabs)

**Material:** See tables, pp. 154–165.

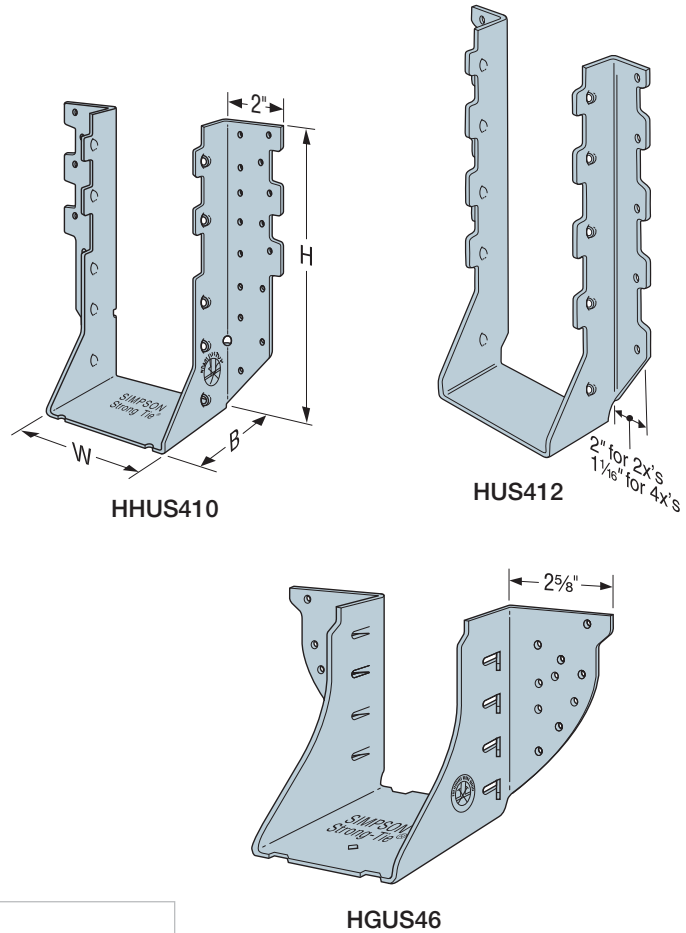
**Finish:** Galvanized. Some products available in stainless steel or ZMAX®, See Corrosion Information, pp. 16–21

**Installation:**

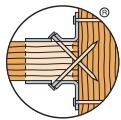
- Use all specified fasteners; see General Notes.
- Do not use double-shear hangers with I-joists.
- Nails must be driven at an angle through the joist into the header to achieve the tabulated values.
- Not designed for welded or nailer applications.
- Where 16d commons are specified, 10d commons may be used at 0.83 of the tabulated factored resistance.
- With 2x carrying members, use 10d x 1½" nails into the header and 10d commons into the joist, and reduce the tabulated factored resistance to 0.64 of the table value.

**Options:**

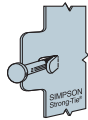
- HUS cannot be modified.
- Other sizes available; contact Simpson Strong-Tie for details.



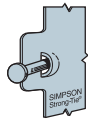
I-Joist, Glulam and Structural Composite Lumber Connectors



Double-Shear Nailing Top View



Double-Shear Nailing Side View Do not bend tab



Dome Double-Shear Nailing Side View (available on some models)

## HGUS/HHUS

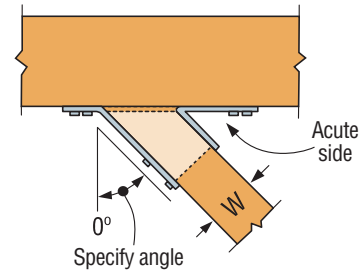
### HHUS — Sloped and/or Skewed Seat

- HHUS hangers can be skewed to a maximum of 45° and/or sloped to a maximum of 45°
- For skew only, maximum factored down resistance is 0.85 of the table value
- For sloped only or sloped and skewed hangers, the maximum factored down resistance is 0.72 of the table value
- Uplift resistances for sloped/skewed conditions are 0.62 of the table value
- The joist must be bevel-cut to allow for double shear nailing

### HGUS — Skewed Seat

- HGUS hangers can be skewed only to a maximum of 45°. Factored resistances are:

HGUS Seat Width	Joist	Down Load	Uplift
W < 2"	bevel or square cut	0.62 of table value	0.46 of table value
2" < W < 6"	bevel cut	0.67 of table value	0.41 of table value
2" < W < 6"	square cut	0.46 of table value	0.41 of table value
W > 6"	bevel cut	0.75 of table value	0.41 of table value



**Top View HHUS Hanger Skewed Right**  
(joist must be bevel cut)  
All joist nails installed on the outside angle (non-acute side).





# LGU/MGU/HGU/HHGU

## High-Capacity Girder Hangers

The GU hangers are high-capacity girder hangers designed for situations where the header and joist are flush at top. This part can be used for retrofit on the framing members after they are temporarily placed in position. It uses Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws to make installation fast and easy, with no predrilling required.

### Features:

- Fire-resistant F (flame) and T (temperature) rated in Intertek Design No. SST/WPCF 120-01.



**Material:** See table

**Finish:** Galvanized, HHGU — Simpson Strong-Tie® gray paint

### Installation:

- Use all specified fasteners; see General Notes.
- Install with ¼" x 2½" Strong-Drive SDS Heavy-Duty Connector screws, which are provided with the hangers. (Note: lag screws will not achieve the same loads.)
- Alternatively, the Strong-Drive SDS ¼" x 2½" face screws supplied with these hangers may be replaced with SDS ¼" x 3½" or SDS ¼" x 5" screws for two-ply or three-ply LVL headers to transfer the hanger load to all plies. This alternate fastener option does not eliminate the need for uniform fastener requirements along the length of the multi-ply header.
- All multiple members must be fastened together to act as a single unit.
- Multiple member headers may require additional fasteners at the hanger locations. The quantity and location of the additional fasteners must be determined by the designer.

## Hanger Options

- Hot-dip galvanized available. Order as "X" version; specify HDG.
- Other seat widths available. Order as "X" version; specify width.
- LGU, MGU and HGU hangers are available skewed up to 45°.

### Concealed Flange

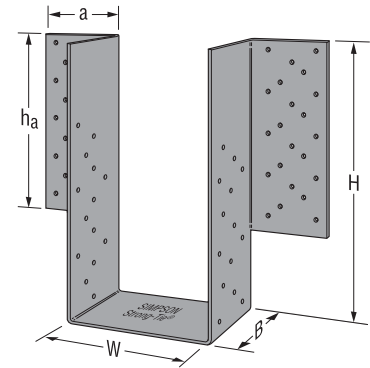
- LGU, MGU, HGU, and HHGU are available with one flange concealed. Specify flange to conceal.
- Factored resistance for one flange-concealed option:
  - LGU 0.83 of published value      – HGU 0.70 of published value
  - MGU 0.65 of published value      – HHGU 0.84 of published value
- MGU with  $W \leq 4"$  or less and HGU with  $W \leq 4\frac{1}{16}"$  or less, flanges cannot be concealed.

### Skewed

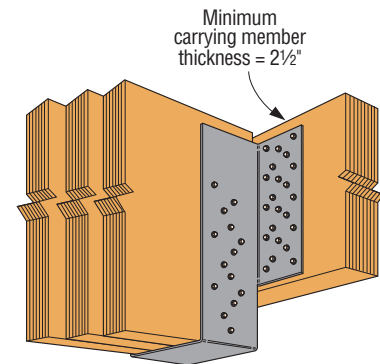
- LGU, MGU and HGU hangers are available skewed up to 45°.
- Concealed flanges are not available with skewed models.
- Apply the following reduction factors to table values:

## Reduction Factors for Skewed LGU, MGU, HGU

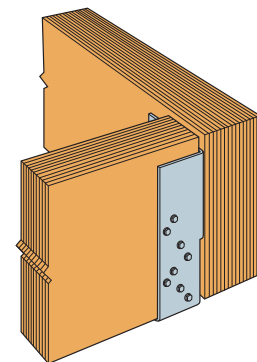
Model	Beam Cut	Download	Uplift
LGU	Square cut	0.90	0.60
	Bevel cut	0.90	0.60
MGU/HGU less than 6" wide	Square cut	0.75	0.65
	Bevel cut	0.80	0.65
MGU/HGU 6" ≤ 7.25" wide	Square cut < 7" wide	0.75	0.55
	Bevel cut	0.80	0.55



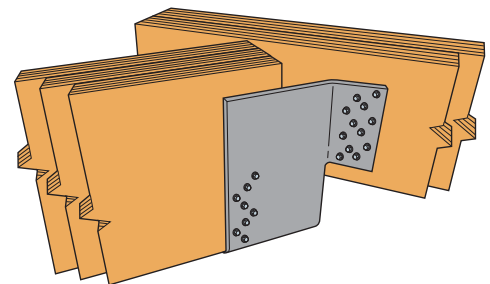
**HHGU**  
(LGU, MGU, HGU similar)



**Typical HHGU Installation**



**Typical MGU Installation with Right Flange Concealed**



**Typical Skewed MGU Installation**



## LGU/MGU/HGU/HHGU

## High-Capacity Girder Hangers (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Joist Width (in.)	Model No.	Ga.	Dimensions (in.)					Fasteners		Factored Resistance			
			W	B	Min. Height (H)	h <sub>a</sub>	a	Header	Joist	D-Fir-L		S-P-F	
										Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)
			lb.	lb.	lb.	lb.	kN	kN	kN	kN			
3 1/8	LGU3.25-SDS	10	3 1/4	4 1/2	8	7%	3 1/4	(16) 1/4" x 2 1/2" SDS	(12) 1/4" x 2 1/2" SDS	7730	10170	5565	7320
										34.38	45.24	24.75	32.56
3 1/2	LGU3.63-SDS	10	3%	4 1/2	8	7%	3 1/4	(16) 1/4" x 2 1/2" SDS	(12) 1/4" x 2 1/2" SDS	7730	10170	5565	7320
										34.38	45.24	24.75	32.56
	MGU3.63-SDS	10	3%	4 1/2	9 1/4	8%	4	(24) 1/4" x 2 1/2" SDS	(16) 1/4" x 2 1/2" SDS	10100	13140	7270	9460
										44.93	58.45	32.34	42.08
	HGU3.63-SDS	7	3%	5 1/4	11	10%	4 3/4	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	14300	20320	10295	14630
										63.61	90.39	45.79	65.08
5 1/8	LGU5.25-SDS	10	5 1/4	4 1/2	8	7%	3 1/4	(16) 1/4" x 2 1/2" SDS	(12) 1/4" x 2 1/2" SDS	7730	10170	5565	7320
										34.38	45.24	24.75	32.56
	MGU5.25-SDS	10	5 1/4	4 1/2	9 1/4	8%	4	(24) 1/4" x 2 1/2" SDS	(16) 1/4" x 2 1/2" SDS	10100	13140	7270	9460
										44.93	58.45	32.34	42.08
	HGU5.25-SDS	7	5 1/4	5 1/4	11	10%	4 3/4	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	14300	20320	10295	14630
										63.61	90.39	45.79	65.08
	HHGU5.25-SDS	3	5 1/4	5 1/4	13	12%	4 3/4	(44) 1/4" x 2 1/2" SDS	(28) 1/4" x 2 1/2" SDS	15385	26665	11080	19195
										68.44	118.61	49.28	85.38
5 1/4	MGU5.50-SDS	10	5 1/2	4 1/2	9 1/4	8%	4	(24) 1/4" x 2 1/2" SDS	(16) 1/4" x 2 1/2" SDS	10100	13140	7270	9460
										44.93	58.45	32.34	42.08
	HGU5.50-SDS	7	5 1/2	5 1/4	11	10%	4 3/4	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	14300	20320	10295	14630
										63.61	90.39	45.79	65.08
	HHGU5.50-SDS	3	5 1/2	5 1/4	13	12%	4 3/4	(44) 1/4" x 2 1/2" SDS	(28) 1/4" x 2 1/2" SDS	21740	26665	15655	19195
										96.70	118.61	69.64	85.38
6 7/8	MGU7.00-SDS	10	7	4 1/2	9 1/4	8%	4	(24) 1/4" x 2 1/2" SDS	(16) 1/4" x 2 1/2" SDS	10100	13140	7270	9460
										44.93	58.45	32.34	42.08
	HGU7.00-SDS	7	7	5 1/4	11	10%	4 3/4	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	14300	20320	10295	14630
										63.61	90.39	45.79	65.08
	HHGU7.00-SDS	3	7	5 1/4	13	12%	4 3/4	(44) 1/4" x 2 1/2" SDS	(28) 1/4" x 2 1/2" SDS	15385	26665	11080	19195
										68.44	118.61	49.28	85.38
7	HGU7.25-SDS	7	7 1/4	5 1/4	11	10%	4 3/4	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	14300	20320	10295	14630
										63.61	90.39	45.79	65.08
	HHGU7.25-SDS	3	7 1/4	5 1/4	13	12%	4 3/4	(44) 1/4" x 2 1/2" SDS	(28) 1/4" x 2 1/2" SDS	15385	26665	11080	19195
										68.44	118.61	49.28	85.38
8 3/4	HGU9.00-SDS	7	9	5 1/4	11	10%	4 3/4	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	14300	20320	10295	14630
										63.61	90.39	45.80	65.08
	HHGU9.00-SDS	3	9	5 1/4	13	12%	4 3/4	(44) 1/4" x 2 1/2" SDS	(28) 1/4" x 2 1/2" SDS	15385	26665	11080	19195
										68.44	118.62	49.28	85.39
10 3/4	HGU11.00-SDS	7	11	5 1/4	11	10%	4 3/4	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	14300	20320	10295	14630
										63.61	90.39	45.80	65.08
	HHGU11.00-SDS	3	11	5 1/4	13	12%	4 3/4	(44) 1/4" x 2 1/2" SDS	(28) 1/4" x 2 1/2" SDS	15385	26665	11080	19195
										68.44	118.62	49.28	85.39
13 3/4	HHGU14.00-SDS	3	14	5 1/4	13	12%	4 3/4	(44) 1/4" x 2 1/2" SDS	(28) 1/4" x 2 1/2" SDS	15385	26665	11080	19195
										68.44	118.62	49.28	85.39

- Factored uplift resistances have been increased for earthquake and wind loading, with no further increase allowed.
- Specify H dimension. The designer should check the shear capacity of the carried member to make sure it matches the hanger's capacity. Maximum H = 30".
- Header depth must exceed the h<sub>a</sub> dimension shown and is based on the size necessary to fit screw pattern. Use the next size up that meets the minimum depth requirement.



## Face-Mount Hangers — I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)			Fasteners			Factored Resistance			
				W	H	B	Min./Max.	Header	Joist	D.Fir-L		S-P-F	
										Uplift	Normal	Uplift	Normal
				(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)						
				lb.	lb.	lb.	lb.						
kN	kN	kN	kN										
1½ x 9¼ 1½ x 9½	LF159	—	18	1⅞	9¼	2	—	(10) 10d	(1) #8 x 1¼" WS	105 0.47	2435 10.83	105 0.47	1845 8.21
	MIU1.56/9	—	16	1⅞	8⅞	2½	—	(16) 16d	(2) 10d x 1½"	375 1.67	3045 13.55	375 1.67	2305 10.25
1½ x 11¼ 1½ x 11⅞	LF1511	—	18	1⅞	11¼	2	—	(12) 10d	(1) #8 x 1¼" WS	105 0.47	2435 10.83	105 0.47	1845 8.21
	MIU1.56/11	—	16	1⅞	11⅞	2½	—	(20) 16d	(2) 10d x 1½"	375 1.67	3045 13.55	375 1.67	2305 10.25
1¾ x 5½	HU1.81/5	✓	14	1⅞	5⅞	2½	Min.	(12) 16d	(4) 10d x 1½"	980 4.36	2785 12.39	905 4.03	1975 8.79
							Max.	(16) 16d	(6) 10d x 1½"	1470 6.54	3715 16.53	1360 6.05	2635 11.72
1¾ x 7¼	HU7	✓	14	1⅞	6⅞	2½	Min.	(12) 16d	(4) 10d x 1½"	980 4.36	3775 16.79	905 4.03	2670 11.88
							Max.	(16) 16d	(8) 10d x 1½"	1960 8.72	5445 24.22	1810 8.05	4225 18.79
1¾ x 9½	IUS1.81/9.5	—	18	1⅞	9½	2	—	(8) 10d	—	175 0.78	2385 10.61	175 0.78	1690 7.52
1¾ x 9¼ 1¾ x 9½	LF179	—	18	1⅞	9¼	2	—	(10) 10d	(1) #8 x 1¼" WS	105 0.47	2525 11.23	105 0.47	2155 9.59
	MIU1.81/9	—	16	1⅞	8⅞	2½	—	(16) 16d	(2) 10d x 1½"	375 1.67	3555 15.81	375 1.67	2690 11.97
	HU9	✓	14	1⅞	9⅞	2½	Min.	(18) 16d	(6) 10d x 1½"	1470 6.54	4830 21.49	1360 6.05	3875 17.24
							Max.	(24) 16d	(10) 10d x 1½"	2450 10.90	5685 25.29	2265 10.08	4660 20.73
	HUS1.81/10	N/A <sup>7</sup>	14	1⅞	9	3	—	(30) 16d	(10) 16d	4505 20.04	6405 28.49	4010 17.84	5200 23.13
	HUCQ1.81/9-SDS	N/A <sup>7</sup>	14	1⅞	9	3	—	(8) ¼" x 1¾" SDS	(4) ¼" x 1¾" SDS	1565 6.96	4350 19.35	1450 6.45	3300 14.68
1¾ x 11⅞	IUS1.81/11.88	—	18	1⅞	11⅞	2	—	(10) 10d	—	175 0.78	2565 11.41	175 0.78	1820 8.10
1¾ x 11¼ 1¾ x 11⅞	LF1711	—	18	1⅞	11¼	2	—	(12) 10d	(1) #8 x 1¼" WS	105 0.47	2845 12.66	105 0.47	2155 9.59
	MIU1.81/11	—	16	1⅞	11⅞	2½	—	(20) 16d	(2) 10d x 1½"	375 1.67	3555 15.81	375 1.67	2690 11.97
	HUS1.81/10	N/A <sup>7</sup>	14	1⅞	9	3	—	(30) 16d	(10) 16d	4505 20.04	6405 28.49	4010 17.84	5200 23.13
	HU11	✓	14	1⅞	11⅞	2½	Min.	(22) 16d	(6) 10d x 1½"	1470 6.54	4830 21.49	1360 6.05	3875 17.24
							Max.	(30) 16d	(10) 10d x 1½"	2450 10.90	5685 25.29	2265 10.08	4660 20.73
	HUCQ1.81/11-SDS	N/A <sup>7</sup>	14	1⅞	11	3	—	(10) ¼" x 1¾" SDS	(4) ¼" x 1¾" SDS	1565 6.96	5440 24.20	1450 6.45	3560 15.84

1. 10d common nails may be used instead of the specified 16d nails at 0.83 of the tabulated value.
2. Uplift loads have been increased 15% for earthquake or wind loading with no further increase allowed.  
Reduce by 15% for standard term loading (K<sub>D</sub> = 1.00) such as in cantilever construction.
3. Min. nailing quantity and load values — fill all round holes; Max. nailing quantity and load values — fill all round and triangle holes.
4. D.Fir-L factored resistances can be used for most LVL. Verify with manufacturer prior to selecting hanger.
5. Web stiffeners are required when the top flange of the I-joist is not supported laterally by the hanger.
6. Web stiffeners are required when supporting double I-joists with flanges less than 1⅞" thick.
7. These hangers are for rectangular sections only and are not recommended for use with I-joists.
8. For 16 and 18 gauge, 3½" wide I-joist hangers, web stiffeners are required when the factored reaction is greater than 2330 lb. (10.36 kN).
9. **Nails:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.



# Face-Mount Hangers — I-Joists, Glulam and SCL

I-Joist, Glulam and Structural Composite Lumber Connectors

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)			Fasteners			Factored Resistance			
				W	H	B	Min./Max.	Header	Joist	D.Fir-L		S-P-F	
										Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)
				lb.	lb.	lb.	lb.						
				kN	kN	kN	kN						
1 3/4 x 14	IUS1.81/14	—	18	1 7/8	14	2	Min.	(12) 10d	—	175	2565	175	1820
							Max.	(14) 10d	—	0.78	11.41	0.78	8.10
	LF1714	—	18	1 13/16	13 1/2	2	—	(14) 10d	(1) #8 x 1 1/4" WS	175	2725	175	1935
										0.78	12.12	0.78	8.61
	MIU1.81/14	—	16	1 13/16	13 5/8	2 1/2	—	(22) 16d	(2) 10d x 1 1/2"	105	2845	105	2155
										0.47	12.66	0.47	9.59
	HUS1.81/10	N/A <sup>7</sup>	14	1 13/16	9	3	—	(30) 16d	(10) 16d	375	3555	375	2690
										1.67	15.81	1.67	11.97
	HU14	—	—	1 13/16	13 1/8	2 1/2	Min.	(28) 16d	(8) 10d x 1 1/2"	4505	6405	4010	5200
										20.04	28.49	17.84	23.13
										1960	5255	1810	4265
										8.72	23.38	8.05	18.97
HUCQ1.81/11-SDS	N/A <sup>7</sup>	14	1 13/16	11	3	—	(10) 1/4" x 1 3/4" SDS	(4) 1/4" x 1 3/4" SDS	3430	5780	2695	5450	
									15.26	25.71	11.99	24.24	
1 3/4 x 16	IUS1.81/16	—	18	1 7/8	16	2	—	(14) 10d	—	1565	5440	1450	3560
										6.96	24.20	6.45	15.84
1 3/4 x 18-20	MIU1.81/18	✓ <sup>5</sup>	16	1 13/16	17 5/8	2 1/2	—	(26) 16d	(2) 10d x 1 1/2"	175	2725	175	1935
										0.78	12.12	0.78	8.61
2 x 9 1/2 2 1/8 x 9 1/2	IUS2.06/9.5	—	18	2 1/8	9 1/2	2	—	(8) 10d	—	375	3555	375	2690
										1.67	15.81	1.67	11.97
2 x 11 7/8 2 1/8 x 11 7/8	HU2.1/9	✓	14	2 1/8	9 3/8	2 1/2	—	(14) 16d	(6) 10d x 1 1/2"	1470	5465	1360	4225
										6.54	24.31	6.05	18.79
2 x 11 7/8 2 1/8 x 11 7/8	IUS2.06/11.88	—	18	2 1/8	11 7/8	2	—	(10) 10d	—	145	2565	105	1820
										0.65	11.41	0.47	8.10
	LF2111	—	18	2 1/8	11 1/4	2	—	(12) 10d	(1) #8 x 1 1/4" WS	105	2880	105	2270
										0.47	12.81	0.47	10.10
MIU2.1/11	—	16	2 1/8	11 1/8	2 1/2	—	(20) 16d	(2) 10d x 1 1/2"	375	4550	375	3230	
									1.67	20.24	1.67	14.37	
2 x 14 2 1/8 x 14	IUS2.06/14	—	18	2 1/8	14	2	Min.	(12) 10d	—	145	2565	105	1820
							Max.	(14) 10d	—	0.65	11.41	0.47	8.10
	LF2114	—	18	2 1/8	13 3/8	2	—	(14) 10d	(1) #8 x 1 1/4" WS	145	2725	105	1935
										0.65	12.12	0.47	8.61
	MIU2.1/11	✓	16	2 1/8	11 1/8	2 1/2	—	(20) 16d	(2) 10d x 1 1/2"	105	3235	105	2385
										0.47	14.39	0.47	10.61
	HU2.1/11	✓	14	2 1/8	11	2 1/2	—	(16) 16d	(6) 10d x 1 1/2"	375	4550	375	3230
										1.67	20.24	1.67	14.37
	HU2.1/11	✓	14	2 1/8	11	2 1/2	—	(16) 16d	(6) 10d x 1 1/2"	1470	5465	1360	4225
										6.54	24.31	6.05	18.79

See footnotes on p. 155.



# Face-Mount Hangers — I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)			Fasteners			Factored Resistance			
				W	H	B	Min./Max.	Header	Joist	D.Fir-L		S-P-F	
										Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)
				lb.	lb.	lb.	lb.						
kN	kN	kN	kN										
2 x 16 2 1/8 x 16	IUS2.06/16	—	18	2 1/8	16	2	—	(14) 10d	—	175	2725	175	1935
	MIU2.1/11	✓	16	2 1/8	11 1/16	2 1/2	—	(20) 16d	(2) 10d x 1 1/2"	0.78	12.12	0.78	8.61
										375	4550	375	3230
	HU2.1/11	✓	14	2 1/8	11	2 1/2	—	(16) 16d	(6) 10d x 1 1/2"	1.67	20.24	1.67	14.37
										1470	5465	1360	4225
	2 5/16 x 9 1/2	IUS2.37/9.5	—	18	2 5/16	9 1/2	2	—	(8) 10d	—	175	2385	175
LF239		—	18	2 5/8	9 1/4	2	—	(10) 10d	(1) #8 x 1 1/4" WS	0.78	10.61	0.78	7.52
										105	2525	105	2155
MIU2.37/9		—	16	2 5/8	9	2 1/2	—	(16) 16d	(2) 10d x 1 1/2"	0.47	11.23	0.47	9.60
										375	4550	375	3230
U3510/14		✓	16	2 5/16	9	2	—	(14) 16d	(6) 10d x 1 1/2"	1.67	20.24	1.67	14.37
										1345	4355	1235	3090
HU359 HUC359		✓	14	2 5/8	8 15/16	2 1/2	Min.	(14) 16d	(6) 10d x 1 1/2"	5.98	19.37	5.49	13.75
										1470	5780	1360	4225
										6.54	25.71	6.05	18.79
										2450	5780	2265	4690
2 5/16 x 11 7/8		IUS2.37/11.88	—	18	2 5/16	11 7/8	2	—	(10) 10d	—	175	2565	175
	LF2311	—	18	2 5/8	11 1/4	2	—	(12) 10d	(1) #8 x 1 1/4" WS	0.78	11.41	0.78	8.10
										105	2880	105	2270
	MIU2.37/11	—	16	2 5/8	11 1/16	2 1/2	—	(20) 16d	(2) 10d x 1 1/2"	0.47	12.81	0.47	10.11
										375	4550	375	3230
	U3516/20	✓	16	2 5/16	10 9/16	2	—	(16) 16d	(6) 10d x 1 1/2"	1.67	20.24	1.67	14.37
										1345	4355	1235	3095
	HU3511 HUC3511	✓	14	2 5/8	10 15/16	2 1/2	Min.	(16) 16d	(6) 10d x 1 1/2"	5.98	19.37	5.49	13.77
										1470	5780	1360	4225
										6.54	25.71	6.05	18.79
2450										5780	2265	4690	
2 5/16 x 14	IUS2.37/14	—	18	2 5/16	14	2	Min.	(12) 10d	—	10.90	25.71	10.08	20.86
										175	2565	175	1820
	LF2314	—	18	2 5/8	13 1/2	2	—	(14) 10d	(1) #8 x 1 1/4" WS	0.78	11.41	0.78	8.10
										175	2725	175	1935
	MIU2.37/14	—	16	2 5/8	13 1/2	2 1/2	—	(22) 16d	(2) 10d x 1 1/2"	0.78	12.12	0.78	8.61
										105	3235	105	2385
	HU3514 HUC3514	✓	14	2 5/8	12 1/2	2 1/2	Min.	(18) 16d	(8) 10d x 1 1/2"	0.47	14.39	0.47	10.61
										375	4695	375	3485
										1.67	20.91	1.67	15.52
										1960	5780	1810	4690
Max.	(24) 16d	(12) 10d x 1 1/2"	8.72	25.71	8.05	20.86							
			2940	5780	2695	5780							
13.08	25.71	11.99	25.71										

See footnotes on p. 155.



# Face-Mount Hangers — I-Joists, Glulam and SCL

I-Joist, Glulam and Structural Composite Lumber Connectors

Joist Size (in.)	Model No.	Web Stiff Req.	Ga.	Dimensions (in.)			Fasteners			Factored Resistance				
				W	H	B	Min./Max.	Header	Joist	D.Fir-L		S-P-F		
										Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	
				lb.	lb.	lb.	lb.							
				kN	kN	kN	kN							
2 5/16 x 16	IUS2.37/16	—	18	2 7/16	16	2	—	(14) 10d	—	175 0.78	2725 12.12	175 0.78	1935 8.61	
	MIU2.37/16	—	16	2 3/8	15 1/2	2 1/2	—	(24) 16d	(2) 10d x 1 1/2"	375 1.67	4695 20.91	375 1.67	3485 15.52	
	HU3516/22 HUC53516/22	✓	14	2 3/8	14 1/4	2 1/2	—	(20) 16d	(8) 10d x 1 1/2"	1960 8.72	5780 25.71	1810 8.05	4690 20.86	
	2 5/16 x 18	MIU2.37/18	—	16	2 3/8	17 1/2	2 1/2	—	(26) 16d	(2) 10d x 1 1/2"	375 1.67	4695 20.91	375 1.67	3485 15.52
		HU3524/30 HUC3524/30	✓	14	2 3/8	18	2 1/2	Min.	(18) 16d	(8) 10d x 1 1/2"	1960 8.72	5780 25.71	1810 8.05	4690 20.86
								Max.	(24) 16d	(14) 10d x 1 1/2"	3430 15.26	5780 25.71	2695 11.99	5780 25.71
2 5/16 x 20 - 30	MIU2.37/20	✓ <sup>5</sup>	16	2 3/8	19 1/2	2 1/2	—	(28) 16d	(2) 10d x 1 1/2"	375 1.67	4695 20.91	375 1.67	3485 15.52	
	HU3524/30 HUC3524/30	✓	14	2 5/16	18	2 1/2	Min.	(18) 16d	(8) 10d x 1 1/2"	1960 8.72	5780 25.71	1810 8.05	4690 20.86	
							Max.	(24) 16d	(14) 10d x 1 1/2"	3430 15.26	5780 25.71	2695 11.99	5780 25.71	
							—	—	—	—	—	—	—	—
	2 1/2 x 9 1/2	IUS2.56/9.5	—	18	2 5/8	9 1/2	2	—	(8) 10d	—	175 0.78	2385 10.61	175 0.78	1690 7.52
		LF259	—	18	2 5/16	9 1/4	2	—	(10) 10d	(1) #8 x 1 1/4" WS	105 0.47	2525 11.23	105 0.47	2155 9.60
MIU2.56/9		—	16	2 5/16	8 15/16	2 1/2	—	(16) 16d	(2) 10d x 1 1/2"	375 1.67	4550 20.24	375 1.67	3230 14.37	
HU310 HUC310		✓	14	2 5/16	8 7/8	2 1/2	—	(14) 16d	(6) 10d x 1 1/2"	1470 6.54	5780 25.71	1360 6.05	4225 18.79	
							—	—	—	—	—	—		
2 1/2 x 11 7/8	IUS2.56/11.88	—	18	2 5/8	11 7/8	2	—	(10) 10d	—	175 0.78	2565 11.41	175 0.78	1820 8.10	
	LF2511	—	18	2 5/16	11 1/4	2	—	(12) 10d	(1) #8 x 1 1/4" WS	105 0.47	2880 12.81	105 0.47	2270 10.11	
	MIU2.56/11	—	16	2 5/16	11 1/8	2 1/2	—	(20) 16d	(2) 10d x 1 1/2"	375 1.67	4550 20.24	375 1.67	3230 14.37	
	HU312 HUC312	✓	14	2 5/16	10 13/16	2 1/2	—	(16) 16d	(6) 10d x 1 1/2"	1470 6.54	5780 25.71	1360 6.05	4225 18.79	
							—	—	—	—	—	—		
2 1/2 x 14	IUS2.56/14	—	18	2 5/8	14	2	Min.	(12) 10d	—	175 0.78	2565 11.41	175 0.78	1820 8.10	
							Max.	(14) 10d	—	175 0.78	2725 12.12	175 0.78	1935 8.61	
	LF2514	—	18	2 5/16	13 1/2	2	—	(14) 10d	(1) #8 x 1 1/4" WS	105 0.47	3235 14.39	105 0.47	2385 10.61	
							—	—	—	—	—	—	—	—
	MIU2.56/14	—	16	2 5/16	13 3/8	2 1/2	—	(22) 16d	(2) 10d x 1 1/2"	375 1.67	4930 21.96	375 1.67	3485 15.52	
							—	—	—	—	—	—	—	—
	HU314 HUC314	✓	14	2 5/16	12 3/8	2 1/2	—	(18) 16d	(8) 10d x 1 1/2"	1960 8.72	5780 25.71	1810 8.05	4690 20.86	
							—	—	—	—	—	—	—	—

See footnotes on p. 155.



# Face-Mount Hangers — I-Joists, Glulam and SCL

These products are available with additional corrosion protection. For more information, see p. 20.

Joist Size (in.)	Model No.	Web Stiff Req.	Ga.	Dimensions (in.)			Fasteners			Factored Resistance			
				W	H	B	Min./Max.	Header	Joist	D.Fir-L		S-P-F	
										Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)
				lb.	lb.	lb.	lb.	kN	kN	kN	kN		
2½ x 16	IUS2.56/16	—	18	2⅝	16	2	—	(14) 10d	—	175	2725	175	1935
	MIU2.56/16	—	16	2⅝	15⅞	2½	—	(24) 16d	(2) 10d x 1½"	0.78	12.12	0.78	8.61
										375	4930	375	3485
										1.67	21.96	1.67	15.52
	HU316 HUC316	✓	14	2⅝	14⅜	2½	—	(20) 16d	(8) 10d x 1½"	1960	5780	1810	4690
										8.72	25.71	8.05	20.86
2½ x 18	MIU2.56/18	—	16	2⅝	17⅞	2½	—	(26) 16d	(2) 10d x 1½"	375	4930	375	3485
										1.67	21.96	1.67	15.52
										1960	5780	1810	4690
	HU316 HUC316	✓	14	2⅝	14⅞	2½	—	(20) 16d	(8) 10d x 1½"	8.72	25.71	8.05	20.86
										375	4930	375	3485
	MIU2.56/20	✓ <sup>5</sup>	16	2⅝	19⅞	2½	—	(28) 16d	(2) 10d x 1½"	375	4930	375	3485
2⅞ x 9½ PSL	HU2.75/10 HUC2.75/10	N/A <sup>7</sup>	14	2¾	9	2½	Min.	(14) 16d	(6) 10d x 1½"	1470	5780	1360	4225
										6.54	25.71	6.05	18.79
										2450	5780	2265	4690
	HGUS2.75/10	N/A <sup>7</sup>	12	2¾	8⅞	4	—	(46) 16d	(16) 16d	10.90	25.71	10.08	20.86
										6840	14015	4855	10270
										30.43	62.34	21.60	45.69
2⅞ x 11⅞ PSL	HU2.75/12 HUC2.75/12	N/A <sup>7</sup>	14	2¾	10¾	2½	Min.	(16) 16d	(6) 10d x 1½"	1470	5780	1360	4225
										6.54	25.71	6.05	18.79
										2450	5780	2265	4690
	HGUS2.75/12	N/A <sup>7</sup>	12	2¾	10⅞	4	—	(56) 16d	(20) 16d	10.90	25.71	10.08	20.86
										7640	14995	5425	10645
										33.99	66.70	24.13	47.35
2⅞ x 14 2⅞ x 16 PSL	HU2.75/14 HUC2.75/14	N/A <sup>7</sup>	14	2¾	13	2½	Min.	(18) 16d	(8) 10d x 1½"	1960	5780	1810	4690
										8.72	25.71	8.05	20.86
										3430	5780	2695	5780
	HGUS2.75/14	N/A <sup>7</sup>	12	2¾	12⅞	4	—	(66) 16d	(22) 16d	15.26	25.71	11.99	25.71
										10130	16400	7195	11645
										45.06	72.95	32.01	51.80
3 x 9¼ 3 x 9½	LF2-159	—	18	3⅝	9¼	2	—	(10) 10d	(2) #8 x 1¼" WS	105	2525	105	2150
										0.47	11.23	0.47	9.60
	MIU3.12/9	—	16	3⅝	9⅞	2½	—	(16) 16d	(2) 10d x 1½"	375	4550	375	3230
										1.67	20.24	1.67	14.37
	HU210-2 HUC210-2	✓	14	3⅝	8⅞	2½	Min.	(14) 16d	(6) 10d	1580	5780	1470	4225
										7.03	25.71	6.54	18.79
3 x 11¼ 3 x 11⅞	LF2-1511	—	18	3⅝	11¼	2	—	(12) 10d	(2) #8 x 1¼" WS	2635	5780	2450	4690
										11.72	25.71	10.90	20.86
	MIU3.12/11	—	16	3⅝	11⅞	2½	—	(20) 16d	(2) 10d x 1½"	105	2880	105	2270
										0.47	12.81	0.47	10.11
HU212-2 HUC212-2	✓	14	3⅝	10⅞	2½	Min.	(16) 16d	(6) 10d	375	4550	375	3230	
									1.67	20.24	1.67	14.37	
						Max.	(22) 16d	(10) 10d	1580	5780	1470	4225	
									7.03	25.71	6.54	18.79	
									2635	5780	2450	4690	
									11.72	25.71	10.90	20.86	

See footnotes on p. 155.



## Face-Mount Hangers — I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req.	Ga.	Dimensions (in.)			Fasteners			Factored Resistance			
				W	H	B	Min./Max.	Header	Joist	D.Fir-L		S-P-F	
										Uplift	Normal	Uplift	Normal
				(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)						
				lb.	lb.	lb.	lb.						
kN	kN	kN	kN										
3 3/8 Glulam	HU3.25/10.5 HUC3.25/10.5	N/A <sup>7</sup>	14	3 1/4	10 1/4	2 1/2	—	(22) 16d	(10) 10d	2635 11.72	5780 25.75	2450 10.90	4690 20.86
	HU3.25/12 HUC3.25/12	N/A <sup>7</sup>	14	3 1/4	11 3/4	2 1/2	—	(24) 16d	(12) 10d	3160 14.06	5780 25.75	2695 11.99	5780 25.75
	HU3.25/16 HUC3.25/16	N/A <sup>7</sup>	14	3 1/4	13 7/8	2 1/2	—	(26) 16d	(12) 10d	3160 14.06	5780 25.75	2695 11.99	5780 25.75
	HUCQ210-2	N/A <sup>7</sup>	14	3 1/4	9	3	—	(12) 1/4" x 2 1/2" SDS	(6) 1/4" x 2 1/2" SDS	3210 14.28	6825 30.36	2900 12.09	6825 30.36
	HGUS3.25/10	N/A <sup>7</sup>	12	3 1/4	8%	4	—	(46) 16d	(16) 16d	6840 30.47	14645 65.23	4855 21.60	10400 46.26
	HGUS3.25/12	N/A <sup>7</sup>	12	3 1/4	10%	4	—	(56) 16d	(20) 16d	7640 33.98	14995 66.79	5425 24.13	10645 47.35
	LGU3.25-SDS	N/A <sup>7</sup>	10	3 1/4	8 to 30	4 1/2	—	(16) 1/4" x 2 1/2" SDS	(12) 1/4" x 2 1/2" SDS	7730 34.39	10170 45.24	5565 24.76	7320 32.56
3 1/2 x 7 1/4	HU48 HUC48	—	14	3 3/16	6 1/16	2 1/2	Min. Max.	(10) 16d (14) 16d	(4) 10d (6) 10d	1055 4.69 1580 7.03	4270 18.99 5780 25.71	980 4.36 1470 6.54	3135 13.95 4225 18.79
	HHUS48	N/A <sup>7</sup>	14	3%	7 1/8	4	—	(22) 16d	(8) 16d	3765 27.00	8940 57.74	2675 19.17	6345 40.99
	HGUS48	N/A <sup>7</sup>	12	3%	7 1/16	4	—	(36) 16d	(12) 16d	6070 27.00	12980 57.74	4310 19.17	9215 40.99
	IUS3.56/9.5	—	18	3%	9 1/2	2	—	(10) 10d	—	175 0.78	2370 10.54	175 0.78	1685 7.50
3 1/2 x 9 1/4 3 1/2 x 9 1/2	LF359	—	18	3 3/16	9 1/4	2	—	(10) 10d	(2) #8 x 1 1/4" WS	105 0.47	2525 11.23	105 0.47	2155 9.60
	MIU3.56/9	—	16	3 3/16	8 13/16	2 1/2	—	(16) 16d	(2) 10d x 1 1/2"	375 1.67	4550 20.24	375 1.67	3230 14.37
	U410	✓	16	3 3/16	8%	2	—	(14) 16d	(6) 10d	1440 6.41	4355 19.37	1340 5.96	3090 13.75
	HUS410	N/A <sup>7</sup>	14	3 3/16	8 15/16	2	—	(8) 16d	(8) 16d	3795 16.88	5690 25.31	3450 15.35	4570 20.33
	HU410 HUC410	✓	14	3 3/16	8%	2 1/2	Min. Max.	(14) 16d (18) 16d	(6) 10d (10) 10d	1580 7.03 2635 11.72	5780 25.71 5780 25.71	1470 6.54 2450 10.90	4225 18.79 4690 20.86
	HUCQ410-SDS	N/A <sup>7</sup>	14	3 3/16	9	3	—	(12) 1/4" x 2 1/2" SDS	(6) 1/4" x 2 1/2" SDS	3210 14.28	6825 30.36	2900 12.90	6825 30.36
	HHUS410	N/A <sup>7</sup>	14	3%	9	3	—	(30) 16d	(10) 16d	4670 20.77	9855 43.84	4235 18.84	7000 31.14
	HGUS410	N/A <sup>7</sup>	12	3%	9 1/16	4	—	(46) 16d	(16) 16d	6840 30.43	14015 62.34	4855 21.60	10270 45.69
	LGU3.63-SDS	N/A <sup>7</sup>	10	3%	8 to 30	4 1/2	—	(16) 1/4" x 2 1/2" SDS	(12) 1/4" x 2 1/2" SDS	7730 34.39	10170 45.24	5565 24.76	7320 32.56
	MGU3.63-SDS	N/A <sup>7</sup>	10	3%	9 1/4 to 30	4 1/2	—	(24) 1/4" x 2 1/2" SDS	(16) 1/4" x 2 1/2" SDS	10100 44.93	13140 58.45	7270 32.34	9460 42.08
3 1/2 x 11 7/8	IUS3.56/11.88	—	18	3%	11 7/8	2	—	(12) 10d	—	175 0.78	2370 10.54	175 0.78	1685 7.50
	LF3511	—	18	3 3/16	11 1/4	2	—	(12) 10d	(2) #8 x 1 1/4" WS	105 0.47	2880 12.81	105 0.47	2270 10.11
3 1/2 x 11 1/4 (cont. on next page)	MIU3.56/11	—	16	3 3/16	11 1/4	2 1/2	—	(20) 16d	(2) 10d x 1 1/2"	375 1.67	4550 20.24	375 1.67	3230 14.37
	U414	✓	16	3 3/16	10	2	—	(16) 16d	(6) 10d	1440 6.41	4355 19.37	1340 5.96	3090 13.75

See footnotes on p. 155.





# Face-Mount Hangers — I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req.	Ga.	Dimensions (in.)			Fasteners			Factored Resistance			
				W	H	B	Min./Max.	Header	Joist	D.Fir-L		S-P-F	
										Uplift	Normal	Uplift	Normal
				(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)						
lb.	lb.	lb.	lb.										
kN	kN	kN	kN										
3½ x 11¼ 3½ x 11¾ (cont.)	HUS412	N/A <sup>7</sup>	14	3¾	10½	2	—	(10) 16d	(10) 16d	4745	7015	3650	4980
	HU412 HUC412	✓	14	3¾	10¾	2½	Min.	(16) 16d	(6) 10d	1580	5780	1470	4225
							Max.	(22) 16d	(10) 10d	2635	5780	2450	4690
	HUCQ412-SDS	N/A <sup>7</sup>	14	3¾	11	3	—	(14) ¼" x 2½" SDS	(6) ¼" x 2½" SDS	3210	9090	2900	7645
	HGUS412	N/A <sup>7</sup>	12	3¾	10¾	4	—	(56) 16d	(20) 16d	7640	14995	5425	10645
										33.98	66.70	24.13	47.35
	LGU3.63-SDS	N/A <sup>7</sup>	10	3¾	8 to 30	4½	—	(16) ¼" x 2½" SDS	(12) ¼" x 2½" SDS	7730	10170	5565	7320
										34.39	45.24	24.76	32.56
MGU3.63-SDS	N/A <sup>7</sup>	10	3¾	9¼ to 30	4½	—	(24) ¼" x 2½" SDS	(16) ¼" x 2½" SDS	10100	13140	7270	9460	
									44.93	58.45	32.34	42.08	
HGU3.63-SDS	N/A <sup>7</sup>	7	3¾	11 to 30	5¼	—	(36) ¼" x 2½" SDS	(24) ¼" x 2½" SDS	14300	20320	10295	14630	
									63.61	90.39	45.79	65.08	
3½ x 14	IUS3.56/14	—	18	3¾	14	2	—	(12) 10d	—	175	2370	175	1685
	LF3514	—	18	3¾	13½	2	—	(14) 10d	(2) #8 x 1¼" WS	105	3235	105	2385
										0.47	14.39	0.47	10.61
	MIU3.56/14	—	16	3¾	13¾	2½	—	(22) 16d	(2) 10d x 1½"	375	4930	375	3485
										1.67	21.96	1.67	15.52
	U414	✓	16	3¾	10	2	—	(16) 16d	(6) 10d	1440	4355	1340	3095
										6.41	19.37	5.96	13.77
	HU416 HUC416	✓	14	3¾	13¾	2½	Min.	(20) 16d	(8) 10d	2105	5780	1960	4690
							Max.	(26) 16d	(12) 10d	3160	5780	2695	5780
	HGUS414	N/A <sup>7</sup>	12	3¾	12¾	4	—	(66) 16d	(22) 16d	10130	16400	7195	11645
45.06										72.95	32.00	51.80	
LGU3.63-SDS	N/A <sup>7</sup>	10	3¾	8 to 30	4½	—	(16) ¼" x 2½" SDS	(12) ¼" x 2½" SDS	7730	10170	5565	7320	
									34.39	45.24	24.76	32.56	
MGU3.63-SDS	N/A <sup>7</sup>	10	3¾	9¼ to 30	4½	—	(24) ¼" x 2½" SDS	(16) ¼" x 2½" SDS	10100	13140	7270	9460	
									44.93	58.45	32.34	42.08	
HGU3.63-SDS	N/A <sup>7</sup>	7	3¾	11 to 30	5¼	—	(36) ¼" x 2½" SDS	(24) ¼" x 2½" SDS	14300	20320	10295	14630	
									63.61	90.39	45.79	65.08	
3½ x 16	IUS3.56/16	—	18	3¾	16	2	—	(14) 10d	—	175	2370	175	1685
	MIU3.56/16	—	16	3¾	15¾	2½	—	(24) 16d	(2) 10d x 1½"	375	4930	375	3485
										1.67	21.96	1.67	15.52
	HU416 HUC416	✓	14	3¾	13¾	2½	Min.	(20) 16d	(8) 10d	2105	5780	1960	4690
							Max.	(26) 16d	(12) 10d	3160	5780	2695	5780
	HGUS414	N/A <sup>7</sup>	12	3¾	12¾	4	—	(66) 16d	(22) 16d	10130	16400	7195	11645
										45.06	72.95	32.00	51.80
	LGU3.63-SDS	N/A <sup>7</sup>	10	3¾	8 to 30	4½	—	(16) ¼" x 2½" SDS	(12) ¼" x 2½" SDS	7730	10170	5565	7320
34.39										45.24	24.76	32.56	
MGU3.63-SDS	N/A <sup>7</sup>	10	3¾	9¼ to 30	4½	—	(24) ¼" x 2½" SDS	(16) ¼" x 2½" SDS	10100	13140	7270	9460	
									44.93	58.45	32.34	42.08	
HGU3.63-SDS	N/A <sup>7</sup>	7	3¾	11 to 30	5¼	—	(36) ¼" x 2½" SDS	(24) ¼" x 2½" SDS	14300	20320	10295	14630	
									63.61	90.39	45.79	65.08	

See footnotes on p. 155.



# Face-Mount Hangers — I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req.	Ga.	Dimensions (in.)			Fasteners			Factored Resistance			
				W	H	B	Min./Max.	Header	Joist	D.Fir-L		S-P-F	
										Uplift	Normal	Uplift	Normal
				(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)						
				lb.	lb.	lb.	lb.						
kN	kN	kN	kN										
3½ x 18	MIU3.56/18	—	16	3¾	17¾	2½	—	(26) 16d	(2) 10d x 1½"	375	4930	375	3485
	HU416 HUC416	✓	14	3¾	13¾	2½	Min.	(20) 16d	(8) 10d	2105	5780	1960	4690
							Max.	(26) 16d	(12) 10d	3160	5780	2695	5780
	HGUS414	N/A <sup>7</sup>	12	3%	12⅞	4	—	(66) 16d	(22) 16d	10130	16400	7195	11645
										45.06	72.95	32.00	51.80
	LGU3.63-SDS	N/A <sup>7</sup>	10	3%	8 to 30	4½	—	(16) ¼" x 2½" SDS	(12) ¼" x 2½" SDS	7730	10170	5565	7320
										34.39	45.24	24.76	32.56
MGU3.63-SDS	N/A <sup>7</sup>	10	3%	9¼ to 30	4½	—	(24) ¼" x 2½" SDS	(16) ¼" x 2½" SDS	10100	13140	7270	9460	
									44.93	58.45	32.34	42.08	
HGU3.63-SDS	N/A <sup>7</sup>	7	3%	11 to 30	5¼	—	(36) ¼" x 2½" SDS	(24) ¼" x 2½" SDS	14300	20320	10295	14630	
									63.61	90.39	45.79	65.08	
4 x 11¾	MIU4.12/11	—	16	4½	11⅞	2½	—	(20) 16d	(2) 10d x 1½"	375	4550	375	3230
	HU4.12/11 HUC4.12/11	✓	14	4½	10¾	2½	Min.	(16) 16d	(6) 10d	1580	5780	1470	4225
							Max.	(22) 16d	(10) 10d	2635	5780	2450	4690
										11.72	25.71	10.90	20.86
7.03										25.71	6.54	18.79	
4 x 14	MIU4.12/14	—	16	4½	13½	2½	—	(22) 16d	(2) 10d x 1½"	375	4930	375	3485
										1.67	21.96	1.67	15.52
										375	4930	375	3485
4 x 16	MIU4.12/16	—	16	4½	15½	2½	—	(24) 16d	(2) 10d x 1½"	375	4930	375	3485
										1.67	21.96	1.67	15.52
										375	4550	375	3230
4½ x 9½	MIU4.28/9	—	16	4¾	9	2½	—	(16) 16d	(2) 10d x 1½"	375	4550	375	3230
	HU4.28/9 HUC4.28/9	✓	14	4¾	9	2½	—	(18) 16d	(8) 10d	2105	5780	1960	4690
9.36										25.71	8.72	20.86	
4½ x 11¾	MIU4.28/11	—	16	4¾	11⅞	2½	—	(20) 16d	(2) 10d x 1½"	375	4550	375	3230
	HU4.28/11 HUC4.28/11	✓	14	4¾	11	2½	—	(22) 16d	(8) 10d	2455	5780	2280	4690
10.92										25.71	10.14	20.86	
4½ x 14	MIU4.28/14	—	16	4¾	13½	2½	—	(22) 16d	(2) 10d x 1½"	375	4930	375	3485
										1.67	21.96	1.67	15.52
										375	4930	375	3485
4½ x 16	MIU4.28/16	—	16	4¾	15½	2½	—	(24) 16d	(2) 10d x 1½"	375	4930	375	3485
										1.67	21.96	1.67	15.52
										375	4550	375	3230
4½ x 9½	MIU4.75/9	—	16	4¾	9⅞	2½	—	(16) 16d	(2) 10d x 1½"	375	4550	375	3230
	U3510-2	✓	16	4¾	8¾	2	—	(14) 16d	(6) 10d	1440	4355	1340	3090
										6.41	19.37	5.96	13.75
HU4.75/9 HUC4.75/9	✓	14	4¾	9	2½	—	(18) 16d	(8) 10d	2105	5780	1960	4690	
									9.36	25.71	8.72	20.86	
4½ x 11¾	MIU4.75/11	—	16	4¾	11⅞	2½	—	(20) 16d	(2) 10d x 1½"	375	4550	375	3230
	U3512-2	✓	16	4¾	11¼	2	—	(16) 16d	(6) 10d	1440	4355	1340	3095
										6.41	19.37	5.96	13.77
HU4.75/11 HUC4.75/11	✓	14	4¾	11	2½	—	(22) 16d	(8) 10d	2455	5780	2280	4690	
									10.92	25.71	10.14	20.86	
4½ x 14	MIU4.75/14	—	16	4¾	13½	2½	—	(22) 16d	(2) 10d x 1½"	375	4930	375	3485
	HU3514-2 HUC3514-2	✓	14	4¾	13¼	2½	—	(18) 16d	(8) 10d	2105	5780	1960	4690
										9.36	25.71	8.72	20.86

See footnotes on p. 155.



# Face-Mount Hangers — I-Joists, Glulam and SCL

I-Joist, Glulam and Structural Composite Lumber Connectors

Joist Size (in.)	Model No.	Web Stiff Req.	Ga.	Dimensions (in.)			Fasteners			Factored Resistance			
				W	H	B	Min./Max.	Header	Joist	D.Fir-L		S-P-F	
										Uplift	Normal	Uplift	Normal
										(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.										
kN	kN	kN	kN										
4 1/2 x 16	MIU4.75/16	—	16	4 3/4	15 1/2	2 1/2	—	(24) 16d	(2) 10d x 1 1/2"	375	4930	375	3485
	HU3516-2 HUC3516-2	✓	14	4 3/4	15 1/4	2 1/2	Min.	(20) 16d	(8) 10d	2105	5780	1960	4690
							Max.	(26) 16d	(12) 10d	3160	5780	2695	5780
										14.06	25.71	11.99	25.71
									1.67	21.96	1.67	15.52	
4 1/2 x 18	MIU4.75/18	—	16	4 3/4	17 1/2	2 1/2	—	(26) 16d	(2) 10d x 1 1/2"	375	4930	375	3485
										1.67	21.96	1.67	15.52
4 1/2 x 20 – 30	MIU4.75/20	—	16	4 3/4	19 1/2	2 1/2	—	(28) 16d	(2) 10d x 1 1/2"	375	4930	375	3485
	HU3520-2 HUC3520-2	✓	14	4 3/4	19 1/4	2 1/2	Min.	(20) 16d	(8) 10d	2105	5780	1960	4690
							Max.	(26) 16d	(12) 10d	3160	5780	2695	5780
										14.06	25.71	11.99	25.71
									1.67	21.96	1.67	15.52	
5 x 9 1/2	MIU5.12/9	—	16	5 1/8	8 1/4	2 1/2	—	(16) 16d	(2) 10d x 1 1/2"	375	4550	375	3230
	HU310-2 HUC310-2	✓	14	5 1/8	7 7/8	2 1/2	—	(14) 16d	(6) 10d	1580	5780	1470	4225
										7.03	25.71	6.54	18.79
										1.67	20.24	1.67	14.37
5 x 11 1/8	MIU5.12/11	—	16	5 1/8	11 1/8	2 1/2	—	(20) 16d	(2) 10d x 1 1/2"	375	4550	375	3230
	HU312-2 HUC312-2	✓	14	5 1/8	10 3/8	2 1/2	—	(16) 16d	(6) 10d	1580	5780	1470	4225
										7.03	25.71	6.54	18.79
										1.67	20.24	1.67	14.37
5 x 14	MIU5.12/14	—	16	5 1/8	13 1/8	2 1/2	—	(22) 16d	(2) 10d x 1 1/2"	375	4930	375	3485
	HU314-2 HUC314-2	✓	14	5 1/8	12 3/8	2 1/2	—	(18) 16d	(8) 10d	2105	5780	1960	4690
										9.36	25.71	8.71	20.86
										1.67	21.96	1.67	15.52
5 x 16	MIU5.12/16	—	16	5 1/8	15 1/8	2 1/2	—	(24) 16d	(2) 10d x 1 1/2"	375	4930	375	3485
	HU314-2 HUC314-2	✓	14	5 1/8	12 3/8	2 1/2	—	(18) 16d	(8) 10d	2105	5780	1960	4690
										9.36	25.71	8.71	20.86
										1.67	21.96	1.67	15.52
5 x 18	MIU5.12/18	—	16	5 1/8	17 1/8	2 1/2	—	(26) 16d	(2) 10d x 1 1/2"	375	4930	375	3485
	HU314-2 HUC314-2	✓	14	5 1/8	12 3/8	2 1/2	—	(18) 16d	(8) 10d	2105	5780	1960	4690
										9.36	25.71	8.71	20.86
										1.67	21.96	1.67	15.52
5 x 20 – 30	MIU5.12/20	✓ <sup>5</sup>	16	5 1/8	19 1/8	2 1/2	—	(28) 16d	(2) 10d x 1 1/2"	375	4930	375	3485
										1.67	21.96	1.67	15.52
5 1/2 Glulam	HUCQ5.25/9-SDS	N/A <sup>7</sup>	14	5 1/4	9	3	—	(12) 1/4" x 2 1/2" SDS	(6) 1/4" x 2 1/2" SDS	3210	7270	2900	6825
										14.28	32.34	12.90	30.36
	HUCQ5.25/11-SDS	N/A <sup>7</sup>	14	5 1/4	11	3	—	(14) 1/4" x 2 1/2" SDS	(6) 1/4" x 2 1/2" SDS	3210	9090	2900	7645
										14.28	40.44	12.90	34.01
	HU5.125/12 HUC5.12/12	N/A <sup>7</sup>	14	5 1/4	10 1/4	2 1/2	—	(22) 16d	(8) 16d	2455	5780	2280	4690
										10.92	25.75	10.14	20.86
	HU5.125/13.5 HUC5.125/13.5	N/A <sup>7</sup>	14	5 1/4	13 1/4	2 1/2	—	(26) 16d	(12) 16d	3685	7025	2615	6185
										16.39	31.25	11.63	27.51
	HU5.125/16 HUC5.125/16	N/A <sup>7</sup>	14	5 1/4	13 3/8	2 1/2	—	(26) 16d	(12) 16d	3685	7025	2615	6185
										16.39	31.25	11.63	27.51
HGUS5.25/10	N/A <sup>7</sup>	12	5 1/4	9 1/8	4	—	(46) 16d	(16) 16d	6840	14645	4855	10400	
									30.47	65.23	21.60	46.26	
HGUS5.25/12	N/A <sup>7</sup>	12	5 1/4	10 1/8	4	—	(56) 16d	(20) 16d	7640	14995	5425	10645	
									33.98	66.79	24.13	47.35	
LGU5.25-SDS	N/A <sup>7</sup>	10	5 1/4	8 to 30	4 1/2	—	(16) 1/4" x 2 1/2" SDS	(12) 1/4" x 2 1/2" SDS	7730	10170	5565	7320	
									34.39	45.24	24.76	32.56	
MGU5.25-SDS	N/A <sup>7</sup>	10	5 1/4	9 1/4 to 30	4 1/2	—	(24) 1/4" x 2 1/2" SDS	(16) 1/4" x 2 1/2" SDS	10100	13140	7270	9460	
									44.93	58.45	32.34	42.08	
HGU5.25-SDS	N/A <sup>7</sup>	7	5 1/4	11 to 30	5 1/4	—	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	14300	20320	10295	14630	
									63.61	90.39	45.79	65.08	

See footnotes on p. 155.



# Face-Mount Hangers — I-Joists, Glulam and SCL

I-Joist, Glulam and Structural Composite Lumber Connectors

Joist Size (in.)	Model No.	Web Stiff Req.	Ga.	Dimensions (in.)			Fasteners			Factored Resistance			
				W	H	B	Min./Max.	Header	Joist	D.Fir-L		S-P-F	
										Uplift	Normal	Uplift	Normal
										(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.										
kN	kN	kN	kN										
5 1/4 x 7 1/4	HU68 HUC68	✓	14	5 1/2	5 1/16	2 1/2	Min.	(10) 16d	(4) 10d	1230	4270	1140	3135
							Max.	(14) 16d	(6) 10d	5.47	18.99	5.07	13.95
	HGUS5.50/8	N/A <sup>7</sup>	12	5 1/2	7 3/16	4	—	(36) 16d	(12) 16d	1840	5780	1710	4225
										8.18	25.71	7.61	18.79
										6070	12980	4310	9215
										27.04	57.82	19.17	40.99
5 1/4 x 9 1/4 5 1/4 x 9 1/2	HU610 HUC610	✓	14	5 1/2	7 5/8	2 1/2	Min.	(14) 16d	(6) 16d	1840	5780	1710	4225
							Max.	(16) 16d	(8) 16d	8.18	25.71	7.61	18.79
	HUCQ610-SDS	N/A <sup>7</sup>	14	5 1/2	9	3	—	(12) 1/4" x 2 1/2" SDS	(6) 1/4" x 2 1/2" SDS	2455	5780	2280	4690
										10.92	25.71	10.14	20.86
	HHUS5.50/10	N/A <sup>7</sup>	14	5 1/2	9	3	—	(30) 16d	(10) 16d	3210	6825	2900	6825
										14.28	30.36	12.90	30.36
	HGUS5.50/10	N/A <sup>7</sup>	12	5 1/2	8 15/16	4	—	(46) 16d	(16) 16d	4670	10155	4235	7210
										20.77	45.17	18.84	32.07
	MGU5.50-SDS	N/A <sup>7</sup>	10	5 1/2	9 1/4 to 30	4 1/2	—	(24) 1/4" x 2 1/2" SDS	(16) 1/4" x 2 1/2" SDS	6840	14645	4855	10400
										30.47	65.23	21.60	46.26
	MGU5.50-SDS	N/A <sup>7</sup>	10	5 1/2	9 1/4 to 30	4 1/2	—	(24) 1/4" x 2 1/2" SDS	(16) 1/4" x 2 1/2" SDS	10100	13140	7270	9460
										44.93	58.45	32.34	42.08
5 1/4 x 11 1/4 5 1/4 x 11 1/8	HU612 HUC612	✓	14	5 1/2	9 3/8	2 1/2	Min.	(16) 16d	(6) 16d	1840	5780	1710	4225
							Max.	(22) 16d	(8) 16d	8.18	25.71	7.61	18.79
	HUCQ612-SDS	N/A <sup>7</sup>	14	5 1/2	11	3	—	(14) 1/4" x 2 1/2" SDS	(6) 1/4" x 2 1/2" SDS	2455	5780	2280	4690
										10.92	25.71	10.14	20.86
	HGUS5.50/12	N/A <sup>7</sup>	12	5 1/2	10 1/2	4	—	(56) 16d	(20) 16d	3210	9090	2900	7645
										14.28	40.43	12.90	34.01
	MGU5.50-SDS	N/A <sup>7</sup>	10	5 1/2	9 1/4 to 30	4 1/2	—	(24) 1/4" x 2 1/2" SDS	(16) 1/4" x 2 1/2" SDS	7640	14995	5425	10645
										34.03	66.79	24.13	47.35
	HGU5.50-SDS	N/A <sup>7</sup>	7	5 1/2	11 to 30	5 1/4	—	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	10100	13140	7270	9460
										44.93	58.45	32.34	42.08
HGU5.50-SDS	N/A <sup>7</sup>	7	5 1/2	11 to 30	5 1/4	—	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	14300	20320	10295	14630	
									63.61	90.39	45.79	65.08	
5 1/4 x 14	HU614 HUC614	✓	14	5 1/2	11 5/8	2 1/2	Min.	(18) 16d	(8) 16d	2455	5780	2280	4690
							Max.	(24) 16d	(12) 16d	10.92	25.71	10.14	20.86
	HGUS5.50/14	N/A <sup>7</sup>	12	5 1/2	12 1/2	4	—	(66) 16d	(22) 16d	3685	7025	3420	6185
										16.39	31.25	15.21	27.51
	MGU5.50-SDS	N/A <sup>7</sup>	10	5 1/2	9 1/4 to 30	4 1/2	—	(24) 1/4" x 2 1/2" SDS	(16) 1/4" x 2 1/2" SDS	10130	16400	7195	11645
										45.12	73.05	32.00	51.80
	HGU5.50-SDS	N/A <sup>7</sup>	7	5 1/2	11 to 30	5 1/4	—	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	10100	13140	7270	9460
										44.93	58.45	32.34	42.08
HHGU5.50-SDS	N/A <sup>7</sup>	3	5 1/2	13 to 30	5 1/4	—	(44) 1/4" x 2 1/2" SDS	(28) 1/4" x 2 1/2" SDS	14300	20320	10295	14630	
									63.61	90.39	45.79	65.08	
HHGU5.50-SDS	N/A <sup>7</sup>	3	5 1/2	13 to 30	5 1/4	—	(44) 1/4" x 2 1/2" SDS	(28) 1/4" x 2 1/2" SDS	15385	26665	11080	19195	
									68.44	118.62	49.28	85.39	

See footnotes on p. 155.



# Face-Mount Hangers — I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req.	Ga.	Dimensions (in.)			Fasteners			Factored Resistance			
				W	H	B	Min./Max.	Header	Joist	D.Fir-L		S-P-F	
										Uplift	Normal	Uplift	Normal
				(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)						
lb.	lb.	lb.	lb.										
kN	kN	kN	kN										
5 1/4 x 16 5 1/4 x 18	HU616 HUC616	✓	14	5 1/2	13 3/8	2 1/2	Min.	(20) 16d	(8) 16d	2455	5780	2280	4690
							Max.	(26) 16d	(12) 16d	10.92	25.71	10.14	20.86
	HGUS5.50/14	N/A <sup>7</sup>	12	5 1/2	12 1/2	4	—	(66) 16d	(22) 16d	3685	7025	3420	6185
							10130	16400	7195	11645			
	MGU5.50-SDS	N/A <sup>7</sup>	10	5 1/2	9 1/4 to 30	4 1/2	—	(24) 1/4" x 2 1/2" SDS	(16) 1/4" x 2 1/2" SDS	16.39	31.25	15.21	27.51
							10100	13140	7270	9460			
HGU5.50-SDS	N/A <sup>7</sup>	7	5 1/2	11 to 30	5 1/4	—	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	44.93	58.45	32.34	42.08	
						14300	20320	10295	14630				
HHGU5.50-SDS	N/A <sup>7</sup>	3	5 1/2	13 to 30	5 1/4	—	(44) 1/4" x 2 1/2" SDS	(28) 1/4" x 2 1/2" SDS	63.61	90.39	45.79	65.08	
						15385	26665	11080	19195				
5 1/4 x 20 – 30	MGU5.50-SDS	N/A <sup>7</sup>	10	5 1/2	9 1/4 to 30	4 1/2	—	(24) 1/4" x 2 1/2" SDS	(16) 1/4" x 2 1/2" SDS	68.44	118.62	49.28	85.39
							10100	13140	7270	9460			
	HGU5.50-SDS	N/A <sup>7</sup>	7	5 1/2	11 to 30	5 1/4	—	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	44.93	58.45	32.34	42.08
							14300	20320	10295	14630			
	HHGU5.50-SDS	N/A <sup>7</sup>	3	5 1/2	13 to 30	5 1/4	—	(44) 1/4" x 2 1/2" SDS	(28) 1/4" x 2 1/2" SDS	63.61	90.39	45.79	65.08
							15385	26665	11080	19195			
7 x 7 1/4	HGUS7.25/8	N/A <sup>7</sup>	12	7 1/4	7 7/8	4	—	(36) 16d	(12) 16d	68.44	118.62	49.28	85.39
							6070	12980	4310	9215			
7 x 9 1/4 7 x 9 1/2	HU410-2 HUC410-2	✓	14	7 1/8	8 3/8	2 1/2	Min.	(14) 16d	(6) 16d	27.04	57.82	19.17	41.00
							Max.	(18) 16d	(8) 16d	1840	5780	1710	4225
	HHUS7.25/10	N/A <sup>7</sup>	14	7 1/4	9	3 5/8	—	(30) 16d	(10) 16d	8.18	25.71	7.61	18.79
							2455	5780	2280	4690			
	HGUS7.25/10	N/A <sup>7</sup>	12	7 1/4	9	4	—	(46) 16d	(16) 16d	10.92	25.71	10.14	20.86
							4670	10155	3370	7210			
HU412-2 HUC412-2	✓	14	7 1/8	10 13/16	2 1/2	Min.	(16) 16d	(6) 16d	20.77	45.17	14.99	32.07	
						Max.	(22) 16d	(8) 16d	6840	15760	4855	11190	
HGUS7.25/12	N/A <sup>7</sup>	12	7 1/4	10 5/8	4	—	(56) 16d	(20) 16d	30.47	70.20	21.60	49.78	
						7640	16110	5425	11435				
HGU7.25-SDS	N/A <sup>7</sup>	7	7 1/4	11 to 30	5 1/4	—	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	63.61	90.39	45.79	65.08	
						14300	20320	10295	14630				
7 x 14 – 18	HU414-2 HUC414-2	✓	14	7 1/8	12 3/8	2 1/2	Min.	(20) 16d	(8) 16d	1840	5780	1710	4225
							Max.	(26) 16d	(12) 16d	8.18	25.71	7.61	18.79
	HGUS7.25/14	N/A <sup>7</sup>	12	7 1/4	12 3/8	4	—	(66) 16d	(22) 16d	2455	5780	2280	4690
							10130	18200	7195	12920			
	HGU7.25-SDS	N/A <sup>7</sup>	7	7 1/4	11 to 30	5 1/4	—	(36) 1/4" x 2 1/2" SDS	(24) 1/4" x 2 1/2" SDS	10.92	25.71	10.14	20.86
							14300	20320	10295	14630			
HHGU7.25-SDS	N/A <sup>7</sup>	3	7 1/4	13 to 30	5 1/4	—	(44) 1/4" x 2 1/2" SDS	(28) 1/4" x 2 1/2" SDS	63.61	90.39	45.79	65.08	
						15385	26665	11080	19195				
HHGU7.25-SDS	N/A <sup>7</sup>	3	7 1/4	13 to 30	5 1/4	—	(44) 1/4" x 2 1/2" SDS	(28) 1/4" x 2 1/2" SDS	68.44	118.62	49.28	85.39	
						15385	26665	11080	19195				

I-Joist, Glulam and Structural Composite Lumber Connectors

See footnotes on p. 155.



# Top-Flange Hangers ITS/LT/MIT/HIT

## Engineered Wood Product Hangers



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

A dedicated range of top-flange I-joint hangers meeting the unique needs of I-joists while offering superior performance and ease of installation.

### ITS

The innovative ITS sets the standard for engineered wood top-flange hangers. The ITS installs faster and uses fewer nails than any other EWP top-flange hanger. The Strong-Grip™ seat and Funnel Flange™ top flange allow standard joist installation without requiring joist nails resulting in the lowest installed cost. The Strong-Grip seat firmly secures I-joists with flange thicknesses from 1 1/8" to 1 1/2".

### LT

The LT series of top-flange hangers is designed for use with wood I-joists. Installation is fast and easy. The hanger's top flange simplifies placement and the side flanges laterally support the I-joint top flange eliminating the need for web stiffeners. Securing the carried I-joint is simple with only one or two screws required into the bottom flange through the seat of the hanger.

### MIT/HIT — Patented Positive Angle Nailing (PAN)

PAN is specifically designed for I-joists when used with the MIT or HIT. With PAN, the nail hole material is not removed, but is formed to channel and confine the path of the nail at approximately 45°. PAN minimizes splitting of the flanges while permitting time-saving nailing from a better angle. See top-flange tables on pp. 183–199.

Refer to Joist Manufacturer's literature or appropriate Simpson Strong-Tie Connector Selection Guide for actual joist sizes.

**Material:** ITS, LT — 18 gauge; MIT, HIT — 16 gauge

**Finish:** Galvanized

### Installation:

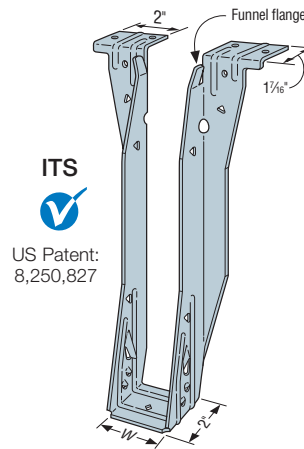
- Use all specified fasteners. Verify that the header can take the required fasteners specified in the table.
- See pp. 111–113 for more installation information.
- ITS — no joist nailing required for standard I-joint installation without web stiffeners. When supporting I-joists with web stiffeners or rectangular SCL member (2) 10d x 1 1/2" must be installed into optional triangle joist nail holes for standard installation values.
- ITS — optional triangle nail holes may be used for additional capacity. See load tables.
- MIT and LT — optional triangle nail holes may be used for increased uplift capacity. See Optional Nailing for Increased Uplift table.
- HIT — closed PAN nail holes may be used for increased uplift capacity. See Optional Nailing for Increased Uplift table.
- For sloped joists up to 1/4:12 there is no reduction, between 1/4:12 and up to 1/2:12, tests show a 10% reduction in ultimate hanger strength. Local crushing of the bottom flange or excessive deflection may be limiting; check with joist manufacturer for specific limitations on bearing of this type.

### Factored Resistances:

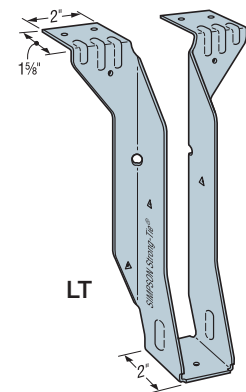
- The ITS, LT, MIT and HIT hangers have locations for optional nails if additional uplift is needed. Optional uplift nailing requires the addition of properly-secured web stiffeners. See the resistance tables for minimum required fasteners and uplift capacities.

### Options:

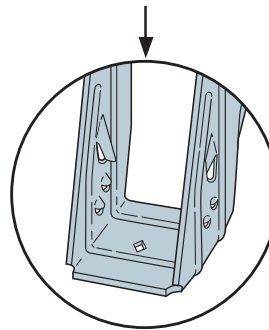
- Because these hangers are fully die-formed, they cannot be modified. However, these models will normally accommodate a skew of up to 5°.



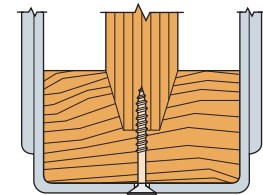
US Patent: 8,250,827



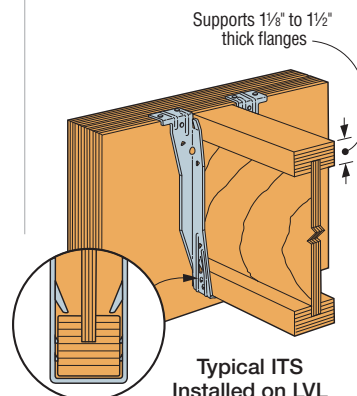
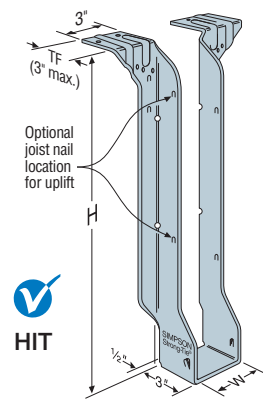
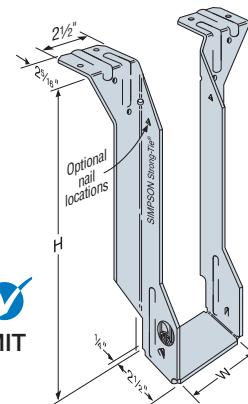
LT



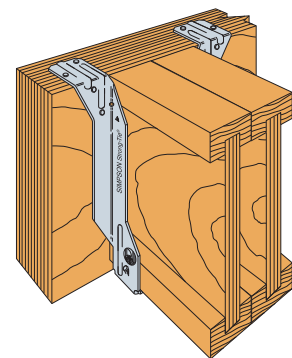
The Strong-Grip seat secures I-joists in position without joist nails



**LT Installation**  
(two screws required for joist widths > 2 1/2")



Typical ITS Installed on LVL



Typical MIT Installed on a Double LVL



## Top-Flange Hangers ITS/LT/MIT/HIT

## Engineered Wood Product Hangers (cont.)

## IT Series with Various Header Applications

Model	Fasteners			Factored Resistance						
	Top	Face	Joist	Uplift ( $K_D = 1.15$ )	Normal ( $K_D = 1.00$ )					
					D.Fir-L	S-P-F	LVL <sup>4</sup>	PSL	LSL	I-Joist <sup>5</sup>
				lb.	lb.	lb.	lb.	lb.	lb.	lb.
kN	kN	kN	kN	kN	kN	kN				
ITS series (Standard installation)	(4) 10d x 1½"	(2) 10d x 1½"	—	175	2045	1670	2050	1830	2385	1375
				0.78	9.09	7.43	9.12	8.14	10.61	6.12
	(4) 10d	(2) 10d	—	175	2130	1690	2280	2005	2615	—
				0.78	9.47	7.52	10.14	8.92	11.63	—
	(4) 16d	(2) 16d	—	175	2130	1795	2610	2550	2795	—
				0.78	9.47	7.98	11.61	11.34	12.43	—
ITS series <sup>8</sup> (Optional installation)	(4) 10d	(4) 10d	(4) 10d x 1½"	830	2870	1805	2545	2345	2770	—
				3.69	12.77	8.03	11.32	10.43	12.32	—
	(4) 16d	(4) 16d	(4) 10d x 1½"	830	2870	1805	2610	2550	2795	—
				3.69	12.77	8.03	11.61	11.34	12.43	—
LT series	(4) 10d x 1½"	(2) 10d x 1½"	(1) #8 x 1¼" WS	105	1910	1480	2175	1980	2215	1695
				0.47	8.50	6.58	9.68	8.81	9.85	7.54
	(4) 10d	(2) 10d	(1) #8 x 1¼" WS	105	2625	1725	2560	2480	2620	—
				0.47	11.68	7.67	11.39	11.03	11.65	—
	(4) 16d	(2) 16d	(1) #8 x 1¼" WS	105	2760	1850	2560	2480	2620	—
				0.47	12.28	8.23	11.39	11.03	11.65	—
MIT series	(4) 10d x 1½"	(4) 10d x 1½"	(2) 10d x 1½"	375	3145	1825	3330	2455	2630	1900
				1.67	13.99	8.12	14.81	10.92	11.70	8.45
	(4) 10d	(4) 10d	(2) 10d x 1½"	375	3295	2420	3550	3025	2630	—
				1.67	14.66	10.77	15.79	13.46	11.70	—
	(4) 16d	(4) 16d	(2) 10d x 1½"	375	3490	2420	3550	3025	3465	—
				1.67	15.52	10.77	15.79	13.46	15.41	—
HIT series	(4) 16d	(6) 16d	(2) 10d x 1½"	450	4570	2705	3725	3220	3775	—
				2.00	20.33	12.03	16.57	14.32	16.79	—

- When I-joint is used as header, all nails must be 10d x 1½".
- Resistances may not be increased for short-term loading.
- Uplift resistances are based on D.Fir-L, and have been increased 15% for wind or earthquake loading with no further increase allowed. Divide by 1.15 for normal loading criteria like cantilever construction. For S-P-F use 0.71 x resistance.
- Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from Spruce Pine Fir or similar less dense veneers, use the values found in the S-P-F column.
- For I-joint flanges less than 1½" thick multiply table values by a factor of 0.85.
- Minimum solid header thickness to achieve LT table loads is 1¼".
- Structural composite lumber is LVL, LSL and Parallam® PSL.
- ITS optional installation requires web stiffeners installed per I-joint manufacturers recommendations.
- For 16 and 18 gauge, 3½" wide I-joint hangers, web stiffeners are required when the factored reaction is greater than 2330 lb. (10.36 kN).
- Nails:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long.  
See pp. 22–24 for other nail sizes and information.

Parallam is a registered trademark of Weyerhaeuser.



# Top-Flange Hangers ITS/LT/MIT/HIT

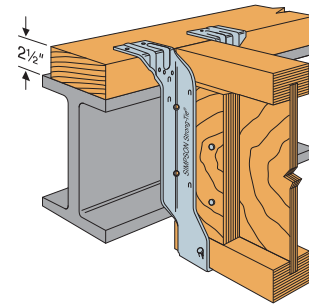
## Engineered Wood Product Hangers (cont.)

I-Joist, Glulam and Structural Composite Lumber Connectors

Model	Nailer	Header Nailing	Factored Normal Resistance ( $K_D = 1.00$ )		
			D.Fir-L	S-P-F	LSL
			lb.	lb.	lb.
ITS series (Standard installation)	2x	(6) 10d x 1½"	1855	1855	—
			8.25	8.25	—
	2-2x	(6) 10d	1855	1855	—
			8.25	8.25	—
ITS series (Optional installation)	2-2x	(8) 10d	2560	2240	—
			11.39	9.96	—
	4x	(8) 16d	2770	—	—
			12.32	—	—
	Steel	(4) 0.157" x ⅝" PAT	2035	2035	—
			9.05	9.05	—
LT series	2x	(6) 10d x 1½"	1770	1620	1995
			7.87	7.21	8.87
	2-2x	(6) 10d	2310	1995	—
			10.28	8.87	—
	4x	(6) 16d	2665	—	—
			11.85	—	—
MIT series	2x	(6) 10d x 1½"	2140	2055	2630
			9.52	9.14	—
	2-2x	(8) 10d	2365	2055	—
			10.52	9.14	—
	3x	(8) 16d x 2½"	2720	2430	—
			12.10	10.81	—
	4x	(8) 16d	3090	—	—
			13.75	—	—
Steel	(4) 0.157" x ⅝" PAT	2960	2960	—	
		13.17	13.17	—	
HIT series	2-2x	(10) 10d	3815	—	—
			16.97	—	—
	3x	(10) 16d x 2½"	4645	—	—
			20.66	—	—
4x	(10) 16d	4670	—	—	
		20.77	—	—	

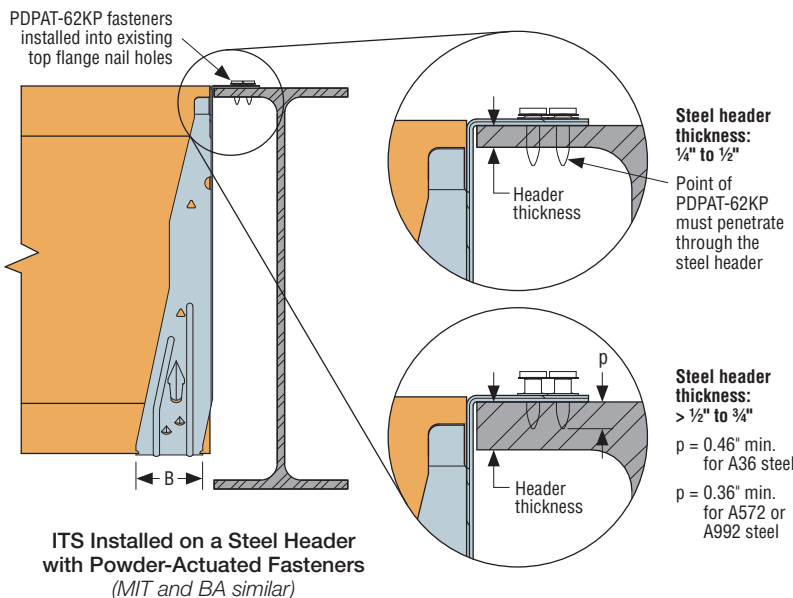
### Nailer Table

This table indicates the maximum factored normal resistances for ITS/LT/MIT/HIT hangers used on wood nailers. The header nail type must be substituted for those listed in other tables.



**HIT Installation on a 3x Nailer Mounted on a Steel Beam**

1. Maximum factored uplift resistance ( $K_D = 1.15$ ) for nailer applications is the lesser of the value shown in "Various Header Applications" table or 310 lb. (1.38kN).
2. For 16 and 18 gauge, 3½"-wide I-joist hangers, web stiffeners are required when the factored reaction is greater than 2330 lb. (10.36 kN).
3. Steel nailer factored resistances apply to steel header material with thickness between ¼" and ⅜" with minimum  $F_y = 250$  MPa. Design of steel header by designer.
4. 0.157" x ⅝" long powder-actuated fastener = PDPAT-62KP. A red (level 5) or purple (level 6) load may be required to achieve specified penetration.
5. **Nails:** 16d = 0.162" dia. x 3½" long, 16d x 2½" = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.



**PDPAT**

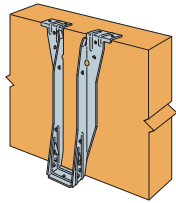




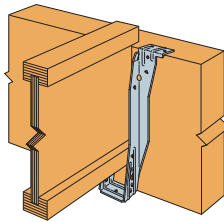
# Top-Flange Hangers ITS/LT/MIT/HIT

## Engineered Wood Product Hangers (cont.)

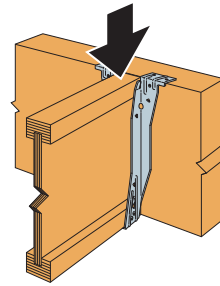
### ITS Installation Sequence



**Step 1**  
Attach the ITS  
to the header.



**Step 2**  
Slide the I-joint downward into the ITS  
until it rests above the Strong-Grip™ seat.



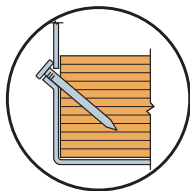
**Step 3**  
Firmly push or snap I-joint  
fully into the seat of the ITS.

### Optional Nailing for Increased Uplift

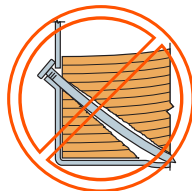
Model	Fasteners			Factored Uplift Resistance ( $K_D = 1.15$ )	
	Top	Face	Joist	D.Fir-L	S-P-F
				lb.	lb.
				kN	kN
LT series	(4) 10d x 1½"	(4) 10d x 1½"	(2) 10d x 1½"	380	380
				1.69	1.69
	(4) 10d	(4) 10d	(2) 10d x 1½"	380	380
				1.69	1.69
	(4) 16d	(4) 16d	(2) 10d x 1½"	380	380
				1.69	1.69
MIT series	(4) 10d x 1½"	(4) 10d x 1½"	(4) 10d x 1½"	895	705
				3.98	3.14
	(4) 10d	(4) 10d	(4) 10d x 1½"	895	705
				3.98	3.14
	(4) 16d	(4) 16d	(4) 10d x 1½"	895	705
				3.98	3.14
HIT series	(4) 16d	(6) 16d	(4) 10d x 1½"	895	705
				3.98	3.14
	(4) 16d	(6) 16d	(6) 10d x 1½"	1345	1175
				5.98	5.23

1. Factored resistances have been increased 15% for wind or earthquake loading with no further increase allowed. Reduce according to the code for normal loading criteria such as in cantilever construction.
2. Web stiffeners are required on I-joint for additional nailing.
3. **Nails:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.

### Positive Angle Nailing



Correct Nailing  
Approx. 45° Angle



Nail Too Long



Nail at Wrong Angle



## BA/HB

## Top-Flange Hangers



This product is preferable to similar connectors because of (a) easier installation, (b) higher loads, (c) lower installed cost, or a combination of these features.

The BA hanger is a cost-effective hanger used for structural composite lumber and high-capacity I-joists. When used with I-joists, the positive angle nailing at the joist seat allows the hanger to be used without web stiffeners.

The HB hanger is also available with higher capacity for structural composite lumber and heavier I-joist applications.

See top flange tables on pp. 183–206.

**Material:** See tables on pp. 183–206.

- For modified hangers, gauge may increase from that specified for non-modified hangers. Hanger configurations, height and fastener quantity may increase from the tables depending on joist size, skew and slope.

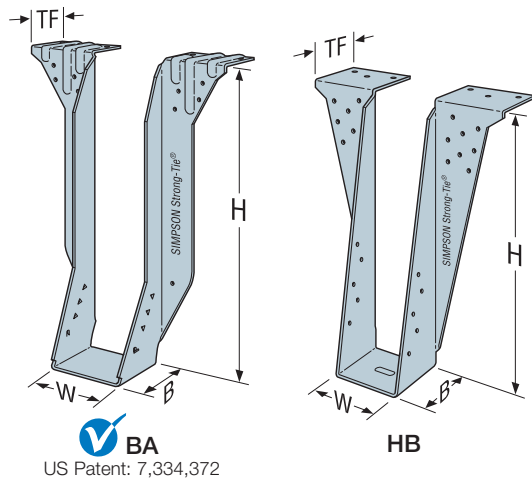
**Finish:** BA and HB — Galvanized; BA and HB may be ordered hot-dip galvanized; specify HDG.

#### Installation:

- Use all specified fasteners; see General Notes and nailer table.
- BA and HB may be used for weld-on applications. The minimum size weld is a 2"-long fillet weld to each side of each top flange; weld size to match hanger material thickness. Distribute the weld equally on both top flanges. Welding cancels the top and face nailing requirements. Consult the code for special considerations when welding galvanized steel. The area should be well-ventilated, see p. 15, note m for weld information. Weld on applications produce the maximum factored resistances listed. For uplift values, refer to technical bulletin T-C-WELDUPLFT at [strongtie.com](http://strongtie.com).
- HB hanger requires the use of web stiffeners. BA min. nailing does not require web stiffeners. BA max. nailing requires the use of web stiffeners.
- Ledgers must be evaluated for each application separately. Check TF dimension, nail length and nail location on ledger.
- Refer to technical bulletin T-C-SLOPEJST at [strongtie.com](http://strongtie.com) for information regarding reduced capacities on selected hangers which can be used without modification to support joists which have shallow slopes ( $\leq 3/4:12$ ).
- Bevel cut the carried member for skewed applications.

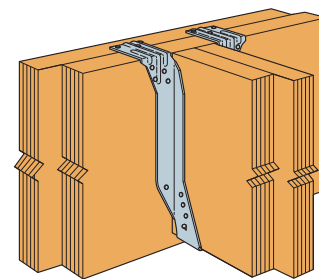
#### Options:

- Other widths are available; specify W dimension (the minimum W dimension is 1 1/8").
- The coating on special BA hangers will depend on the manufacturing process used. Check with your Simpson Strong-Tie representative for details. Hot-dip galvanized available: specify HDG.
- For modified hangers, fastener quantity may increase from the tables depending on joist size, skew and slope. All modified hangers are 12 gauge.
- The BA and HB hangers may be modified for slopes and/or skews up to 45°. The top flanges may be sloped up to 35° and may be open or closed up to 30°. See associated reduced capacities on p. 172.

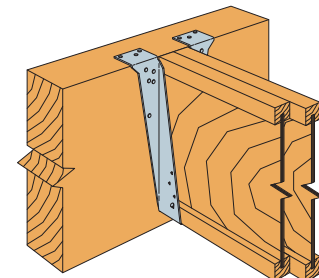


BA  
US Patent: 7,334,372

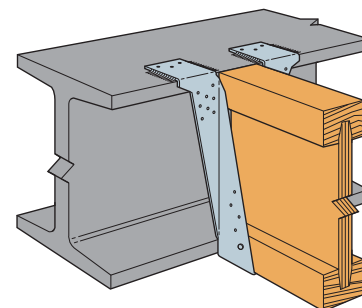
HB



BA Supporting  
Double LVL



BA Supporting  
Double I-Joist



BA and HB are acceptable  
for weld-on applications.  
See Installation Information.  
(HB shown)



## BA/HB

## Top-Flange Hangers (cont.)

## BA/HB Series with Various Header Applications

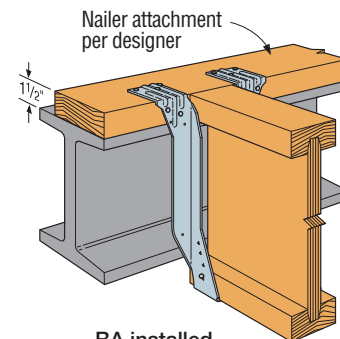
Model Series	Fasteners			Factored Resistance						
	Top	Face	Joist	Uplift <sup>1</sup>	Normal ( $K_D = 1.00$ )					
				( $K_D = 1.15$ )	D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
				lb.	lb.	lb.	lb.	lb.	lb.	lb.
kN	kN	kN	kN	kN	kN	kN				
BA (Min.)	(6) 10d x 1½"	(10) 10d x 1½"	(2) 10d x 1½"	—	—	—	—	—	—	2420
				—	—	—	—	—	—	10.77
	(6) 10d	(10) 10d	(2) 10d x 1½"	395	3915	3665	4695	5385	5820	—
				1.76	17.42	16.30	20.89	23.95	25.89	—
				395	4535	4030	5835	5385	5820	—
				1.76	20.17	17.93	25.96	23.95	25.89	—
BA (Max.)	(6) 10d	(10) 10d	(8) 10d x 1½"	1735	4855	3720	5375	5480	5980	—
				7.72	21.60	16.55	23.91	24.38	26.60	—
	(6) 16d	(10) 16d	(8) 10d x 1½"	1735	5480	4030	7125	6520	6795	—
				7.72	24.38	17.93	31.69	29.00	30.23	—
HB <sup>6</sup>	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
				15.81	41.53	26.45	42.37	41.10	46.60	—

- Factored uplift resistances shown are for D.Fir-L. Multiply tabulated loads x 0.71 for either SPF joist or header.
- Factored resistances shown are for header connection only. The designer must ensure the joist is capable of generating the factored resistances shown.
- Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from Spruce-Pine-Fir or similar less dense veneers, use the values found in the S-P-F column.
- I-joint values shown refer to I-joists made with SPF or LVL flanges.
- For flanges with thicknesses from 1⅞" to 1⅝", use 0.85 of the I-joint header value. For flanges with thicknesses from 1⅝" to 1¼", use 0.75 of the I-joint header value.
- Values shown are for a minimum joist width of 2½".
- Nails:** 16d = 0.162" dia. x 3½" long, 16d x 2½" = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.

## Nailer Table

This shows the maximum factored resistances for BA and HB hangers used on wood nailers. Nailers are wood members attached to the top of a steel I-beam, concrete or masonry wall. This table also applies to sloped-seat hangers.

Model No.	Nailer	Header Fasteners	Factored Normal Resistance ( $K_D = 1.00$ )	
			D.Fir-L	S-P-F
			lb.	lb.
			kN	kN
BA	2x	(10) 10d x 1½"	2860	2720
			12.72	12.10
	(2) 2x	(14) 10d	3915	3660
			17.41	16.28
	3x	(14) 16d x 2½"	4055	—
			18.04	—
4x	(14) 16d	4055	—	
Steel	(6) 0.157 x ⅝" PAT	4700	4700	
HB	(2) 2x	(18) 10d	5320	4335
			23.67	19.28
	4x	(22) 16d	9015	—
			40.15	—



BA installed  
2X nailer on steel beam  
minimum nailing

- Maximum factored uplift resistance ( $K_D = 1.15$ ) is the lesser of the value shown in the table above or 385 lb. (1.71kN).
- Steel nailer factored resistances apply to steel header material with thickness between ¼" and ¾" with minimum  $F_y = 250$  MPa. Design of steel header by designer.
- 0.157" x ⅝" long powder-actuated fastener = PDPAT-62KP. A red (level 5) or purple (level 6) load may be required to achieve specified penetration. See installation on p. 168.
- Nails:** 16d = 0.162" dia. x 3½" long, 16d x 2½" = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.



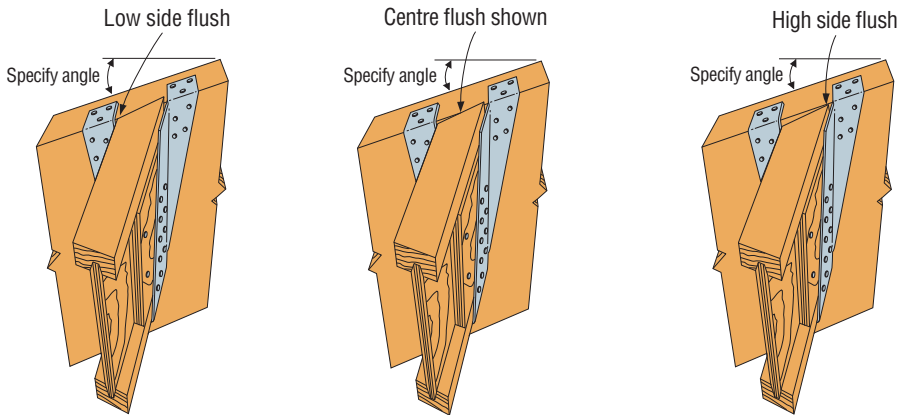
# BA/HB

## Top-Flange Hangers (cont.)

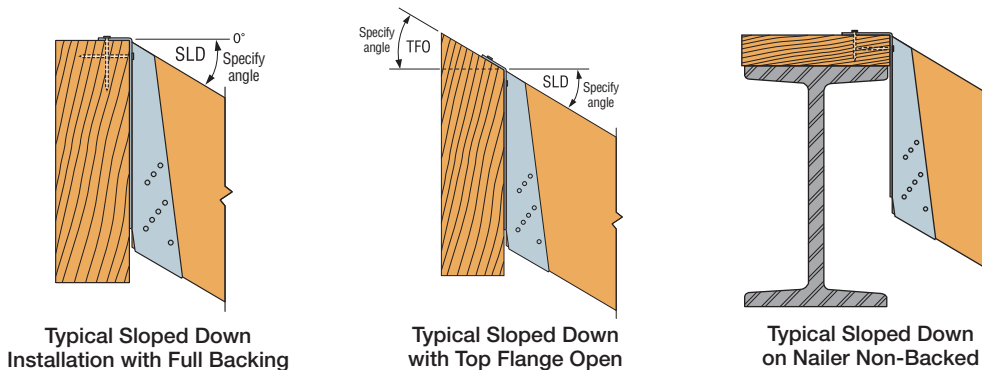
### Reduction Factors for Modified Hangers

Hanger Series	Condition	Sloped Down 45° Max.	Sloped Up 45° Max.	Skewed 45° Max.		Sloped Down & Skewed		Sloped Up & Skewed	Top Flange Sloped 35° Max.	Top Flange Open/Closed 30° Max.	
BA	Minimum Height	7 1/8	7 1/8	7 1/8	9 1/4	9 1/4	9 1/4	9 1/4	14 <sup>6</sup>	9 1/4	
	All Widths	Download	0.70	0.46	0.80	0.80	0.74	0.46	(90-x)/90	(90-x)/90	
		Uplift	1.00	1.00	0.71	0.85	1.00	0.57	0.75	0.84	
HB	Minimum Height	8	8	8		11 1/4	14	11 1/4	14	11 1/4	
	W < 2 1/2"	Download	0.69	0.51	0.95		0.55	0.52	0.51	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	0.53		0.82	1.00	0.53	1.00	1.00
	W ≥ 2 1/2"	Download	0.69	0.51	0.95		0.55	0.52	0.51	(90-x)/90	(90-x)/90
		Uplift	1.00	1.00	0.53		0.82	1.00	0.53	1.00	1.00

1. BA hangers use 10d x 1 1/2" joist nails for all sizes.
2. HB hangers use 10d x 1 1/2" joist nails for widths < 2 1/2" and 16d x 2 1/2" or 16d common nails for widths ≥ 2 1/2".
3. Reduction factors are not cumulative. Use the lowest factors that apply.
4. Web stiffeners are required for sloped and/or skewed conditions.
5. For straight-line interpolation, "x" is the specified angle.
6. Slope top flange option with reduction is permitted for BA hangers with a minimum height of 11 1/4" when using factored resistances for minimum nailing (see standard load tables).



Sloped down and skewed left with sloped top-flange installation.  
When ordering, specify low side flush, centre flush or high side flush.





## WP/HWP/HWPH

## High-Capacity Top-Flange Hangers

The WP, HWP and HWPH series beam and purlin hangers offer the greatest design flexibility and versatility.

The HWP and HWPH high-wind purlin hangers have enhanced uplift. They are ideal for high-wind applications.

**Material:** (Top flange /stirrup): WP — 7/12 gauge; HWP — 7/12 gauge; HWPH — 3/7 gauge

**Finish:** Simpson Strong-Tie gray paint; hot-dip galvanized available: specify HDG, contact Simpson Strong-Tie

**Installation:**

- Use all specified fasteners.
- H dimensions are sized to account for normal joist shrinkage. W dimensions are for dressed timber widths.
- Hangers may be welded to steel headers with a minimum 1 1/2"-long fillet weld on each side of the top flange to the header. Weld sizes: WP = 3/16", HWP = 3/16", HWPH = 1/4" (see p. 15, note m for weld information). Weld-on applications achieve maximum factored normal resistances. Uplift resistances do not apply (contact Simpson Strong-Tie for uplift information).
- Hangers can support multi-ply carried members; the individual members must be secured together to work as a single unit before installation into the hanger.
- **Web stiffeners are required when supporting I-Joists.**
- If joist is shorter than hanger by more than 1/2", then use only 50% of the tabulated resistances.

**Options:**

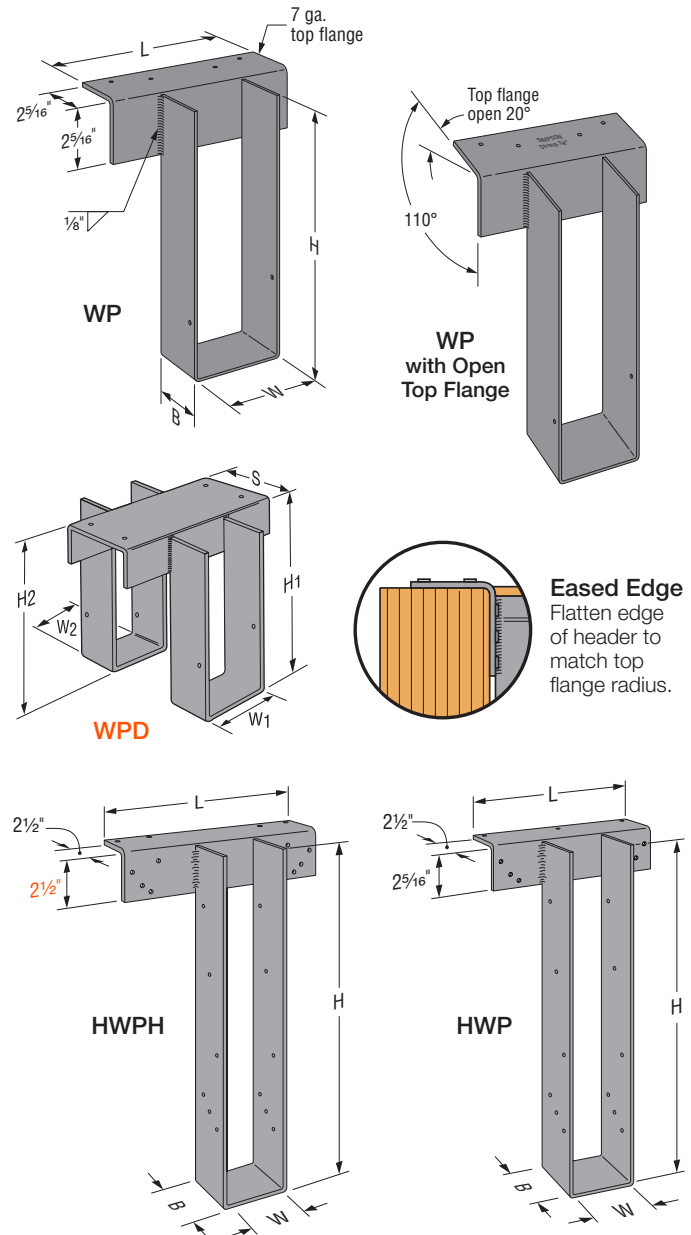
- See Hanger Options General Notes on p. 111.
- Refer to technical bulletin T-C-SLOPEJST at [strongtie.com](http://strongtie.com) for information regarding load reductions on selected hangers which can be used without modification to support joists which have shallow slopes ( $\leq 4:12$ ).
- Some model configurations may differ from those shown. Contact Simpson Strong-Tie for details. **For special order WP hangers, see technical bulletin T-C-WP-WS at [strongtie.com](http://strongtie.com).**
- WP models are available in Type A (bevel-cut) or Type B (square-cut) style. Contact Simpson Strong-Tie when ordering.
- **HWPH is available in Type B configuration (square-cut) for skews up to 84°.**
- Hangers with a skew greater than 15° may have all the joist nails on the outside angle.
- **For skewed condition, top flange width can increase up to 18". Contact Simpson Strong-Tie for specific application.**
- Specify the slope up or down in degrees from the horizontal plane and/or the skew right or left in degrees from the perpendicular vertical plane. Specify whether low side, high side or centre of joist will be flush with the top of the header (see illustration).
- Uplift resistances are not available for open/closed TF, TF sloped and offset options.

**Saddle Hanger** (only available for WP)

- To order, add D to model and specify S dimension (see illustration).
- **WPD** saddle hangers achieve tabulated factored resistances listed for each stirrup. Saddle hangers on stud walls do not achieve tabulated factored resistances.
- Recommended S dimension is 1/16" oversized for carrying members 2 1/2" wide and less or 1/8" oversized for greater than 2 1/2" wide.

**Ridge Hanger** (only available for WP)

- Top flange may be sloped to a maximum of 35° to accommodate a ridge (see illustration). Specify angle of the slope. Reduce tabulated factored resistances using straight-line interpolation. See Open/Closed example.
- **Specify H/L/C flush when ordering sloped top flange.**



**Eased Edge**  
Flatten edge of header to match top flange radius.

Model	Stirrup Width (W) (in.)	Stirrup Seat Depth (B) (in.)	Top Flange Length (L) (in.)
WP	1 9/16 – 2 1/16	See load table	7
	2 1/8 – 3 3/8	2 1/2	7
	3 1/16 – 7 1/8	2 1/2	8
	7 3/16 – 7 1/2	2 1/2	10
HWP	1 9/16	5	10
	1 13/16	4	10
	2 3/8 – 5 3/8	3	10
	5 1/16 – 7 1/8	3	12
HWPH	1 13/16 – 2 1/2	See load table	10
	2 9/16 – 2 3/4	4	10
	3 1/4 – 3 3/16	3 1/4	10
	3 13/16 – 6 3/4	3 1/4	12
	6 13/16 – 7 1/2	3 1/4	14



## WP/HWP/HWPH

## High-Capacity Top-Flange Hangers (cont.)

## W Series with Various Header Applications

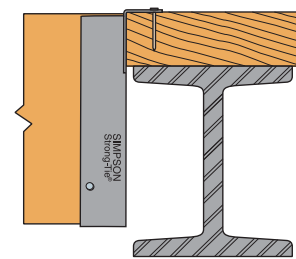
Model	Joist (in.)		Fasteners			Factored Resistance					
	Width	Depth	Top	Face	Joist	Uplift' (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)				
							D.Fir-L	S-P-F	LVL	PSL	LSL
lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN	
WP	1½ to 7½	3½ to 30	(4) 10d x 1½"	—	(2) 10d x 1½"	—	4095	3345	4695	4720	—
						—	18.22	14.88	20.89	21.00	—
	1½ to 7½	3½ to 30	(4) 10d	—	(2) 10d x 1½"	—	4095	3550	3885	4720	5980
						—	18.22	15.79	17.28	21.00	26.60
	1½ to 7½	3½ to 30	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980
						—	19.71	17.15	26.47	24.15	26.60
HWP	1½ to 7	6 to 15¾	(3) 16d	(6) 16d	(10) 10d x 1½"	2125	5210	5210	5210	5870	5675
						9.45	23.18	23.18	23.10	26.11	25.24
	1½ to 7	15¾ to 28	(3) 16d	(6) 16d	(12) 10d x 1½"	2240	5210	5210	5210	5870	5675
						9.96	23.18	23.18	23.18	26.11	25.04
HWPH	2½ to 7½	6 to 15¾	(4) 16d	(8) 16d	(10) 10d x 1½"	2740	7905	5970	8310	8850	7910
						12.19	35.16	26.56	36.97	39.37	33.19
	2½ to 7½	15¾ to 32	(4) 16d	(8) 16d	(12) 10d x 1½"	2815	7905	5970	8310	8850	7910
						12.52	35.16	26.56	36.97	39.37	33.19

- Factored uplift resistances shown are for D.Fir-L. Multiply tabulated resistances x 0.71 for either SPF joist or header.
- Factored resistances shown are for header connection only. The designer must ensure the joist is capable of generating the factored resistances shown.
- Factored uplift resistances have been increased 15% for short-term lead duration. Reduce where other load durations govern.
- Structural composite lumber is LVL, LSL and Parallam® PSL.
- WP quantity of nail holes in top flange varies.
- Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from Spruce Pine Fir or similar less dense veneers, use the values found in the S-P-F column.
- Titen® ¼" x 1¼" installed on top of wall after grout has cured.
- Nails:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22-24 for other nail sizes and information.

## Nailer Table

The table indicates the maximum factored normal resistances for WP and HW hangers used on wood nailers. Nailers are wood members attached to the top of a steel I-beam, concrete or masonry wall. This table also applies to sloped-seat hangers.

Model	Nailer	Top Flange Nailing	Factored Resistance (K <sub>D</sub> = 1.00)		
			D.Fir-L	S-P-F	LSL
			lb.	lb.	lb.
			kN	kN	kN
WP	2x	(4) 10d x 1½"	3775	3775	4900
			16.79	16.79	21.82
	(2) 2x	(4) 10d	4580	4580	—
			20.37	20.37	—
	3x	(4) 16d x 2½"	4125	4110	—
			18.35	18.28	—
4x	(4) 16d	4785	—	—	
		21.29	—	—	
HWP	(2) 2x	(9) 10d	6020	—	—
			26.78	—	—
	3x	(9) 16d x 2½"	6020	—	—
			26.78	—	—
	4x	(9) 16d x 2½"	6710	—	—
			29.85	—	—
HWPH	(2) 2x	(12) 16d x 2½"	8065	—	—
			35.87	—	—
	3x	(12) 16d x 2½"	8150	—	—
			36.25	—	—
	4x	(12) 16d	8150	—	—
			36.25	—	—



Installation on Wood Nailer



## WP/HWP/HWPH

## High-Capacity Top-Flange Hangers (cont.)

## Reduction Factors for Modified Hangers

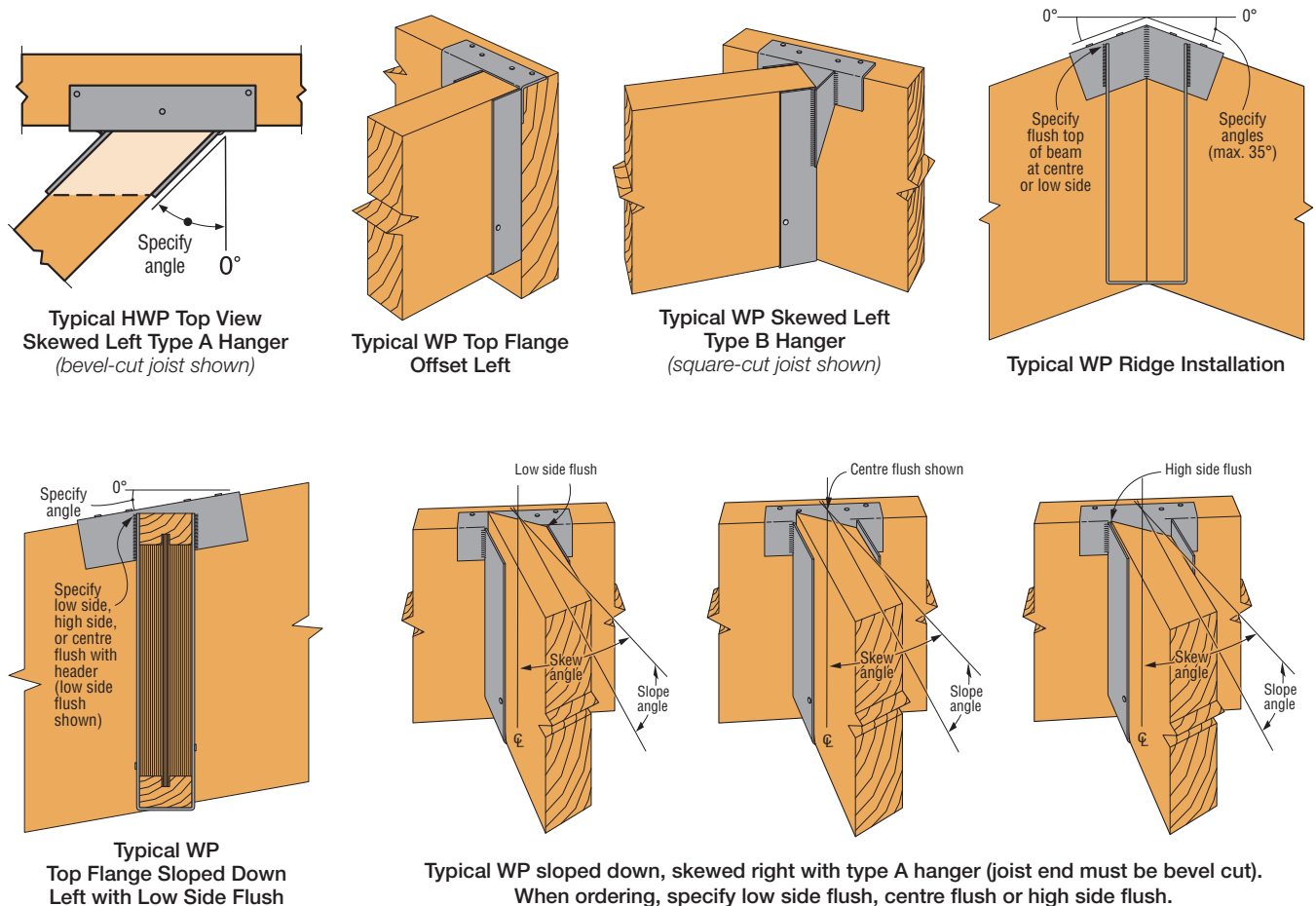
Model	Capacity	Seat									Top Flange					
		Seat Sloped Up or Down 45° Max.			Seat Skewed 1°–45°		Seat Skewed 46°–84°		Seat Sloped Up or Down and Skewed 45° Max.		Top Flange Sloped 30° Max.		Top Flange Opened/Closed 30° Max.		Top Flange Offset or Offset and Skewed 45°	
		Uplift	Up	Down	Uplift	Normal	Uplift	Normal	Uplift	Normal	Uplift	Normal	Uplift	Normal	Uplift	Normal
			Normal	Normal												
WP	Reduction	—	1.00	1.00	—	1.00	—	1.00	—	1.00	—	(90-x)/90	—	(90-x)/90	—	0.50
HWP	Reduction	0.69	1.00	0.60	0.84	0.86	—	—	0.73	0.55	1.00	1.00	0.92	1-sin(x)	0.40	0.47
	Max. Value	—	—	—	—	—	—	—	—	2880	—	—	—	4185	—	2782
HWPH	Reduction	1.00	0.83	0.71	0.65	0.72	0.52	0.59	0.72	0.73	1.00	0.87	1.00	1-sin(x)	0.48	0.43
	Max. Value	—	—	—	—	—	—	—	—	5415	—	—	—	5355	—	3830

- For straight line interpolation or the sin function, x is the specified angle.
- Reduction factors are not cumulative. Use the lowest factor that applies.
- For HWP or HWPH hangers  $\geq 3\frac{1}{2}$ " wide, the Top Flange Offset or Offset and Skewed 45° factored normal reductions and max. values are:
  - 0.5 to a maximum of 3015 lb. for HWP
  - 0.5 to a maximum of 4670 lb. for HWPH.
- For hanger heights exceeding the joist heights by greater than  $\frac{1}{2}$ " the factored normal resistance is 0.50 of the tabulated value.

## Reduction Factor Instructions

**Factored Down Resistance** = (lowest of Seat, Top Flange, or Joist Height)  $\times$  (Table Value)

**Factored Uplift Resistance** = (lowest of Top Flange or Joist Height)  $\times$  (Table Value),  
but not available when the Top Flange is open/closed, sloped or offset





## HGLT/HGLTV

## Heavy-Duty Top-Flange Hangers

HGLTV hangers are designed for structural composite lumber header applications that require high loads. The top-flange nails are sized and specifically located to prevent degradation of the header due to splitting of laminations.

HGLT accommodate typical structural requirements for timber and glulam beams. Not acceptable for nailer applications. The Funnel Flange™ design allows easy installation of beams.

For heavy loads with a face-mount application, see the HGUS and LGU/MGU/HGU/HHGU hangers.

**Material:** 3 ga. top flange; 7 ga. stirrup

**Finish:** Simpson Strong-Tie® gray paint.

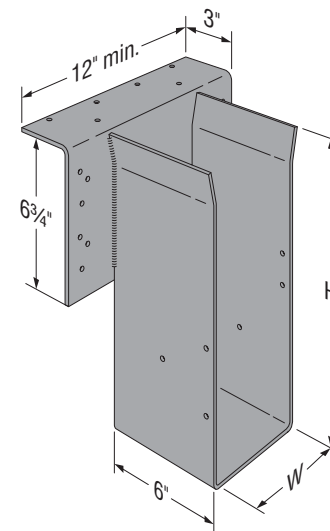
Hot-dip galvanized is available; specify HDG.

**Installation:**

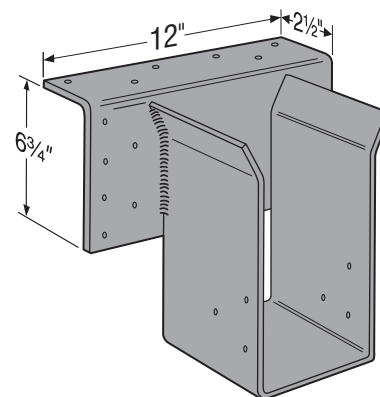
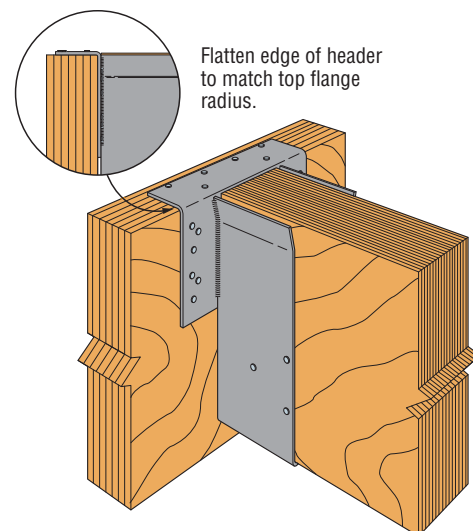
- Use all specified fasteners. Verify that the header can take the required fasteners specified in the table.
- Flatten edge of header to match top flange radius.
- Bevel cut the carried beam for skewed hangers.
- For hangers exceeding the joist height by more than 1/2", the factored resistance is 50% of the table value.
- This series may be used for weld-on applications. Minimum required weld is a 1/4" x 2 1/2" fillet weld at each end of the top flange; see p. 15, note m for weld information. Weld-on applications produce maximum factored resistances listed. For uplift loads, refer to technical bulletin T-C-WELDUPLFT at [strongtie.com](http://strongtie.com).
- HGLTV hangers may be installed on ledgers provided the ledgers are made of 4x solid sawn or 3 1/2" SCL shown in the table below. Thinner lumber must be evaluated by the building designer.

**Options:**

- Hot-dip galvanized; specify HDG.
- HGLT and HGLTV series seats may be skewed to a maximum of 50° and/or sloped to a maximum of 45°.
- For sloped seat, multiply the table value by 0.85 to a maximum of 12605 lb.
- For skewed seat, multiply the table value by 0.73 to a maximum of 10890 lb. For skews greater than 15°, multiply the table uplift value by 0.50.
- Sloped and skewed seat combinations are not available for the HGLT/HGLTV series.
- Sloped or skewed seat hangers may not be installed in non-backed header installations.
- Top flange may be sloped down to the left or right up to 30°. Reduce tabulated factored resistances using the following reduction factor based on linear interpolation  $(90 - \alpha)/90$ ; where  $\alpha$  is the angle measure from the horizontal. This reduction is not cumulative with other load reductions.
- Top flange may be offset left or right for placement at the end of a header. Minimum seat width 3 1/4". The maximum factored resistance is 0.45 of the table value. No uplift load is available.
- For skewed and offset top-flange hangers with inward or outward configuration, the maximum factored resistance is the lesser of 45% of the catalogue value or 5085 lb.



HGLTV

HGLT  
(fasteners included)Typical HGLTV  
Installation





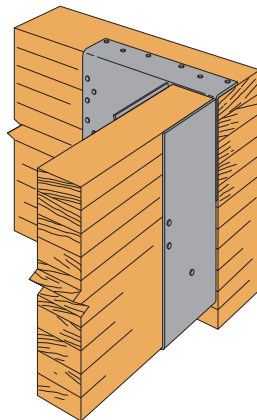
## HGLT/HGLTV

## Heavy-Duty Top-Flange Hangers (cont.)

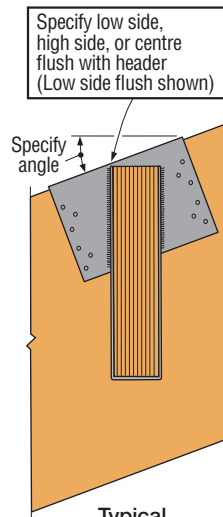
These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Fasteners			Factored Resistance					
	Top	Face	Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)				
					D.Fir-L	S-P-F	LVL <sup>4</sup>	PSL	LSL
				lb.	lb.	lb.	lb.	lb.	lb.
kN	kN	kN	kN	kN	kN				
HGLTV	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795
				9.54	58.14	43.73	68.35	50.38	61.36
HGLT	(6) N54A	(12) N54A	(6) N54A	2905	14885	9830	—	—	—
				12.92	66.21	43.73	—	—	—

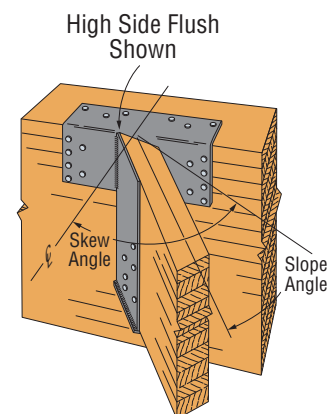
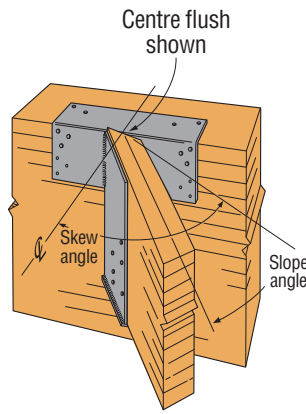
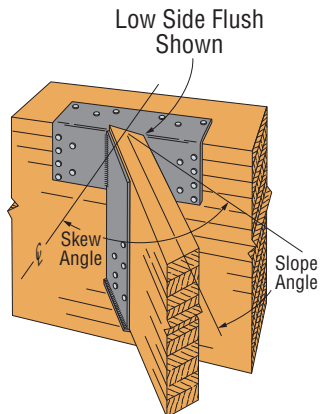
- Factored uplift resistances have been increased 15% for short-term loading with no further increase is allowed. Reduce where other load durations govern.
- Uplift loads only apply when "H" is 28" or less.
- Multiply the factored uplift resistances x 0.71 for S-P-F header or joist.
- Applies to LVL headers made primarily with Douglas Fir or Southern Pine. For LVL made primarily with S-P-F or similar dense veneers, use the values found in the S-P-F column.
- For HGLTV with joist widths less than 3½", use 16d x 2½" nails into the joist.
- Nails:** 16d = 0.162" dia. x 3½" long; N54A = 0.25" dia. x 2½" long.  
See pp. 22-24 for other nail sizes and information.



Typical HGLT  
Top Flange Offset Left



Typical  
HGLT Top Flange  
Sloped Down Left  
with Low Side Flush



Typical HGLT Sloped Down, Skewed Right  
When ordering, specify Low-Side Flush, Centre Flush or High-Side Flush



## GLS/HGLS

## Heavy-Duty Saddle Hangers

The GLS/HGLS heavy-duty saddle hangers are designed for use with glulam or timber members using N54A nails or with structural composite lumber using 1/4" x 2 1/2" Strong-Drive® SDS Heavy-Duty Connector screws. The Funnel Flange™ design allows for easy installation of beams.

**Material:** 3 ga. top flange; 7 ga. stirrup

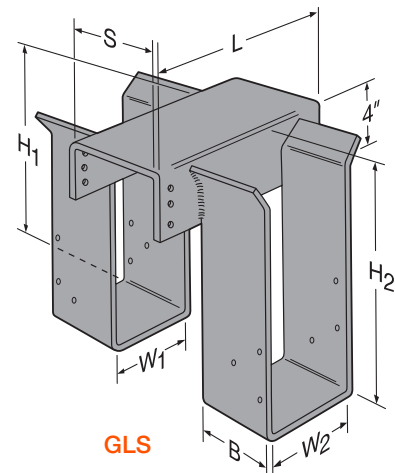
**Finish:** Simpson Strong-Tie® gray paint.  
Hot-dip galvanized is available; specify HDG.

**Installation:**

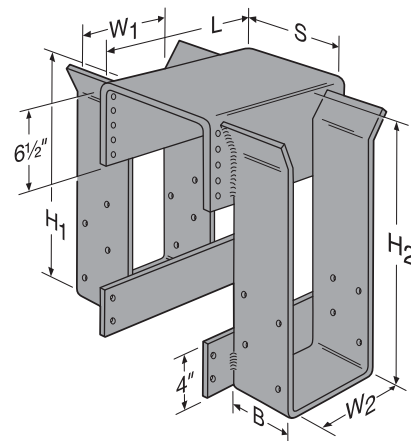
- Use all specified fasteners. Verify that the header can take the required fasteners specified in the table.
- Flatten edge of header to match top flange radius.
- Bevel cut the carried beam for skewed hangers.
- For hangers exceeding the joist height by more than 1/2", the factored resistance is 50% of the table value.
- N54A nails are included with GLS and HGLS hangers. N54A nails should not be used with structural composite lumber or I-joists. When installing GLS or HGLS on structural composite lumber, use 1/4" x 2 1/2" Strong-Drive SDS Heavy-Duty Connector screw in lieu of the N54A nails.
- To order, specify H<sub>1</sub>, H<sub>2</sub>, W<sub>1</sub>, W<sub>2</sub> and S dimensions (see illustration).

**Options:**

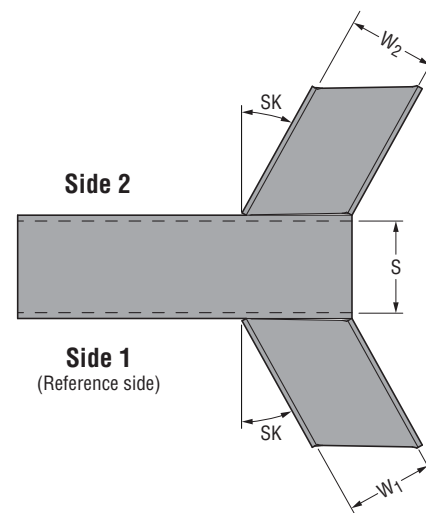
- GLS and HGLS series seats may be skewed to a maximum of 50° and/or sloped to a maximum of 45°.
- For skews greater than 15°, multiply the tabulated factored uplift resistance by 0.50.
- For sloped only, multiply the table value by 0.78 for GLS to a maximum of 8135 lb. For HGLS multiply the table value by 0.85 to a maximum of 12605 lb.
- For skewed only, multiply the table value by 0.87 for GLS to a maximum of 9510 lb. For HGLS multiply the table value by 0.73 to a maximum of 10890 lb.
- For sloped and skewed GLS configurations, multiply the table values by 0.78 to a maximum of 8130 lb. Sloped and skewed combinations are not allowed for HGLS.
- Top flange may be offset left or right for placement at the end of a header. Minimum seat width 3 1/4". The maximum factored resistance is 0.50 of the table value for GLS and 0.45 for HGLS.
- For skewed and offset top-flange hangers, the maximum factored resistance is 5085 lb.
- Top flange may be sloped down to the left or right up to 30°. Reduce tabulated factored resistances using the following reduction factor based on linear interpolation (90-α)/90; where α is the angle measure from the horizontal. This reduction is not cumulative with other load reductions.



GLS



HGLS

HGLS (Skewed Outward)  
Skewed Right, Offset Left  
(Top View)



## Heavy-Duty Saddle Hangers (cont.)

Model No.		Hanger Dimensions (in.)			
		W <sub>1</sub> , W <sub>2</sub>	L		S
GLS	HGLS		GLS	HGLS	
3-5	—	3¼	9	—	5¼
3-7*	—	3¼	9	—	6⅞
5-5	5-5	5¼	9	9	5¼
5-7	5-7	5¼	9	9	6⅞
5-9	5-9	5¼	9	9	8⅞
5-11	5-11	5¼	9	9	10⅞
7-7	7-7	6⅞	12	12	6⅞
7-9	7-9	6⅞	12	12	8⅞
7-11	7-11	6⅞	12	12	10⅞
—	9-9	8⅞	—	12	8⅞
3.6-3.6-SDS	—	3⅝	9	9	3⅝
3.6-5.3-SDS	—	3⅝	9	9	5⅝
5.3-5.3-SDS*	5.3-5.3-SDS	5⅝	9	12	5⅝
5.3-7.1-SDS	—	5⅝	9	12	7⅞
7.1-7.1-SDS	7.1-7.1-SDS	7⅞	12	12	7⅞

\*Slope, skew and offset top flange not available.

These products are available with additional corrosion protection. For more information, see p. 20.

Series	Dimensions (in.)		Fasteners		Factored Resistance			
	W	H	Face	Joist	D.Fir-L		S-P-F	
					Uplift	Normal	Uplift	Normal
					(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.					
kN	kN	kN	kN					
GLS	3¼ to 7	8½ to 28	(12) N54A	(12) N54A	4140	15185	3620	8885
					18.42	67.55	16.10	39.52
GLS-SDS	3⅝ to 7⅞	8½ to 28	(12) SDS25212	(12) SDS25212	4140	15185	3620	8885
					18.42	67.55	16.10	39.52
HGLS	5¼ to 8⅞	10½ to 33	(28) N54A	(16) N54A	4140	21080	3620	15185
					18.42	93.77	16.10	67.55
HGLS-SDS	3⅝ to 7⅞	8½ to 28	(28) SDS25212	(16) SDS25212	4140	21080	3620	15185
					18.42	93.77	16.10	67.55

1. Factored uplift resistances have been increased 15% for short-term loading. Reduce where other load durations govern.

2. Uplift resistances apply when "H" is 28" or less.

3. Resistances shown are for one side only. Loads must be distributed evenly on each side of the header.

4. Fastener quantities shown are for both sides total.

5. For SCL, do not use N54A nails, use SDS screw option.

6. **Nails:** N54A = 0.25" dia. x 2½" long. See pp. 22-24 for other nail sizes and information.

7. **Screws:** SDS25212 = ¼" dia. x 2½" long Strong-Drive® SDS Heavy-Duty Connector screws.



**SCL**

# High-Capacity Top-Flange Hangers

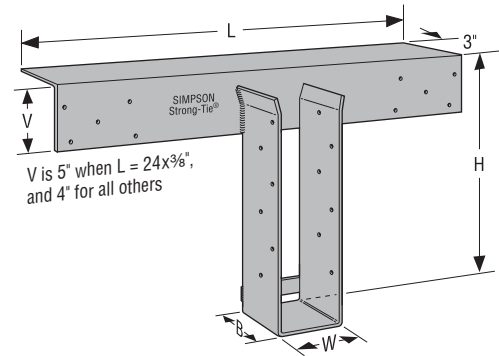
The SCL series of top flange hangers are high load capacity connectors designed for use with Structural Composite Lumber. The large top flange distributes the load to the carrying member and the fasteners are located specifically for structural composite lumber applications.

**Material:** Stirrups — 3 gauge; Top flange — ¼" or ⅜" hot rolled angle, see table

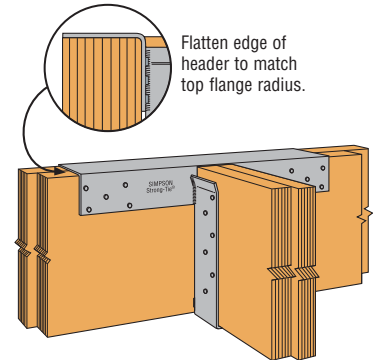
**Finish:** Simpson Strong-Tie® gray paint

**Installation:** • Use all specified fasteners; see General notes.

- All multiple members must be fastened together to act as one single unit.
- This series may be used for weld on application. Weld top flange using ¼" x 4" long fillet welds spaced at 7" on centre with 2" return around corners.
- These hangers cannot be used with a nailer.



**SCL**



**Typical SCL Installation**

Model No.	Dimensions (in.)				Fasteners		Factored Resistance				
	W	H	B	L	Header	Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)			
							D.Fir-L	S-P-F	LVL <sup>2</sup>	PSL	
							lb.	lb.	lb.	lb.	
							kN	kN	kN	kN	kN
SCL3.62/9.5	3%	9½	4	18	(6) 16d	(6) 16d	2155	13245	6775	15850	15855
							9.59	58.92	30.14	70.51	70.53
SCL3.62/11.88	3%	11⅞	4	18	(6) 16d	(6) 16d	2155	13245	6775	15850	15855
							9.59	58.92	30.14	70.51	70.53
SCL3.62/14	3%	14	4	18	(6) 16d	(6) 16d	2155	13245	6775	15850	15855
							9.59	58.92	30.14	70.51	70.53
SCL3.62/16	3%	16	4	18	(6) 16d	(6) 16d	2155	13245	6775	15850	15855
							9.59	58.92	30.14	70.51	70.53
SCL5.37/9.5	5%	9½	4	18	(6) 16d	(6) 16d	2155	13245	6775	15850	15855
							9.59	58.92	30.14	70.51	70.53
SCL5.37/11.88	5%	11⅞	5	22	(12) 16d	(12) 16d	3255	17635	11490	21600	20915
							14.48	78.45	51.11	96.09	93.04
SCL5.37/14	5%	14	5	22	(12) 16d	(12) 16d	3255	17635	11490	21600	20915
							14.48	78.45	51.11	96.09	93.04
SCL5.37/16	5%	16	6	24x¾	(10) 16d	(12) 16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66
SCL5.37/18	5%	18	6	24x¾	(10) 16d	(12) 16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66
SCL5.37/18.75	5%	18¾	6	24x¾	(10) 16d	(12) 16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66
SCL5.37/19	5%	19	6	24x¾	(10) 16d	(12) 16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66
SCL7.25/9.5	7¼	9½	4	18	(6) 16d	(6) 16d	2155	13245	6775	15845	15855
							9.59	58.92	30.14	70.48	70.53
SCL7.25/11.88	7¼	11⅞	5	22	(12) 16d	(12) 16d	3255	17635	11490	21600	20915
							14.48	78.45	51.11	96.09	93.04
SCL7.25/14	7¼	14	5	22	(12) 16d	(12) 16d	3255	17635	11490	21600	20915
							14.48	78.45	51.11	96.09	93.04
SCL7.25/16	7¼	16	6	24x¾	(10) 16d	(12) 16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66
SCL7.25/18	7¼	18	6	24x¾	(10) 16d	(12) 16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66
SCL7.25/18.75	7¼	18¾	6	24x¾	(10) 16d	(12) 16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66
SCL7.25/19	7¼	19	6	24x¾	(10) 16d	(12) 16d	4305	23730	13025	29000	27350
							19.15	105.56	57.94	129.00	121.66

1. Factored uplift resistances have been increased 15% for short-term loading with no further increase allowed. Reduce when other load durations govern.
2. Factored uplift resistances shown are for D.Fir-L. Multiply tabulated loads x 0.71 for either S-P-F joist or header.
3. Applies to LVL headers made primarily from D.Fir-L, assuming  $\phi F_{CP} = 1092$  psi and a specific gravity of 0.50. See LVL manufacturer specifications.
4. **Nails:** 16d = 0.162" dia. x 3½" long. See pp. 22–24 for other nail sizes and information.

**EGQ****High-Capacity Hanger**

*This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.*

The EGQ is a high-capacity connector for use with Structural Composite Lumber beams. Utilizing the Simpson Strong-Tie® Strong Drive® SDS Heavy-Duty Connector screws makes installation fast and easy.

EGQ hangers are precisely fabricated to individual order requirements. The H dimension required must be specified.

**Material:** Top flange — 3 gauge; Stirrups — 7 gauge

**Finish:** Simpson Strong-Tie gray paint; HDG available. Contact Simpson Strong-Tie.

**Installation:**

- Use all specified fasteners; see General Notes.
- Install with ¼" x 3" Strong-Drive SDS Heavy-Duty Connector screws, which are provided with the EGQ. (Lag screws will not achieve the same load.)
- All multiple members must be fastened together to act as a single unit.
- Multiple member headers may require additional fasteners at hanger locations. Quantity and location to be determined by designer. See Strong-Drive SDS Heavy-Duty Connector screw section for additional information and applications.
- Minimum header depth shall be 11⅞".

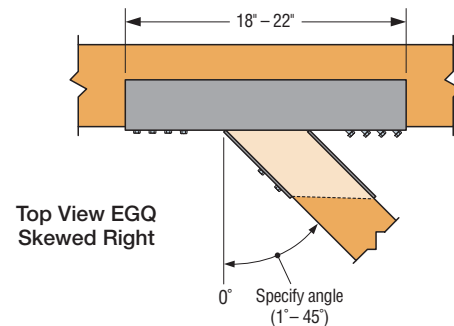
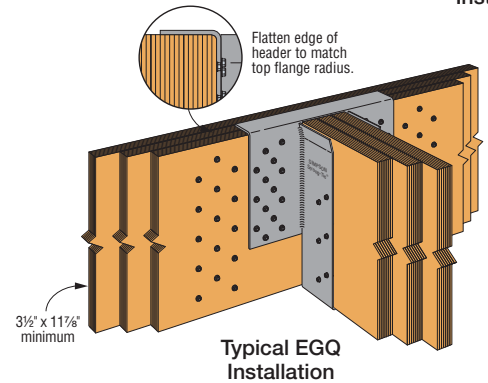
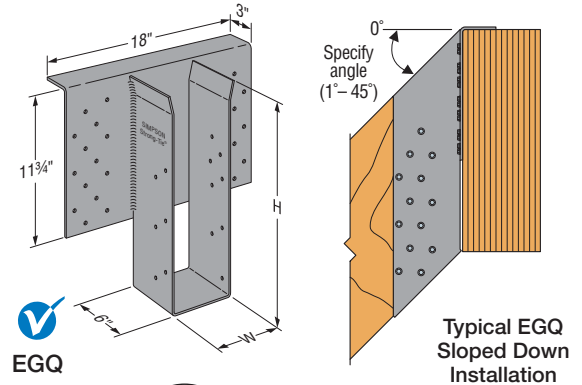
**Options:****Skewed Seat**

- The EGQ can be skewed a maximum of 45°
- The factored down resistance is 0.69 of the table value to a maximum of 22435 lb. (99.76 kN)
- The factored uplift resistance is 100% of the table value

**Sloped Seat**

- The EGQ can be sloped up or down a maximum of 45°
- The factored down resistance is 0.78 of the table value to a maximum of 25160 lb. (111.92 kN)
- The factored uplift resistance is 100% of the table value
- Sloped seat installation requires an additional 14 joist screws (supplied with the connector)

**No Sloped and Skewed Combo Available.**



These products are available with additional corrosion protection. For more information, see p. 20.

Joist or Purlin Size (in.)	Model No.	Dimensions (in.)			Fasteners		Factored Resistance					
		W	Min. H	Max. H	Header	Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)				
								D.Fir-L	PSL	LVL <sup>1</sup>	LSL	S-P-F LVL
lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN		
3½	EGQ3.62-SDS3	3%	11¼	32	(28) ¼" x 3" SDS	(12) ¼" x 3" SDS	9040	24915	25450	28410	28410	19995
							40.21	110.83	113.21	126.38	126.38	88.95
5⅝	EGQ5.25-SDS3	5¼	11¼	32	(28) ¼" x 3" SDS	(12) ¼" x 3" SDS	9040	27305	28030	30425	30425	23930
							40.21	121.46	124.69	135.34	135.34	106.45
5¼	EGQ5.37-SDS3	5%	11¼	32	(28) ¼" x 3" SDS	(12) ¼" x 3" SDS	9040	27305	28030	30425	30425	23930
							40.21	121.46	124.69	135.34	135.34	106.45
5½	EGQ5.62-SDS3	5%	11¼	32	(28) ¼" x 3" SDS	(12) ¼" x 3" SDS	9040	27305	28030	30425	30425	23930
							40.21	121.46	124.69	135.34	135.34	106.45
6¾	EGQ6.88-SDS3	6%	11¼	32	(28) ¼" x 3" SDS	(12) ¼" x 3" SDS	9040	27305	28030	30425	30425	23930
							40.21	121.46	124.69	135.34	135.34	106.45
7	EGQ7.25-SDS3	7¼	11¼	32	(28) ¼" x 3" SDS	(12) ¼" x 3" SDS	9040	27305	30605	32435	32435	23930
							40.21	121.46	136.14	144.28	144.28	106.45

1. Applies to LVL made primarily from Douglas Fir or Southern Pine. For LVL made primarily from other species, contact the LVL manufacturer for suitability.

2. "Min. H" is the minimum joist height dimension that may be specified.

3. Use S-P-F LVL values for S-P-F glulam.

4. Multiply tabulated uplift values x 0.72 for S-P-F LVL.



# LEG/MEG/EG

## Beam and Glulam Top-Flange Hangers

This whole series has precision fabrication which offers dimensional accuracy, and the funnel flanges which aid installation.

**Material:** See table

**Finish:** Simpson Strong-Tie® gray paint. Some products available hot-dip galvanized or in black powder coat.

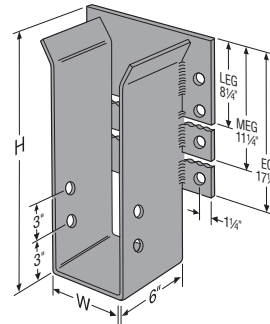
**Installation:**

- Use all specified fasteners; see General Notes
- Maintain minimum 4D end and edge distance from bolt to end of header or nearest loaded edge per CSA O86-14
- Bolt holes in wood shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt hole per 12.4.1.2 and CSA O86-14

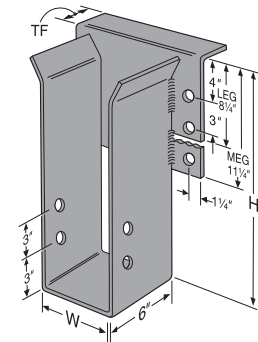
**Options:**

- See Hanger Options information, p. 183.
- Special models are available without top flanges; see table values.

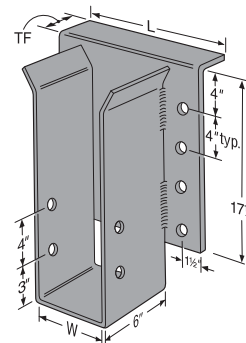
Model	Top Flange Ga.	Top Flange Length (L) (in.)
LEG/MEG	7	12
EG5	3	11 3/4
EG7		13 1/2
EG9		15 1/2



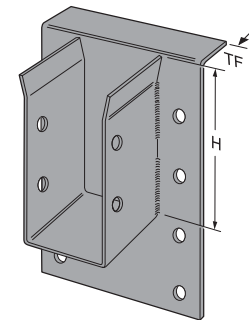
**LEG/MEG/EG without Top Flange**



**LEG and MEG**



**EG**



**EG with "H" dimension less than the face plate height. The EG's back plate is always 17 1/2", regardless of the stirrup height.**

These products are available with additional corrosion protection. For more information, see p. 20.

Joist or Purlin Size (in.)	Model No.	Stirrup Ga.	Min. Header Depth (in.)	Dimensions (in.)				Bolts				Factored Normal Resistance (K <sub>D</sub> = 1.00)			
								Header		Joist		D.Fir-L Glulam		Spruce-Pine Glulam	
				W	Min. H	Max. H	TF	Qty.	Dia.	Qty.	Dia.	No Top Flange	Top Flange	No Top Flange	Top Flange
				lb.	lb.	lb.	lb.	kN	kN	kN	kN				
3"	LEG3	7	10 1/2	3 1/4	9	33 1/2	2 1/2	4	3/4	2	3/4	5950	17510	5950	14490
												26.47	77.89	26.47	64.46
5"	LEG5	7	10 1/2	5 1/4	9	32 1/2	2 1/2	4	3/4	2	3/4	5950	19960	5950	17545
												26.47	88.79	26.47	78.05
	MEG5	7	13	5 1/4	9	32 1/2	2 1/2	6	3/4	2	3/4	7780	21785	7780	19370
												34.61	96.91	34.61	86.17
EG5	7	21	5 1/4	11	32 1/2	2 1/2	8	1	2	1	13590	27305	13590	23765	
											60.45	121.46	60.45	105.72	
6 3/4 <sup>4</sup>	LEG7	7	10 1/2	6 3/8	9	31 1/2	2 1/2	4	3/4	2	3/4	5950	19960	5950	17545
												26.47	88.79	26.47	78.05
	MEG7	7	13	6 3/8	9	31 1/2	2 1/2	6	3/4	2	3/4	7780	21785	7780	19370
												34.61	96.91	34.61	86.17
EG7	7	21	6 3/8	11	31 1/2	2 1/2	8	1	2	1	13590	29350	13590	26635	
											60.45	130.56	60.45	118.48	
8 1/2 <sup>4</sup>	EG9	7	21	8 3/8	11	30 1/2	2 1/2	8	1	2	1	13590	31685	13590	28565
												60.45	140.95	60.45	127.07

1. Factored resistances assume a minimum carrying member thickness of 5 1/8".  
 2. Specify hanger height "H". "Min. H" is the minimum height that may be ordered.  
 3. Minimum header depth below the lowest bolt hole is 3" for the LEG, MEG, and 4" for the EG.  
 4. For 6 3/8" and 8 1/2" beam widths add "X" to the end of the model number and specify the width required.



# LEG/MEG/EG

## Beam and Glulam Top-Flange Hangers (cont.)

### Hanger Options

#### Skewed Seat — Top Flange Models Only

- The LEG/MEG/EG series can be skewed up to 45°. The maximum factored resistance is 13750 lb. D.Fir-L Glulam and 12090 lb. Spruce-Pine Glulam for LEG and MEG, 19710 lb. D.Fir-L Glulam and 18005 lb. Spruce-Pine Glulam for EG.

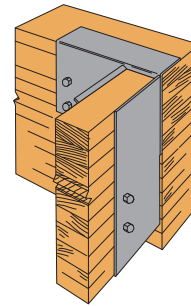
#### Sloped Seat — Top Flange Models Only

- The LEG/MEG/EG series can be sloped up to 45°. The maximum factored resistance is 15835 lb. D.Fir-L Glulam and 13920 lb. Spruce-Pine Glulam; see illustration.

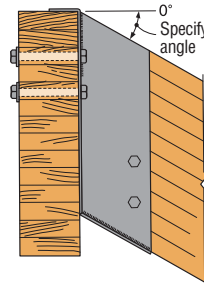
#### No Sloped and Skewed Combo Available.

#### Offset Top Flange

- The LEG/MEG (only) top flange may be offset left or right for placement at the end of a header (see illustration). The maximum factored resistance is 9280 lb. D.Fir-L Glulam and 8160 lb. Spruce-Pine Glulam (Min. H = 11" for MEG, 9" for LEG)
- No skews allowed on offset hangers.



Typical LEG/MEG Top Flange Offset Left



Typical LEG Sloped Down Installation (MEG/EG similar)

## Top-Flange Hangers – I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance							
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)						
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	
lb.	kN	lb.	kN	lb.	kN	lb.	kN	lb.	kN	lb.	kN	lb.	kN					
1½ x 9½	BA1.56/9.5 (Min.)	—	12	1⅝	9½	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420	
	BA1.56/9.5 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—	
	WP1.56X H=9.5	✓	12	1⅝	9½	4¾	2⅝	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—	
		—						19.71	17.15	26.47	24.15	26.6	—					
	1½ x 11⅞	BA1.56/11.88 (Min.)	—	12	1⅝	11⅞	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
		BA1.56/11.88 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
WP1.56X H=9.5		✓	12	1⅝	11⅞	4¾	2⅝	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—	
		—						19.71	17.15	26.47	24.15	26.6	—					
1¾ x 7¼		BA1.81/7.25 (Min.)	—	14	1⅝	7¼	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
		BA1.81/7.25 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
	WP1.81X H=7.25	✓	12	1⅝	7¼	4	2⅝	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—	
		—						19.71	17.15	26.47	24.15	26.6	—					

1. When I-joist is used as a header, all header fasteners must be 10d x 1½".

See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1½" thick.

2. See pp. 166–182 for specific notes on individual model types.



# Top-Flange Hangers – I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
lb.	lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN	kN	kN	kN			
1 3/4 x 9 1/2	ITS1.81/9.5	—	18	1 7/8	9 7/16	2	1 7/16	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
											0.78	9.94	7.52	10.14	8.92	11.63	6.12
	MIT9.5	—	16	1 13/16	9 1/2	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA1.81/9.5 (Min.)	—	14	1 13/16	9 1/2	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
										1.76	20.17	17.93	25.96	23.95	25.89	10.77	
	BA1.81/9.5 (Max.)	✓	14	1 13/16	9 1/2	3	2 1/2	(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
										7.74	24.38	17.93	31.69	29.00	30.23	—	
	WP1.81X H=9.5	✓	12	1 13/16	9 1/2	4	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
										—	19.71	17.15	26.47	24.15	26.6	—	
1 3/4 x 11 7/8	ITS1.81/11.88	—	18	1 7/8	11 13/16	2	1 7/16	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
											0.78	9.94	7.52	10.14	8.92	11.63	6.12
	MIT11.88	—	16	1 13/16	11 7/8	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA1.81/11.88 (Min.)	—	14	1 13/16	11 7/8	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
										1.76	20.17	17.93	25.96	23.95	25.89	10.77	
	BA1.81/11.88 (Max.)	✓	14	1 13/16	11 7/8	3	2 1/2	(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
										7.74	24.38	17.93	31.69	29.00	30.23	—	
	WP1.81X H=11.88	✓	12	1 13/16	11 7/8	4	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
										—	19.71	17.15	26.47	24.15	26.6	—	
1 3/4 x 14	ITS1.81/14	—	18	1 7/8	13 15/16	2	1 7/16	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
											0.78	9.94	7.52	10.14	8.92	11.63	6.12
	MIT1.81/14	—	16	1 13/16	14	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA1.81/14 (Min.)	—	14	1 13/16	14	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
										1.76	20.17	17.93	25.96	23.95	25.89	10.77	
	BA1.81/14 (Max.)	✓	14	1 13/16	14	3	2 1/2	(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
										7.74	24.38	17.93	31.69	29.00	30.23	—	
	WP1.81X H=14	✓	12	1 13/16	14	4	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
										—	19.71	17.15	26.47	24.15	26.6	—	
1 3/4 x 16	ITS1.81/16	—	18	1 7/8	15 15/16	2	1 7/16	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
											0.78	9.94	7.52	10.14	8.92	11.63	6.12
	MIT1.81/16	—	16	1 13/16	16	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA1.81/16 (Min.)	—	14	1 13/16	16	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
										1.76	20.17	17.93	25.96	23.95	25.89	10.77	
	BA1.81/16 (Max.)	✓	14	1 13/16	16	3	2 1/2	(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
										7.74	24.38	17.93	31.69	29.00	30.23	—	
	WP1.81X H=16	✓	12	1 13/16	16	4	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
										—	19.71	17.15	26.47	24.15	26.6	—	

- When I-joist is used as a header, all header fasteners must be 10d x 1 1/2". See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1 1/2" thick.
- See pp. 166–182 for specific notes on individual model types.





## Top-Flange Hangers – I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
				lb.	lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN	kN	kN
2 x 9½ 2½ x 9½	ITS2.06/9.5	—	18	2½	9½	2	1¾	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
	BA2.1/9.5 (Min.)	—	12	2½	9½	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	0.78	9.94	7.52	10.14	8.92	11.63	6.12
	BA2.1/9.5 (Max.)	✓	12	2½	9½	3	2½	(6) 16d	(10) 16d	(8) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	WP2.1X H=9.5	✓	12	2½	9½	2½	2¾	(4) 16d	—	(2) 10d x 1½"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
2 x 11½ 2½ x 11½	ITS2.06/11.88	—	18	2½	11½	2	1¾	(4) 10d	(2) 10d	—	1740	5480	4030	7125	6520	6795	—
	MIT2.1/11.88	—	16	2½	11½	2½	2¾	(4) 16d	(4) 16d	(2) 10d x 1½"	7.74	24.38	17.93	31.69	29.00	30.23	—
	BA2.1/11.88 (Min.)	—	14	2½	11½	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	BA2.1/11.88 (Max.)	✓	14	2½	11½	3	2½	(6) 16d	(10) 16d	(8) 10d x 1½"	—	19.71	17.15	26.47	24.15	26.6	—
2 x 14 2½ x 14	ITS2.06/14	—	18	2½	13½	2	1¾	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
	BA2.1/14 (Min.)	—	12	2½	14	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	0.78	9.94	7.52	10.14	8.92	11.63	6.12
	BA2.1/14 (Max.)	✓	12	2½	14	3	2½	(6) 16d	(10) 16d	(8) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	WP2.1X H=14	✓	12	2½	14	2½	2¾	(4) 16d	—	(2) 10d x 1½"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
2 x 16 2½ x 16	ITS2.06/16	—	18	2½	15½	2	1¾	(4) 10d	(2) 10d	—	1740	5480	4030	7125	6520	6795	—
	BA2.1/16 (Min.)	—	12	2½	16	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	7.74	24.38	17.93	31.69	29.00	30.23	—
	BA2.1/16 (Max.)	✓	12	2½	16	3	2½	(6) 16d	(10) 16d	(8) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	WP2.1X H=16	✓	12	2½	16	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	19.71	17.15	26.47	24.15	26.6	—
2½ x 9½	ITS2.37/9.5	—	18	2¾	9½	2	1¾	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
	LT239	—	18	2¾	9½	2	1½	(4) 10d	(2) 10d	(1) #8 x 1¼" WS	0.78	9.94	7.52	10.14	8.92	11.63	6.12
	BA2.37/9.5 (Min.)	—	12	2¾	9½	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	105	2625	1725	2560	2480	2620	1695
	BA2.37/9.5 (Max.)	✓	12	2¾	9½	3	2½	(6) 16d	(10) 16d	(8) 10d x 1½"	0.47	11.68	7.67	11.39	11.03	11.65	7.54
	WP2.37X H=9.5	✓	12	2¾	9½	2½	2¾	(4) 16d	—	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420

1. When I-joist is used as a header, all header fasteners must be 10d x 1½".

See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1½" thick.

2. See pp. 166–182 for specific notes on individual model types.



## Top-Flange Hangers – I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
				lb.	lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN	kN	
2 5/8 x 11 7/8	ITS2.37/11.88	—	18	2 7/16	11 19/16	2	1 7/16	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
											0.78	9.94	7.52	10.14	8.92	11.63	6.12
	LT231188	—	18	2 3/8	11 7/8	2	1 5/8	(4) 10d	(2) 10d	(1) #8 x 1 1/4" WS	105	2625	1725	2560	2480	2620	1695
											0.47	11.68	7.67	11.39	11.03	11.65	7.54
	MIT3511.88	—	16	2 3/8	11 7/8	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
2 5/8 x 11 7/8	BA2.37/11.88 (Min.)	—	14	2 3/8	11 7/8	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
															1.76	20.17	17.93
	BA2.37/11.88 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
	WP2.37X H=11.88	✓	12	2 3/8	11 7/8	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
											—	19.71	17.15	26.47	24.15	26.6	—
2 5/8 x 14	ITS2.37/14	—	18	2 7/16	13 15/16	2	1 7/16	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
											0.78	9.94	7.52	10.14	8.92	11.63	6.12
	LT2314	—	18	2 3/8	14	2	1 5/8	(4) 10d	(2) 10d	(1) #8 x 1 1/4" WS	105	2625	1725	2560	2480	2620	1695
											0.47	11.68	7.67	11.39	11.03	11.65	7.54
	MIT3514	—	16	2 3/8	14	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
2 5/8 x 14	BA2.37/14 (Min.)	—	14	2 3/8	14	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
															1.76	20.17	17.93
	BA2.37/14 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
	WP2.37X H=14	✓	12	2 3/8	14	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
											—	19.71	17.15	26.47	24.15	26.6	—
2 5/8 x 16	ITS2.37/16	—	18	2 7/16	15 15/16	2	1 7/16	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
											0.78	9.94	7.52	10.14	8.92	11.63	6.12
	MIT3516	—	16	2 3/8	16	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA2.37/16 (Min.)	—	14	2 3/8	16	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
															1.76	20.17	17.93
BA2.37/16 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—	
										7.74	24.38	17.93	31.69	29.00	30.23	—	
WP2.37X H=16	✓	12	2 3/8	16	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
										—	19.71	17.15	26.47	24.15	26.6	—	
2 5/8 x 18	MIT3518	—	16	2 3/8	18	2 1/2	2 5/16	(4) 10d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA2.37/18 (Min.)	—	12	2 3/8	18	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
															1.76	20.17	17.93
	BA2.37/18 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
WP2.37X H=18	✓	12	2 3/8	18	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
										—	19.71	17.15	26.47	24.15	26.6	—	

- When I-joist is used as a header, all header fasteners must be 10d x 1 1/2". See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1 1/2" thick.
- See pp. 166–182 for specific notes on individual model types.



## Top-Flange Hangers – I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance							
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)						
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	
				lb.	lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN	kN		
2 5/16 x 20	MIT3520	—	16	2 5/16	20	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900	
	BA2.37/20 (Min.)	—	12	2 5/16	20	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420	
	BA2.37/20 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—	
	WP2.37X H=20	✓	12	2 5/16	20	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
2 1/2 x 9 1/2	ITS2.56/9.5	—	18	2 5/16	9 7/16	2	1 7/16	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375	
	LT259	—	18	2 5/16	9 1/2	2	1 5/8	(4) 10d	(2) 10d	(1) #8 x 1 1/4" WS	105	2625	1725	2560	2480	2620	1695	
	BA2.56/9.5 (Min.)	—	14	2 5/16	9 1/2	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420	
	BA2.56/9.5 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—	
	WP2.56X H=9.5	✓	12	2 5/16	9 1/2	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
	HWP2.56 H=9.5	✓	7	2 5/16	9 1/2	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2125	5210	5210	5210	5870	5675	—	
	2 1/2 x 11 1/4	BA2.56 H=11.25 (Min.)	—	12	2 5/16	11 1/4	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
		BA2.56 H=11.25 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
WP2.56X H=11.25		✓	12	2 5/16	11 1/4	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
HWP2.56 H=11.25		✓	7	2 5/16	11 1/4	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2125	5210	5210	5210	5870	5675	—	
2 1/2 x 11 7/8	ITS2.56/11.88	—	18	2 5/16	11 13/16	2	1 7/16	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375	
	LT251188	—	18	2 5/16	11 7/8	2	1 5/8	(4) 10d	(2) 10d	(1) #8 x 1 1/4" WS	105	2625	1725	2560	2480	2620	1695	
	MIT311.88	—	16	2 5/16	11 7/8	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900	
	BA2.56/11.88 (Min.)	—	14	2 5/16	11 7/8	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420	
	BA2.56/11.88 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—	
	WP2.56X H=11.88	✓	12	2 5/16	11 7/8	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
	HWP2.56 H=11.88	✓	7	2 5/16	11 7/8	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2125	5210	5210	5210	5870	5675	—	

1. When I-joist is used as a header, all header fasteners must be 10d x 1 1/2".

See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1 1/2" thick.

2. See pp. 166–182 for specific notes on individual model types.



# Top-Flange Hangers – I-Joists, Glulam and SCL

I-Joist, Glulam and Structural Composite Lumber Connectors

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
											Uplift (K <sub>D</sub> = 1.15)						Normal (K <sub>D</sub> = 1.00)
				W	H	B	TF	Header		Joist	D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	
								Top	Face								
lb.	lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN	kN	kN				
2 1/2 x 14	ITS2.56/14	—	18	2 5/8	13 5/16	2	1 7/16	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
											0.78	9.94	7.52	10.14	8.92	11.63	6.12
	LT2514	—	18	2 5/8	14	2	1 5/8	(4) 10d	(2) 10d	(1) #8 x 1 1/4" WS	105	2625	1725	2560	2480	2620	1695
											0.47	11.68	7.67	11.39	11.03	11.65	7.54
	MIT314	—	16	2 5/8	14	2 1/2	2 5/8	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA2.56/14 (Min.)	—	14	2 5/8	14	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
										1.76	20.17	17.93	25.96	23.95	25.89	10.77	
BA2.56/14 (Max.)	✓									(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
WP2.56X H=14	✓	12	2 5/8	14	2 1/2	2 5/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
											19.71	17.15	26.47	24.15	26.6	—	
HWP2.56 H=14	✓	7	2 5/8	14	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2125	5210	5210	5210	5870	5675	—	
											9.45	23.18	23.18	23.18	26.11	25.24	—
2 1/2 x 16	ITS2.56/16	—	18	2 5/8	15 1/16	2	1 7/16	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
											0.78	9.94	7.52	10.14	8.92	11.63	6.12
	LT2516	—	18	2 5/8	16	2	1 5/8	(4) 10d	(2) 10d	(1) #8 x 1 1/4" WS	105	2625	1725	2560	2480	2620	1695
											0.47	11.68	7.67	11.39	11.03	11.65	7.54
	MIT316	—	16	2 5/8	16	2 1/2	2 5/8	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA2.56/16 (Min.)	—	14	2 5/8	16	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
										1.76	20.17	17.93	25.96	23.95	25.89	10.77	
BA2.56/16 (Max.)	✓									(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
WP2.56X H=16	✓	12	2 5/8	16	2 1/2	2 5/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
											19.71	17.15	26.47	24.15	26.6	—	
HWP2.56 H=16	✓	7	2 5/8	16	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2145	5210	5210	5210	5870	5675	—	
											9.54	23.18	23.18	23.18	26.11	25.24	—
2 1/2 x 18	MIT318	—	16	2 5/8	18	2 1/2	2 5/8	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	HIT318	—	16	2 5/8	18	3	2 7/8	(4) 16d	(6) 16d	(2) 10d x 1 1/2"	375	4570	2705	3725	3220	3775	—
											1.67	20.33	12.03	16.57	14.32	16.79	—
	BA2.56/18 (Min.)	—	14	2 5/8	18	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
											1.76	20.17	17.93	25.96	23.95	25.89	10.77
BA2.56/18 (Max.)	✓									(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
WP2.56X H=18	✓	12	2 5/8	18	2 1/2	2 5/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
											19.71	17.15	26.47	24.15	26.6	—	
HWP2.56 H=18	✓	7	2 5/8	18	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2145	5210	5210	5210	5870	5675	—	
											9.54	23.18	23.18	23.18	26.11	25.24	—
2 1/2 x 20	MIT320	✓	16	2 5/8	20	2 1/2	2 5/8	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	HIT320	—	16	2 5/8	20	3	2 7/8	(4) 16d	(6) 16d	(2) 10d x 1 1/2"	450	4570	2705	3725	3220	3775	—
											2	20.33	12.03	16.57	14.32	16.79	—
	BA2.56/20 (Min.)	—	14	2 5/8	20	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
											1.76	20.17	17.93	25.96	23.95	25.89	10.77
BA2.56/20 (Max.)	✓									(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
WP2.56X H=20	✓	12	2 5/8	20	2 1/2	2 5/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
											19.71	17.15	26.47	24.15	26.6	—	
HWP2.56 H=20	✓	7	2 5/8	20	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2145	5210	5210	5210	5870	5675	—	
											9.54	23.18	23.18	23.18	26.11	25.24	—

1. When I-joist is used as a header, all header fasteners must be 10d x 1 1/2".  
See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1 1/2" thick.  
2. See pp. 166–182 for specific notes on individual model types.



## Top-Flange Hangers – I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
				lb.	lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN	kN	kN
2½ x 22	HIT322	—	16	2⅝	22	3	2⅞	(4) 16d	(6) 16d	(2) 10d x 1½"	450	4570	2705	3725	3220	3775	—
	BA2.56/22 (Min.)	—	12	2⅝	22	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA2.56/22 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
	WP2.56X H=22	✓	12	2⅝	22	2½	2⅝	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HWP2.56 H=22	✓	7	2⅝	22	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2145	5210	5210	5210	5870	5675	—
2½ x 24	HIT324	—	16	2⅝	24	3	2⅞	(4) 16d	(6) 16d	(2) 10d x 1½"	450	4570	2705	3725	3220	3775	—
	BA2.56/24 (Min.)	—	12	2⅝	24	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA2.56/24 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
	WP2.56X H=24	✓	12	2⅝	24	2½	2⅝	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HB2.56/24	✓	10	2⅝	24	3½	3	(6) 16d	(16) 16d	(10) 16d x 2½"	3555	9335	5945	9525	9240	10475	—
	HWP2.56 H=24	✓	7	2⅝	24	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2145	5210	5210	5210	5870	5675	—
2½ x 26	BA2.56/26 (Min.)	—	12	2⅝	26	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA2.56/26 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
	WP2.56X H=26	✓	12	2⅝	26	2½	2⅝	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HB2.56/26	✓	10	2⅝	26	3½	3	(6) 16d	(16) 16d	(10) 16d x 2½"	3555	9335	5945	9525	9240	10475	—
	HWP2.56 H=26	✓	7	2⅝	26	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2145	5210	5210	5210	5870	5675	—
2½ x 28	BA2.56/28 (Min.)	—	12	2⅝	28	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA2.56/28 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
	WP2.56X H=28	✓	12	2⅝	28	2½	2⅝	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HB2.56/28	✓	10	2⅝	28	3½	3	(6) 16d	(16) 16d	(10) 16d x 2½"	3555	9335	5945	9525	9240	10475	—
	HWP2.56 H=28	✓	7	2⅝	28	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2145	5210	5210	5210	5870	5675	—

1. When I-joist is used as a header, all header fasteners must be 10d x 1½".

See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1½" thick.

2. See pp. 166–182 for specific notes on individual model types.



# Top-Flange Hangers – I-Joists, Glulam and SCL

I-Joist, Glulam and Structural Composite Lumber Connectors

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
				lb.	lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN	kN	
2½ x 30	WP2.56X H=30	✓	12	2¾	30	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HWP2.56 H=30	✓	7	2¾	30	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2145	5210	5210	5210	5870	5675	—
2¼ x 9½ PSL	BA2.75X H=9.5 (Min.)	N/A	12	2¾	9½	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA2.75X H=9.5 (Max.)	N/A						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
	HB2.75X H=9.5	N/A	10	2¾	9½	3½	3	(6) 16d	(16) 16d	(10) 16d x 2½"	3555	9335	5945	9525	9240	10475	—
	WP2.75X H=9.5	N/A	12	2¾	9½	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HWP2.75 H=11.88	N/A	7	2¾	11¾	4	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	2740	7905	5970	8310	8850	7910	—
	HGLTV2.75 H=9.5	N/A	7	2¾	9½	6	2¾	(6) 16d	(12) 16d	(16) 16d x 2½"	2145	13070	9830	15365	11325	13795	—
	2¼ x 11¾ PSL	BA2.75X H=11.88 (Min.)	N/A	12	2¾	11¾	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820
BA2.75X H=11.88 (Max.)		N/A	(6) 16d						(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
HB2.75X H=11.88		N/A	10	2¾	11¾	3½	3	(6) 16d	(16) 16d	(10) 16d x 2½"	3555	9335	5945	9525	9240	10475	—
WP2.75X H=11.88		N/A	12	2¾	11¾	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
HWP2.75 H=11.88		N/A	7	2¾	11¾	4	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	2740	7905	5970	8310	8850	7910	—
HGLTV2.75 H=11.88		N/A	7	2¾	11¾	6	2¾	(6) 16d	(12) 16d	(16) 16d x 2½"	2145	13070	9830	15365	11325	13795	—
2¼ x 14 PSL		BA2.75X H=14 (Min.)	N/A	12	2¾	14	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820
	BA2.75X H=14 (Max.)	N/A	(6) 16d						(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
	HB2.75X H=14	N/A	10	2¾	14	3½	3	(6) 16d	(16) 16d	(10) 16d x 2½"	3555	9335	5945	9525	9240	10475	—
	WP2.75X H=14	N/A	12	2¾	14	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HWP2.75 H=14	N/A	7	2¾	14	4	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	2740	7905	5970	8310	8850	7910	—
	HGLTV2.75 H=14	N/A	7	2¾	14	6	2¾	(6) 16d	(12) 16d	(16) 16d x 2½"	2145	13070	9830	15365	11325	13795	—
	2¼ x 16 PSL	BA2.75X H=16 (Min.)	N/A	12	2¾	16	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820
BA2.75X H=16 (Max.)		N/A	(6) 16d						(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
HB2.75X H=16		N/A	10	2¾	16	3½	3	(6) 16d	(16) 16d	(10) 16d x 2½"	3555	9335	5945	9525	9240	10475	—
											15.81	41.53	26.45	42.37	41.10	46.60	—

1. When I-joist is used as a header, all header fasteners must be 10d x 1½".  
 See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1½" thick.  
 2. See pp. 166–182 for specific notes on individual model types.

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## Top-Flange Hangers – I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
				lb.	lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN	kN	
2 1/16 x 16 PSL (cont.)	WP2.75X H=16	N/A	12	2 3/4	16	2 1/2	2 3/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	HWP2.75 H=16	N/A	7	2 3/4	16	4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2740	7905	5970	8310	8850	7910	—
	HGLTV2.75 H=16	N/A	7	2 3/4	16	6	2 7/8	(6) 16d	(12) 16d	(16) 16d x 2 1/2"	12.19	35.16	25.56	36.97	39.37	33.19	—
3 1/8 Glulam (indicate height reqd.)	BA3.25X (Min.)	N/A	12	3 1/4	7 1/2 to 30	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	BA3.25X (Max.)	N/A						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
	HB3.25X	N/A	10	3 1/4	9 to 33	3 1/2	3	(6) 16d	(16) 16d	(10) 16d x 2 1/2"	1740	5480	4030	7125	6520	6795	—
	WP3.25X	N/A	12	3 1/4	6 to 30	2 1/2	2 3/16	(4) 16d	—	(2) 10d x 1 1/2"	7.74	24.38	17.93	31.69	29.00	30.23	—
	HWP3.25	N/A	7	3 1/4	6 to 31 1/2	4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	3555	9335	5945	9525	9240	10475	—
	HGLT3	N/A	7	3 1/4	7 1/2 to 30	6	2 1/2	(6) N54A	(12) N54A	(6) N54A	15.81	41.53	26.45	42.37	41.10	46.60	—
3 1/2 x 7 1/4	BA3.56X H=7.25 (Min.)	—	12	3 3/16	7 1/4	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	BA3.56X H=7.25 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
	WP3.56X H=7.25	✓	12	3 3/16	7 1/4	2 1/2	2 3/16	(4) 16d	—	(2) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
	HWP3.56 H=7.25	✓	7	3 3/16	7 1/4	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	HWP3.56 H=7.25	✓	7	3 3/16	7 1/4	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	—	19.71	17.15	26.47	24.15	26.6	—
3 1/2 x 9 1/4	BA3.56/9.25 (Min.)	—	12	3 3/16	9 1/4	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	2125	5210	5210	5210	5870	5675	—
	BA3.56/9.25 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	9.45	23.18	23.18	23.18	26.11	25.24	—
	WP3.56X H=7.25	✓	12	3 3/16	9 1/4	2 1/2	2 3/16	(4) 16d	—	(2) 10d x 1 1/2"	2740	7905	5970	8310	8850	7910	—
	HB3.56/9.25	✓	10	3 3/16	9 1/4	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	12.19	35.16	25.56	36.97	39.37	33.19	—
	HWP3.56 H=7.25	✓	7	3 3/16	9 1/4	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2740	7905	5970	8310	8850	7910	—
3 1/2 x 9 1/2	ITS3.56/9.5	✓	18	3 3/8	9 7/16	2	1 7/16	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
	LT359	✓						(4) 10d	(2) 10d	(2) #8 x 1 1/4" WS	0.78	9.94	7.52	10.14	8.92	11.63	6.12
	MIT49.5	✓	16	3 3/16	9 1/2	2 1/2	2 3/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	105	2625	1725	2560	2480	2620	1695
	BA3.56/9.5 (Min.)	—	14	3 3/16	9 1/2	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	0.47	11.68	7.67	11.39	11.03	11.65	7.54
	BA3.56/9.5 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
												1.67	15.52	10.77	15.79	13.46	15.41
											395	4535	4030	5835	5385	5820	2420
											1.76	20.17	17.93	25.96	23.95	25.89	10.77
											1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—

1. When I-joist is used as a header, all header fasteners must be 10d x 1 1/2".

See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1 1/2" thick.

2. See pp. 166–182 for specific notes on individual model types.

3. For 16 and 18 gauge, 3 1/2"-wide I-joist hangers, web stiffeners are required when the factored reaction is greater than 2330 lb. (10.36 kN).



# Top-Flange Hangers – I-Joists, Glulam and SCL

**I-Joist, Glulam and Structural Composite Lumber Connectors**

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
											Uplift (K <sub>D</sub> = 1.15)						Normal (K <sub>D</sub> = 1.00)
				W	H	B	TF	Header		Joist	lb.	lb.	lb.	lb.	lb.	lb.	I-Joist
								Top	Face								
kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN				
3½ x 9½ (cont.)	HB3.56/9.5	✓	10	3¾	9½	3½	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
											15.81	41.53	26.45	42.37	41.1	46.6	—
	WP3.56X H=9.5	✓	12	3¾	9½	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
											—	19.71	17.15	26.47	24.15	26.6	—
	HWP3.56 H=9.5	✓	7	3¾	9½	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2125	5210	5210	5210	5870	5675	—
											9.45	23.18	23.18	23.18	26.11	25.24	—
	HWP3.56 H=9.5	✓	7	3¾	9½	3¼	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	2740	7905	5970	8310	8850	7910	—
										12.19	35.16	25.56	36.97	39.37	33.19	—	
3½ x 11¼	HGLTV3.59	✓	7	3¾	9½	6	2¾	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—
											9.54	58.14	43.73	68.35	50.38	61.37	—
	SCL3.62/9.5	✓	3	3¾	9½	4	2¾	—	(6) 16d	(6) 16d	2155	13245	6775	15850	15855	—	—
											9.59	58.92	30.14	70.51	70.53	—	—
	BA3.56/11.25 (Min.)	—	12	3¾	11¼	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
											1.76	20.17	17.93	25.96	23.95	25.89	10.77
	BA3.56/11.25 (Max.)	✓	14	3¾	11¼	3	2½	(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
										7.74	24.38	17.93	31.69	29.00	30.23	—	
3½ x 11¼	HB3.56/11.25	✓	10	3¾	11¼	3½	2½	(6) 16d	(16) 16d	(10) 16d x 2½"	3555	9335	5945	9525	9240	10475	—
											15.81	41.53	26.45	42.37	41.1	46.6	—
	WP3.56X H=11.25	✓	12	3¾	11¼	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
											—	19.71	17.15	26.47	24.15	26.6	—
	HWP3.56 H=11.25	✓	7	3¾	11¼	3¼	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	2740	7905	5970	8310	8850	7910	—
											12.19	35.16	25.56	36.97	39.37	33.19	—
	HGLTV3.56/11.25	✓	7	3¾	11¼	6	2¾	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—
										9.54	58.14	43.73	68.35	50.38	61.37	—	
3½ x 11¾	ITS3.56/11.88	✓	18	3¾	11¾	2	1¾	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
											0.78	9.94	7.52	10.14	8.92	11.63	6.12
	LT351188	✓	18	3¾	11¾	2	1¾	(4) 10d	(2) 10d	(2) #8 x 1¼" WS	105	2625	1725	2560	2480	2620	1695
											0.47	11.68	7.67	11.39	11.03	11.65	7.54
	MIT411.88	✓	16	3¾	11¾	2½	2¾	(4) 16d	(4) 16d	(2) 10d x 1½"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA3.56/11.88 (Min.)	—	12	3¾	11¾	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
											1.76	20.17	17.93	25.96	23.95	25.89	10.77
	BA3.56/11.88 (Max.)	✓	14	3¾	11¾	3	2½	(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
	HB3.56/11.88	✓	10	3¾	11¾	3½	2½	(6) 16d	(16) 16d	(10) 16d x 2½"	3555	9335	5945	9525	9240	10475	—
											15.81	41.53	26.45	42.37	41.1	46.6	—
	WP3.56X H=11.88	✓	12	3¾	11¾	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
											—	19.71	17.15	26.47	24.15	26.6	—
	HWP3.56 H=11.88	✓	7	3¾	11¾	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2125	5210	5210	5210	5870	5675	—
										9.45	23.18	23.18	23.18	26.11	25.24	—	
HWP3.56/11.88	✓	7	3¾	11¾	3¼	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	2740	7905	5970	8310	8850	7910	—	
										12.19	35.16	25.56	36.97	39.37	33.19	—	
HGLTV3.511	✓	7	3¾	11¾	6	2¾	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—	
										9.54	58.14	43.73	68.35	50.38	61.37	—	
SCL3.62/11.88	✓	3	3¾	11¾	4	2¾	—	(6) 16d	(6) 16d	2155	13245	6775	15850	15855	—	—	
										9.59	58.92	30.14	70.51	70.53	—	—	
EGQ3.62-SDS3 H=11.88	N/A	7	3¾	11¾	6	3	—	(28) ¼" x 3" SDS	(12) ¼" x 3" SDS	9040	24915	See p. 181	28410	25450	28410	—	
										40.21	110.83	126.38	113.21	126.38	—		

1. When I-joist is used as a header, all header fasteners must be 10d x 1½".  
 See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1½" thick.  
 2. See pp. 166–182 for specific notes on individual model types.  
 3. For 16 and 18 gauge, 3½"-wide I-joist hangers, web stiffeners are required when the factored reaction is greater than 2330 lb. (10.36 kN).





## Top-Flange Hangers – I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
											lb.						
kN	kN	kN	kN	kN	kN	kN	kN										
3½ x 14	ITS3.56/14	✓	18	3¾	13½	2	1¾	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
											0.78	9.94	7.52	10.14	8.92	11.63	6.12
	LT3514	✓	18	3¾	14	2	1¾	(4) 10d	(2) 10d	(2) #8 x 1¼" WS	105	2625	1725	2560	2480	2620	1695
											0.47	11.68	7.67	11.39	11.03	11.65	7.54
	MIT414	✓	16	3¾	14	2½	2¾	(4) 16d	(4) 16d	(2) 10d x 1½"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA3.56/14 (Min.)	—	14	3¾	14	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA3.56/14 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
	HB3.56/14	✓	10	3¾	14	3½	2½	(6) 16d	(16) 16d	(10) 16d x 2½"	3555	9335	5945	9525	9240	10475	—
											15.81	41.53	26.45	42.37	41.1	46.6	—
WP3.56X H=14	✓	12	3¾	14	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—	
										—	19.71	17.15	26.47	24.15	26.6	—	
HWP3.56 H=14	✓	7	3¾	14	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2125	5210	5210	5210	5870	5675	—	
										9.45	23.18	23.18	23.18	26.11	25.24	—	
HWP3.56/14	✓	7	3¾	14	3¼	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	2740	7905	5970	8310	8850	7910	—	
										12.19	35.16	25.56	36.97	39.37	33.19	—	
HGLTV3.514	✓	7	3¾	14	6	2¾	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—	
										9.54	58.14	43.73	68.35	50.38	61.37	—	
SCL3.62/14	✓	3	3¾	14	4	2¾	—	(6) 16d	(6) 16d	2155	13245	6775	15850	15855	—	—	
										9.59	58.92	30.14	70.51	70.53	—	—	
EGQ3.62-SDS3 H=14	N/A	7	3¾	14	6	3	—	(28) ¼" x 3" SDS	(12) ¼" x 3" SDS	9040	24915	See p. 181	28410	25450	28410	—	
										40.21	110.83	126.38	113.21	126.38	—		
3½ x 16	ITS3.56/16	✓	18	3¾	15½	2	1¾	(4) 10d	(2) 10d	—	175	2235	1690	2280	2005	2615	1375
											0.78	9.94	7.52	10.14	8.92	11.63	6.12
	LT3516	✓	18	3¾	16	2	1¾	(4) 10d	(2) 10d	(2) #8 x 1¼" WS	105	2625	1725	2560	2480	2620	1695
											0.47	11.68	7.67	11.39	11.03	11.65	7.54
	MIT416	✓	16	3¾	16	2½	2¾	(4) 16d	(4) 16d	(2) 10d x 1½"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA3.56/16 (Min.)	—	14	3¾	16	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA3.56/16 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
	HB3.56/16	✓	10	3¾	16	3½	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
											15.81	41.53	26.45	42.37	41.1	46.6	—
WP3.56X H=16	✓	12	3¾	16	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—	
										—	19.71	17.15	26.47	24.15	26.6	—	
HWP3.56 H=16	✓	7	3¾	16	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2145	5210	5210	5210	5870	5675	—	
										9.54	23.18	23.18	23.18	26.11	25.24	—	
HWP3.56/16	✓	7	3¾	16	3¼	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	2815	7905	5970	8310	8850	7910	—	
										12.52	35.16	25.56	36.97	39.37	33.19	—	
HGLTV3.516	✓	7	3¾	16	6	2¾	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—	
										9.54	58.14	43.73	68.35	50.38	61.37	—	
SCL3.62/16	✓	3	3¾	16	4	2¾	—	(6) 16d	(6) 16d	2155	13245	6775	15850	15855	—	—	
										9.59	58.92	30.14	70.51	70.53	—	—	
EGQ3.62-SDS3 H=16	N/A	7	3¾	16	6	3	—	(28) ¼" x 3" SDS	(12) ¼" x 3" SDS	9040	24915	See p. 181	28410	25450	28410	—	
										40.21	110.83	126.38	113.21	126.38	—		

1. When I-joist is used as a header, all header fasteners must be 10d x 1½".

See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1½" thick.

2. See pp. 166–182 for specific notes on individual model types.

3. For 16 and 18 gauge, 3½"-wide I-joist hangers, web stiffeners are required when the factored reaction is greater than 2330 lb. (10.36 kN).



# Top-Flange Hangers – I-Joists, Glulam and SCL

I-Joist, Glulam and Structural Composite Lumber Connectors

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
kN	kN	kN	kN	kN	kN	kN											
3 1/2 x 18	MIT418	✓	16	3 3/16	18	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	HIT418	✓	16	3 3/16	18	3	2 3/8	(4) 16d	(6) 16d	(2) 10d x 1 1/2"	450	4570	2705	3725	3220	3775	—
											2	20.33	12.03	16.57	14.32	16.79	—
	BA3.56/18 (Min.)	—	14	3 3/16	18	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
															1.76	20.17	17.93
	BA3.56/18 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
	HB3.56/18	✓	10	3 3/16	18	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
											15.81	41.53	26.45	42.37	41.1	46.6	—
WP3.56X H=18	✓	12	3 3/16	18	2 1/2	2 3/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
										—	19.71	17.15	26.47	24.15	26.6	—	
HWP3.56 H=18	✓	7	3 3/16	18	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2145	5210	5210	5210	5870	5675	—	
										9.54	23.18	23.18	23.18	26.11	25.24	—	
HWP3.56/18	✓	7	3 3/16	18	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2815	7905	5970	8310	8850	7910	—	
										12.52	35.16	25.56	36.97	39.37	33.19	—	
HGLTV3.518	✓	7	3 3/16	18	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—	
										9.54	58.14	43.73	68.35	50.38	61.37	—	
EGQ3.62-SDS3 H=18	N/A	7	3 3/8	18	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	9040	24915	See p. 181	28410	25450	28410	—	
										40.21	110.83	126.38	113.21	126.38	—		
3 1/2 x 20	MIT420	✓	16	3 3/16	20	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
											1.67	15.52	10.77	15.79	13.46	15.41	8.45
	HIT420	✓	16	3 3/16	20	3	2 3/8	(4) 16d	(6) 16d	(2) 10d x 1 1/2"	450	4570	2705	3725	3220	3775	—
											2	20.33	12.03	16.57	14.32	16.79	—
	BA3.56/20 (Min.)	—	12	3 3/16	20	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
															1.76	20.17	17.93
	BA3.56/20 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
	HB3.56/20	✓	10	3 3/16	20	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
											15.81	41.53	26.45	42.37	41.1	46.6	—
WP3.56X H=20	✓	12	3 3/16	20	2 1/2	2 3/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
										—	19.71	17.15	26.47	24.15	26.6	—	
HWP3.56 H=20	✓	7	3 3/16	20	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2145	5210	5210	5210	5870	5675	—	
										9.54	23.18	23.18	23.18	26.11	25.24	—	
HWP3.56 H=20	✓	7	3 3/16	20	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2815	7905	5970	8310	8850	7910	—	
										12.52	35.16	25.56	36.97	39.37	33.19	—	
HGLTV3.520	✓	7	3 3/16	20	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—	
										9.54	58.14	43.73	68.35	50.38	61.37	—	
3 1/2 x 22	HIT422	✓	16	3 3/16	22	3	2 3/8	(4) 16d	(6) 16d	(2) 10d x 1 1/2"	450	4570	2705	3725	3220	3775	—
											2	20.33	12.03	16.57	14.32	16.79	—
	BA3.56/22 (Min.)	—	12	3 3/16	22	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
															1.76	20.17	17.93
	BA3.56/22 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
										7.74	24.38	17.93	31.69	29.00	30.23	—	
HB3.56/22	✓	10	3 3/16	22	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—	
										15.81	41.53	26.45	42.37	41.1	46.6	—	

1. When I-joist is used as a header, all header fasteners must be 10d x 1 1/2".  
 See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1 1/2" thick.  
 2. See pp. 166–182 for specific notes on individual model types.  
 3. For 16 and 18 gauge, 3 1/2"-wide I-joist hangers, web stiffeners are required when the factored reaction is greater than 2330 lb. (10.36 kN).

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## Top-Flange Hangers – I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
											lb.						
kN	kN	kN	kN	kN	kN	kN	kN										
3½ x 22 (cont.)	WP3.56X H=22	✓	12	3⅝	22	2½	2⅝	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HWP3.56 H=22	✓	7	3⅝	22	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2145	5210	5210	5210	5870	5675	—
	HWP3.56 H=22	✓	7	3⅝	22	3¼	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	2815	7905	5970	8310	8850	7910	—
											12.52	35.16	25.56	36.97	39.37	33.19	—
											9.54	23.18	23.18	23.18	26.11	25.24	—
											2	20.33	12.03	16.57	14.32	16.79	—
3½ x 24	HIT424	✓	16	3⅝	24	3	2⅝	(4) 16d	(6) 16d	(2) 10d x 1½"	450	4570	2705	3725	3220	3775	—
	BA3.56/24 (Min.)	—	12	3⅝	24	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA3.56/24 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
	HB3.56/24	✓	10	3⅝	24	3½	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
											15.81	41.53	26.45	42.37	41.1	46.6	—
	WP3.56X H=24	✓	12	3⅝	24	2½	2⅝	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
											—	19.71	17.15	26.47	24.15	26.6	—
	HWP3.56 H=24	✓	7	3⅝	24	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2145	5210	5210	5210	5870	5675	—
											9.54	23.18	23.18	23.18	26.11	25.24	—
											2815	7905	5970	8310	8850	7910	—
											12.52	35.16	25.56	36.97	39.37	33.19	—
3½ x 26	BA3.56/26 (Min.)	—	12	3⅝	26	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA3.56/26 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
	HB3.56/26	✓	10	3⅝	26	3½	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
											15.81	41.53	26.45	42.37	41.1	46.6	—
	WP3.56X H=26	✓	12	3⅝	26	2½	2⅝	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
										—	19.71	17.15	26.47	24.15	26.6	—	
										2145	5210	5210	5210	5870	5675	—	
										9.54	23.18	23.18	23.18	26.11	25.24	—	
										2815	7905	5970	8310	8850	7910	—	
										12.52	35.16	25.56	36.97	39.37	33.19	—	
3½ x 28	BA3.56/28 (Min.)	—	12	3⅝	28	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA3.56/28 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
											7.74	24.38	17.93	31.69	29.00	30.23	—
	HB3.56/28	✓	10	3⅝	28	3½	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
											15.81	41.53	26.45	42.37	41.1	46.6	—
	WP3.56X H=28	✓	12	3⅝	28	2½	2⅝	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
										—	19.71	17.15	26.47	24.15	26.6	—	
										2145	5210	5210	5210	5870	5675	—	
										9.54	23.18	23.18	23.18	26.11	25.24	—	
										2815	7905	5970	8310	8850	7910	—	
										12.52	35.16	25.56	36.97	39.37	33.19	—	

1. When I-joist is used as a header, all header fasteners must be 10d x 1½".

See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1½" thick.

2. See pp. 166–182 for specific notes on individual model types.

3. For 16 and 18 gauge, 3½"-wide I-joist hangers, web stiffeners are required when the factored reaction is greater than 2330 lb. (10.36 kN).



# Top-Flange Hangers – I-Joists, Glulam and SCL

I-Joist, Glulam and Structural Composite Lumber Connectors

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
				lb.	lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN	kN	
3 1/2 x 30	BA3.56/30 (Min.)	—	12	3 3/16	30	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	BA3.56/30 (Max.)	✓	12	3 3/16	30	3	2 1/2	(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
	HB3.56/30	✓	10	3 3/16	30	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
	WP3.56X H=30	✓	12	3 3/16	30	2 1/2	2 3/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	HWP3.56 H=30	✓	7	3 3/16	30	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2815	7905	5970	8310	8850	7910	—
Double 2 x 9 1/2	MIT4.12/9.5	—	16	4 1/8	9 1/2	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
	BA4.12/9.5 (Min.)	—	12	4 1/8	9 1/2	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	BA4.12/9.5 (Max.)	✓	12	4 1/8	9 1/2	3	2 1/2	(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
	WP4.12X H=9.5	✓	12	4 1/8	9 1/2	2 1/2	2 3/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
Double 2 x 11 3/8	MIT4.12/11.88	—	16	4 1/8	11 7/8	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
	BA4.12/11.88 (Min.)	—	12	4 1/8	11 7/8	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	BA4.12/11.88 (Max.)	✓	12	4 1/8	11 7/8	3	2 1/2	(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
	WP4.12X H=11.88	✓	12	4 1/8	11 7/8	2 1/2	2 3/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
Double 2 x 14	BA4.12/14 (Min.)	—	12	4 1/8	14	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	BA4.12/14 (Max.)	✓	12	4 1/8	14	3	2 1/2	(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
	WP4.12X H=14	✓	12	4 1/8	14	2 1/2	2 3/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
Double 2 x 16	BA4.12/16 (Min.)	—	12	4 1/8	16	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	BA4.12/16 (Max.)	✓	12	4 1/8	16	3	2 1/2	(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
	WP4.12X H=16	✓	12	4 1/8	16	2 1/2	2 3/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
Double 2 1/8 x 9 1/2	MIT4.28/9.5	—	16	4 3/32	9 1/2	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
	BA4.28/9.5 (Min.)	—	12	4 3/32	9 1/2	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	BA4.28/9.5 (Max.)	✓	12	4 3/32	9 1/2	3	2 1/2	(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
	WP4.28X H=9.5	✓	12	4 3/32	9 1/2	2 1/2	2 3/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—

1. When I-joint is used as a header, all header fasteners must be 10d x 1 1/2".  
 See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1 1/2" thick.  
 2. See pp. 166–182 for specific notes on individual model types.  
 3. For 16 and 18 gauge, 3 1/2"-wide I-joint hangers, web stiffeners are required when the factored reaction is greater than 2330 lb. (10.36 kN).

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## Top-Flange Hangers – I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
											lb.						
kN	kN	kN	kN	kN	kN	kN	kN										
Double 2 1/8 x 11 7/8	MIT4.28/11.88	—	16	4 3/32	11 7/8	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
	BA4.28/11.88 (Min.)	—	12	4 3/32	11 7/8	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA4.28/11.88 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	WP4.28X H=11.88	✓	12	4 3/32	11 7/8	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
WP4.28X H=11.88	✓	12	4 3/32	11 7/8	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	7.74	24.38	17.93	31.69	29.00	30.23	—	
Double 2 1/8 x 14	MIT4.28/14	—	16	4 3/32	14	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
	BA4.28/14 (Min.)	—	12	4 3/32	14	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA4.28/14 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	WP4.28X H=14	✓	12	4 3/32	14	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
WP4.28X H=14	✓	12	4 3/32	14	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	7.74	24.38	17.93	31.69	29.00	30.23	—	
Double 2 1/8 x 16	BA4.28/16 (Min.)	—	12	4 3/32	16	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	1740	5480	4030	7125	6520	6795	—
	BA4.28/16 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	WP4.28X H=16	✓	12	4 3/32	16	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
WP4.28X H=16	✓	12	4 3/32	16	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	7.74	24.38	17.93	31.69	29.00	30.23	—	
Double 2 3/8 x 9 1/2	MIT359.5-2	—	16	4 3/4	9 1/2	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
	BA4.75/9.5 (Min.)	—	12	4 3/4	9 1/2	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA4.75/9.5 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
BA4.75/9.5 (Max.)	✓	12	4 3/4	9 1/2	3	2 1/2	(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77	
BA4.75/9.5 (Max.)	✓	12	4 3/4	9 1/2	3	2 1/2	(6) 16d	(10) 16d	(8) 10d x 1 1/2"	7.74	24.38	17.93	31.69	29.00	30.23	—	
Double 2 3/8 x 11 7/8	MIT3511.88-2	—	16	4 3/4	11 7/8	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
	BA4.75/11.88 (Min.)	—	12	4 3/4	11 7/8	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA4.75/11.88 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	WP4.75X H=11.88	✓	12	4 3/4	11 7/8	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
WP4.75X H=11.88	✓	12	4 3/4	11 7/8	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	7.74	24.38	17.93	31.69	29.00	30.23	—	
Double 2 3/8 x 14	MIT3514-2	—	16	4 3/4	14	2 1/2	2 5/16	(4) 16d	(4) 16d	(2) 10d x 1 1/2"	375	3490	2420	3550	3025	3465	1900
	BA4.75/14 (Min.)	—	12	4 3/4	14	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA4.75/14 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	WP4.75X H=14	✓	12	4 3/4	14	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
WP4.75X H=14	✓	12	4 3/4	14	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	7.74	24.38	17.93	31.69	29.00	30.23	—	
WP4.75X H=14	✓	12	4 3/4	14	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
WP4.75X H=14	✓	12	4 3/4	14	2 1/2	2 5/16	(4) 16d	—	(2) 10d x 1 1/2"	—	19.71	17.15	26.47	24.15	26.6	—	

- When I-joist is used as a header, all header fasteners must be 10d x 1 1/2".  
See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1 1/2" thick.
- See pp. 166–182 for specific notes on individual model types.



# Top-Flange Hangers – I-Joists, Glulam and SCL

I-Joist, Glulam and Structural Composite Lumber Connectors

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
				lb.	lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN	kN	
Double 2½ x 16	MIT4.75/16	—	16	4¾	16	2½	2¾	(4) 16d	(4) 16d	(2) 10d x 1½"	375	3490	2420	3550	3025	3465	1900
	BA4.75/16 (Min.)	—	12	4¾	16	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA4.75/16 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	WP4.75X H=16	✓	12	4¾	16	2½	2¾	(4) 16d	—	(2) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
—	—	12	4¾	16	2½	2¾	(4) 16d	—	(2) 10d x 1½"	7.74	24.38	17.93	31.69	29.00	30.23	—	
Double 2½ x 18	BA4.75/18 (Min.)	—	12	4¾	18	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	BA4.75/18 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	WP4.75X H=18	✓	12	4¾	18	2½	2¾	(4) 16d	—	(2) 10d x 1½"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
	—	—	12	4¾	18	2½	2¾	(4) 16d	—	(2) 10d x 1½"	7.74	24.38	17.93	31.69	29.00	30.23	—
Double 2½ x 20	BA4.75/20 (Min.)	—	12	4¾	20	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	BA4.75/20 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	WP4.75X H=20	✓	12	4¾	20	2½	2¾	(4) 16d	—	(2) 10d x 1½"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
	—	—	12	4¾	20	2½	2¾	(4) 16d	—	(2) 10d x 1½"	7.74	24.38	17.93	31.69	29.00	30.23	—
Double 2½ x 9½	MIT39.5-2	—	16	5½	9½	2½	2¾	(4) 16d	(4) 16d	(2) 10d x 1½"	375	3490	2420	3550	3025	3465	1900
	BA5.12/9.5 (Min.)	—	12	5½	9½	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA5.12/9.5 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	WP5.12X H=9.5	✓	12	5½	9½	2½	2¾	(4) 16d	—	(2) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
—	—	12	5½	9½	2½	2¾	(4) 16d	—	(2) 10d x 1½"	7.74	24.38	17.93	31.69	29.00	30.23	—	
Double 2½ x 11¾	MIT311.88-2	—	16	5½	11¾	2½	2¾	(4) 16d	(4) 16d	(2) 10d x 1½"	375	3490	2420	3550	3025	3465	1900
	BA5.12/11.88 (Min.)	—	12	5½	11¾	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA5.12/11.88 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	WP5.12X H=11.88	✓	12	5½	11¾	2½	2¾	(4) 16d	—	(2) 10d x 1½"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
—	—	12	5½	11¾	2½	2¾	(4) 16d	—	(2) 10d x 1½"	7.74	24.38	17.93	31.69	29.00	30.23	—	
Double 2½ x 14	MIT314-2	—	16	5½	14	2½	2¾	(4) 16d	(4) 16d	(2) 10d x 1½"	375	3490	2420	3550	3025	3465	1900
	BA5.12/14 (Min.)	—	12	5½	14	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA5.12/14 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	WP5.12X H=14	✓	12	5½	14	2½	2¾	(4) 16d	—	(2) 10d x 1½"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
—	—	12	5½	14	2½	2¾	(4) 16d	—	(2) 10d x 1½"	7.74	24.38	17.93	31.69	29.00	30.23	—	

1. When I-joist is used as a header, all header fasteners must be 10d x 1½".  
See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1½" thick.  
2. See pp. 166–182 for specific notes on individual model types.



## Top-Flange Hangers – I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
				lb.	lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN	kN	kN
Double 2½ x 16	MIT5.12/16	—	16	5½	16	2½	2¾	(4) 16d	(4) 16d	(2) 10d x 1½"	375	3490	2420	3550	3025	3465	1900
	BA5.12/16 (Min.)	—	12	5½	16	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	1.67	15.52	10.77	15.79	13.46	15.41	8.45
	BA5.12/16 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	WP5.12X H=16	✓	12	5½	16	2½	2¾	(4) 16d	—	(2) 10d x 1½"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
	HB5.12/16	✓	10	5½	16	3½	3	(6) 16d	(16) 16d	(10) 16d	7.74	24.38	17.93	31.69	29.00	30.23	—
	HWP5.12 H=16	✓	7	5½	16	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	—	4430	3855	5950	5430	5980	—
											—	19.71	17.15	26.47	24.15	26.6	—
Double 2½ x 16	MIT5.12/16	—	16	5½	16	2½	2¾	(4) 16d	(4) 16d	(2) 10d x 1½"	3555	9335	5945	9525	9240	10475	—
	BA5.12/16 (Min.)	—	12	5½	16	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	15.81	41.53	26.45	42.37	41.1	46.6	—
	BA5.12/16 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	2145	5210	5210	5210	5870	5675	—
	WP5.12X H=16	✓	12	5½	16	2½	2¾	(4) 16d	—	(2) 10d x 1½"	9.54	23.18	23.18	23.18	26.11	25.24	—
	HB5.12/16	✓	10	5½	16	3½	3	(6) 16d	(16) 16d	(10) 16d	—	4430	3855	5950	5430	5980	—
	HWP5.12 H=16	✓	7	5½	16	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	—	19.71	17.15	26.47	24.15	26.6	—
											3555	9335	5945	9525	9240	10475	—
Double 2½ x 18	BA5.12/18 (Min.)	—	12	5½	18	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	15.81	41.53	26.45	42.37	41.1	46.6	—
	BA5.12/18 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	2145	5210	5210	5210	5870	5675	—
	WP5.12X H=18	✓	12	5½	18	2½	2¾	(4) 16d	—	(2) 10d x 1½"	9.54	23.18	23.18	23.18	26.11	25.24	—
	HB5.12/18	✓	10	5½	18	3½	3	(6) 16d	(16) 16d	(10) 16d	—	4430	3855	5950	5430	5980	—
	HWP5.12 H=18	✓	7	5½	18	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	—	19.71	17.15	26.47	24.15	26.6	—
												3555	9335	5945	9525	9240	10475
Double 2½ x 20	BA5.12/20 (Min.)	—	12	5½	20	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	15.81	41.53	26.45	42.37	41.1	46.6	—
	BA5.12/20 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	2145	5210	5210	5210	5870	5675	—
	WP5.12X H=20	✓	12	5½	20	2½	2¾	(4) 16d	—	(2) 10d x 1½"	9.54	23.18	23.18	23.18	26.11	25.24	—
	HB5.12/20	✓	10	5½	20	3½	3	(6) 16d	(16) 16d	(10) 16d	—	4430	3855	5950	5430	5980	—
	HWP5.12 H=20	✓	7	5½	20	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	—	19.71	17.15	26.47	24.15	26.6	—
												3555	9335	5945	9525	9240	10475

1. When I-joist is used as a header, all header fasteners must be 10d x 1½".

See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1½" thick.

2. See pp. 166–182 for specific notes on individual model types.



# Top-Flange Hangers – I-Joists, Glulam and SCL

I-Joist, Glulam and Structural Composite Lumber Connectors

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
				lb.	lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN	kN	
Double 2½ x 22	BA5.12/22 (Min.)	—	12	5½	22	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA5.12/22 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
	WP5.12X H=22	✓	12	5½	22	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HB5.12/22	✓	10	5½	22	3½	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
	HWP5.12 H=22	✓	7	5½	22	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2145	5210	5210	5210	5870	5675	—
Double 2½ x 24	BA5.12/24 (Min.)	—	12	5½	24	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA5.12/24 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
	WP5.12X H=24	✓	12	5½	24	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HB5.12/24	✓	10	5½	24	3½	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
	HWP5.12 H=24	✓	7	5½	24	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2145	5210	5210	5210	5870	5675	—
Double 2½ x 26	BA5.12/26 (Min.)	—	12	5½	26	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA5.12/26 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
	WP5.12X H=26	✓	12	5½	26	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HB5.12/26	✓	10	5½	26	3½	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
	HWP5.12 H=26	✓	7	5½	26	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2145	5210	5210	5210	5870	5675	—
Double 2½ x 28	WP5.12X H=28	✓	12	5½	24	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HB5.12/28	✓	10	5½	24	3½	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
	HWP5.12 H=28	✓	7	5½	24	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2145	5210	5210	5210	5870	5675	—
Double 2½ x 30	WP5.12X H=30	✓	12	5½	30	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HWP5.12 H=30	✓	7	5½	30	3¼	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	2815	7905	5970	8310	8850	7910	—
5½ Glulam (indicate height req'd.)	BA5.25X (Min.)	N/A	12	5¼	7½ to 30	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA5.25X (Max.)	N/A						(6) 16d	(10) 16d	(8) 10d x 1½"	1740	5480	4030	7125	6520	6795	—
	HB5.25X	N/A	10	5¼	9 to 33	3½	3	(6) 16d	(16) 16d	(10) 16d x 2½"	3555	9335	5945	9525	9240	10475	—
	WP5.25X	N/A	12	5¼	6 to 30	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—

1. When I-joist is used as a header, all header fasteners must be 10d x 1½".  
See footnotes on pp. 167 and 171 for reduction values when flange material is less than 1½" thick.  
2. See pp. 166–182 for specific notes on individual model types.





## Top-Flange Hangers – I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
											lb.						
kN	kN	kN	kN	kN	kN	kN	kN										
5 1/8 Glulam (indicate height req'd.) (cont.)	HWP5.25	N/A	7	5 1/4	6 to 31 1/2	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2740	7905	5970	8310	8850	7910	—
	HGLT5	N/A	7	5 1/4	7 1/2 to 30	6	2 1/2	(6) N54A	(12) N54A	(6) N54A	12.19	35.16	25.56	36.97	39.37	33.19	—
5 1/4 x 9 1/4	WP5.37X H=9.25	✓	12	5 3/4	9 1/4	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	HB5.50/9.25	✓	10	5 1/2	9 1/4	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	—	19.71	17.15	26.47	24.15	26.6	—
	HWP5.37 H=9.25	✓	7	5 3/8	9 1/4	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	3555	9335	5945	9525	9240	10475	—
	HGLTV5.37 H=9.25	✓	7	5 3/8	9 1/4	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	15.81	41.53	26.45	42.37	41.1	46.6	—
5 1/4 x 9 1/2	HWP5.37 H=9.25	✓	7	5 3/8	9 1/4	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2740	7905	5970	8310	8850	7910	—
	HGLTV5.37 H=9.25	✓	7	5 3/8	9 1/4	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	12.19	35.16	25.56	36.97	39.37	33.19	—
	WP5.37X H=9.5	✓	12	5 3/8	9 1/2	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	2145	13070	9830	15365	11325	13795	—
	HB5.50/9.5	✓	10	5 1/2	9 1/2	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	9.54	58.14	43.73	68.35	50.38	61.37	—
	HWP5.37 H=9.5	✓	7	5 3/8	9 1/2	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	SCL5.37/9.5	✓	3	5 3/8	9 1/2	4	3	—	(6) 16d	(6) 16d	—	19.71	17.15	26.47	24.15	26.6	—
5 1/4 x 11 1/4	WP5.37X H=11.25	✓	12	5 3/8	11 1/4	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	3555	9335	5945	9525	9240	10475	—
	HB5.50/11.25	✓	10	5 1/2	11 1/4	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	15.81	41.53	26.45	42.37	41.1	46.6	—
	HWP5.37 H=11.25	✓	7	5 3/8	11 1/4	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2125	5210	5210	5210	5870	5675	—
	HGLTV5.37 H=11.25	✓	7	5 3/8	11 1/4	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	9.45	23.18	23.18	23.18	26.11	25.24	—
	HWP5.37 H=11.25	✓	7	5 3/8	11 1/4	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2740	7905	5970	8310	8850	7910	—
5 1/4 x 11 7/8	HGLTV5.37 H=11.25	✓	7	5 3/8	11 1/4	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	12.19	35.16	25.56	36.97	39.37	33.19	—
	WP5.37X H=11.88	✓	12	5 3/8	11 7/8	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	2145	13070	9830	15365	11325	13795	—
	HB5.50/11.88	✓	10	5 1/2	11 7/8	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	9.54	58.14	43.73	68.35	50.38	61.37	—
	HWP5.37 H=11.88	✓	7	5 3/8	11 7/8	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	HGLTV5.37 H=11.88	✓	7	5 3/8	11 7/8	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	—	19.71	17.15	26.47	24.15	26.6	—
	HWP5.37 H=11.88	✓	7	5 3/8	11 7/8	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	3555	9335	5945	9525	9240	10475	—
	SCL5.37/11.88	✓	3	5 3/8	11 7/8	5	2 3/4	—	(12) 16d	(12) 16d	15.81	41.53	26.45	42.37	41.1	46.6	—
EGQ5.37-SDS3 H=11.88	EGQ5.37-SDS3 H=11.88	N/A	7	5 3/8	11 7/8	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	2125	5210	5210	5210	5870	5675	—
	EGQ5.37-SDS3 H=11.88	N/A	7	5 3/8	11 7/8	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	9.45	23.18	23.18	23.18	26.11	25.24	—
EGQ5.37-SDS3 H=11.88	EGQ5.37-SDS3 H=11.88	N/A	7	5 3/8	11 7/8	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	2740	7905	5970	8310	8850	7910	—
	EGQ5.37-SDS3 H=11.88	N/A	7	5 3/8	11 7/8	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	12.19	35.16	25.56	36.97	39.37	33.19	—
EGQ5.37-SDS3 H=11.88	EGQ5.37-SDS3 H=11.88	N/A	7	5 3/8	11 7/8	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	2145	13070	9830	15365	11325	13795	—
	EGQ5.37-SDS3 H=11.88	N/A	7	5 3/8	11 7/8	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	9.54	58.14	43.73	68.35	50.38	61.37	—
EGQ5.37-SDS3 H=11.88	EGQ5.37-SDS3 H=11.88	N/A	7	5 3/8	11 7/8	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	3255	17635	11490	21600	20915	—	—
	EGQ5.37-SDS3 H=11.88	N/A	7	5 3/8	11 7/8	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	14.48	78.45	51.11	96.09	93.04	—	—
EGQ5.37-SDS3 H=11.88	EGQ5.37-SDS3 H=11.88	N/A	7	5 3/8	11 7/8	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	9040	27305	See p. 181	30425	28030	30425	—
	EGQ5.37-SDS3 H=11.88	N/A	7	5 3/8	11 7/8	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	40.21	121.46	135.34	124.69	135.34	—	—

See pp. 166–182 for specific notes on individual model types.



# Top-Flange Hangers – I-Joists, Glulam and SCL

I-Joist, Glulam and Structural Composite Lumber Connectors

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
											Uplift (K <sub>D</sub> = 1.15)						Normal (K <sub>D</sub> = 1.00)
				W	H	B	TF	Header		Joist	lb.	D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
								Top	Face								
kN		kN		kN		kN		kN		kN		kN					
5 1/4 x 14	WP5.37X H=14	✓	12	5%	14	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	HB5.50/14	✓	10	5 1/2	14	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
	HWP5.37 H=14	✓	7	5%	14	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2125	5210	5210	5210	5870	5675	—
	HWP5.37 H=14	✓	7	5%	14	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2740	7905	5970	8310	8850	7910	—
	HGLTV5.37 H=14	✓	7	5%	14	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—
	SCL5.37/14	✓	3	5%	14	5	2 3/4	—	(12) 16d	(12) 16d	3255	17635	11490	21600	20915	—	—
	EGQ5.37-SDS3 H=14	N/A	7	5%	14	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	9040	27305	See p. 181	30425	28030	30425	—
5 1/4 x 16	WP5.37X H=16	✓	12	5%	16	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	HB5.50/16	✓	10	5 1/2	16	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
	HWP5.37 H=16	✓	7	5%	16	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2145	5210	5210	5210	5870	5675	—
	HWP5.37 H=16	✓	7	5%	16	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2815	7905	5970	8310	8850	7910	—
	HWP5.37 H=16	✓	7	5%	16	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	12.52	35.16	25.56	36.97	39.37	33.19	—
	HGLTV5.37 H=16	✓	7	5%	16	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—
	SCL5.37/16	✓	3	5%	16	6	2 3/4	—	(10) 16d	(12) 16d	4305	23730	13025	29000	27350	—	—
5 1/4 x 18	WP5.37X H=18	✓	12	5%	18	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	HB5.50/18	✓	10	5 1/2	18	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
	HWP5.37 H=18	✓	7	5%	18	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2145	5210	5210	5210	5870	5675	—
	HWP5.37 H=18	✓	7	5%	18	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2815	7905	5970	8310	8850	7910	—
	HWP5.37 H=18	✓	7	5%	18	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	12.52	35.16	25.56	36.97	39.37	33.19	—
	HGLTV5.37 H=18	✓	7	5%	18	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—
	SCL5.37/18	✓	3	5%	18	5	2 3/4	—	(12) 16d	(12) 16d	3255	17635	11490	21600	20915	—	—
5 1/4 x 20	WP5.37X H=20	✓	12	5%	20	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	HB5.50/20	✓	10	5 1/2	20	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
	HWP5.37 H=20	✓	7	5%	20	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2145	5210	5210	5210	5870	5675	—

See pp. 166–182 for specific notes on individual model types.



## Top-Flange Hangers – I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance							
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)						
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist	
											lb.							lb.
kN	kN	kN	kN	kN	kN	kN	kN											
5 1/4 x 20 (cont.)	HWPH5.37 H=20	✓	7	5 3/8	20	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2815	7905	5970	8310	8850	7910	—	
	HGLTV5.37 H=20	✓	7	5 3/8	20	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	12.52	35.16	25.56	36.97	39.37	33.19	—	
	EGQ5.37-SDS3 H=20	N/A	7	5 3/8	20	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	2145	13070	9830	15365	11325	13795	—	
											9.54	58.14	43.73	68.35	50.38	61.37	—	
	Double 2 1/16 x 9 1/2 PSL	WP5.50X H=9.5	N/A	12	5 1/2	9 1/2	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
		HB5.50/9.5	N/A	10	5 1/2	9 1/2	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	—	19.71	17.15	26.47	24.15	26.6	—
Double 2 1/16 x 11 7/8 PSL	WP5.50X H=11.88	N/A	12	5 1/2	11 7/8	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	3555	9335	5945	9525	9240	10475	—	
	HB5.50/11.88	N/A	10	5 1/2	11 7/8	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	15.81	41.53	26.45	42.37	41.1	46.6	—	
Double 2 1/16 x 14 PSL	WP5.50X H=14	N/A	12	5 1/2	14	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
	HB5.50/14	N/A	10	5 1/2	14	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	—	19.71	17.15	26.47	24.15	26.6	—	
Double 2 1/16 x 16 PSL	WP5.50X H=16	N/A	12	5 1/2	16	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	3555	9335	5945	9525	9240	10475	—	
	HB5.50/16	N/A	10	5 1/2	16	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	15.81	41.53	26.45	42.37	41.1	46.6	—	
Double 2 1/16 x 18 PSL	WP5.50X H=18	N/A	12	5 1/2	18	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
	HB5.50/18	N/A	10	5 1/2	18	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	—	19.71	17.15	26.47	24.15	26.6	—	
7 x 7 1/4	WP7.12X H=7.25	✓	12	7 1/8	7 1/4	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—	
	HWP7.12 H=7.25	✓	7	7 1/8	7 1/4	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	—	19.71	17.15	26.47	24.15	26.6	—	
	HWP7.12 H=7.25	✓	7	7 1/8	7 1/4	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2125	5210	5210	5210	5870	5675	—	
7 x 9 1/4	WP7.12X H=9.25	✓	12	7 1/8	9 1/4	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	9.45	23.18	23.18	23.18	26.11	25.24	—	
											12.19	35.16	25.56	36.97	39.37	33.19	—	
	HB7.12/9.25	✓	10	7 1/8	9 1/4	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	2740	7905	5970	8310	8850	7910	—	
											12.19	35.16	25.56	36.97	39.37	33.19	—	
	HWP7.12 H=9.25	✓	7	7 1/8	9 1/4	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2145	13070	9830	15365	11325	13795	—	
											9.54	58.14	43.73	68.35	50.38	61.37	—	

See pp. 166–182 for specific notes on individual model types.



# Top-Flange Hangers – I-Joists, Glulam and SCL

I-Joist, Glulam and Structural Composite Lumber Connectors

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
kN	kN	kN	kN	kN	kN	kN											
7 x 9 1/2	BA7.12/9.5 (Min.)	—	12	7 1/8	9 1/2	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	BA7.12/9.5 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
	WP7.12X H=9.5	✓	12	7 1/8	9 1/2	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	HB7.12/9.5	✓	10	7 1/8	9 1/2	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
	HWP7.12 H=9.5	✓	7	7 1/8	9 1/2	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	15.81	41.53	26.45	42.37	41.1	46.6	—
	HWP7.12 H=9.5	✓	7	7 1/8	9 1/2	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2125	5210	5210	5210	5870	5675	—
	HWP7.12 H=9.5	✓	7	7 1/8	9 1/2	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	9.45	23.18	23.18	23.18	26.11	25.24	—
	HWP7.12 H=9.5	✓	7	7 1/8	9 1/2	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2740	7905	5970	8310	8850	7910	—
	HWP7.12 H=9.5	✓	7	7 1/8	9 1/2	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	12.19	35.16	25.56	36.97	39.37	33.19	—
	HGLTV7.12 H=9.5	✓	7	7 1/8	9 1/2	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—
	HGLTV7.12 H=9.5	✓	7	7 1/8	9 1/2	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	9.54	58.14	43.73	68.35	50.38	61.37	—
	SCL7.25/9.5	✓	3	7 1/4	9 1/2	4	3	—	(6) 16d	(6) 16d	2155	13245	6775	15850	15855	—	—
	SCL7.25/9.5	✓	3	7 1/4	9 1/2	4	3	—	(6) 16d	(6) 16d	9.59	58.92	30.14	70.51	70.53	—	—
	7 x 11 1/8	BA7.12/11.88 (Min.)	—	12	7 1/8	11 7/8	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820
BA7.12/11.88 (Max.)		✓	(6) 16d						(10) 16d	(8) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
WP7.12X H=11.88		✓	12	7 1/8	11 7/8	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
WP7.12X H=11.88		✓	12	7 1/8	11 7/8	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	19.71	17.15	26.47	24.15	26.6	—
HB7.12/11.88		✓	10	7 1/8	11 7/8	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
HB7.12/11.88		✓	10	7 1/8	11 7/8	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	15.81	41.53	26.45	42.37	41.1	46.6	—
HWP7.12 H=11.88		✓	7	7 1/8	11 7/8	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2125	5210	5210	5210	5870	5675	—
HWP7.12 H=11.88		✓	7	7 1/8	11 7/8	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	9.45	23.18	23.18	23.18	26.11	25.24	—
HWP7.12 H=11.88		✓	7	7 1/8	11 7/8	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2740	7905	5970	8310	8850	7910	—
HWP7.12 H=11.88		✓	7	7 1/8	11 7/8	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	12.19	35.16	25.56	36.97	39.37	33.19	—
HGLTV7.12 H=11.88		✓	7	7 1/8	11 7/8	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—
HGLTV7.12 H=11.88		✓	7	7 1/8	11 7/8	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	9.54	58.14	43.73	68.35	50.38	61.37	—
SCL7.25/11.88		✓	3	7 1/4	11 7/8	5	2 3/4	—	(12) 16d	(12) 16d	3255	17635	11490	21600	20915	—	—
SCL7.25/11.88		✓	3	7 1/4	11 7/8	5	2 3/4	—	(12) 16d	(12) 16d	14.48	78.45	51.11	96.09	93.04	—	—
EGQ7.25-SDS3 H=11.88	N/A	7	7 1/4	11 7/8	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	9040	27305	See p. 181	30425	28030	30425	—	
EGQ7.25-SDS3 H=11.88	N/A	7	7 1/4	11 7/8	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	40.21	121.46	135.34	135.34	124.69	135.34	—	
7 x 14	BA7.12/14 (Min.)	—	12	7 1/8	14	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	BA7.12/14 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
	WP7.12X H=14	✓	12	7 1/8	14	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	WP7.12X H=14	✓	12	7 1/8	14	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	19.71	17.15	26.47	24.15	26.6	—
	HB7.12/14	✓	10	7 1/8	14	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
	HB7.12/14	✓	10	7 1/8	14	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	15.81	41.53	26.45	42.37	41.1	46.6	—
	HWP7.12 H=14	✓	7	7 1/8	14	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	2125	5210	5210	5210	5870	5675	—
	HWP7.12 H=14	✓	7	7 1/8	14	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	9.45	23.18	23.18	23.18	26.11	25.24	—
	HWP7.12 H=14	✓	7	7 1/8	14	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	2740	7905	5970	8310	8850	7910	—
	HWP7.12 H=14	✓	7	7 1/8	14	3 1/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	12.19	35.16	25.56	36.97	39.37	33.19	—
	HGLTV7.12 H=14	✓	7	7 1/8	14	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—
	HGLTV7.12 H=14	✓	7	7 1/8	14	6	2 7/8	(6) 16d	(12) 16d	(6) 16d	9.54	58.14	43.73	68.35	50.38	61.37	—
	SCL7.25/14	✓	3	7 1/4	14	5	2 3/4	—	(12) 16d	(12) 16d	3255	17635	11490	21600	20915	—	—
	SCL7.25/14	✓	3	7 1/4	14	5	2 3/4	—	(12) 16d	(12) 16d	14.48	78.45	51.11	96.09	93.04	—	—
EGQ7.25-SDS3 H=14	N/A	7	7 1/4	14	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	9040	27305	See p. 181	30425	28030	30425	—	
EGQ7.25-SDS3 H=14	N/A	7	7 1/4	14	6	3	—	(28) 1/4" x 3" SDS	(12) 1/4" x 3" SDS	40.21	121.46	135.34	135.34	124.69	135.34	—	

See pp. 166–182 for specific notes on individual model types.



# Top-Flange Hangers – I-Joists, Glulam and SCL

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
								lb.	lb.		lb.	lb.	lb.	lb.	lb.		
kN	kN	kN	kN	kN	kN	kN											
7 x 16	BA7.12/16 (Min.)	—	12	7½	16	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA7.12/16 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
	WP7.12X H=16	✓	12	7½	16	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HB7.12/16	✓	10	7½	16	3½	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
	HWP7.12 H=16	✓	7	7½	16	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2125	5210	5210	5210	5870	5675	—
	HWP7.12 H=16	✓	7	7½	16	3¼	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	9.45	23.18	23.18	23.18	26.11	25.24	—
	HWP7.12 H=16	✓	7	7½	16	3¼	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	2740	7905	5970	8310	8850	7910	—
	HGLTV7.12 H=16	✓	7	7½	16	6	2¾	(6) 16d	(12) 16d	(6) 16d	12.19	35.16	25.56	36.97	39.37	33.19	—
	HGLTV7.12 H=16	✓	7	7½	16	6	2¾	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—
SCL7.25/16	✓	¾"	5%	16	6	2½	—	(10) 16d	(12) 16d	9.54	58.14	43.73	68.35	50.38	61.37	—	
SCL7.25/16	✓	¾"	5%	16	6	2½	—	(10) 16d	(12) 16d	4305	23730	13025	29000	27350	—	—	
EGQ7.25-SDS3 H=16	N/A	7	7¼	16	6	3	—	(28) ¼" x 3" SDS	(12) ¼" x 3" SDS	9040	27305	See p. 181	30425	28030	30425	—	
EGQ7.25-SDS3 H=16	N/A	7	7¼	16	6	3	—	(28) ¼" x 3" SDS	(12) ¼" x 3" SDS	40.21	121.46	135.34	135.34	124.69	135.34	—	
7 x 18	BA7.12/18 (Min.)	—	12	7½	18	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA7.12/18 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
	WP7.12X H=18	✓	12	7½	18	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HB7.12/18	✓	10	7½	18	3½	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
	HWP7.12 H=18	✓	7	7½	18	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2125	5210	5210	5210	5870	5675	—
	HWP7.12 H=18	✓	7	7½	18	3¼	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	9.45	23.18	23.18	23.18	26.11	25.24	—
	HWP7.12 H=18	✓	7	7½	18	3¼	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	2740	7905	5970	8310	8850	7910	—
	HGLTV7.12 H=18	✓	7	7½	18	6	2¾	(6) 16d	(12) 16d	(6) 16d	12.19	35.16	25.56	36.97	39.37	33.19	—
	HGLTV7.12 H=18	✓	7	7½	18	6	2¾	(6) 16d	(12) 16d	(6) 16d	2145	13070	9830	15365	11325	13795	—
SCL7.25/18	✓	¾"	5%	18	6	2½	—	(10) 16d	(12) 16d	9.54	58.14	43.73	68.35	50.38	61.37	—	
SCL7.25/18	✓	¾"	5%	18	6	2½	—	(10) 16d	(12) 16d	4305	23730	13025	29000	27350	—	—	
EGQ7.25-SDS3 H=18	N/A	7	7¼	18	6	3	—	(28) ¼" x 3" SDS	(12) ¼" x 3" SDS	9040	27305	See p. 181	30425	28030	30425	—	
EGQ7.25-SDS3 H=18	N/A	7	7¼	18	6	3	—	(28) ¼" x 3" SDS	(12) ¼" x 3" SDS	40.21	121.46	135.34	135.34	124.69	135.34	—	
7 x 20	BA7.12/20 (Min.)	—	12	7½	20	3	2½	(6) 16d	(10) 16d	(2) 10d x 1½"	395	4535	4030	5835	5385	5820	2420
	BA7.12/20 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1½"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
	WP7.12X H=20	✓	12	7½	20	2½	2¾	(4) 16d	—	(2) 10d x 1½"	—	4430	3855	5950	5430	5980	—
	HB7.12/20	✓	10	7½	20	3½	3	(6) 16d	(16) 16d	(10) 16d	3555	9335	5945	9525	9240	10475	—
	HWP7.12 H=20	✓	7	7½	20	3	2½	(3) 16d	(6) 16d	(10) 10d x 1½"	2125	5210	5210	5210	5870	5675	—
	HWP7.12 H=20	✓	7	7½	20	3¼	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	9.45	23.18	23.18	23.18	26.11	25.24	—
HWP7.12 H=20	✓	7	7½	20	3¼	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	2740	7905	5970	8310	8850	7910	—	
HWP7.12 H=20	✓	7	7½	20	3¼	2½	(4) 16d	(8) 16d	(10) 10d x 1½"	12.19	35.16	25.56	36.97	39.37	33.19	—	

See pp. 166–182 for specific notes on individual model types.



# Top-Flange Hangers – I-Joists, Glulam and SCL

I-Joist, Glulam and Structural Composite Lumber Connectors

Joist Size (in.)	Model No.	Web Stiff Req'd.	Ga.	Dimensions (in.)				Fasteners			Factored Resistance						
				W	H	B	TF	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)					
								Top	Face			D.Fir-L	S-P-F	LVL	PSL	LSL	I-Joist
				lb.	lb.	lb.	lb.	lb.	lb.	lb.	kN	kN	kN	kN	kN	kN	
7 x 22	BA7.12/22 (Min.)	—	12	7 7/8	22	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	BA7.12/22 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
	WP7.12X H=22	✓	12	7 7/8	22	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	HB7.12/22	✓	10	7 7/8	22	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	—	19.71	17.15	26.47	24.15	26.6	—
	HWP7.12 H=22	✓	7	7 7/8	22	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	3555	9335	5945	9525	9240	10475	—
	HWP7.12 H=22	✓	7	7 7/8	22	3 3/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	15.81	41.53	26.45	42.37	41.1	46.6	—
7 x 24	BA7.12/24 (Min.)	—	12	7 7/8	24	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	BA7.12/24 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
	WP7.12X H=24	✓	12	7 7/8	26	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	HB7.12/24	✓	10	7 7/8	26	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	—	19.71	17.15	26.47	24.15	26.6	—
	HWP7.12 H=24	✓	7	7 7/8	26	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	3555	9335	5945	9525	9240	10475	—
	HWP7.12 H=24	✓	7	7 7/8	26	3 3/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	15.81	41.53	26.45	42.37	41.1	46.6	—
7 x 26	BA7.12/26 (Min.)	—	12	7 7/8	26	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	BA7.12/26 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
	WP7.12X H=26	✓	12	7 7/8	26	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	HB7.12/26	✓	10	7 7/8	26	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	—	19.71	17.15	26.47	24.15	26.6	—
	HWP7.12 H=26	✓	7	7 7/8	26	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	3555	9335	5945	9525	9240	10475	—
	HWP7.12 H=26	✓	7	7 7/8	26	3 3/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	15.81	41.53	26.45	42.37	41.1	46.6	—
7 x 28	BA7.12/28 (Min.)	—	12	7 7/8	28	3	2 1/2	(6) 16d	(10) 16d	(2) 10d x 1 1/2"	395	4535	4030	5835	5385	5820	2420
	BA7.12/28 (Max.)	✓						(6) 16d	(10) 16d	(8) 10d x 1 1/2"	1.76	20.17	17.93	25.96	23.95	25.89	10.77
	WP7.12X H=28	✓	12	7 7/8	28	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	—	4430	3855	5950	5430	5980	—
	HB7.12/28	✓	10	7 7/8	28	3 1/2	3	(6) 16d	(16) 16d	(10) 16d	—	19.71	17.15	26.47	24.15	26.6	—
	HWP7.12 H=28	✓	7	7 7/8	28	3	2 1/2	(3) 16d	(6) 16d	(10) 10d x 1 1/2"	3555	9335	5945	9525	9240	10475	—
	HWP7.12 H=28	✓	7	7 7/8	28	4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	15.81	41.53	26.45	42.37	41.1	46.6	—
7 x 30	WP7.12X H=30	✓	12	7 7/8	30	2 1/2	2 3/8	(4) 16d	—	(2) 10d x 1 1/2"	2125	5210	5210	5210	5870	5675	—
	HWP7.12 H=30	✓	7	7 7/8	30	3 3/4	2 1/2	(4) 16d	(8) 16d	(10) 10d x 1 1/2"	9.45	23.18	23.18	23.18	26.11	25.24	—

See pp. 166–182 for specific notes on individual model types.



## THAI

## I-Joist and Structural Composite Lumber Hangers

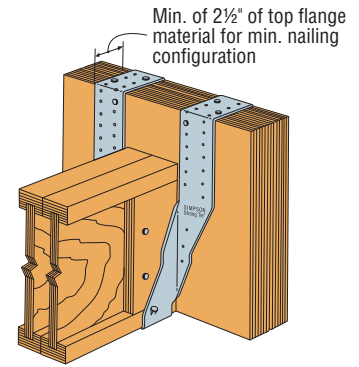
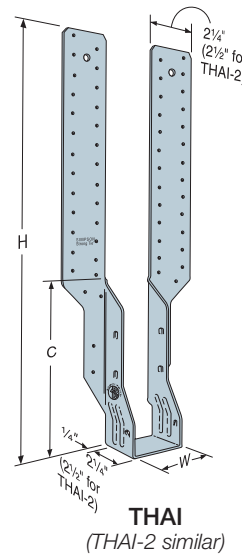
Designed for I-joists, the THAI has extra long straps and can be field-formed to give height adjustability and top flange hanger convenience. Positive angle nailing helps eliminate splitting of the I-joist's bottom flange.

**Material:** THAI-2 — 14 gauge; all others — 18 gauge

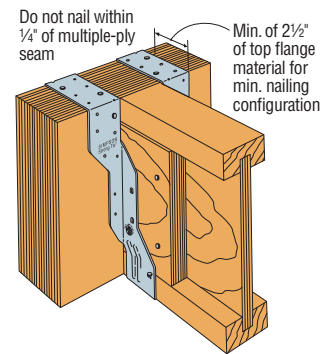
**Finish:** Galvanized

**Installation:**

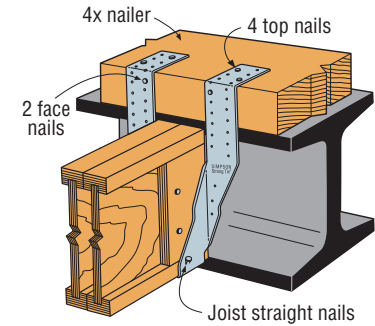
- THAI-2 must be factory-ordered for hanger width needed. See table for allowable widths.
- Use all specified fasteners. Verify that the header can take the required fasteners specified in the table.
- Web stiffeners are required for all I-joists used with these hangers.
- When a total of 20 face nails are used in THAI straps, or 30 face nails are used in THAI-2 straps, the maximum factored resistance is achieved.
- A minimum nailing configuration is shown for top nailing installations. The strap must be field-formed over the top of the header by a minimum of 2½".



Typical THAI-2 Installation



Typical THAI Installation with Minimum Nailing Configuration



Typical THAI Minimum Nailing Configuration on a 4x Nailer

Joist Dimensions (in.)		Model No.	Hanger Dimensions (in.)		
Width	Depth		W <sub>1</sub>	H	C
1½	9¼ – 14	THAI222	1⅞	22⅞	9⅞
1¾	9¼ – 14	THAI1.81/22	1⅞	22¾	9¼
2	9¼ – 14	THAI2.06/22	2⅞	22⅞	9⅞
2¼ to 2⅝	9¼ – 14	THAI3522	2⅞	22½	9
2½	9¼ – 14	THAI322	2⅞	22¾	8⅞
3½	9¼ – 14	THAI422	3⅞	21⅞	8⅞
3 to 5¼	9¼ – 14	THAI-2	3⅞ to 5⅞	21⅞	8⅞

1. The W dimension should be ordered at ⅞" to ⅝" greater than the joist width.

Nailing Option	Fasteners			Factored Resistance			
	Header		Joist	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)		
	Top	Face			D.Fir-L	S-P-F	LVL
				lb.	lb.	lb.	lb.
				kN	kN	kN	kN
THAI minimum	(4) 10d x 1½"	(2) 10d x 1½"	(2) 10d x 1½"	—	2035	1735	2595
	(4) 10d	(2) 10d	(2) 10d x 1½"	—	9.05	7.72	11.54
THAI maximum	—	(20) 10d	(2) 10d x 1½"	—	3000	2385	2810
	—	(20) 10d	(2) 10d x 1½"	410	3025	2150	3025
THAI-2 minimum	(4) 10d	(2) 10d	(2) 10d x 1½"	—	1.82	13.46	9.56
	(4) 10d	(2) 10d	(2) 10d x 1½"	—	12.46	12.46	12.46
THAI-2 maximum	—	(30) 10d	(2) 10d x 1½"	410	6090	4325	6090
	—	(30) 10d	(2) 10d x 1½"	1.82	27.09	19.24	27.09

1. Uplift loads have been increased 15% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. The minimum header depth to achieve the maximum nail configuration is 16".
3. Applies to LVL headers made primarily from Douglas Fir or Southern Pine. For LVL made primarily from Spruce Pine Fir or similar less dense veneers, use the values found in the S-P-F column.
4. Factored uplift resistances shown are for D.Fir-L. Multiply tabulated resistances x 0.71 for either S-P-F joist or header.
5. **Nails:** 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.



# LSSR/LSU

## Slopeable/Skewable Rafter Hanger



This product is preferable to similar connectors because of (a) easier installation, (b) higher loads, (c) lower installed cost, or a combination of these features.

The patent-pending LSSR slopeable/skewable rafter hanger is the next generation of a field adjustable rafter hanger. One of its key features is it can be installed after all of the rafters have been tacked into place. A versatile hanger, it is field adjustable for skew up to 45° and features an innovative hinged swivel seat to adjust for up to a 45° slope.

### Features:

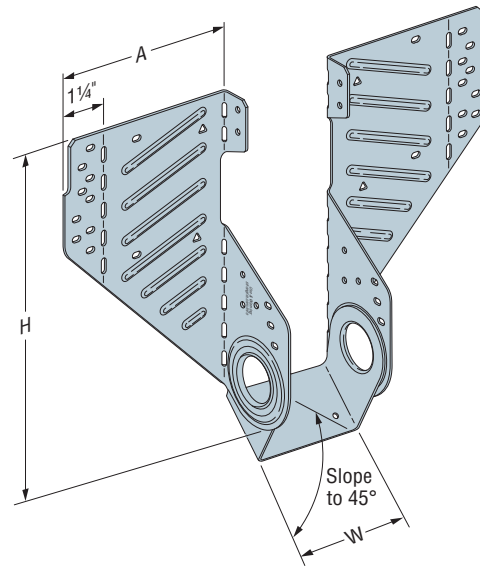
- Makes it possible to install after the rafters are already in place
- Flange design allows for easy skew adjustment, from 0° to 45°
- Swivel seat adjusts easily, supports joist up to 45° up or down, and attaches to both sides of I-joist

**Material:** See table on p. 209.

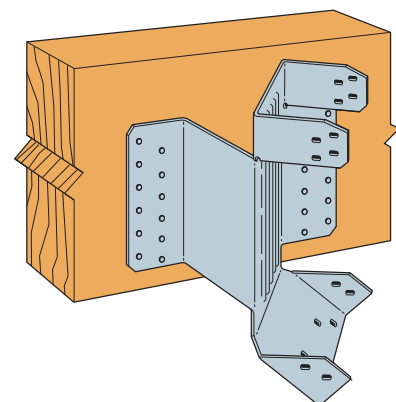
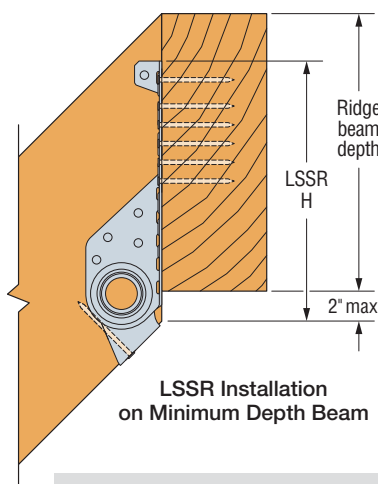
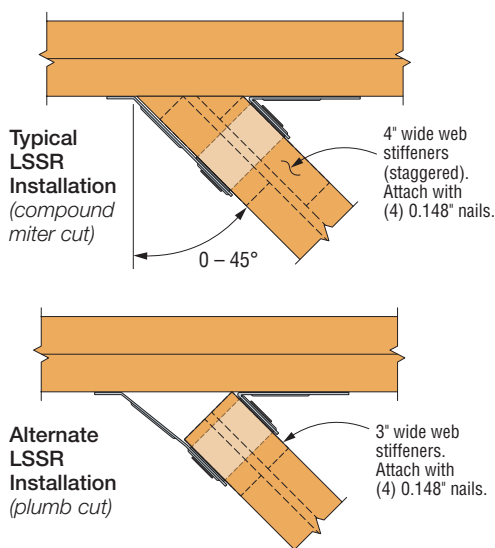
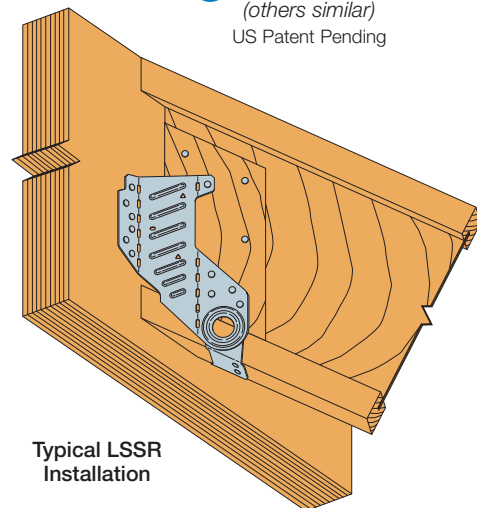
**Finish:** ZMAX® coating

### Installation:

- Use all specified fasteners; see General Notes
- For a common rafter:
  - Slide hanger into position; Adjust seat and install seat nails
  - Make sure side stirrups are snug close to the joist; bend lines are plumb
  - Install a face nail on each side to hold in place
  - Install all round and obround holes on the header and joist
- For jack rafters:
  - Fold acute side forward
  - Slide hanger into position; adjust seat and install seat nails
  - Make sure hanger is snug close to the joist; bend line is plumb
  - Install obround nails on acute side, both header and joist
  - Make sure hanger is snug close to the joist and header; bend line is plumb
  - Install joist nails only on obtuse side
  - Bend obtuse side flange back so that header flange is flush against header
  - Install header nails



**LSSR210-2**  
(others similar)  
US Patent Pending



The LSU5.12 must be factory-skewed 0° to 45°. It may be field-skewed to 45°. (LSU4.12, LSU4.28 and LSU3510-2 similar)  
Hanger shown skewed right.

To watch an installation video, go to [strongtie.com/lssr](http://strongtie.com/lssr).





## LSSR/LSU

## Slopeable/Skewable Rafter Hanger (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Actual Joist Width (in.)	Model No.	Ga.	Dimensions (in.)			Fasteners		Factored Resistance			
			W	H	A	Header	Joist	D.Fir-L		S-P-F	
								Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)
			lb.	lb.	lb.	lb.	kN	kN	kN	kN	
<b>Sloped-Only Hangers</b>											
1¾	LSSR1.81Z	18	1⅞	8⅞	4½	(14) 10d	(12) 10d x 1½"	715 3.18	2200 9.79	510 2.27	1560 6.94
2 to 2⅞	LSSR2.1Z	18	2⅞	8⅞	4½	(14) 10d	(12) 10d x 1½"	715 3.18	2200 9.79	510 2.27	1560 6.94
2⅞	LSSR2.37Z	18	2¾	8⅞	4½	(14) 10d	(12) 10d x 1½"	715 3.18	2200 9.79	510 2.27	1560 6.94
2½	LSSR2.56Z	18	2⅞	8⅞	4½	(14) 10d	(12) 10d x 1½"	715 3.18	2200 9.79	510 2.27	1560 6.94
3	LSSR210-2Z	16	3¼	8⅞	5½	(22) 16d	(18) 16d x 2½"	990 4.40	3375 15.01	705 3.14	2395 10.65
3½	LSSR410Z	16	3⅝	8⅞	5½	(22) 16d	(18) 16d x 2½"	990 4.40	3375 15.01	705 3.14	2395 10.65
4	LSU4.12	14	4⅞	9	2¼	(24) 16d	(16) 10d x 1½"	1960 8.72	3810 16.95	1395 6.21	2705 12.03
4½	LSU4.28	14	4¼	9	2¾	(24) 16d	(16) 10d x 1½"	1960 8.72	3810 16.95	1395 6.21	2705 12.03
4½ to 4¾	LSU3510-2	14	4¾	8⅞	3¾	(24) 16d	(16) 10d x 1½"	1960 8.72	3810 16.95	1395 6.21	2705 12.03
5	LSU5.12	14	5⅞	9	2¼	(24) 16d	(16) 10d x 1½"	1285 5.72	4755 21.15	910 4.05	2770 12.32
<b>Skewed Hangers or Sloped and Skewed Hangers</b>											
1¾	LSSR1.81Z	18	1⅞	8⅞	4½	(13) 10d	(9) 10d x 1½"	715 3.18	1695 7.54	510 2.27	1200 5.34
2 to 2⅞	LSSR2.1Z	18	2⅞	8⅞	4½	(13) 10d	(9) 10d x 1½"	715 3.18	1695 7.54	510 2.27	1200 5.34
2⅞	LSSR2.37Z	18	2¾	8⅞	4½	(13) 10d	(9) 10d x 1½"	715 3.18	1695 7.54	510 2.27	1200 5.34
2½	LSSR2.56Z	18	2⅞	8⅞	4½	(13) 10d	(9) 10d x 1½"	715 3.18	1695 7.54	510 2.27	1200 5.34
3	LSSR210-2Z	16	3¼	8⅞	5½	(20) 16d	(13) 16d x 2½"	990 4.40	2585 11.50	705 3.14	1835 8.16
3½	LSSR410Z	16	3⅝	8⅞	5½	(20) 16d	(13) 16d x 2½"	990 4.40	2585 11.50	705 3.14	1835 8.16
4	LSU4.12	14	4⅞	9	2¼	(24) 16d	(16) 10d x 1½"	1960 8.72	2450 10.90	1395 6.21	2030 9.03
4½	LSU4.28	14	4¼	9	2¾	(24) 16d	(16) 10d x 1½"	1960 8.72	2450 10.90	1395 6.21	2030 9.03
4½ to 4¾	LSU3510-2	14	4¾	8⅞	3¾	(24) 16d	(16) 10d x 1½"	1960 8.72	2450 10.90	1395 6.21	2030 9.03
5	LSU5.12	14	5⅞	9	2¼	(24) 16d	(16) 10d x 1½"	1285 5.72	2600 11.57	910 4.05	1845 8.21

1. Factored uplift resistances include a 15% increase for earthquake or wind loading; no further increase is allowed; reduce when other loads govern.
2. For LSSR210-2Z and LSSR410Z slope-only installations, the four triangle holes may be filled for a factored resistance of 4325 lb. (D.Fir-L) or 3070 lb. (SPF).
3. Minimum 9½" joist height required for all LSSR hangers and 11" for all LSU hangers.
4. On the acute side of the skewed LSSR hangers, fill obround holes only.
5. For LSSR installations, 16d nails may be substituted with 0.162" dia. x 2½" nails and 10d nails may be substituted with 0.148" dia. x 2½" nails with no reduction in capacity.
6. **Nails:** 16d = 0.162" dia. x 3½" long ; 10d = 0.148" dia. x 3" long ; 10d x 1½" = 0.148" dia. x 1½" long ; 16d x 2½" = 0.162" dia. x 2½" long. See pp. 22–24 for other nail sizes and information.



# SUR/SUL/HSUR/HSUL

## Skewed 45° Hangers for I-Joist and SCL



This product is preferable to similar connectors because of a) easier installation, b) higher loads, c) lower installed cost, or a combination of these features.

The SUR/L1.81, 2.06, 2.1, 2.37, 2.56 and HSUR/L series are 45° skewed hangers designed specifically to ease the installation of single and double I-joists. In addition to positive angle nailing these hangers encapsulate the top flange of the I-joist, so no web stiffeners are required for standard installation.

The full range of 45° skewed hangers feature obround nail holes on the acute side allowing nails to be easily installed parallel to the header and joist. Installation is further simplified with no required bevel cuts.

**Material:** See table

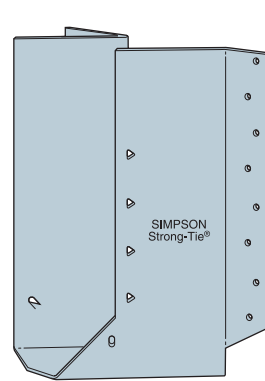
**Finish:** Galvanized. Some products available in ZMAX® coating; see Corrosion Information, pp. 16–21.

### Installation:

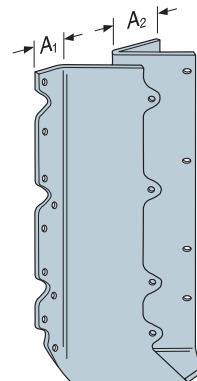
- Use all specified fasteners; see General Notes.
- Illustrations show left and right skews SUR/L (SUR = skewed right; SUL = skewed left).
- The joist end may be square cut or bevel cut.
- Web stiffeners are required for I-joist applications for all hangers requiring more than two joist fasteners or where the hanger does not overlap the top flange of the joist.
- Fill all round and obround nail holes with specified fasteners to achieve table values. Where noted, triangle holes in the joist flange may be filled for additional uplift capacity (see footnote 2 on p. 211).

### Options:

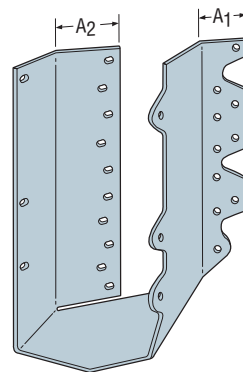
- These hangers cannot be modified, but will accommodate a 40° to 50° skew.
- Available with the A2 flange turned in on (2) 2x and 4x models only (see illustration). For example, specify HSURC410, HSULC410, SURC210-2, or SULC210-2.



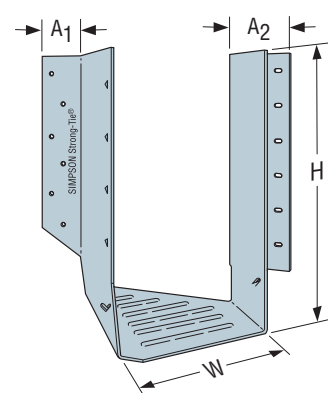
**SUL2.56/11**



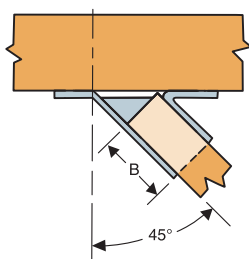
**HSUR**



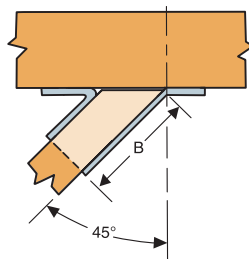
**HSULC**  
Available for (2) 2x and 4x models only



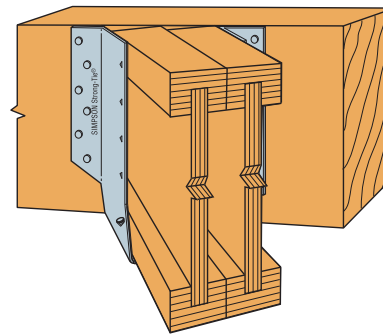
**HSUR4.12/9**



**Typical SUR Installation with Square Cut Joist**  
(HSUR similar)



**Typical SUL Installation with Bevel Cut Joist**  
(HSUL similar)



**Typical HSUR4.12/9 Installation**



## SUR/SUL/HSUR/HSUL

## Skewed 45° Hangers for I-Joist and SCL (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

SS

Actual Joist Size (in.)	Model No.	Ga.	Dimensions (in.)					Fasteners		Factored Resistance			
			W	H	B	A <sub>1</sub>	A <sub>2</sub>	Header	Joist	D.Fir-L		S-P-F	
										Uplift	Normal	Uplift	Normal
			(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)							
										lb.	lb.	lb.	lb.
										kN	kN	kN	kN
1½ x 9¼–9½	SUR/L210	16	1⅝	8⅝	2	1⅝	1⅝	(10) 16d	(10) 10d x 1½"	2085	3820	1480	2710
										9.27	16.99	6.58	12.05
1½ x 11¼–16	SUR/L214	16	1⅝	10	2	1⅝	1⅝	(12) 16d	(12) 10d x 1½"	2690	4585	2175	3255
										11.97	20.40	9.67	14.48
1¾ x 9¼–9½	SUR/L1.81/9	16	1⅞	9	3	1⅝	2⅝	(12) 16d	(2) 10d x 1½"	275	3140	195	2220
										1.22	13.97	0.87	9.88
1¾ x 11¼–11⅞	SUR/L1.81/11	16	1⅞	11	3	1⅝	2⅝	(16) 16d	(2) 10d x 1½"	275	3140	195	2220
										1.22	13.97	0.87	9.88
1¾ x 14–16	SUR/L1.81/14	16	1⅞	13¾	3	1⅝	2⅝	(20) 16d	(2) 10d x 1½"	275	3140	195	2220
										1.22	13.97	0.87	9.88
2 x 9½	SUR/L2.06/9	16	2⅞	9⅞	3⅞	1⅝	2⅞	(14) 16d	(2) 10d x 1½"	385	3950	385	2805
										1.71	17.57	1.71	12.48
2 x 11⅞	SUR/L2.06/11	16	2⅞	11¼	3⅞	1⅝	2⅞	(16) 16d	(2) 10d x 1½"	385	3950	385	2805
										1.71	17.57	1.71	12.48
2 x 14–16	SUR/L2.06/14	16	2⅞	13⅝	3⅞	1⅝	2⅞	(18) 16d	(2) 10d x 1½"	385	3950	385	2805
										1.71	17.57	1.71	12.48
2⅞ x 9½	SUR/L2.1/9	16	2⅞	9⅞	3⅞	1⅞	2⅞	(14) 16d	(2) 10d x 1½"	385	3950	385	2805
										1.71	17.57	1.71	12.48
2⅞ x 11⅞	SUR/L2.1/11	16	2⅞	11⅞	3⅞	1⅞	2⅞	(16) 16d	(2) 10d x 1½"	385	3950	385	2805
										1.71	17.57	1.71	12.48
2⅞ x 14–16	SUR/L2.1/14	16	2⅞	13⅞	3⅞	1⅞	2⅞	(18) 16d	(2) 10d x 1½"	385	3950	385	2805
										1.71	17.57	1.71	12.48
2¼–2⅞ x 9½	SUR/L2.37/9	16	2⅞	8⅞	3⅞	1⅞	2⅞	(14) 16d	(2) 10d x 1½"	385	3950	385	2805
										1.71	17.57	1.71	12.48
2¼–2⅞ x 11⅞	SUR/L2.37/11	16	2⅞	11⅞	3⅞	1⅞	2⅞	(16) 16d	(2) 10d x 1½"	385	3950	385	2805
										1.71	17.57	1.71	12.48
2¼–2⅞ x 14–16	SUR/L2.37/14	16	2⅞	13⅞	3⅞	1⅞	2⅞	(18) 16d	(2) 10d x 1½"	385	3950	385	2805
										1.71	17.57	1.71	12.48
2½ x 9¼–9½	SUR/L2.56/9	16	2⅞	8⅞	3⅞	1⅞	2⅞	(14) 16d	(2) 10d x 1½"	385	3950	385	2805
										1.71	17.57	1.71	12.48
2½–2⅞ x 11¼–11⅞	SUR/L2.56/11	16	2⅞	11⅞	3⅞	1⅞	2⅞	(16) 16d	(2) 10d x 1½"	385	3950	385	2805
										1.71	17.57	1.71	12.48
2½ x 14–16	SUR/L2.56/14	16	2⅞	13⅞	3⅞	1⅞	2⅞	(18) 16d	(2) 10d x 1½"	385	3950	385	2805
										1.71	17.57	1.71	12.48

- Factored uplift resistances have been increased by 15% for earthquake or wind loading with no further increase allowed; reduce for other load durations as required by code.
- Triangle holes may be filled (requires web stiffeners) with 10d x 1½" nails for additional uplift.
  - SUR/SUL 9" and 11" and all HSUR/HSUL models have four additional holes. The factored uplift resistance is 1345 lb. (5.98 kN) D.Fir-L and 965 lb. (4.29 kN) S-P-F.
  - SUR/SUL 14" models have an additional six holes. The factored uplift resistance 1795 lb. (7.98 kN) D.Fir-L and 1385 lb. (6.16 kN) S-P-F.
- Nails:** 16d = 0.162" dia. x 3½" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.



# SUR/SUL/HSUR/HSUL

## Skewed 45° Hangers for I-Joist and SCL (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.



Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Actual Joist Size (in.)	Model No.	Ga.	Dimensions (in.)					Fasteners		Factored Resistance			
			W	H	B	A <sub>1</sub>	A <sub>2</sub>	Header	Joist	D.Fir-L		S-P-F	
										Uplift	Normal	Uplift	Normal
										(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.										
kN	kN	kN	kN										
3 x 9¼-14	SUR/L210-2	16	3½	8½	2½	1¾	2¾	(14) 16d	(6) 16d x 2½"	1695	4065	1540	2875
	HSUR/L210-2	14	3½	8½	2¾	1¼	2¾	(20) 16d	(6) 16d x 2½"	7.54	18.08	6.85	12.81
3 x 14-20	SUR/L214-2	16	3½	12½	2½	1¾	2½	(18) 16d	(8) 16d x 2½"	1840	5270	1540	3745
	HSUR/L214-2	14	3½	12½	2¾	1¼	2¾	(26) 16d	(8) 16d x 2½"	8.18	23.44	6.85	16.66
3½ x 9¼-14	SUR/L410	16	3¾	8½	2½	1	2¾	(14) 16d	(6) 16d	2265	4095	2090	2895
	HSUR/L410	14	3¾	8½	2¾	1	2¾	(20) 16d	(6) 16d	10.08	18.22	9.30	12.90
3½ x 14-20	SUR/L414	16	3¾	12½	2½	1	2¾	(18) 16d	(8) 16d	2455	6875	2095	4880
	HSUR/L414	14	3¾	12½	2¾	1	2¾	(26) 16d	(8) 16d	10.92	30.58	9.32	21.71
4 x 9½	HSUR/L4.12/9	14	4½	9	3	1¾	2¾	(12) 16d	(2) 10d x 1½"	2265	4095	2090	2895
	HSUR/L4.12/11	14	4½	11½	3	1¾	2¾	(16) 16d	(2) 10d x 1½"	10.08	18.22	9.30	12.90
4 x 14	HSUR/L4.12/14	14	4½	13¾	3	1¾	2¾	(20) 16d	(2) 10d x 1½"	2455	6875	2095	4880
	HSUR/L4.12/16	14	4½	15¾	3	1¾	2¾	(24) 16d	(2) 10d x 1½"	10.92	30.58	9.32	21.71
4½ x 9½	HSUR/L4.28/9	14	4¾	9	2¾	1¾	2¾	(12) 16d	(2) 10d x 1½"	275	2995	195	2350
	HSUR/L4.28/11	14	4¾	11½	2¾	1¾	2¾	(16) 16d	(2) 10d x 1½"	1.22	13.34	0.87	10.47
4½ x 11½	HSUR/L4.75/9	14	4¾	8½	2¾	1¾	2¾	(12) 16d	(2) 10d x 1½"	275	2995	195	2350
	HSUR/L4.75/11	14	4¾	10½	2¾	1¾	2¾	(16) 16d	(2) 10d x 1½"	1.22	18.64	0.87	13.21
4½ x 14	HSUR/L4.75/14	14	4¾	13¾	2¾	1¾	2¾	(20) 16d	(2) 10d x 1½"	275	2995	195	2350
	HSUR/L4.75/16	14	4¾	15¾	2¾	1¾	2¾	(24) 16d	(2) 10d x 1½"	1.22	18.64	0.87	13.21
5 x 9½	HSUR/L5.12/9	14	5½	9	2¾	1¾	2¾	(12) 16d	(2) 10d x 1½"	275	2995	195	2350
	HSUR/L5.12/11	14	5½	11	2¾	1¾	2¾	(16) 16d	(2) 10d x 1½"	1.22	13.34	0.87	10.47
5 x 14	HSUR/L5.12/14	14	5½	13¾	2¾	1¾	2¾	(20) 16d	(2) 10d x 1½"	275	2995	195	2350
	HSUR/L5.12/16	14	5½	15¾	2¾	1¾	2¾	(24) 16d	(2) 10d x 1½"	1.22	18.64	0.87	13.21
5 x 16	HSUR/L5.12/16	14	5½	15¾	2¾	1¾	2¾	(24) 16d	(2) 10d x 1½"	275	2995	195	2350
	HSUR/L5.12/16	14	5½	15¾	2¾	1¾	2¾	(24) 16d	(2) 10d x 1½"	1.22	18.64	0.87	13.21

See footnotes on p. 211.



## HHSUQ

## Heavy Severe Skew Hanger

The HHSUQ is a high-load, face-mount hanger designed to accommodate severe skew angles (45°–84°), enabling a greater range of installation applications. Fastening the HHSUQ with Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws makes installation fast and easy, while eliminating the inconvenience of bolted applications.

**Material:** Back plate — 3 gauge; stirrup — 7 gauge

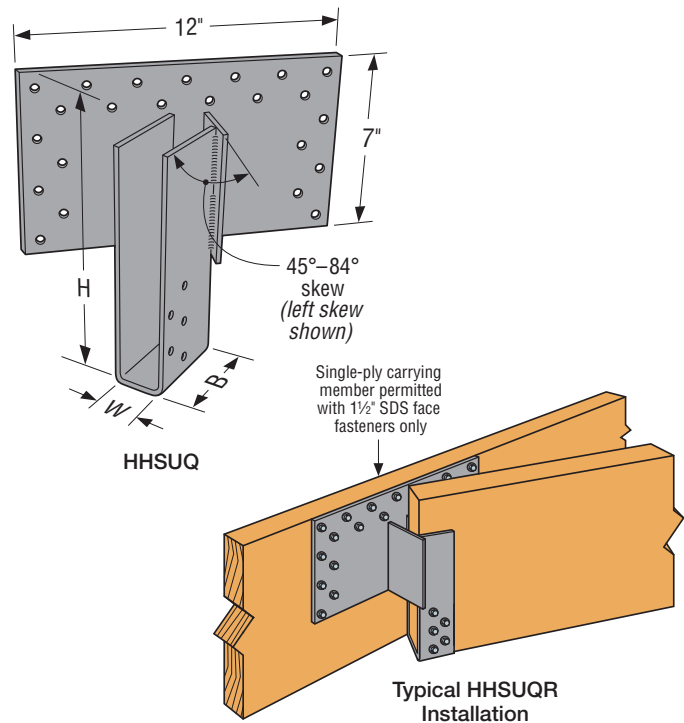
**Finish:** Simpson Strong-Tie® gray paint

**Installation:**

- Use all specified fasteners; see General Notes.
- Illustrations below show left and right skew HHSUQR/L (HHSUQR = skewed right; HHSUQL = skewed left).
- The joist end may be square cut or bevel cut.
- Strong-Drive SDS Heavy-Duty Connector screws supplied for all round holes.
- All multiple members must be fastened together to act as a single unit.
- When Strong-Drive SDS Heavy-Duty Connector screws are installed through metal truss plates the application must be approved by the truss designer. Pre-drilling is required using a 5/32" bit.

**To Order:**

- Specify left or right skew and the skew angle (degrees)



Model No.	Dimensions (in.)			Fasteners		Factored Resistance			
	W	H	B	Header	Joist	D.Fir-L		S-P-F	
						Uplift	Normal	Uplift	Normal
						(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.						
kN	kN	kN	kN						
HHSUQ1.81/7-SDS	1 1/16	7 1/4	3 1/2	(23) 1/4" x 3" SDS	(5) 1/4" x 1 1/2" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ1.81/9-SDS	1 1/16	9 1/2	3 1/2	(23) 1/4" x 3" SDS	(5) 1/4" x 1 1/2" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ1.81/11-SDS	1 1/16	11 7/8	3 1/2	(23) 1/4" x 3" SDS	(5) 1/4" x 1 1/2" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ1.81/14-SDS	1 1/16	14	3 1/2	(23) 1/4" x 3" SDS	(5) 1/4" x 1 1/2" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ48-SDS	3 5/8	7 1/4	3 1/2	(23) 1/4" x 3" SDS	(5) 1/4" x 3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ410-SDS	3 5/8	9 1/4	3 1/2	(23) 1/4" x 3" SDS	(5) 1/4" x 3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ412-SDS	3 5/8	11 1/4	3 1/2	(23) 1/4" x 3" SDS	(5) 1/4" x 3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ414-SDS	3 5/8	13 1/4	3 1/2	(23) 1/4" x 3" SDS	(5) 1/4" x 3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60

1. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed. Reduce where other load durations govern.
2. Strong-Drive SDS Heavy-Duty Connector screws that penetrate all plies of the supporting girder (screws must penetrate a minimum of 1" into the last ply of the truss) may also be used to transfer the load through all of the plies of the supporting girder. When Strong-Drive SDS Heavy-Duty Connector screws do not penetrate all plies of the supporting girder, supplemental Strong-Drive SDS Heavy-Duty Connector screws at the hanger locations may be required to transfer the load to the truss plies not penetrated by the face fasteners, as determined by the designer. 3"-long Strong-Drive SDS header fasteners may be replaced with 4 1/2"- or 6"-long Strong-Drive SDS Heavy-Duty Connector screws with no reduction in capacity.
3. Resistances shown are based on a minimum two-ply 2x8 carrying member. For single 2x carrying members, replace the 3"-long Strong-Drive SDS Heavy-Duty Connector screws with 1 1/2"-long Strong-Drive SDS Heavy-Duty Connector screws and reduce the factored normal resistances to 3820 lb. (16.99 kN) D.Fir-L and 2750 lb. (12.23 kN) S-P-F. The tabulated uplift resistances do not change.
4. Girders must be adequately laterally braced to prevent excessive displacement due to secondary torsional stresses.
5. As per 12.2.2.5 CSA O86-14, the carrying member must be evaluated using a reduced cross-sectional area at the hanger location. The reduction in area is equal to seven (7) 1/4" diameter x 3" long holes (1 1/2" long for 1/4" x 1 1/2" Strong-Drive SDS Heavy-Duty Connector screw).



# MSC

## Multiple Seat Connector

The MSC supports the ridge and two valleys for roof construction. Ideal for dormer roof applications.

**Material:** Top flange — 3 gauge, MSC1.81, MSC2, MSC4. Stirrups — 11 gauge; MSC5 stirrups — 7 gauge.

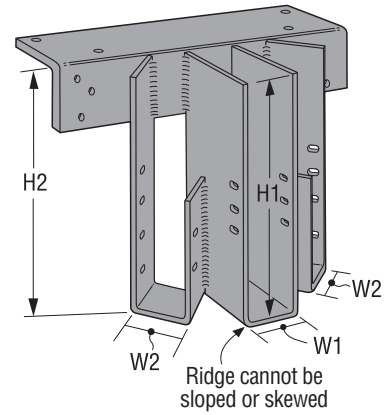
**Finish:** Simpson Strong-Tie® gray paint

### Installation:

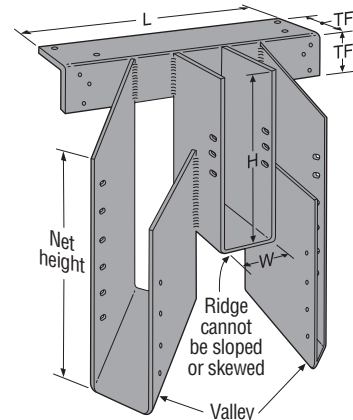
- Distribute the total load evenly about the centreline to avoid eccentric loading
- Fasten all built-up members together as one unit
- Net height will be calculated based on specified valley member depth and slope by the factory unless noted otherwise

### Sloped and/or Skewed Valleys

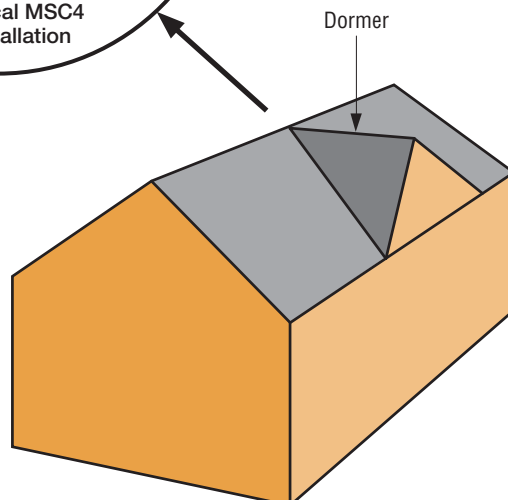
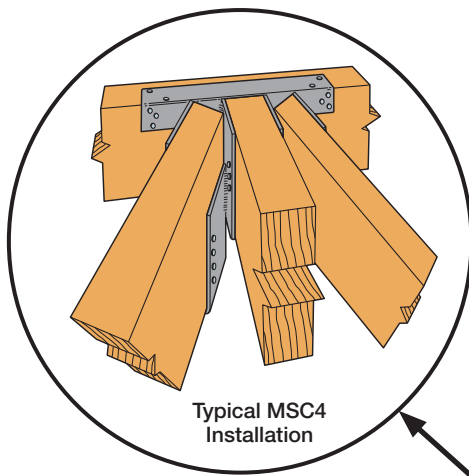
- The valley stirrups can be sloped down to 45° and skewed from 25° to 45°. (MSC5 skewed 20°–45°.)
- The total design capacity of the hanger is split between the ridge (20%) and each valley (40%).
- MSC connectors can be used for two valley connections with no ridge member. Divide the total load by two for each valley load.
- Reminder: Hip and valley slopes are different than roof slopes. See [strongtie.com](http://strongtie.com) Slope and Skew Calculator for assistance in computing slopes and skews.
- Hip/valley connections and many combinations of joist sizes, slopes and skews can be manufactured (refer to worksheet T-MSC-WS at [strongtie.com](http://strongtie.com)).



**MSC1.81 with Valley Skewed 45° and Sloped 0°**



**MSC4 with Valley Sloped and Skewed 45°**





## MSC

## Multiple Seat Connector (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Dimensions (in.)				Fasteners		Valleys		Factored Resistance (K <sub>D</sub> = 1.00)								
	W	H (Min.)	TF	L	Header	Joist	Max. Skew	Max. Slope	D.Fir-L			S-P-F			LVL <sup>7</sup> (G = 0.50)		
									Valley	Ridge	Total	Valley	Ridge	Total	Valley	Ridge	Total
									lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN			
MSC2	1 <sup>3</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>2</sub>	2 <sup>7</sup> / <sub>8</sub>	12	(10) 16d	(18) 10d x 1 <sup>1</sup> / <sub>2</sub> "	45°	0°	3085	1545	7715	2335	1170	5840	4150	2075	10375
									13.72	6.87	34.32	10.39	5.20	25.98	18.46	9.23	46.15
								45°	2450	1225	6120	1855	925	4635	3290	1645	8225
									10.90	5.45	27.22	8.25	4.11	20.62	14.64	7.32	36.59
MSC1.81	1 <sup>3</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>2</sub>	2 <sup>7</sup> / <sub>8</sub>	12	(10) 16d	(18) 10d x 1 <sup>1</sup> / <sub>2</sub> "	45°	0°	3085	1545	7715	2335	1170	5840	4150	2075	10375
									13.72	6.87	34.32	10.39	5.20	25.98	18.46	9.23	46.15
								45°	2450	1225	6120	1855	925	4635	3290	1645	8225
									10.90	5.45	27.22	8.25	4.11	20.62	14.64	7.32	36.59
MSC4	3 <sup>9</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>2</sub>	2 <sup>7</sup> / <sub>8</sub>	18	(10) 16d	(18) 10d	45°	0°	5460	2730	13650	4135	2070	10340	5460	2730	13650
									24.29	12.14	60.72	18.39	9.21	46.00	24.29	12.14	60.72
								45°	5460	2730	13650	4135	2070	10340	5460	2730	13650
									24.29	12.14	60.72	18.39	9.21	46.00	24.29	12.14	60.72
MSC5	5 <sup>1</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>2</sub>	2 <sup>7</sup> / <sub>8</sub>	26	(13) 16d	(18) 16d	45°	0°	10565	5280	26410	7990	3995	19975	10565	5280	26410
									47.00	23.49	117.48	35.54	17.77	88.86	47.00	23.49	117.48
								45°	9130	4565	22825	6905	3450	17260	9130	4565	22825
									40.61	20.31	101.53	30.72	15.35	76.78	40.61	20.31	101.53

1. Factored resistances shown for each valley.
2. Other valley-ridge load distributions are allowed provided the sum of all three members is distributed symmetrically about the centre of the hanger and combined do not exceed the total resistance.
3. MSC4 is also available in 3<sup>1</sup>/<sub>8</sub>" glulam width.
4. MSC5 is also available in widths up to 5<sup>1</sup>/<sub>2</sub>".
5. MSC1.81 and MSC2 are available in saddle configurations. (e.g., MSCD1.81)
6. For the MSC5 with all three members sloped to 45° (max.) multiply the tabulated resistance x 0.64. This connection requires (30) 16d joist nails.
7. Factored resistances shown for LVL assume  $\phi_{F_{CP}} = 1092$  psi (7.53 MPa).
8. **Nails:** 16d = 0.162" dia. x 3<sup>1</sup>/<sub>2</sub>" long, 10d = 0.148" dia. x 3" long, 10d x 1<sup>1</sup>/<sub>2</sub>" = 0.148" dia. x 1<sup>1</sup>/<sub>2</sub>" long. See pp. 22–24 for other nail sizes and information.



# HRC/HHRC

## Hip Ridge Connectors

The HRC series are field slopeable connectors that attach hip roof beams to the end of a ridge beam. The HRC may be sloped downward a maximum of 45°.

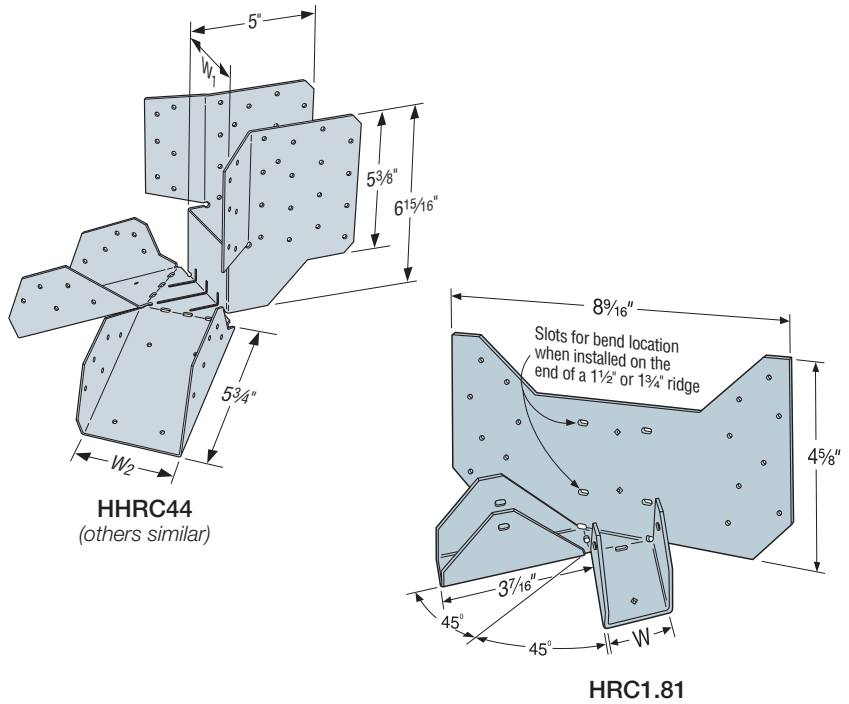
HHRC accommodates higher loads and uses Simpson Strong-Tie® Strong-Drive® SD Connector screws.

**Material:** HRC1.81 — 16 gauge;  
HHRC — 12 gauge

**Finish:** Galvanized

**Installation:**

- Use all specified fasteners (included with HHRC); see General Notes.
- On end of ridge — use optional diamond holes on HRC1.81 to secure the HRC. Bend face flanges on HRC1.81 back flush with ridge, and complete nailing.
- HRC1.81 on face of ridge — adjust to correct height and install nails.
- Double bevel-cut hip members to achieve full bearing capacity with HRC.

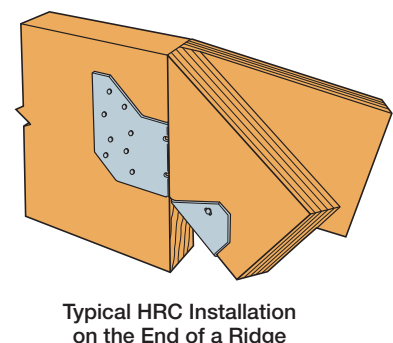
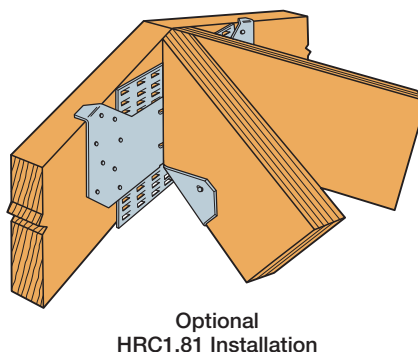
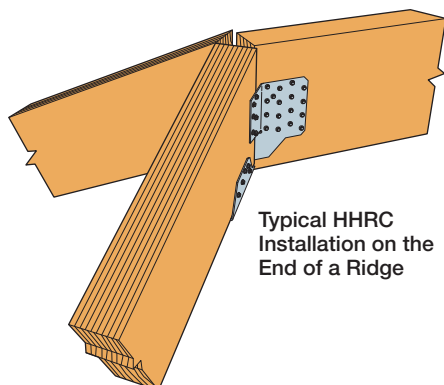


I-Joist, Glulam and Structural Composite Lumber Connectors

## HRC Factored Resistances

Model No.	Member Size (in.)		Fasteners		Factored Resistance			
					D.Fir-L		S-P-F	
	W	Ridge	Carrying Member	Each Hip	Uplift	Down	Uplift	Down
					(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
					lb.	lb.	lb.	lb.
					kN	kN	kN	kN
HRC1.81	1 13/16	2x or 1 3/4" wide	(16) 10d x 1 1/2"	(2) 10d x 1 1/2"	445	1340	400	950
					1.98	5.96	1.78	4.23

1. Factored resistances shown are for each hip. Total resistance carried by the connector is double this number.
2. Factored uplift resistances include a 15% increase for earthquake or wind loading; no further increase allowed; reduce where other loads govern.
3. **Nails:** 16d = 0.162" dia. x 3 1/2" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.







## HRC/HHRC

## Hip Ridge Connectors (cont.)

## HHRC Factored Resistances

Model	Member Width (in.)		Dimensions (in.)		Fasteners		Factored Resistance per Hip			
							D.Fir-L		S-P-F	
	Ridge	Hip	W1	W2	Ridge	Each Hip	Uplift	Normal	Uplift	Normal
							(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
							lb.	lb.	lb.	lb.
						kN	kN	kN	kN	
HHRC4/1.81	3½	1¾	3¾	1 13/16	(40) #10 x 2½" SD	(22) #10 x 1½" SD	2330	3620	1805	2570
							10.36	16.10	8.03	11.43
HHRC44	3½	3½	3¾	3¾	(40) #10 x 2½" SD	(22) #10 x 2½" SD	3365	4185	2530	2970
							14.97	18.62	11.25	13.21
HHRC5.25/3.25	5½	3¾	5¼	3¼	(40) #10 x 2½" SD	(22) #10 x 2½" SD	3930	4205	2790	2985
							17.48	18.71	12.41	13.28
HHRC5.25/3.62	5½	3½	5¼	3¾	(40) #10 x 2½" SD	(22) #10 x 2½" SD	3930	4205	2790	2985
							17.48	18.71	12.41	13.28
HHRC5.37/3.12	5¼	3¾	5¾	3¼	(40) #10 x 2½" SD	(22) #10 x 2½" SD	3930	4205	2790	2985
							17.48	18.71	12.41	13.28
HHRC5.37/3.56	5¼	3½	5¾	3 5/16	(40) #10 x 2½" SD	(22) #10 x 2½" SD	3930	4205	2790	2985
							17.48	18.71	12.41	13.28

1. Factored resistances shown are per hip; the total load carried by the connector is double this number. Load must be equally distributed to both hips.
2. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed. Reduce where other load durations govern.
3. Factored resistances shown are applicable for roof slopes up to and including 45° (12:12).
4. Do not attach HHRC to columns or studs.
5. **Screws:** #10 x 1½" SD = 0.161" dia. x 1½" long (SD10112), #10 x 2½" SD = 0.161" dia. x 2½" long (SD10212).

## HCA

## Hinge Connectors

HCA's offer single-piece side plates, for fewer welds and higher horizontal resistances.

**Material:** Side plates — 7 gauge;  
Top and bottom plates — varies.

**Finish:** Simpson Strong-Tie® gray paint

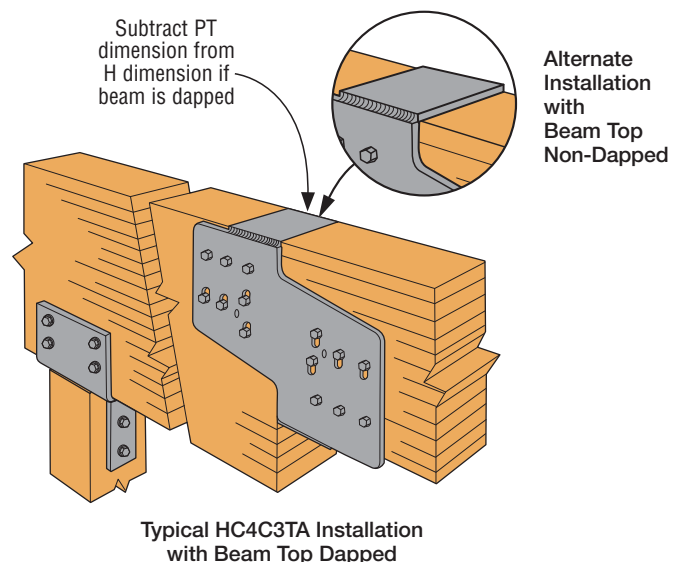
**Installation:**

- Use specified fasteners; see General Notes.
- All bolts specified are ¾" MBs. Bolt holes shall be a minimum of 1/32" and a maximum of 1/16" larger than the bolt diameter (per 12.4.1.2 CSA O86-14).
- Position bolts in slots away from bearing seat to allow for wood shrinkage.

**Options:**

- To order, add the width and bearing plate size designation after the model mention by the PT dimension for each dap.

Contact Simpson Strong-Tie for available sizes and factored resistances.



**VPA**

## Variable Pitch Connector

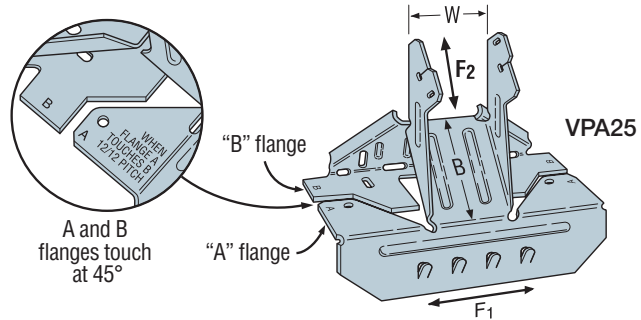
The VPA may be sloped in the field, offering a versatile solution for attaching rafters to the top plate. It will adjust to accommodate slopes between 3:12 and 12:12, making it a complement to the versatile LSSU. This connector eliminates the need for notched rafters, beveled top plates and toe nailing.

**Material:** 18 gauge

**Finish:** Galvanized

**Installation:**

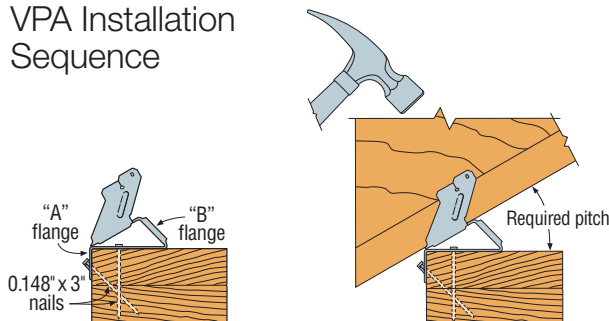
- Use all specified fasteners; see General Notes



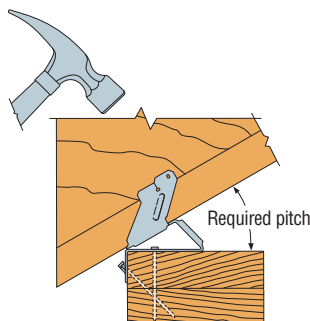
Model No.	Actual Joist Width (in.)	W (in.)	Fasteners		Factored Resistance							
					D.Fir-L				S-P-F			
			Carrying Member	Carried Member	Wind/Earthquake ( $K_D = 1.15$ )		Normal ( $K_D = 1.00$ )	Wind/Earthquake ( $K_D = 1.15$ )		Normal ( $K_D = 1.00$ )		
					Uplift	F <sub>1</sub>	F <sub>2</sub>	Uplift	F <sub>1</sub>	F <sub>2</sub>		
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.					
kN	kN	kN	kN	kN	kN	kN	kN					
VPA2	1½	1⅙	(8) 10d	(2) 10d x 1½"	405	695	405	1695	370	615	370	1555
					1.80	3.09	1.80	7.54	1.65	2.74	1.65	6.92
VPA25	1¾	1⅓⅙	(8) 10d	(2) 10d x 1½"	405	695	405	1695	370	615	370	1555
					1.80	3.09	1.80	7.54	1.65	2.74	1.65	6.92
VPA2.06	2	2⅙	(9) 10d	(2) 10d x 1½"	405	695	405	2050	370	615	370	1855
					1.80	3.09	1.80	9.12	1.65	2.74	1.65	8.25
VPA2.1	2⅙	2⅙	(9) 10d	(2) 10d x 1½"	405	695	405	2050	370	615	370	1855
					1.80	3.09	1.80	9.12	1.65	2.74	1.65	8.25
VPA35	2¼ - 2⅝	2⅝	(9) 10d	(2) 10d x 1½"	405	695	405	2050	370	615	370	1855
					1.80	3.09	1.80	9.12	1.65	2.74	1.65	8.25
VPA3	2½	2⅝	(9) 10d	(2) 10d x 1½"	405	695	405	2050	370	615	370	1855
					1.80	3.09	1.80	9.12	1.65	2.74	1.65	8.25
VPA4	3½	3⅝	(11) 10d	(2) 10d x 1½"	405	695	405	2050	370	615	370	1855
					1.80	3.09	1.80	9.12	1.65	2.74	1.65	8.25

1. Factored uplift and lateral resistances have been increased 15% for earthquake or wind loading; no further increase is allowed.
2. Resistances may not be increased for short-term load duration.
3. **Nails:** 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22-24 for other nail sizes and information.

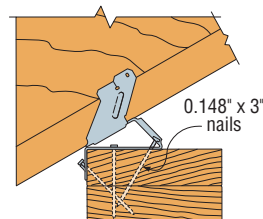
## VPA Installation Sequence

**Step 1**

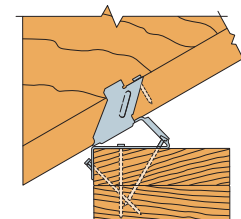
Install top nails and face PAN nails in "A" flange to outside wall top plate.

**Step 2**

Seat rafter with a hammer, adjusting "B" flange to the required pitch.

**Step 3**

Install "B" flange nails in the obround nail holes, locking the pitch.

**Step 4**

Bend tab with hammer and install 10d x 1½" nail into tab nail hole. Hammer nail in at an approximate 45° angle to limit splitting.



## HCP

## Hip Corner Plate

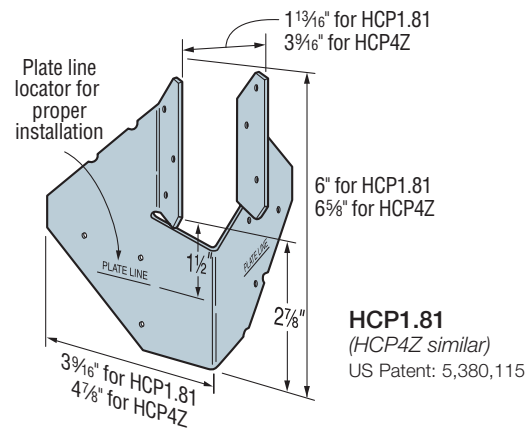
The HCP connects a rafter or joist to double top plates at a 45° angle.

**Material:** 18 gauge

**Finish:** Galvanized

**Installation:**

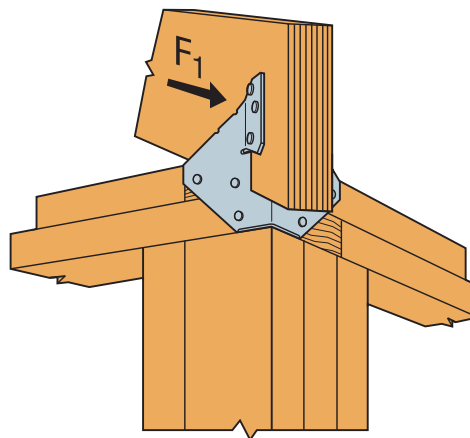
- Use all specified fasteners; see General Notes.
- Attach HCP to double top plates; birdsmouth not required for table values.
- Install rafter and complete nailing. Rafter may be sloped to 45°.



These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Hip Size (in.)	Fasteners		Factored Resistance			
				D.Fir-L		S-P-F	
		To Hip	To Plates	Uplift	F <sub>1</sub>	Uplift	F <sub>1</sub>
				(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
				lb.	lb.	lb.	lb.
kN	kN	kN	kN				
HCP1.81	1¾	(6) 10d x 1½"	(6) 10d x 1½"	1020	355	890	325
				4.54	1.58	3.96	1.45
HCP4Z	3½	(8) 10d	(8) 10d	1485	435	1300	310
				6.61	1.94	5.78	1.38

1. The HCP can be installed on the inside and the outside of the wall with a flat bottom chord truss and achieve twice the factored resistance.
2. Factored uplift resistances include a 15% increase for earthquake or wind loading with no further increase allowed; reduce where other loads govern.
3. **Nails:** 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.



Typical HCP Installation



# DU/DHU/DHUTF

## Drywall Hangers

The DU/DHU face-mount and the DHUTF top-mount hangers are designed to carry joist floor loads to a wood stud wall through two layers of 5/8" gypsum board (drywall). These hangers install after the drywall is in place. The hangers come in sizes that accommodate most joists used in multi-family construction including I-joists and trusses.

All three fire wall hangers are fire-resistant F (flame) and T (temperature) rated in Intertek Design No. SST/WPCF 120-01.



**Material:** DU — 14 gauge;  
DHU and DHUTF — 12 gauge

**Finish:** Galvanized

**Installation:**

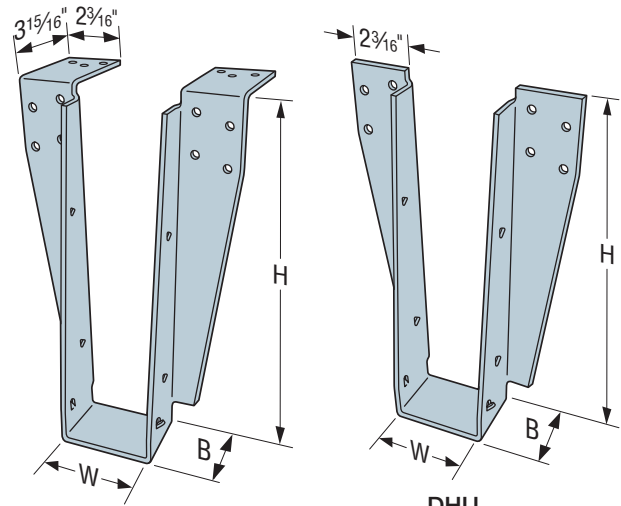
- Use all specified fasteners; see General Notes.
- Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws are provided with the hanger.
- Drywall is installed first.
- DU and DHU are mounted with top of hanger flush with top of wall and tight to the drywall.
- Wall top plates must be restrained to prevent rotation. Where the factored gravity load on top of the wall is less than 210 plf (3.06 kN/m), use a stud plate tie connector at the back of each stud or provide equivalent restraint by another method as determined by designer.
- Upper plate splices must occur at a stud location.

**Options:**

- The DHU may be ordered with one flange concealed for widths at least 2 1/2" wide; specify which flange when ordering. Use 74% of the tabulated values.
- The DHU / DHUTF may be ordered skewed up to 45°. Use 70% of the table factored down resistances and 50% of table uplift values.

**Two-Hour, Fire-Rated Wall**

Simpson Strong-Tie has completed ASTM E814 standard testing at an accredited laboratory. The use of the DU/DHU/DHUTF hangers does not reduce the two-hour, fire wall assembly rating. The hangers tested provide an F (flame) and T (temperature) rating.



**DHUTF**  
US Patent 9,394,680

**DHU**  
(DU similar)  
US Patent 9,394,680

Model	Ga.	B (in.)	Fasteners		
			Joist	Face	Top
DU	14	2	(2) 10d x 1 1/2"	(4) 1/4" x 3 1/2" SDS	—
DHU	12	2.5	(2) 10d x 1 1/2"	(8) 1/4" x 3 1/2" SDS	—
DHUTF	12	2.5	(2) 10d x 1 1/2"	(8) 1/4" x 3 1/2" SDS	(6) 10d x 1 1/2"

Model	Condition	Factored Resistance			
		D.Fir-L		S-P-F	
		Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)
		lb.	lb.	lb.	lb.
		kN	kN	kN	kN
DU	Over (1) layer 5/8" drywall	125	1605	125	1605
		0.56	7.14	0.56	7.14
	Over (2) layers 5/8" drywall	125	2090	125	1845
		0.56	9.30	0.56	8.21
DHU DHUTF	Over (1) layer 5/8" drywall	125	1780	125	1780
		0.56	7.92	0.56	7.92
	Over (1) layer structural sheathing and (2) layers 5/8" drywall	125	1845	125	1845
		0.56	8.21	0.56	8.21
DHU DHUTF	Over (1) layer 5/8" drywall	125	1990	125	1670
		0.56	8.85	0.56	7.43
	Over (2) layers 5/8" drywall	125	2310	125	2295
		0.56	10.23	0.56	10.21
DHU DHUTF	Two-sided over (2) layers 5/8" drywall (minimum 2x6 wall)	125	1780	125	1780
		0.56	7.92	0.56	7.92
	Over (1) layer structural sheathing and (2) layers 5/8" drywall	125	2420	125	2030
		0.56	10.77	0.56	9.03

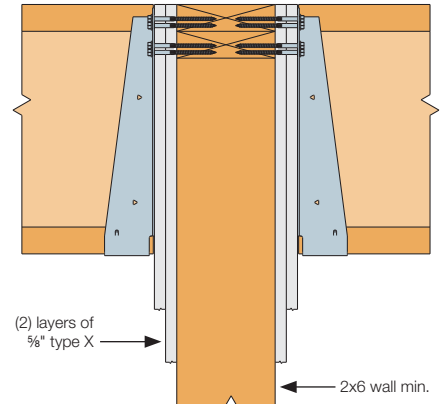
1. Factored uplift resistances have been increased 15% for wind or earthquake loading with no further increase is allowed; reduce where other load durations govern.
2. Triangle nail holes may be filled with four (4) additional 10dx1 1/2" nails to achieve a factored uplift resistance of 1290 lb. (5.74 kN). When I-joists are used, web stiffeners are required. Note that the double top plates must be anchored to the studs/framing to accommodate the uplift load.
3. Factored resistances assume 5/8" Type X gypsum board attached per NBC. Wall assembly must consist of a minimum of (2) 2x4 top plates with studs spaced no greater than 16" o/c.
4. Capacities shown for use over one (1) layer of structural sheathing are based on 5/8" thick OSB, DF plywood or CSP. For thinner panels use the lower of this value or the other applicable values in the table.



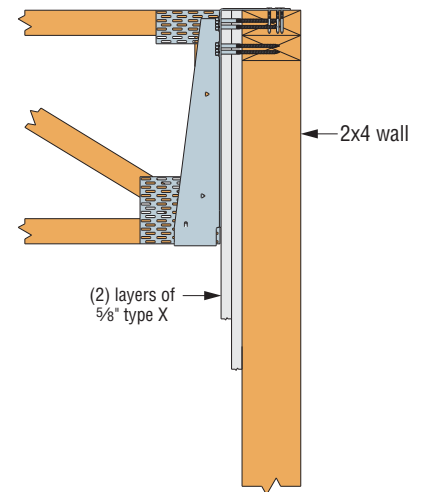
# DU/DHU/DHUTF

## Drywall Hangers (cont.)

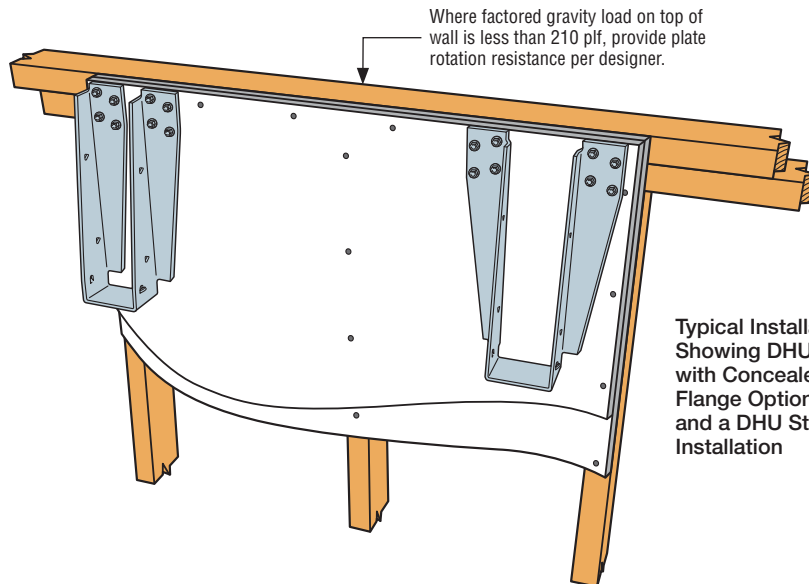
Joist Size (in.)	Face Mount		Top Flange	Dimensions (in.)	
	DU Models	DHU Models	DHUTF Models	W	H
2x10	DU210	DHU210	DHU210TF	1 <sup>9</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>8</sub>
2x12	DU212	DHU212	DHU212TF	1 <sup>9</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>8</sub>
1 <sup>3</sup> / <sub>4</sub> x 9 <sup>1</sup> / <sub>2</sub>	DU1.81/9.5	DHU1.81/9.5	DHU1.81/9.5TF	1 <sup>3</sup> / <sub>16</sub>	9 <sup>7</sup> / <sub>16</sub>
1 <sup>3</sup> / <sub>4</sub> x 11 <sup>7</sup> / <sub>8</sub>	DU1.81/11.88	DHU1.81/11.88	DHU1.81/11.88TF	1 <sup>3</sup> / <sub>16</sub>	11 <sup>13</sup> / <sub>16</sub>
1 <sup>3</sup> / <sub>4</sub> x 14	DU1.81/14	DHU1.81/14	DHU1.81/14TF	1 <sup>3</sup> / <sub>16</sub>	13 <sup>15</sup> / <sub>16</sub>
1 <sup>3</sup> / <sub>4</sub> x 16	—	DHU1.81/16	DHU1.81/16TF	1 <sup>3</sup> / <sub>16</sub>	15 <sup>15</sup> / <sub>16</sub>
2 x 9 <sup>1</sup> / <sub>2</sub>	DU2.1/9.5	DHU2.1/9.5	DHU2.1/9.5TF	2 <sup>1</sup> / <sub>8</sub>	9 <sup>7</sup> / <sub>16</sub>
2 x 11 <sup>7</sup> / <sub>8</sub>	DU2.1/11.88	DHU2.1/11.88	DHU2.1/11.88TF	2 <sup>1</sup> / <sub>8</sub>	11 <sup>13</sup> / <sub>16</sub>
2 x 14	DU2.1/14	DHU2.1/14	DHU2.1/14TF	2 <sup>1</sup> / <sub>8</sub>	13 <sup>15</sup> / <sub>16</sub>
2 x 16	—	DHU2.1/16	DHU2.1/16TF	2 <sup>1</sup> / <sub>8</sub>	15 <sup>15</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>16</sub> x 9 <sup>1</sup> / <sub>2</sub>	DU2.1/9.5	DHU2.1/9.5	DHU2.1/9.5TF	2 <sup>1</sup> / <sub>8</sub>	9 <sup>7</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>16</sub> x 11 <sup>7</sup> / <sub>8</sub>	DU2.1/11.88	DHU2.1/11.88	DHU2.1/11.88TF	2 <sup>1</sup> / <sub>8</sub>	11 <sup>13</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>16</sub> x 14	DU2.1/14	DHU2.1/14	DHU2.1/14TF	2 <sup>1</sup> / <sub>8</sub>	13 <sup>15</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>16</sub> x 16	—	DHU2.1/16	DHU2.1/16TF	2 <sup>1</sup> / <sub>8</sub>	15 <sup>15</sup> / <sub>16</sub>
2 <sup>5</sup> / <sub>16</sub> x 9 <sup>1</sup> / <sub>2</sub>	DU2.37/9.5	DHU2.37/9.5	DHU2.37/9.5TF	2 <sup>3</sup> / <sub>8</sub>	9 <sup>7</sup> / <sub>16</sub>
2 <sup>5</sup> / <sub>16</sub> x 11 <sup>7</sup> / <sub>8</sub>	DU2.37/11.88	DHU2.37/11.88	DHU2.37/11.88TF	2 <sup>3</sup> / <sub>8</sub>	11 <sup>13</sup> / <sub>16</sub>
2 <sup>5</sup> / <sub>16</sub> x 14	DU2.37/14	DHU2.37/14	DHU2.37/14TF	2 <sup>3</sup> / <sub>8</sub>	13 <sup>15</sup> / <sub>16</sub>
2 <sup>5</sup> / <sub>16</sub> x 16	DU2.37/16	DHU2.37/16	DHU2.37/16TF	2 <sup>3</sup> / <sub>8</sub>	15 <sup>15</sup> / <sub>16</sub>
2 <sup>5</sup> / <sub>16</sub> x 18	—	DHU2.37/18	DHU2.37/18TF	2 <sup>3</sup> / <sub>8</sub>	17 <sup>15</sup> / <sub>16</sub>
2 <sup>5</sup> / <sub>16</sub> x 20	—	DHU2.37/20	DHU2.37/20TF	2 <sup>3</sup> / <sub>8</sub>	19 <sup>15</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub> x 9 <sup>1</sup> / <sub>2</sub>	—	DHU2.56/9.5	DHU2.56/9.5TF	2 <sup>9</sup> / <sub>16</sub>	9 <sup>7</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub> x 11 <sup>7</sup> / <sub>8</sub>	—	DHU2.56/11.88	DHU2.56/11.88TF	2 <sup>9</sup> / <sub>16</sub>	11 <sup>13</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub> x 14	—	DHU2.56/14	DHU2.56/14TF	2 <sup>9</sup> / <sub>16</sub>	13 <sup>15</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub> x 16	—	DHU2.56/16	DHU2.56/16TF	2 <sup>9</sup> / <sub>16</sub>	15 <sup>15</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub> x 18	—	DHU2.56/18	DHU2.56/18TF	2 <sup>9</sup> / <sub>16</sub>	17 <sup>15</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub> x 20	—	DHU2.56/20	DHU2.56/20TF	2 <sup>9</sup> / <sub>16</sub>	19 <sup>15</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 9 <sup>1</sup> / <sub>2</sub>	—	DHU3.56/9.5	DHU3.56/9.5TF	3 <sup>9</sup> / <sub>16</sub>	9 <sup>7</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 11 <sup>7</sup> / <sub>8</sub>	—	DHU3.56/11.88	DHU3.56/11.88TF	3 <sup>9</sup> / <sub>16</sub>	11 <sup>13</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 14	—	DHU3.56/14	DHU3.56/14TF	3 <sup>9</sup> / <sub>16</sub>	13 <sup>15</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 16	—	DHU3.56/16	DHU3.56/16TF	3 <sup>9</sup> / <sub>16</sub>	15 <sup>15</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 18	—	DHU3.56/18	DHU3.56/18TF	3 <sup>9</sup> / <sub>16</sub>	17 <sup>15</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 20	—	DHU3.56/20	DHU3.56/20TF	3 <sup>9</sup> / <sub>16</sub>	19 <sup>15</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 22	—	DHU3.56/22	DHU3.56/22TF	3 <sup>9</sup> / <sub>16</sub>	21 <sup>15</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 24	—	DHU3.56/24	DHU3.56/24TF	3 <sup>9</sup> / <sub>16</sub>	23 <sup>15</sup> / <sub>16</sub>



Two-Sided Installation over (2) Layers of Drywall



Typical Installation over (2) Layers of Drywall



Typical Installation Showing DHU with Concealed Flange Option (at left) and a DHU Standard Installation



# DGF/DGBF/DGHF

## Fire Wall Hangers

The DGF fire wall hanger series is designed for installation on a two-hour fire wall and does not require gypsum board (drywall) to be installed at the time of framing. These top-flange hangers provide space for two layers of 5/8" drywall to be slipped into place after framing is complete. The DGF/DGHF/DGBF fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DGF hangers do not reduce the two-hour fire wall assembly rating.

**Material:** DGF — 12 gauge;  
DGHF — 10 gauge; DGBF — 7 gauge



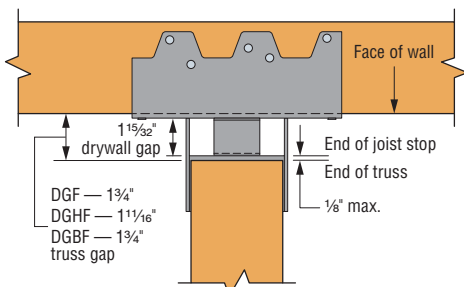
**Finish:** DGF — Galvanized  
DGHF, DGBF — Simpson Strong-Tie® gray paint

**Installation:**

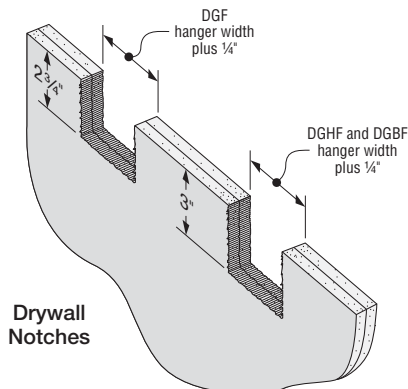
- Use all specified fasteners. I-joists require web stiffeners.
- DGF/DGHF/DGBF hangers are mounted like a standard top-flange hanger.
- Wall-plate splices must occur at a stud location.
- DGBF only — apply two 1/4" beads of fire-resistant mortar caulk directly to top of wall plates for the first 6" on either side of top flange. See Intertek Design No. SST/WPCF 120-01 for detail.
- DGBF only — locate minimum double stud below hanger.

**Options:**

- DGHF may be ordered with a skew angle up to 45°. Multiply the tabulated factored normal resistance x 0.8.
- DGHF may be ordered with the top flange offset left or right. Multiply the tabulated factored normal resistance x 0.95 where the top flange is greater than 8" from the end of the wall plates and x 0.50 for distances less than 8" from the end of the wall plates
- For skewed or offset DGHF hangers, the uplift resistance is 100% of the tabulated value.



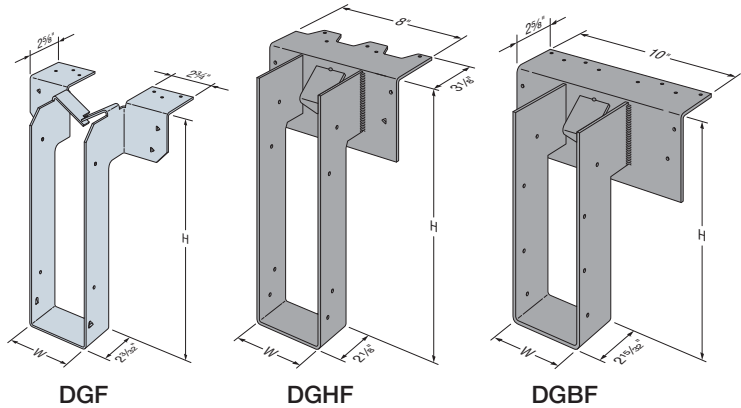
**DGHF Hanger (DGF similar)**  
**Top View with Gap**



**Drywall Notches**

**Two-Hour, Fire-Rated Wall**

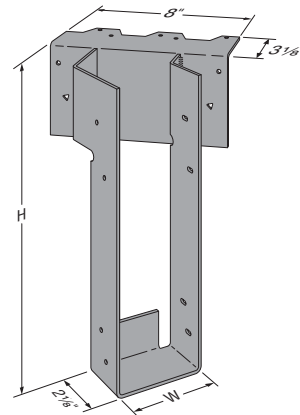
Simpson Strong-Tie has completed ASTM E814 standard testing at an accredited laboratory. The use of the DGF/DGBF/DGHF hangers does not reduce the two-hour, fire wall assembly rating. The hangers tested provide an F (flame) and T (temperature) rating.



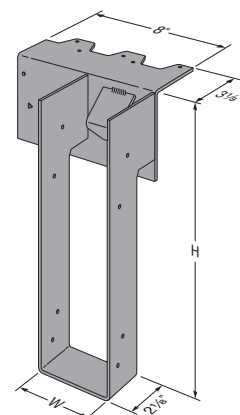
**DGF**

**DGHF**

**DGBF**



**DGHF3.62/11.88**  
**Skewed Right**



**DGHF**  
**Top Flange Offset Left**

Model No.	Fasteners			Factored Resistance			
				D.Fir-L		S-P-F	
				Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)
Top	Face	Joist	lb.	lb.	lb.	lb.	
DGF	(6) 10d	—	(6) 10d x 1 1/2"	—	2525	—	2490
DGHF	(5) 10d	(2) 10d	(8) 10d x 1 1/2"	945	3505	830	3195
DGBF	(8) 10d	(4) 10d	(8) 10d x 1 1/2"	1650	4140	1170	3195
				7.34	18.42	5.20	14.21

1. Factored uplift resistances have been increased 15% for wind or earthquake loading with no further increase allowed. Reduce where other load durations govern.
2. Resistances are based on joist spacing 16" o.c. or greater on a 2x4 minimum stud wall. Back-to-back installations require a 2x6 wall. Wall design by designer.
3. DGBF installation requires a minimum (2) 2x4 studs or posts in wall at the hanger location. Centre studs or posts within the middle third of hanger. Post or stud design by designer.
4. **Nails:** 10d = 0.148" dia. x 3" long; 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.

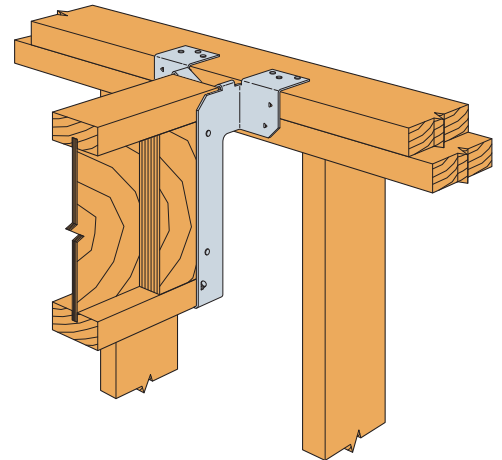
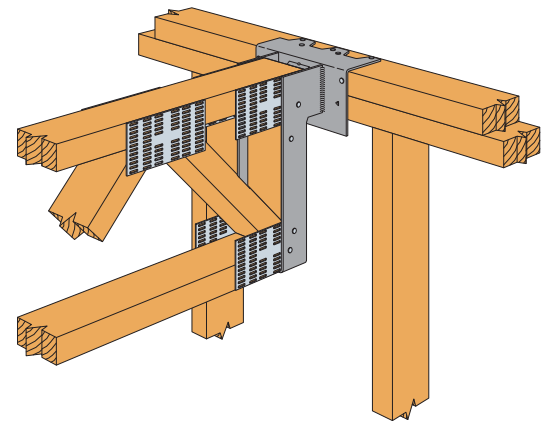
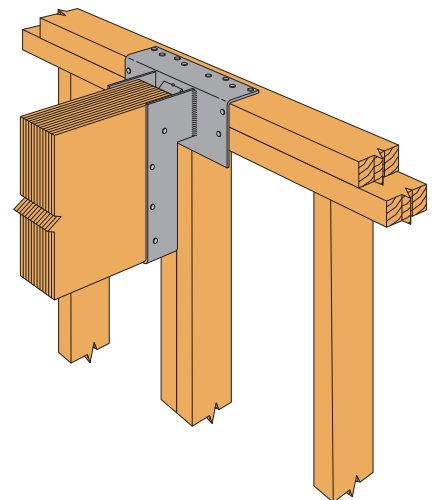


## DGF/DGBF/DGHF

## Fire Wall Hangers (cont.)

## Model Sizes

Joist Size (in.)	DGF Model	DGHF Model	DGBF Model	W (in.)	H (in.)
2x8	DGF28	—	—	1 <sup>9</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>
2x10	DGF210	—	—	1 <sup>9</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>8</sub>
2x12	DGF212	—	—	1 <sup>9</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>8</sub>
1 <sup>3</sup> / <sub>4</sub> x 9 <sup>1</sup> / <sub>2</sub>	DGF1.81/9.5	DGHF1.81/9.5	—	1 <sup>1</sup> / <sub>16</sub>	9 <sup>7</sup> / <sub>16</sub>
1 <sup>3</sup> / <sub>4</sub> x 11 <sup>7</sup> / <sub>8</sub>	DGF1.81/11.88	DGHF1.81/11.88	—	1 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>16</sub>
1 <sup>3</sup> / <sub>4</sub> x 14	DGF1.81/14	DGHF1.81/14	—	1 <sup>1</sup> / <sub>16</sub>	13 <sup>1</sup> / <sub>16</sub>
1 <sup>3</sup> / <sub>4</sub> x 16	DGF1.81/16	DGHF1.81/16	—	1 <sup>1</sup> / <sub>16</sub>	15 <sup>1</sup> / <sub>16</sub>
2 x 9 <sup>1</sup> / <sub>2</sub>	DGF2.1/9.5	DGHF2.1/9.5	—	2 <sup>1</sup> / <sub>8</sub>	9 <sup>7</sup> / <sub>16</sub>
2 x 11 <sup>7</sup> / <sub>8</sub>	DGF2.1/11.88	DGHF2.1/11.88	—	2 <sup>1</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>16</sub>
2 x 14	DGF2.1/14	DGHF2.1/14	—	2 <sup>1</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>16</sub>
2 x 16	DGF2.1/16	DGHF2.1/16	—	2 <sup>1</sup> / <sub>8</sub>	15 <sup>1</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>16</sub> x 9 <sup>1</sup> / <sub>2</sub>	DGF2.1/9.5	DGHF2.1/9.5	—	2 <sup>1</sup> / <sub>8</sub>	9 <sup>7</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>16</sub> x 11 <sup>7</sup> / <sub>8</sub>	DGF2.1/11.88	DGHF2.1/11.88	—	2 <sup>1</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>16</sub> x 14	DGF2.1/14	DGHF2.1/14	—	2 <sup>1</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>16</sub> x 16	DGF2.1/16	DGHF2.1/16	—	2 <sup>1</sup> / <sub>8</sub>	15 <sup>1</sup> / <sub>16</sub>
2 <sup>3</sup> / <sub>16</sub> x 9 <sup>1</sup> / <sub>2</sub>	DGF2.37/9.5	DGHF2.37/9.5	—	2 <sup>3</sup> / <sub>8</sub>	9 <sup>7</sup> / <sub>16</sub>
2 <sup>3</sup> / <sub>16</sub> x 11 <sup>7</sup> / <sub>8</sub>	DGF2.37/11.88	DGHF2.37/11.88	—	2 <sup>3</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>16</sub>
2 <sup>3</sup> / <sub>16</sub> x 14	DGF2.37/14	DGHF2.37/14	—	2 <sup>3</sup> / <sub>8</sub>	13 <sup>1</sup> / <sub>16</sub>
2 <sup>3</sup> / <sub>16</sub> x 16	DGF2.37/16	DGHF2.37/16	—	2 <sup>3</sup> / <sub>8</sub>	15 <sup>1</sup> / <sub>16</sub>
2 <sup>3</sup> / <sub>16</sub> x 18	DGF2.37/18	DGHF2.37/18	—	2 <sup>3</sup> / <sub>8</sub>	17 <sup>1</sup> / <sub>16</sub>
2 <sup>3</sup> / <sub>16</sub> x 20	DGF2.37/20	DGHF2.37/20	—	2 <sup>3</sup> / <sub>8</sub>	19 <sup>1</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub> x 9 <sup>1</sup> / <sub>2</sub>	DGF2.56/9.5	DGHF2.56/9.5	—	2 <sup>5</sup> / <sub>8</sub>	9 <sup>7</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub> x 11 <sup>7</sup> / <sub>8</sub>	DGF2.56/11.88	DGHF2.56/11.88	—	2 <sup>5</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub> x 14	DGF2.56/14	DGHF2.56/14	—	2 <sup>5</sup> / <sub>8</sub>	13 <sup>1</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub> x 16	DGF2.56/16	DGHF2.56/16	—	2 <sup>5</sup> / <sub>8</sub>	15 <sup>1</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub> x 18	DGF2.56/18	DGHF2.56/18	—	2 <sup>5</sup> / <sub>8</sub>	17 <sup>1</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub> x 20	DGF2.56/20	DGHF2.56/20	—	2 <sup>5</sup> / <sub>8</sub>	19 <sup>1</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub> x 22	DGF2.56/22	DGHF2.56/22	—	2 <sup>9</sup> / <sub>16</sub>	21 <sup>1</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub> x 24	DGF2.56/24	DGHF2.56/24	—	2 <sup>9</sup> / <sub>16</sub>	23 <sup>1</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 9 <sup>1</sup> / <sub>4</sub>	DGF3.62/9.25	DGHF3.62/9.25	DGBF3.62/9.25	3 <sup>5</sup> / <sub>8</sub>	9 <sup>3</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 9 <sup>1</sup> / <sub>2</sub>	DGF3.62/9.5	DGHF3.62/9.5	DGBF3.62/9.5	3 <sup>5</sup> / <sub>8</sub>	9 <sup>7</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 1 <sup>1</sup> / <sub>4</sub>	DGF3.62/11.25	DGHF3.62/11.25	DGBF3.62/11.25	3 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 11 <sup>7</sup> / <sub>8</sub>	DGF3.62/11.88	DGHF3.62/11.88	DGBF3.62/11.88	3 <sup>5</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 14	DGF3.62/14	DGHF3.62/14	DGBF3.62/14	3 <sup>5</sup> / <sub>8</sub>	13 <sup>1</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 16	DGF3.62/16	DGHF3.62/16	DGBF3.62/16	3 <sup>5</sup> / <sub>8</sub>	15 <sup>1</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 18	DGF3.62/18	DGHF3.62/18	DGBF3.62/18	3 <sup>5</sup> / <sub>8</sub>	17 <sup>1</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 20	DGF3.62/20	DGHF3.62/20	DGBF3.62/20	3 <sup>5</sup> / <sub>8</sub>	19 <sup>1</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 22	DGF3.62/22	DGHF3.62/22	DGBF3.62/22	3 <sup>5</sup> / <sub>8</sub>	21 <sup>1</sup> / <sub>16</sub>
3 <sup>1</sup> / <sub>2</sub> x 24	DGF3.62/24	DGHF3.62/24	DGBF3.62/24	3 <sup>5</sup> / <sub>8</sub>	23 <sup>1</sup> / <sub>16</sub>
5 <sup>1</sup> / <sub>4</sub> x 11 <sup>7</sup> / <sub>8</sub>	—	—	DGBF5.37/11.88	5 <sup>3</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>16</sub>
5 <sup>1</sup> / <sub>4</sub> x 14	—	—	DGBF5.37/15	5 <sup>3</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>16</sub>
5 <sup>1</sup> / <sub>4</sub> x 16	—	—	DGBF5.37/16	5 <sup>3</sup> / <sub>8</sub>	15 <sup>1</sup> / <sub>16</sub>
5 <sup>1</sup> / <sub>4</sub> x 18	—	—	DGBF5.37/18	5 <sup>3</sup> / <sub>8</sub>	17 <sup>1</sup> / <sub>16</sub>
5 <sup>1</sup> / <sub>4</sub> x 20	—	—	DGBF5.37/20	5 <sup>3</sup> / <sub>8</sub>	19 <sup>1</sup> / <sub>16</sub>
5 <sup>1</sup> / <sub>4</sub> x 22	—	—	DGBF5.37/22	5 <sup>3</sup> / <sub>8</sub>	21 <sup>1</sup> / <sub>16</sub>
5 <sup>1</sup> / <sub>4</sub> x 24	—	—	DGBF5.37/24	5 <sup>3</sup> / <sub>8</sub>	23 <sup>1</sup> / <sub>16</sub>
5 <sup>1</sup> / <sub>8</sub> glulam	—	—	DGBF5.25	5 <sup>1</sup> / <sub>4</sub>	SPEC
5 <sup>1</sup> / <sub>2</sub> glulam and 6x	—	—	DGBF5.56	5 <sup>9</sup> / <sub>16</sub>	SPEC
6 <sup>3</sup> / <sub>4</sub> glulam	—	—	DGBF6.88	6 <sup>7</sup> / <sub>8</sub>	SPEC
7 x 11 <sup>7</sup> / <sub>8</sub>	—	—	DGBF7.12/11.88	7 <sup>1</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>16</sub>
7 x 14	—	—	DGBF7.12/14	7 <sup>1</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>16</sub>
7 x 16	—	—	DGBF7.12/16	7 <sup>1</sup> / <sub>8</sub>	15 <sup>1</sup> / <sub>16</sub>
7 x 18	—	—	DGBF7.12/18	7 <sup>1</sup> / <sub>8</sub>	17 <sup>1</sup> / <sub>16</sub>
7 x 20	—	—	DGBF7.12/20	7 <sup>1</sup> / <sub>8</sub>	19 <sup>1</sup> / <sub>16</sub>
7 x 22	—	—	DGBF7.12/22	7 <sup>1</sup> / <sub>8</sub>	21 <sup>1</sup> / <sub>16</sub>
7 x 24	—	—	DGBF7.12/24	7 <sup>1</sup> / <sub>8</sub>	23 <sup>1</sup> / <sub>16</sub>

DGF Hanger on Stud Wall with I-Joists  
(Drywall not shown for clarity)DGHF Hanger on Stud Wall with Truss  
(Drywall not shown for clarity)

DGBF Hanger Installed with Double Studs



# LUL/LUS/LJS/HUS/HHUS/HGUS

## Standard and Double-Shear Joist Hangers



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

Most hangers in this series have double-shear nailing — an innovation that distributes the load through two points on each joist nail for greater strength. This allows for fewer nails, faster installation, and the use of all common nails for the same connection. (Do not bend or remove tabs)

Double-shear hangers range from the light capacity LUS hangers to the highest capacity HGUS hangers. For medium load truss applications, the HUS offers a lower cost alternative and easier installation than the HGUS hangers, while providing greater load capacity and bearing than the LUS.

**Material:** See table on pp. 225–226.

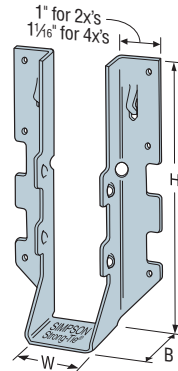
**Finish:** Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, pp. 16–21.

### Installation:

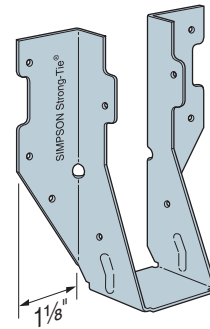
- Use all specified fasteners; see General Notes.
- Nails must be driven at an angle through the joist or truss into the header to achieve the tabulated resistances (except LUL).
- Where 16d commons are specified, 10d commons may be used at 0.83 of the tabulated factored resistance.
- Not designed for welded or nailer applications.
- With single ply 2x carrying members, use 10d x 1½" nails into the header and 10d commons into the joist, and reduce the resistance to 0.64 of the table value where 16d nails are specified and 0.77 where 10d nails are specified.

### Options:

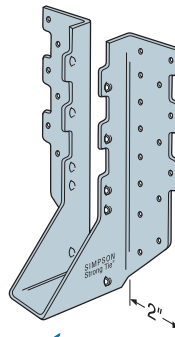
- LUS, LJS, LUL and HUS hangers cannot be modified.
- Other sizes available; consult your Simpson Strong-Tie representative.
- See Hanger Options information on pp. 111–113.



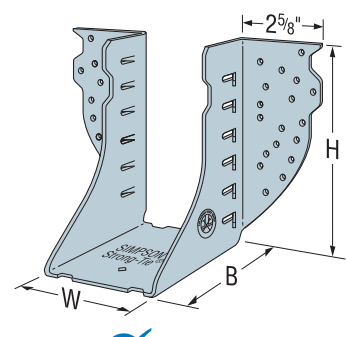
**LUS28**



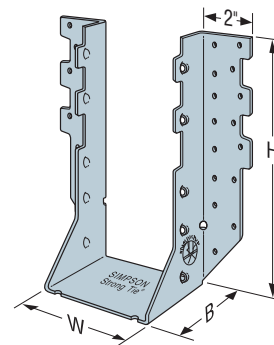
**LU26L**



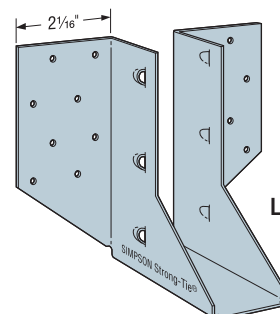
**HUS210**  
(HUS26, HUS28, and HHUS similar)



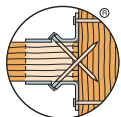
**HGUS28-2**



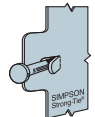
**HHUS210-2**



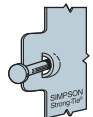
**LJS26DS**



Double-Shear Nailing Top View



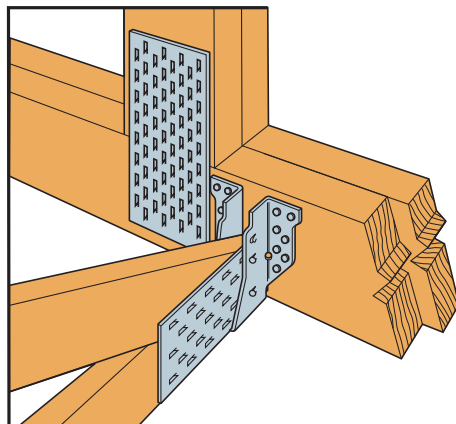
Double-Shear Nailing Side View; Do not bend tab



Dome Double-Shear Nailing Side View (available on some models)

### Typical HUS26 Installation with Reduced Heel Height

(Truss designer to provide fastener quantity for connecting multiple members together)







## LUL/LUS/LJS/HUS/HHUS/HGUS

## Standard and Double-Shear Joist Hangers (cont.)

## HHUS/HGUS

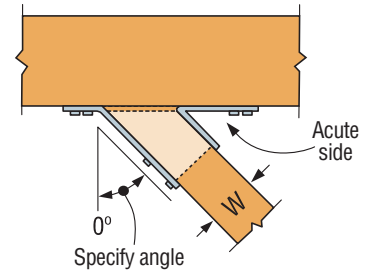
## HHUS – Sloped and/or Skewed Seat

- HHUS hangers can be skewed to a maximum of 45° and/or sloped to a maximum of 45°
- For skew only, maximum factored down resistance is 0.85 of the table value
- For sloped only or sloped and skewed hangers, the maximum factored down resistance is 0.72 of the table value
- Uplift resistances for sloped/skewed conditions are 0.62 of the table value
- The joist must be bevel-cut to allow for double-shear nailing

## HGUS – Skewed Seat

- HGUS hangers can be skewed only to a maximum of 45°. Factored resistances are:

HGUS Seat Width	Joist	Down Resistance	Uplift
W < 2"	Bevel or square cut	0.62 of table value	0.46 of table value
2" < W < 6"	Bevel cut	0.67 of table value	0.41 of table value
2" < W < 6"	Square cut	0.46 of table value	0.41 of table value
W > 6"	Bevel cut	0.75 of table value	0.41 of table value



Top View HHUS Hanger Skewed Right

(joist must be bevel cut)  
All joist nails installed on the outside angle (non-acute side).

These products are available with additional corrosion protection. For more information, see p. 20.



Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Ga.	Dimensions (in.)				Fasteners		Factored Resistance			
		W	H	B	d <sub>e</sub> <sup>3</sup>	Header	Joist	D.Fir-L		S-P-F	
								Uplift	Normal	Uplift	Normal
								(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.								
kN	kN	kN	kN								
<b>Single 2x Sizes</b>											
➡ LUS24	18	1 1/8	3 1/8	1 3/4	2 1/4	(4) 10d	(2) 10d	710	1625	645	1155
								3.16	7.23	2.87	5.14
LU24L	22	1 1/8	3	1 5/8	2 1/8	(4) 10d	(2) 10d x 1 1/2"	360	1020	320	725
								1.60	4.54	1.42	3.22
LU26L	22	1 1/8	5	1 5/8	4 5/8	(6) 10d	(4) 10d x 1 1/2"	720	1605	645	1140
								3.20	7.14	2.87	5.07
SS LUS26	18	1 1/8	4 3/4	1 3/4	3 3/4	(4) 10d	(4) 10d	1420	2170	1290	1630
								6.32	9.65	5.74	7.25
➡ HUS26	16	1 5/8	5 3/8	3	3 1/8	(14) 16d	(6) 16d	2705	4940	2065	3875
								11.30	21.97	9.20	17.24
LJS26DS	18	1 1/8	5	3 1/2	4 5/8	(16) 16d	(6) 16d	2055	4265	1460	4115
								9.14	18.97	6.49	18.31
HGUS26	12	1 5/8	5 3/8	5	4 1/8	(20) 16d	(8) 16d	2685	6625	2685	5700
								11.96	29.51	11.96	25.35
LU28L	20	1 1/8	6 3/4	1 5/8	5 7/8	(8) 10d	(6) 10d x 1 1/2"	1140	2185	1020	1550
								5.07	9.72	4.54	6.89
SS LUS28	18	1 1/8	6 5/8	1 3/4	3 3/4	(6) 10d	(4) 10d	1420	2520	1290	1790
								6.32	11.21	5.74	7.96
➡ HUS28	16	1 5/8	7 1/8	3	6 1/8	(22) 16d	(8) 16d	3605	5365	2675	4345
								16.04	23.86	11.90	19.33
HGUS28	12	1 5/8	7 1/8	5	6 1/8	(36) 16d	(12) 16d	3310	7675	3310	6900
								14.74	34.19	14.74	30.73
LU210L	20	1 1/8	8	1 5/8	7 5/8	(10) 10d	(6) 10d x 1 1/2"	1140	2495	1020	1770
								5.07	11.10	4.54	7.87
SS LUS210	18	1 1/8	7 1/8	1 3/4	3 3/8	(8) 10d	(4) 10d	1420	2785	1290	2210
								6.32	12.39	5.74	9.83
➡ HUS210	16	1 5/8	9 3/8	3	7 3/8	(30) 16d	(10) 16d	4505	5795	4010	4740
								20.04	25.78	17.84	21.08
HGUS210	12	1 5/8	9 1/8	5	7 7/8	(46) 16d	(16) 16d	3535	11070	2510	8090
								15.73	49.24	11.16	35.99

1. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed.
2. Designer must ensure that hanger is compatible with truss when reduced heel height is used.
3. d<sub>e</sub> is the distance from the bearing seat to the top joist nail.
4. Resistances shown require a minimum two-ply girder truss. For fastening to single-ply truss request technical bulletin T-C-N10TRSSCN at [strongtie.com](http://strongtie.com) and/or see installation notes.
5. Nails: 16d = 0.162" dia. x 3 1/2" long. See pp. 22–24 for other nail sizes and information.



# Face-Mount Hangers

These products are available with additional corrosion protection. For more information, see p. 20.



Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382-386 for more information.

Plated Truss Connectors

Model No.	Ga.	Dimensions (in.)				Fasteners		Factored Resistance			
		W	H	B	d <sub>e</sub> <sup>3</sup>	Header	Joist	D.Fir-L		S-P-F	
								Uplift	Normal	Uplift	Normal
								(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.								
								kN	kN	kN	kN
<b>Double 2x Sizes</b>											
LUS24-2	18	3 1/8	3 1/8	2	1 1/2	(4) 16d	(2) 16d	835	2020	590	1435
								3.71	8.99	2.62	6.38
SS LUS26-2	18	3 1/8	4 7/8	2	4	(4) 16d	(4) 16d	1720	2595	1545	1920
								7.65	11.54	6.87	8.54
HHUS26-2	14	3 5/8	5 3/8	3	3 1/4	(14) 16d	(6) 16d	2850	7335	2065	5205
								12.68	32.63	9.20	23.15
HGUS26-2	12	3 5/8	5 7/8	4	4 1/8	(20) 16d	(8) 16d	4385	8950	3110	6355
								19.51	39.81	13.83	28.27
SS LUS28-2	18	3 1/8	7	2	4	(6) 16d	(4) 16d	1720	3325	1545	2575
								7.65	14.79	6.87	11.45
HHUS28-2	14	3 5/8	7 3/8	3	6 1/8	(22) 16d	(8) 16d	3765	8940	2675	6345
								16.75	39.77	11.90	28.22
HGUS28-2	12	3 5/8	7 3/8	4	6 1/8	(36) 16d	(12) 16d	6070	12980	4310	9215
								27.00	57.74	19.17	40.99
SS LUS210-2	18	3 1/8	9	2	6	(8) 16d	(6) 16d	2580	4500	2320	3195
								11.48	20.02	10.32	14.21
HHUS210-2	14	3 5/8	9 3/8	3	8	(30) 16d	(10) 16d	4670	9660	4235	7000
								20.77	42.97	18.84	31.14
HGUS210-2	12	3 5/8	9 3/8	4	8 1/8	(46) 16d	(16) 16d	6840	14015	4855	10270
								30.43	62.34	21.60	45.69
<b>Triple 2x Sizes</b>											
HGUS26-3	12	4 1/8	5 1/2	4	4 1/8	(20) 16d	(8) 16d	4385	8950	3110	6355
								19.51	39.81	13.83	28.27
HGUS28-3	12	4 1/8	7 1/4	4	6 3/8	(36) 16d	(12) 16d	6070	12980	4310	9215
								27.00	57.74	19.17	40.99
HHUS210-3	14	4 1/8	9	3	7 1/8	(30) 16d	(10) 16d	4670	9670	4235	6865
								20.77	43.02	18.84	30.54
HGUS210-3	12	4 1/8	9 1/4	4	8 3/8	(46) 16d	(16) 16d	6840	14645	4855	10400
								30.43	65.14	21.60	46.26
<b>Quadruple 2x Sizes</b>											
HGUS26-4	12	6 3/8	5 7/8	4	4 1/8	(20) 16d	(8) 16d	4385	8950	3110	6355
								19.51	39.81	13.83	28.27
HGUS28-4	12	6 3/8	7 3/8	4	6 1/8	(36) 16d	(12) 16d	6070	12980	4310	9215
								27.00	57.74	19.17	40.99
HHUS210-4	14	6 1/8	8 3/8	3	7 1/8	(30) 16d	(10) 16d	4670	10155	4235	7210
								20.77	45.17	18.84	32.07
HGUS210-4	12	6 3/8	9 3/8	4	8 1/8	(46) 16d	(16) 16d	6840	14645	4855	10400
								30.43	65.14	21.60	46.26
HGUS212-4	12	6 3/8	10 3/8	4	10 1/8	(56) 16d	(20) 16d	7640	14995	5425	10645
								33.98	66.70	24.13	47.35
HGUS214-4	12	6 3/8	12 3/8	4	11 1/8	(66) 16d	(22) 16d	10130	16400	7195	11645
								45.06	72.95	32.00	51.80
<b>4x Sizes</b>											
LUS46	18	3 5/8	4 3/4	2	3 7/8	(4) 16d	(4) 16d	1720	2595	1545	1920
								7.65	11.54	6.87	8.54
HHUS46	14	3 5/8	5 1/4	3	3 1/4	(14) 16d	(6) 16d	2540	7335	2065	5205
								11.30	32.63	9.20	23.15
HGUS46	12	3 5/8	5 1/4	4	4 1/8	(20) 16d	(8) 16d	4385	8950	3110	6355
								19.51	39.81	13.83	28.27
LUS48	18	3 5/8	6 3/4	2	3 7/8	(6) 16d	(4) 16d	1720	3325	1545	2575
								7.65	14.79	6.87	11.45
HHUS48	14	3 5/8	7 1/8	3	6 1/8	(22) 16d	(8) 16d	3765	8940	2675	6345
								16.75	39.77	11.90	28.22
HGUS48	12	3 5/8	7 1/8	4	6 1/8	(36) 16d	(12) 16d	6070	12980	4310	9215
								27.00	57.74	19.17	40.99
LUS410	18	3 5/8	8 3/4	2	5 3/8	(8) 16d	(6) 16d	2580	4500	2320	3195
								11.48	20.02	10.32	14.21
HGUS410	12	3 5/8	9	4	8 1/8	(46) 16d	(16) 16d	6840	14015	4855	10270
								30.43	62.34	21.60	45.69
HGUS412	12	3 5/8	10 7/8	4	10 1/8	(56) 16d	(20) 16d	7640	14995	5425	10645
								33.98	66.70	24.13	47.35
HGUS414	12	3 5/8	12 7/8	4	11 1/8	(66) 16d	(22) 16d	10130	16400	7195	11645
								45.06	72.95	32.00	51.80

See footnotes on p. 225.



## HTU

## Face-Mount Truss Hanger

The HTU face-mount truss hanger has nail patterns designed specifically for shallow heel heights, so that full factored resistances (with minimum nailing) apply to heel heights as low as 3 7/8". Minimum and maximum nailing options provide solutions for varying heel heights and end conditions.

**Material:** 16 gauge

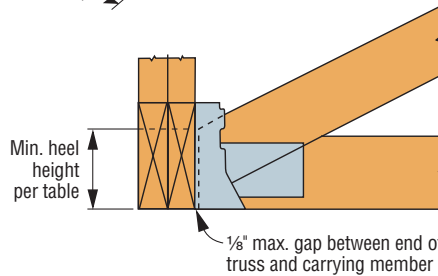
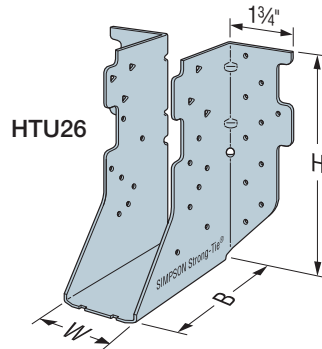
**Finish:** Galvanized

**Installation:**

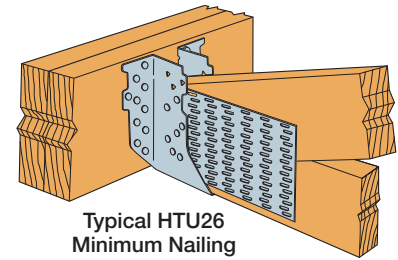
- Use all specified fasteners; see General Notes.
- Can be installed filling round holes only, or filling round and triangle holes for maximum values.
- See alternate installation for applications using the HTU26 on a 2x4 carrying member or HTU28 or HTU210 on a 2x6 carrying member for additional uplift capacity.

**Options:**

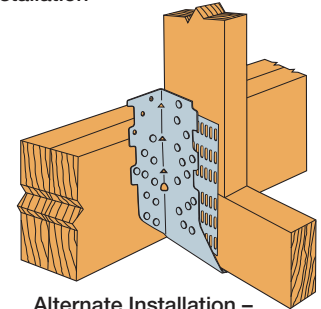
- See Hanger Options information on pp. 111–113.



HTU Installation for Standard Factored Resistances



Typical HTU26 Minimum Nailing Installation



Alternate Installation – HTU28 Installed on 2x6 Carrying Member (HTU210 similar)



Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

## Standard Installation

Model No.	Min. Heel Height (in.)	Dimensions (in.)			Fasteners		Factored Resistance			
		W	H	B	Header	Joist	D.Fir-L		S-P-F	
							Uplift	Normal	Uplift	Normal
							(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.							
							kN	kN	kN	kN
<b>Single 2x Sizes</b>										
HTU26	3 1/2	1 5/8	5 7/8	3 1/2	(20) 16d	(11) 10d x 1 1/2"	1370	4990	975	3145
							6.09	22.20	4.34	13.99
HTU26 (Min.)	3 7/8	1 5/8	5 7/8	3 1/2	(20) 16d	(14) 10d x 1 1/2"	2350	5240	1670	3300
							10.45	23.31	7.43	14.68
HTU26 (Max.)	5 1/2	1 5/8	5 7/8	3 1/2	(20) 16d	(20) 10d x 1 1/2"	2925	6565	2075	4660
							13.01	29.20	9.23	20.73
HTU28 (Min.)	3 7/8	1 5/8	7 1/8	3 1/2	(26) 16d	(14) 10d x 1 1/2"	2325	6380	1650	4530
							10.34	28.38	7.34	20.15
HTU28 (Max.)	7 1/4	1 5/8	7 1/8	3 1/2	(26) 16d	(26) 10d x 1 1/2"	4035	8900	2865	6320
							17.95	39.59	12.74	28.11
HTU210 (Min.)	3 7/8	1 5/8	9 1/8	3 1/2	(32) 16d	(14) 10d x 1 1/2"	2510	7135	1780	5065
							11.17	31.74	7.92	22.53
HTU210 (Max.)	9 1/4	1 5/8	9 1/8	3 1/2	(32) 16d	(32) 10d x 1 1/2"	6245	9820	4435	6970
							27.78	43.68	19.73	31.00
<b>Double 2x Sizes</b>										
HTU26-2 (Min.)	3 7/8	3 5/8	5 7/8	3 1/2	(20) 16d	(14) 10d	2430	6275	1725	4035
							10.81	27.91	7.67	17.95
HTU26-2 (Max.)	5 1/2	3 5/8	5 7/8	3 1/2	(20) 16d	(20) 10d	3495	7195	2480	5110
							15.55	32.00	11.03	22.73
HTU28-2 (Min.)	3 7/8	3 5/8	7 1/8	3 1/2	(26) 16d	(14) 10d	2460	6920	1745	4915
							10.94	30.78	7.76	21.86
HTU28-2 (Max.)	7 1/4	3 5/8	7 1/8	3 1/2	(26) 16d	(26) 10d	5590	9790	3970	6950
							24.87	43.55	17.66	30.92
HTU210-2 (Min.)	3 7/8	3 5/8	9 1/8	3 1/2	(32) 16d	(14) 10d	2470	7730	1755	5490
							10.99	34.38	7.81	24.42
HTU210-2 (Max.)	9 1/4	3 5/8	9 1/8	3 1/2	(32) 16d	(32) 10d	7585	11955	5385	8490
							33.74	53.18	23.95	37.77

1. Minimum heel heights required for tabulated values are based on a minimum 2:12 roof pitch.
2. Factored uplift resistances has been increased 15% for wind or earthquake; reduce where other loads govern.
3. **Nails:**  
16d = 0.162" dia. x 3 1/2" long,  
10d = 0.148" dia. x 3" long,  
10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.



# HTU

## Face-Mount Truss Hanger (cont.)

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

### Alternate Installation for (2) 2x4 and (2) 2x6 Headers

Model No.	Min. Heel Height (in.)	Minimum Header Size	Fasteners		Factored Resistance			
					D.Fir-L		S-P-F	
			Header	Joist	Uplift	Normal	Uplift	Normal
					(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
					lb.	lb.	lb.	lb.
kN	kN	kN	kN					
HTU26 (Min.)	3¾	(2) 2x4	(10) 16d	(14) 10d x 1½"	1740	3340	1235	2370
					7.74	14.86	5.49	10.54
HTU26 (Max.)	5½	(2) 2x4	(10) 16d	(20) 10d x 1½"	2470	4015	1755	2850
					10.99	17.86	7.81	12.68
HTU28 (Max.)	3¾	(2) 2x6	(20) 16d	(26) 10d x 1½"	4150	6395	2945	4540
					18.46	28.45	13.10	20.19
HTU210 (Max.)	7¼	(2) 2x6	(20) 16d	(32) 10d x 1½"	4150	6395	2945	4540
					18.46	28.45	13.10	20.19

See table footnotes below.

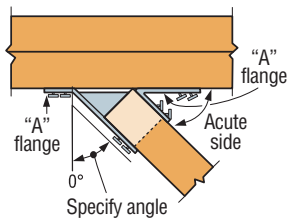
Plated Truss Connectors

### Hanger Options

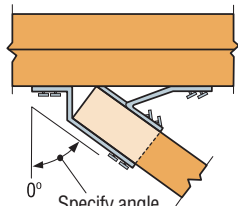
See Hanger Options information on pp. 111–113.

#### Skewed Seat

- Skewable up to 67½°
- Available in single and two-ply size
- No bevel cut required



Top View HTU Hanger Skewed Right < 51°



Top View HTU Hanger Skewed Right ≥ 51°

### Factored Resistances for Skewed HTU Hangers

Model No.	Skew Angle (Degrees)	Fasteners		Factored Resistance			
				D.Fir-L		S-P-F	
		Header	Joist	Uplift	Normal	Uplift	Normal
				(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
				lbs	lbs	lbs	lbs
kN	kN	kN	kN				
HTU26	< 51	(20) 16d	(14) 10d x 1½"	1835	4110	1300	2905
	51–67½	(20) 16d	(12) 10d x 1½"	8.16	18.28	5.78	12.92
HTU28	< 51	(26) 16d	(20) 10d x 1½"	1350	3620	955	2560
	51–67½	(26) 16d	(17) 10d x 1½"	6.01	16.10	4.25	11.39
HTU210	< 51	(32) 16d	(26) 10d x 1½"	2810	4270	1985	3030
	51–67½	(32) 16d	(22) 10d x 1½"	12.50	18.99	8.83	13.48
HTU26-2	< 51	(26) 16d	(17) 10d x 1½"	2075	3930	1465	2780
	51–67½	(26) 16d	(17) 10d	9.23	17.48	6.52	12.37
HTU28-2	< 51	(32) 16d	(26) 10d x 1½"	3785	4430	2675	3135
	51–67½	(32) 16d	(22) 10d x 1½"	16.84	19.71	11.90	13.95
HTU210-2	< 51	(32) 16d	(22) 10d x 1½"	2795	4240	1980	3000
	51–67½	(32) 16d	(22) 10d	12.43	18.86	8.81	13.35
HTU26-2	< 51	(20) 16d	(14) 10d	2140	3715	1515	2625
	51–67½	(20) 16d	(12) 10d	9.52	16.53	6.74	11.68
HTU28-2	< 51	(20) 16d	(12) 10d	1610	3920	1140	2785
	51–67½	(20) 16d	(17) 10d	7.16	17.44	5.07	12.39
HTU210-2	< 51	(26) 16d	(20) 10d	3960	5425	2815	3855
	51–67½	(26) 16d	(17) 10d	17.62	24.13	12.52	17.15
HTU210-2	< 51	(26) 16d	(17) 10d	2385	5425	1695	3855
	51–67½	(26) 16d	(26) 10d	10.61	24.13	7.54	17.15
HTU210-2	< 51	(32) 16d	(26) 10d	5025	6890	3570	4890
	51–67½	(36) 16d	(22) 10d	22.35	30.65	15.88	21.75
HTU210-2	< 51	(32) 16d	(26) 10d	3145	6680	2225	4745
	51–67½	(36) 16d	(22) 10d	13.99	29.72	9.90	21.10

1. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed.
2. Reduced heel heights are not permitted for skewed HTUs.
3. **Nails:** 16d = 0.162" dia. x 3½" long, 10d x 1½" = 0.148" dia. x 1½" long, 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.



## THAR/L422

## Skewed Truss Hangers

Designed for 4x2 floor trusses and 4x beams, the THAR/L422 has a standard skew of 45°. Straps must be bent for top flange installation. PAN nailing helps eliminate splitting of 4x2 truss bottom chords.

**Material:** 16 gauge

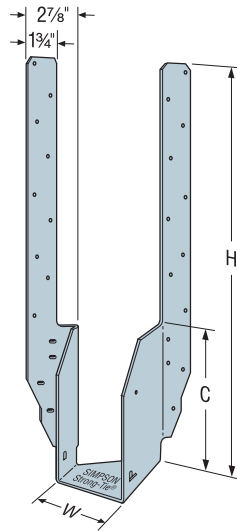
**Finish:** Galvanized

**Installation:**

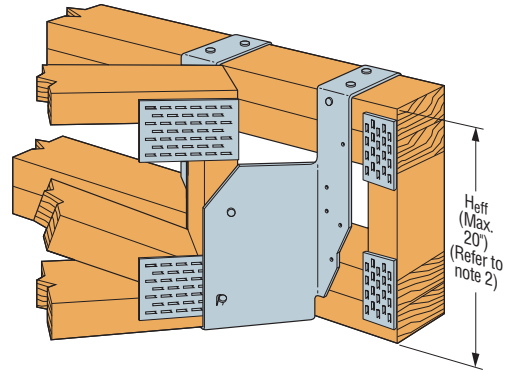
- Use all specified fasteners; see General Notes.

Two different installation methods may be used:

- **Maximum Nailing** — A minimum of four top and 8 face nails must be used. Straps must be field-formed over the header a minimum of 2½". Install 10d x 1½" nails into carried member PAN nail holes and 10d common nail into round nail hole. Install 10d common nails into carrying member.
- **Minimum Nailing** — A minimum of four top and 2 face nails must be used. Straps must be field-formed over the header a minimum of 2½". Install nails as detailed above. For single 4x carrying members, use 10d x 1½" nails and refer to the table for reduced values.



THAR/L422



Typical THAR/L422 Installation with Minimum Nailing on a Floor Truss with Double 4x2 Top Chord

Plated Truss Connectors

Model No.	Dimensions (in.)			Minimum Carrying Member	Effective Height H <sub>eff</sub> (in.)	Fasteners				Factored Resistance				
	W	H	C			Header		Joist		D.Fir-L		S-P-F		
						Top	Face	Straight	Slant	Uplift	Normal	Uplift	Normal	
						(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	lb.	lb.	lb.	lb.	
								kN		kN				
THAR/L422 (Min.)	3%	22%	8	Single 4x2	9 min.	(4) 10d x 1½"	(2) 10d x 1½"	(1) 10d x 1½"	(2) 10d x 1½"	—	1445	—	1025	
				Double 4x2	9 to 12	(4) 10d	(2) 10d	(1) 10d	(2) 10d x 1½"	—	6.44	—	4.56	
					> 12	(4) 10d	(2) 10d	(1) 10d	(2) 10d x 1½"	—	2215	—	1575	
	THAR/L422 (Max.)	3%	22%	8	Double 4x2	9 min.	(4) 10d	(8) 10d	(1) 10d	(2) 10d x 1½"	585	2585	415	1835
						—	—	—	—	—	9.87	—	7.01	
						—	—	—	—	—	1695	—	1205	
								kN		kN				
										2.61		11.51		
												1.85		
												8.16		

1. Factored uplift resistances have been increased 15% for wind or earthquake loading with no further increase allowed.
2. Where the top of the carried member is flush with the top of the carrying member, H<sub>eff</sub> is equal to the depth of the carried member. Otherwise, H<sub>eff</sub> shall be measured from the top of the bearing seat to the top of the carrying member.
3. **Nails:** 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.



# THA/THAC

## Adjustable Truss Hangers



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

The THA series have extra long straps that can be field-formed to give height adjustability and top-flange hanger convenience. THA hangers can be installed as top-flange or face-mount hangers.

The THA218-2, THA222-2, THA418, THA422, and THA426 models have added nail holes in the straps to ease top-flange installation and provide more nail hole options for meeting top- and face-nailing requirements.

**Material:** See table

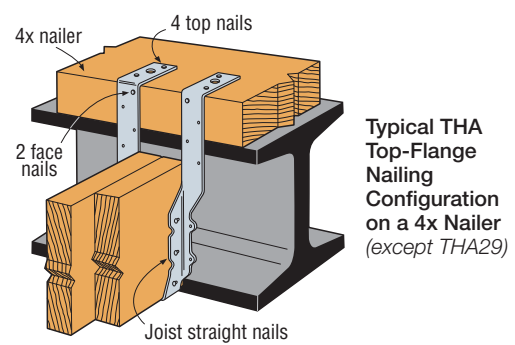
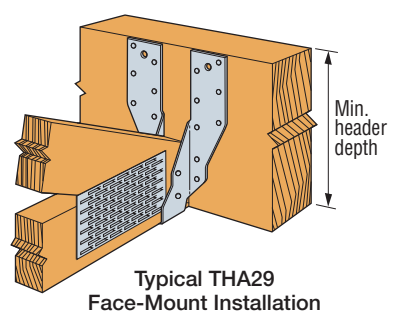
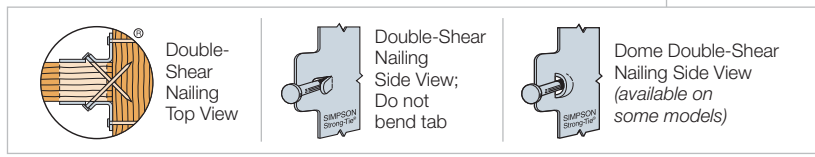
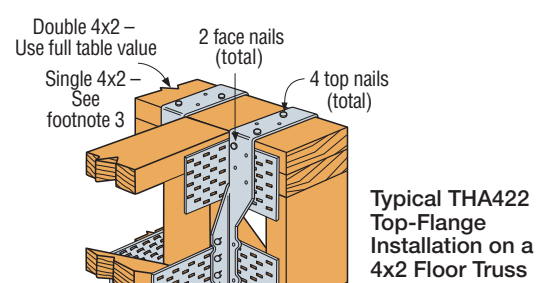
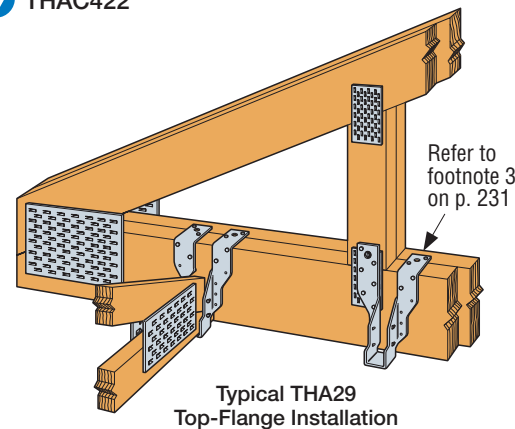
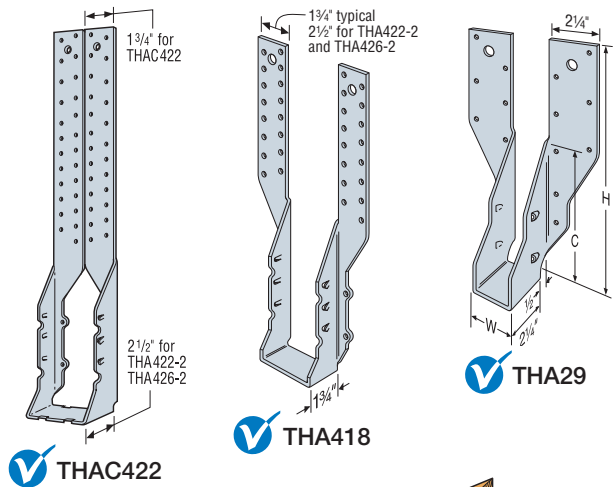
**Finish:** Galvanized. Some products available in ZMAX® or HDG coating; see Corrosion Information, pp. 16–21.

**Installation:**

- Use all specified fasteners; see General Notes.

**The following installation methods may be used:**

- **Top-Flange Installation** — The straps must be field formed over the header 2" minimum (27/16" for the THA29). Install top and face nails according to the table. Top nails shall not be within 1/4" from the edge of the top-flange members. For all top-flange (max.) conditions, nails used for joist attachment must be driven at an angle so that they penetrate through the joist and into the header. For top-flange (min.) installations (not applicable to the THA29), straighten the double-shear nailing tabs and install the nails straight. Top-flange (max.) installations require full backing to allow for joist slanted fasteners to be properly installed.
  - **Face-Mount Installation** — Install all face nails according to the table. Not all nail holes will be filled on all models. On models where there are more nail holes than required, the lowest four face holes must be filled. Nails used for the joist attachment must be driven at an angle so that they penetrate through the corner of the joist into the header.
  - **Uplift** — Lowest face nails must be filled to achieve uplift resistances.
- Options:**
- THA hangers available with the header flanges turned in for 35/8" (except THA413) and larger, with no load reduction — order THAC hanger.



Plated Truss Connectors

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## THA/THAC

## Adjustable Truss Hangers (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Ga.	Dimensions (in.)			Fasteners				Factored Resistance			
					Header		Joist		D.Fir-L		S-P-F	
		W	H	C	Top	Face	Straight	Slant	Uplift	Normal	Uplift	Normal
									(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.	kN	kN	kN	kN					
<b>Top-Flange Installation</b>												
THA29	18	1 5/8	9 1/16	5 1/2	(4) 10d	(6) 10d	—	(4) 10d	1050	3450	750	2720
									4.67	15.35	3.34	12.10
THA213 (Min.)	18	1 5/8	13 3/16	5 1/2	(4) 10d	(2) 10d	(4) 10d x 1 1/2"	—	—	1940	—	1375
THA213 (Max.)					(4) 10d	(6) 10d	—	(4) 10d	1300	2785	920	2000
									5.78	12.39	4.09	8.90
THA218 (Min.)	18	1 5/8	17 3/16	5 1/2	(4) 10d	(2) 10d	(4) 10d x 1 1/2"	—	—	1940	—	1375
THA218 (Max.)					(4) 10d	(6) 10d	—	(4) 10d	1300	2785	920	2000
									5.78	12.39	4.09	8.90
THA218-2 (Min.)	16	3	17 1/16	8	(4) 16d	(2) 16d	(6) 10d	—	—	3125	—	2220
THA218-2 (Max.)					(4) 16d	(6) 16d	—	(6) 16d	2655	5015	2105	3560
									11.81	22.31	9.36	15.84
THA222-2 (Min.)	16	3	22 3/16	8	(4) 16d	(2) 16d	(6) 10d	—	—	3125	—	2220
THA222-2 (Max.)					(4) 16d	(6) 16d	—	(6) 16d	2655	5015	2105	3560
									11.81	22.31	9.36	15.84
THA413 (Min.)	18	3 5/8	13 3/16	4 1/2	(4) 10d	(2) 10d	(4) 10d	—	—	1940	—	1375
THA413 (Max.)					(4) 10d	(6) 10d	—	(4) 10d	1300	2815	920	2000
									5.78	12.52	4.09	8.90
THA418 (Min.)	16	3 5/8	17 1/2	7 7/8	(4) 16d	(2) 16d	(6) 10d	—	—	3125	—	2220
THA418 (Max.)					(4) 16d	(6) 16d	—	(6) 16d	2655	5015	2105	3560
									11.81	22.31	9.36	15.84
THA422 (Min.)	16	3 5/8	22	7 7/8	(4) 16d	(2) 16d	(6) 10d	—	—	3125	—	2220
THA422 (Max.)					(4) 16d	(6) 16d	—	(6) 16d	2655	5015	2105	3560
									11.81	22.31	9.36	15.84
THA426 (Min.)	14	3 5/8	26	7 7/8	(4) 16d	(4) 16d	(6) 16d	—	—	3945	—	2800
THA426 (Max.)					(4) 16d	(6) 16d	—	(6) 16d	2700	5320	2105	3775
									12.01	23.67	9.36	16.79
THA422-2 (Min.)	14	7 1/4	22 1/16	9 3/4	(4) 16d	(4) 16d	(6) 16d	—	—	4425	—	3140
THA422-2 (Max.)					(4) 16d	(6) 16d	—	(6) 16d	2800	5850	2105	4150
									12.46	26.02	9.36	18.46
THA426-2 (Min.)	14	7 1/4	26 1/16	9 3/4	(4) 16d	(4) 16d	(6) 16d	—	—	4425	—	3140
THA426-2 (Max.)					(4) 16d	(6) 16d	—	(6) 16d	2800	5850	2105	4150
									12.46	26.02	9.36	18.46

- Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce for other load durations as required by code.
- For single 4x2 top chord carrying members, THA 4x hangers can be used with 10d x 1 1/2" nails. The following factored resistances apply:  
THA422 2190 lb. D.Fir-L/S-P-F  
THA426 2920 lb. D.Fir-L, 2230 lb. S-P-F  
THA422-2 2255 lb. D.Fir-L, 2165 lb. S-P-F  
Values are based on hanger installations at panel points.

- For the THA2X models, one strap may be installed vertically according to the face-mount nailing requirements and the other strap wrapped over the top chord according to the top-flange nailing requirements (see drawing on p. 230) and achieve full tabulated top-flange installation downloads.
- For minimum nailing applications, straighten double-shear nailing tabs and install nails straight into joist.
- Nails: 16d = 0.162" dia. x 3 1/2" long, 16d x 2 1/2" = 0.162" dia. x 2 1/2" long, 10d = 0.148" dia. x 3" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22-24 for other nail sizes and information.



# THA/THAC

## Adjustable Truss Hangers (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Ga.	Dimensions (in.)			Fasteners		Factored Resistance			
		W	H	C	Header	Joist	D.Fir-L		S-P-F	
							Uplift	Normal	Uplift	Normal
							(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
							lb.	lb.	lb.	lb.
kN	kN	kN	kN							
<b>Face-Mount Installation</b>										
THA29	18	1 5/8	9 11/16	5 1/8	(16) 10d	(4) 10d	1050	3195	745	2270
							4.67	14.21	3.31	10.10
THA213	18	1 5/8	13 5/16	5 1/2	(14) 10d	(4) 10d	1300	2785	920	2170
							5.78	12.39	4.09	9.65
THA218	18	1 5/8	17 3/16	5 1/2	(18) 10d	(4) 10d	1300	2785	920	2210
							5.78	12.39	4.09	9.83
THA218-2	16	3	17 11/16	8	(22) 16d	(6) 16d	2655	5150	2105	3655
							11.81	22.91	9.36	16.26
THA222-2	16	3	22 3/16	8	(22) 16d	(6) 16d	2655	5150	2105	3655
							11.81	22.91	9.36	16.26
THA413	18	3	13 5/16	4 1/2	(14) 10d	(4) 10d	1300	2785	920	2170
							5.78	12.39	4.09	9.65
THA418	16	3	17 1/2	7 7/8	(22) 16d	(6) 16d	2655	5150	2105	3655
							11.81	22.91	9.36	16.26
THA422	16	3	22	7 7/8	(22) 16d	(6) 16d	2655	5150	2105	3655
							11.81	22.91	9.36	16.26
THA426	14	3	26	7 7/8	(30) 16d	(6) 16d	2700	5890	2105	4180
							12.01	26.20	9.36	18.59
THA422-2	14	7 1/4	22 11/16	9 3/4	(30) 16d	(6) 16d	2800	8010	2105	5685
							12.46	35.63	9.36	25.29
THA426-2	14	7 1/4	26 1/16	9 3/4	(38) 16d	(6) 16d	2800	8010	2105	5685
							12.46	35.63	9.36	25.29

1. Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce for other load durations as required by code.

2. Lowest four (4) face holes must be filled with nails to achieve factored resistances shown. See installation notes.

3. **Nails:** 16d = 0.162" dia. x 3 1/2" long, 16d x 2 1/2" = 0.162" dia. x 2 1/2" long, 10d = 0.148" dia. x 3" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22-24 for other nail sizes and information.





## THJM

## Multiple Truss Hip Jack Hanger

The THJM is a non-welded hanger designed to carry radial-end jack framing and provide optimal efficiency for those multi-plane, angled bay roofs over breakfast, study and library alcoves. The unique patented design of the THJM accommodates 2x6 girder bottom chords and uses our Strong-Drive® SDS Heavy-Duty Connector screws for easy installation with minimal fasteners.

**Features:**

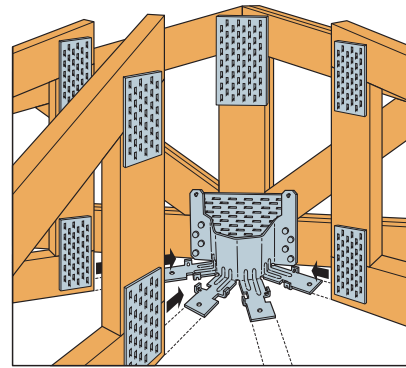
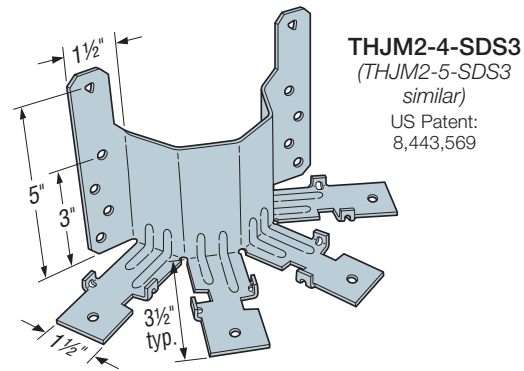
- The THJM hangers are designed for installation with ¼" x 3" Strong-Drive SDS Heavy-Duty Connector screws that are included with the parts
- The THJM2-4-SDS3 is designed for four incoming jack trusses with the outer jacks being 22½° from the face of the girder and the inner jacks being 45° from each other and the outer jacks.
- The THJM2-5-SDS3 is designed for five jacks coming into the hanger at 30° from the girder and each other
- Tabs on the seats of the THJM assist in the placement of the jacks

**Material:** 12 gauge

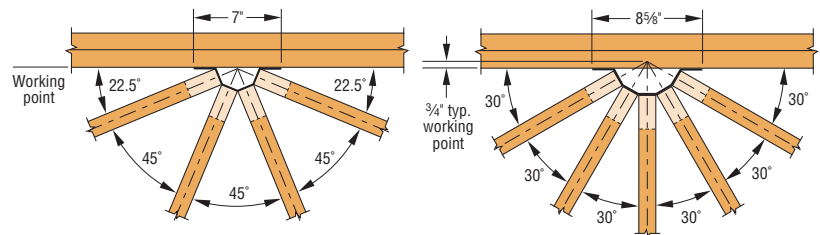
**Finish:** Galvanized

**Installation:**

- Use all specified fasteners; see General Notes.
- Each carried jack truss requires one ¼" x 3" Strong-Drive SDS Heavy-Duty Connector screw installed into the bottom chord through the bottom of the hanger seat.
- Fill all round and triangular holes.
- Strong-Drive SDS Heavy-Duty Connector screws driven through truss plates must be approved by the truss designer. Predrilling using a ⅝" bit is required.



Typical THJM Installation

THJM2-4-SDS3  
Top View InstallationTHJM2-5-SDS3  
Top View Installation

Model No.	Fasteners		Factored Resistance			
			D.Fir-L		S-P-F	
	Header	Joist (Total)	Uplift	Normal	Uplift	Normal
			(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.			
kN	kN	kN	kN			
THJM2-4-SDS3	(10) ¼" x 3" SDS	(4) ¼" x 3" SDS	890	4565	640	3290
			3.96	20.31	2.85	14.64
THJM2-5-SDS3	(10) ¼" x 3" SDS	(5) ¼" x 3" SDS	970	5250	700	3905
			4.31	23.35	3.11	17.37

1. Factored resistances shown are for all carried members combined. The load on any single member shall not exceed 25% of the tabulated factored resistance for THJM2-4 or 20% for THJM2-5.
2. Factored uplift resistances are only applicable to short-term load duration. This connector cannot be used to resist uplift due to other load durations (for example: cantilever construction).
3. A minimum two-ply header is required to achieve the factored resistances shown.
4. For single-ply headers, use ¼" x 1½" Strong-Drive SDS Heavy-Duty Connector screw into the header and multiply the tabulated normal resistances x 0.80. Tabulated, factored uplift resistances still apply.



# THASR/L

## Adjustable/Skewable Truss Hangers

The THASR/L hangers combine the height adjustability of THA hangers with field skewability, offering maximum flexibility for the installer and eliminating the need for special orders. Shipped at 22½° right or left, the THASR/L hangers can be field skewed from 22½° to 75°.

The THASR/L29, 29-2 and 422 are replacing the former 218, 218-2 and 418 versions.

### Features:

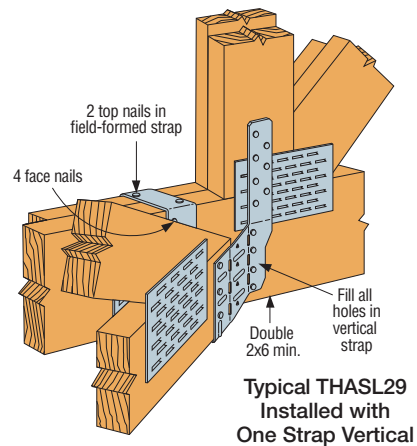
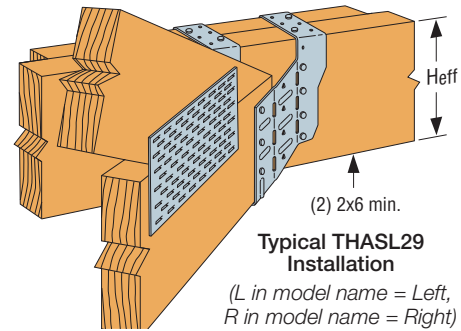
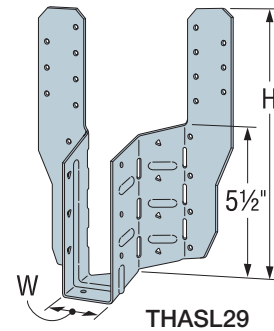
- The THASR/L single and two-ply versions have straps 9" tall. The 4x version has 22" straps to fit more parallel-chord truss applications.
- The versions have only one acute side bend line to ease design and installation.
- Joist fasteners are only required from one side for skews greater than 22½°.
- Rated for installation with either nails or Simpson Strong-Tie® Strong-Drive® SD Connector screws.

**Material:** 16 gauge

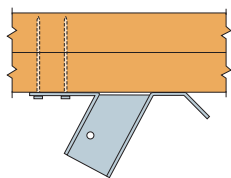
**Finish:** Galvanized

### Installation:

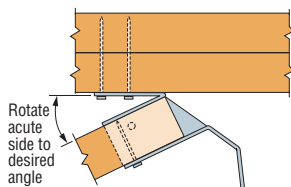
- Use all specified fasteners; see General Notes.
- Product is factory skewed to 22½° and may be field skewed from 22½° to 75°. See Installation Sequence below for skews greater than 22½°.
- For 22½° skew installations, fill all triangle holes. Triangle holes do not need to be filled for skews greater than 22½°.
- For all installations, fill the fastener hole(s) in the bottom of the hanger seat (THASR/L29 has one and all other models have two).
- For top-flange installations, the straps must be field-formed over the header a minimum of 2".
- THASR/L29 and THASR/L29-2 — For installations where either strap cannot be field-formed over the header, install the strap(s) vertical and fill all holes. Capacities must be reduced as noted in the table footnotes.
- THASR/L422 — For face-mount installations, install the carrying member fasteners into the lowest holes.



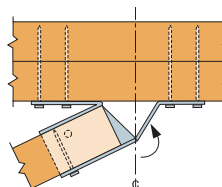
## Installation Sequence for Skews > 22½°



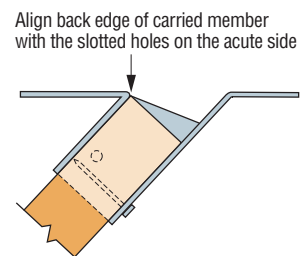
**Step 1**  
Install acute side top and/or face header fasteners.



**Step 2**  
Utilizing a piece of scrap fastened to the hanger (on obtuse side only), bend the hanger along the acute side bend line to the desired angle.



**Step 3**  
Bend the obtuse side of the hanger back toward the header until the narrow nailing flange lies flat against the header, and install obtuse side header top and/or face fasteners.



**Step 4**  
Install joist/truss and install the carried member fasteners on the obtuse side and seat only.

For 22½° skew installations, fill all triangle holes.



## THASR/L

## Adjustable/Skewable Truss Hangers (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Min. Carried Member	Model No.	Dimensions (in.)		Min. Heff (in.)	Skew Angle (Degrees)	Fasteners			Factored Resistance					
		W	H			Header		Joist	D.Fir-L		S-P-F			
						Top	Face		Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)	Uplift (K <sub>D</sub> = 1.15)	Normal (K <sub>D</sub> = 1.00)		
		lb.	lb.			lb.	lb.	kN	kN	kN	kN			
<b>Top-Flange Installation</b>														
2x truss	THASR/L29	1%	9 7/8	5 1/2	22 1/2	(4) 10d	(8) 10d	(7) 10d x 1 1/2"	1315	2845	935	2020		
									5.85	12.66	4.16	8.99		
					23 to 45	(4) 10d	(8) 10d	(4) 10d x 1 1/2"	635	2130	450	1510		
									2.82	9.48	2.00	6.72		
				46 to 75	(4) 10d	(8) 10d	(4) 10d x 1 1/2"	590	2130	420	1510			
								2.62	9.48	1.87	6.72			
(2) 2x truss	THASR/L29-2	3 1/8	9 7/8	5 1/2	22 1/2	(4) 10d	(8) 10d	(8) 10d	1360	2380	965	1690		
									6.05	10.59	4.29	7.52		
					23 to 45	(4) 10d	(8) 10d	(5) 10d	425	1870	300	1325		
									1.89	8.32	1.33	5.89		
					46 to 75	(4) 10d	(8) 10d	(5) 10d	375	1870	270	1325		
									1.67	8.32	1.20	5.89		
4x truss	THASR/L422	3%	22	8	22 1/2	(4) 10d	(4) 10d	(8) 10d	—	1605	—	1140		
									—	7.14	—	5.07		
					23 to 45	(4) 10d	(4) 10d	(5) 10d	—	1345	—	955		
									—	5.98	—	4.25		
					46 to 75	(4) 10d	(4) 10d	(5) 10d	—	1080	—	770		
									—	4.80	—	3.43		
<b>Face-Mount Installation</b>														
4x truss	THASR/L422	3%	22	5 1/2	22 1/2	—	(8) 10d	(8) 10d	—	1170	—	830		
									—	5.20	—	3.69		
					23 to 45	—	(8) 10d	(5) 10d	—	1050	—	745		
									—	4.67	—	3.31		
					46 to 75	—	(8) 10d	(5) 10d	—	1050	—	745		
									—	4.67	—	3.31		

- Uplift resistances have been increased 15% for wind or earthquake loading with no further increase permitted; reduce where other load durations govern.
- Minimum carried truss (joist) heel height shall be 4 1/2".
- Heff is the distance from the top of the hanger bearing seat to the top of the carrying member (header).
- For tabulated top-flange capacities, the straps must be wrapped over the header a minimum of 2". Factored download resistances for the THASR/L29 and THASR/L29-2 with one or both straps installed vertically (with all holes filled) are 86% of the tabulated values. Factored uplift resistances are 100% of the tabulated values.
- Nails:** 10d = 0.148" dia. x 3" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.



# THJU

## Truss Hip/Jack Hanger

The THJU hip/jack hanger offers the most flexibility and ease of installation without sacrificing performance. The U-shaped hanger works for right and left hand hips and can be ordered to fit a range of hip skews (up to 67 1/2°) as well as various single- and two-ply hip/jack combinations. Also can be installed before or after the hip and jack.

THJU26 is sized for the standard hip/jack combination with a 45° left or right-hand hip. The wide seat of THJU26-W accommodates a two-ply hip and two-ply jack combination with a 45° maximum hip skew, or a standard single-ply hip/jack configuration with a maximum 67 1/2° hip skew. Intermediate seat widths are available for other hip/jack or hip/hip combinations.

**Material:** 12 gauge

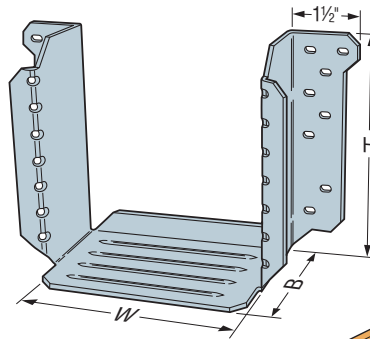
**Finish:** Galvanized

**Installation:**

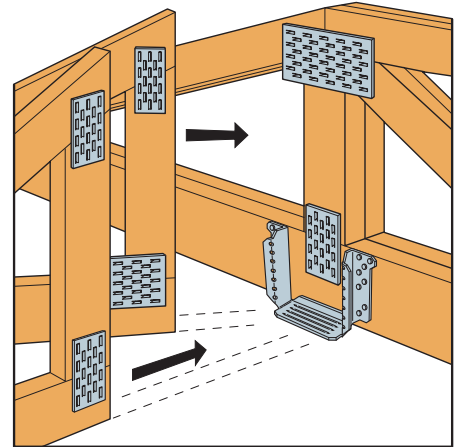
- Use all specified fasteners; see General Notes

**Options:**

- Other seat widths available



THJU26



Typical THJU26 Installation

Plated Truss Connectors

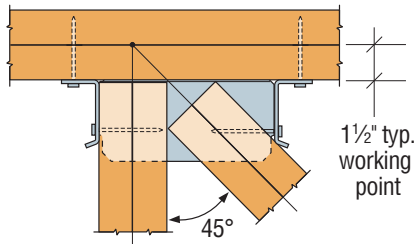
Model No.	Min. Heel Height (in.)	Dimensions (in.)			Fasteners			Factored Resistance			
		W	H	B	Header	Hip	Jack	D.Fir-L		S-P-F	
								Uplift	Normal	Uplift	Normal
								(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.								
		kN		kN		kN		kN			
THJU26	3 1/2	5 1/8	5 1/8	3 1/2	(16) 10d	(4) 10d	(4) 10d	1045	2675	745	1915
								4.65	11.90	3.31	8.52
	5 1/2				(16) 10d	(7) 10d	(7) 10d	1825	3280	1310	2350
								8.12	14.59	5.83	10.45
THJU26-W	3 1/2	8 1/8	5 1/8	3 1/2	(16) 10d	(4) 10d	(4) 10d	990	2550	705	1825
								4.40	11.34	3.14	8.12
	5 1/2				(16) 10d	(7) 10d	(7) 10d	1730	2550	1240	1825
								7.70	11.34	5.52	8.12

1. For full capacity, the jack requires either a minimum 2x6 bottom chord or a minimum 2x4 end vertical; the hip requires either a minimum 2x6 bottom chord or a minimum 2x6 end vertical for hip skews up to 60°. For hip skews greater than 60° (THJU26-W only), a minimum 2x6 bottom chord or minimum 2x8 end vertical is required.
2. Tabulated values are the total factored loads of the hip and jack members combined; 65%–85% of the total load shall be distributed to the hip member, and the remaining percentage of total load shall be distributed to the jack. The combined hip and jack load may not exceed the total factored resistances.
3. Factored uplift resistances have been increased 15% for wind or earthquake loading with no further increase permitted, reduce where other loads govern.
4. For single 2x jacks, 10d x 1 1/2" nails may be substituted for the specified 10d commons with no reduction in capacity.
5. For single ply 2x headers use 10d x 1 1/2" nails into the header and multiply the tabulated factored resistances by 0.77.
6. **Nails:** 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.

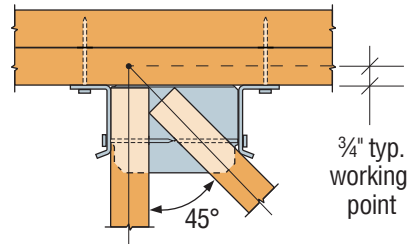


## THJU

## Truss Hip/Jack Hanger (cont.)



THJU26-W Top View  
Two-Ply Hip / Two-Ply Jack  
Installation



THJU26 Top View  
Right-Hand Hip Installation

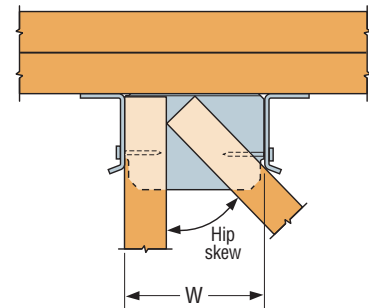
## Hanger Options

## Hanger Widths

- THJU is available in intermediate seat widths between 5 1/8" (THJU26 width) and 8 1/8" (THJU26-W width)
- Factored download and uplift resistances for all intermediate widths is 100% of the THJU26-W table values
- For double-hip installation, divide the total factored resistance by two to determine the factored resistance for each hip
- Order as THJU26X and specify width; see table for reference

## THJU Intermediate Width Options

Carried Member Combination	Hip Skew	Model No.
2-ply hip and single-ply jack	45°	THJU26X W = 6 3/8"
Single-ply hip and 2-ply jack	45°	THJU26X W = 6 3/4"
Double (terminal) hip	45°	THJU26X W = 7 3/8"
2-ply hip and 2-ply jack	45°	THJU26-W
Single-ply hip and single-ply jack	44°–46°	THJU26
	47°–49°	THJU26X W = 5 1/2"
	50°–52°	THJU26X W = 5 3/4"
	53°–55°	THJU26X W = 6"
	56°–57°	THJU26X W = 6 3/8"
	58°–59°	THJU26X W = 6 3/4"
	60°–61°	THJU26X W = 7"
	62°–63°	THJU26X W = 7 3/8"
	64°–65°	THJU26-W



THJU Top View Installation



# LTHJA26/THJA26

## Truss Hip/Jack Hanger



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

The LTHJA26 is the lighter capacity version of the THJA26. The LTHJA26 is designed for the common eight-foot hip girder setback. Consult with truss engineer or refer to truss engineering for actual demand load information.

**Material:** LTHJA26 — 18 gauge; THJA26 — 14 gauge

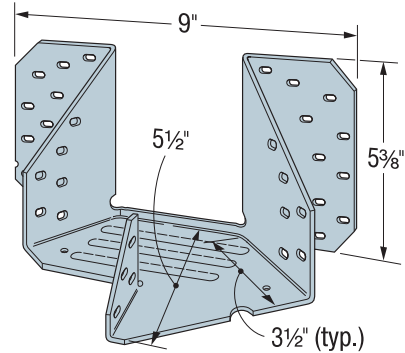
**Finish:** Galvanized

**Installation:**

- Use all specified fasteners; see General Notes
- All members must be fastened together to act as a single unit
- 10d x 1 1/2" nails must be installed into bottom of hip members through bottom of hanger seat for factored resistances (LTHJA26)

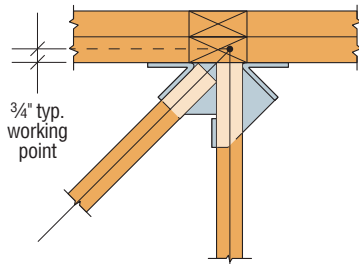
**Options:**

- These hangers can not be modified

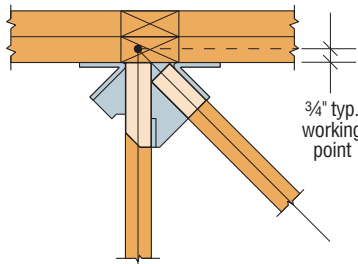


**LTHJA26**  
(THJA26 similar)  
US Patent: 7,913,472

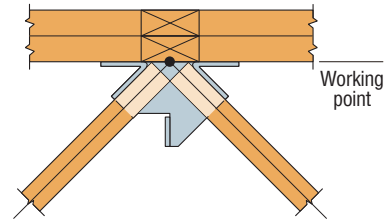
Plated Truss Connectors



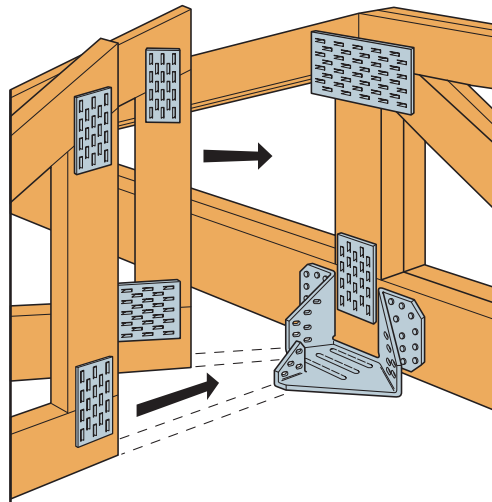
Top View  
Left-Hand Hip Installation



Top View  
Right-Hand Hip Installation



Top View  
Terminal Hip Without  
Centre Common Jack



Typical LTHJA26 Installation



## LTHJA26/THJA26

## Truss Hip/Jack Hanger (cont.)

Model No.	Carried Member Combination	Fasteners			Carried Member	Factored Resistance			
		Carrying Member	Hip <sup>2</sup> (each)	Jack		D.Fir-L		S-P-F	
						Uplift	Normal	Uplift	Normal
						(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
						lb.	lb.	lb.	lb.
kN	kN	kN	kN						
LTHJA26	Side hip and centre jack	(20) 10d	(7) 10d x 1 1/2"	(4) 10d x 1 1/2"	Jack	120	400	85	285
						0.53	1.78	0.38	1.27
					Hip	360	1205	260	860
						1.60	5.37	1.16	3.83
	Total	480	1605	345	1145				
		2.14	7.15	1.54	5.10				
	Double (Terminal hip)	(20) 10d	(7) 10d x 1 1/2"	—	Hip (each)	550	1040	395	745
						2.45	4.63	1.76	3.32
Total					1100	2080	790	1490	
					4.90	9.27	3.52	6.64	
THJA26	Side hip and centre jack	(20) 16d	(6) 10d x 1 1/2"	(4) 10d x 1 1/2"	Hip	1365	3810	960	2890
						6.08	16.97	4.28	12.87
					Jack	455	1270	320	965
						2.03	5.66	1.43	4.30
	Total	1820	5080	1280	3855				
		8.11	22.63	5.70	17.17				
	Double (Terminal hip)	(20) 16d	(6) 10d x 1 1/2"	—	Hip (each)	910	2540	640	1925
						4.05	11.31	2.85	8.59
Total					1820	5080	1280	3850	
					8.11	22.63	5.70	17.17	

1. Factored uplift resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other loads govern.
2. For LTHJA26, one 10d x 1 1/2" nail must be installed into bottom of each hip member through bottom of hanger seat.
3. With single 2x carrying members, use 10d x 1 1/2" nails and use 0.77 of the table value for LTHJA26 and 0.64 for THJA26.
4. Tabulated hip and jack factored resistances assume that 75% of the total load is distributed to the hip and 25% to the jack. It is permitted to distribute 65% to 85% of the tabulated total load to the hip, and the remaining percentage of total load to the jack. The combined hip and jack load may not exceed the published total load.
5. **Nails:** 16d = 0.162" dia. x 3 1/2" long, 10d = 0.148" dia. x 3" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22-24 for other nail sizes and information.



# MTHMQ/MTHMQ-2

## Multiple Truss Hangers

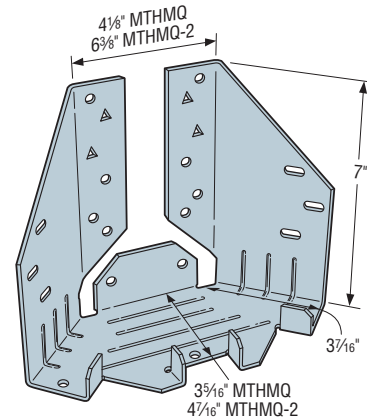
The MTHMQ and MTHMQ-2 are designed versions of our medium-to-high load capacity hangers for carrying two or three trusses. The design offers concealed flanges and installs with Strong-Drive® SDS Heavy-Duty Connector screws for easier installation.

**Material:** 12 gauge

**Finish:** Galvanized (G90)

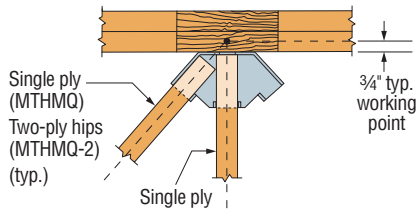
**Installation:**

- Use all specified fasteners; see General Notes
- MTHMQ — for 2x6 header do not fill upper four holes; for 2x8 header fill all holes
- MTHMQ2 — for 2x6 header do not fill upper six holes; for 2x8 header do not fill lower triangle holes
- With single-ply 2x carrying members, use 1/4" x 1 1/2" Strong-Drive SDS Heavy-Duty Connector screws and reduce capacity x 0.68
- When Strong-Drive SDS Heavy-Duty Connector screws are installed through metal truss plates predrilling using a 5/32" bit is required
- All multiple members must be fastened together to as one unit
- 1/4" x 3" Strong-Drive SDS Heavy-Duty Connector screws (SDS25300) are included with part

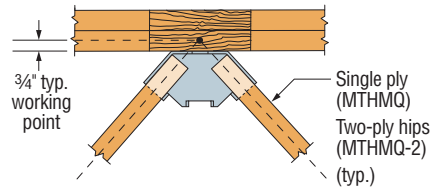


**MTHMQ-SDS3**  
(MTHMQ-2-SDS3 similar)

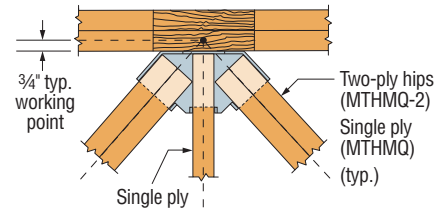
Plated Truss Connectors



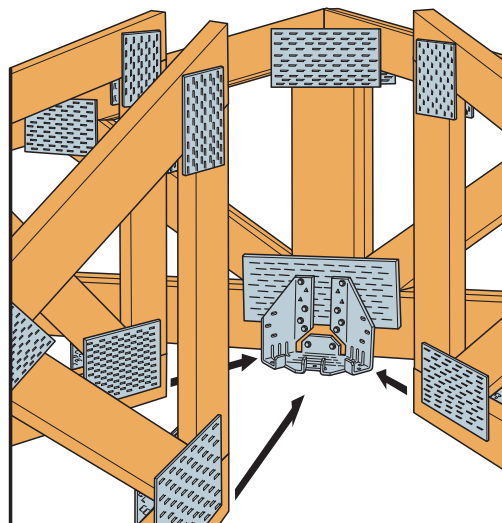
**MTHMQ Top View  
Left-Hand Hip Installation**  
(MTHMQ-2 similar)



**MTHMQ Top View  
Terminal Installation Without  
Centre Common Jack**  
(MTHMQ-2 similar)



**MTHMQ-2 Top View  
Terminal Installation with  
Centre Common Jack**  
(MTHMQ similar)



**Typical MTHMQ Minimum Installation  
at Panel Point**





## MTHMQ/MTHMQ-2

## Multiple Truss Hangers (cont.)

## Right- or Left-Hand Hip Installation (Two-Member Connection)

Model No.	Header	Fasteners			Factored Resistance											
					D.Fir-L						S-P-F					
		Carrying Member	Hip	Jack	Uplift (K <sub>D</sub> = 1.15)			Down (K <sub>D</sub> = 1.00)			Uplift (K <sub>D</sub> = 1.15)			Down (K <sub>D</sub> = 1.00)		
					Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total
					lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
kN	kN				kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	
MTHMQ	Two-ply 2x6	(10) ¼" x 3" SDS	(4) ¼" x 3" SDS	(1) ¼" x 3" SDS	785	265	1050	3075	1025	4100	565	190	755	2215	735	2950
		3.49	1.18	4.67	13.68	4.56	18.24	2.51	0.85	3.36	9.85	3.27	13.12			
	Two-ply 2x8	(14) ¼" x 3" SDS	(4) ¼" x 3" SDS	(1) ¼" x 3" SDS	785	265	1050	4245	1415	5660	565	190	755	3055	1020	4075
		3.49	1.18	4.67	18.88	6.29	25.18	2.51	0.85	3.36	13.59	4.54	18.13			
MTHMQ-2	Two-ply 2x6	(10) ¼" x 3" SDS	(5) ¼" x 3" SDS	(1) ¼" x 3" SDS	1255	415	1670	3785	1265	5050	900	300	1200	2725	910	3635
		5.58	1.85	7.43	16.84	5.63	22.46	4.00	1.33	5.34	12.12	4.05	16.17			
	Two-ply 2x8	(14) ¼" x 3" SDS	(5) ¼" x 3" SDS	(1) ¼" x 3" SDS	1255	415	1670	4375	1460	5835	900	300	1200	3150	1050	4200
		5.58	1.85	7.43	19.46	6.49	25.96	4.00	1.33	5.34	14.01	4.67	18.68			

See footnotes below.

## Terminal Type Installation (Three-Member Connection)

Model No.	Header	Fasteners			Factored Resistance											
					D.Fir-L						S-P-F					
		Carrying Member	Hips (Total)	Jack	Uplift (K <sub>D</sub> = 1.15)			Down (K <sub>D</sub> = 1.00)			Uplift (K <sub>D</sub> = 1.15)			Down (K <sub>D</sub> = 1.00)		
					Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total	Hip	Jack	Total
					lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
kN	kN				kN	kN	kN	kN	kN	kN	kN	kN	kN	kN		
MTHMQ	Two-ply 2x6	(10) ¼" x 3" SDS	(8) ¼" x 3" SDS	(1) ¼" x 3" SDS	775	390	1940	2295	1150	5740	560	275	1395	1655	825	4130
		3.45	1.73	8.63	10.21	5.12	25.53	2.49	1.22	6.21	7.36	3.67	18.37			
	Two-ply 2x8	(14) ¼" x 3" SDS	(8) ¼" x 3" SDS	(1) ¼" x 3" SDS	775	390	1940	3025	1510	7560	560	275	1395	2175	1090	5440
		3.45	1.73	8.63	13.46	6.72	33.63	2.49	1.22	6.21	9.68	4.85	24.20			
MTHMQ-2	Two-ply 2x6	(10) ¼" x 3" SDS	(10) ¼" x 3" SDS	(1) ¼" x 3" SDS	1070	530	2670	2815	1410	7040	770	385	1925	2030	1010	5070
		4.76	2.36	11.88	12.52	6.27	31.32	3.43	1.71	8.56	9.03	4.49	22.55			
	Two-ply 2x8	(14) ¼" x 3" SDS	(10) ¼" x 3" SDS	(1) ¼" x 3" SDS	1070	530	2670	3635	1815	9085	770	385	1925	2615	1310	6540
		4.76	2.36	11.88	16.17	8.07	40.41	3.43	1.71	8.56	11.63	5.83	29.09			

1. Factored uplift resistances have been increased 15% for short-term loading; no further increase is permitted.
2. A minimum two-ply 2x carrying member is required for the tabulated resistances. With single-ply 2x carrying members use ¼" x 1½" Strong-Drive® SDS Heavy-Duty Connector screws into the carrying member and multiply the tabulated down capacities x 0.68.
3. Tabulated two-member connection capacities assume that 75% of the total load is distributed to the hip and 25% to the jack. It is permitted to distribute between 65% and 85% of the total load to the hip and the remaining load to the jack. The combined hip and jack loads may not exceed the total published factored resistances.
4. For terminal hips with no centre jack, divide the total factored resistance by two to determine the factored resistance for each hip.
5. Tabulated three-member connection capacities assume that each hip carries 40% of the total load and the jack carries 20%. Other hip/jack load distributions are permitted if the sum of all three carried members does not exceed the total load and the hips are equally loaded.
6. When Strong-Drive SDS Heavy-Duty Connector screws are installed through metal truss plates, the application must be approved by the truss designer. Pre-drilling using a 5/32" bit is required.
7. As per 12.2.2.5 CSA O86-14, the carrying member must be evaluated using a reduced cross sectional area at the hanger location. The reduction in area shall be based on seven (7) ¼"-diameter holes on a 2x8 bottom chord and five (5) ¼"-diameter holes on a 2x6 bottom chord.



# HTHMQ

## Heavy Multiple Truss Hanger

The HTHMQ is a versatile, high-capacity truss hanger designed for various lumber types and multi-ply trusses. The truss hanger accommodates a greater range of structural designs while accommodating right- or left-hand hips (at 30°–60° skews), which can be used for terminal hips with or without the centre common jack. The HTHMQ can accommodate various widths of lumber.

**Features:**

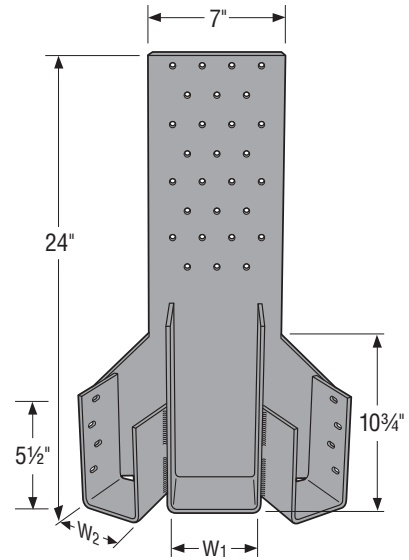
- Available in various stirrup widths to accommodate various lumber types and multi-ply trusses
- Installed with Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws that eliminate the inconvenience of bolted installation
- Enables two- to three-member connection for a broader range of structural designs

**Material:** Back plate — 3 gauge; stirrup — 7 gauge

**Finish:** Simpson Strong-Tie® gray paint

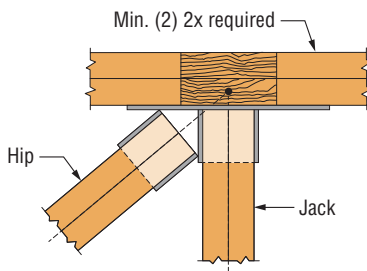
**Installation:**

- Use all specified fasteners; see General Notes
- Strong-Drive SDS Heavy-Duty Connector screws supplied for all round and obround holes
- All multiple members must be fastened together to act as a single unit
- Shall be attached to a minimum two-ply girder truss
- Girders must be adequately laterally braced to prevent excessive displacement due to secondary torsional stresses
- Maximum girder bottom chord depth is 2x10
- Must be installed centred on a minimum 2x8 girder vertical web
- See below for different installation options

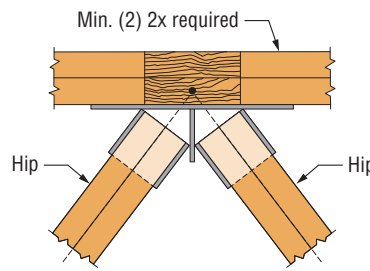


HTHMQ

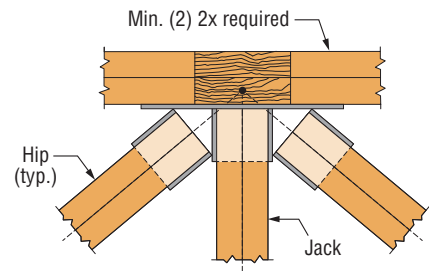
Plated Truss Connectors



HTHMQ Top View  
Left-Hand Hip Installation

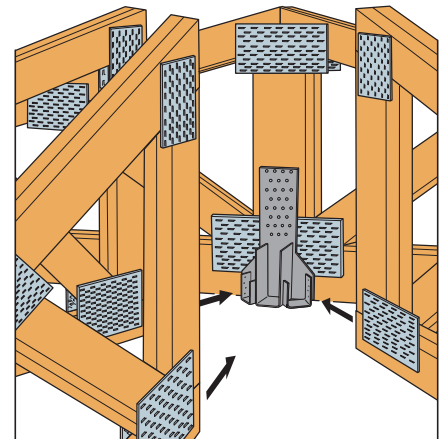


HTHMQN Top View  
Terminal Hip Installation  
without Centre Common Jack



HTHMQ Top View  
Terminal Hip Installation  
with Centre Common Jack

Model No.	Dimensions (in.)		Hip Skew Angle	Fasteners		
	W <sub>1</sub>	W <sub>2</sub>		Header	Hips (Total)	Jack
HTHMQ-SDS	1 5/8 – 4 15/16	1 5/8	30°–60°	(34) 1/4" x 3" SDS	(8) 1/4" x 1 1/2" SDS	(4) 1/4" x 1 1/2" SDS
HTHMQ-2-SDS	1 5/8 – 4 15/16	3 5/16	30°–60°	(34) 1/4" x 3" SDS	(8) 1/4" x 2 1/2" SDS	(4) 1/4" x 1 1/2" SDS
HTHMQN-SDS	—	1 5/8	30°–60°	(34) 1/4" x 3" SDS	(8) 1/4" x 1 1/2" SDS	(4) 1/4" x 1 1/2" SDS
HTHMQN-2-SDS	—	3 5/16	30°–60°	(34) 1/4" x 3" SDS	(8) 1/4" x 2 1/2" SDS	(4) 1/4" x 1 1/2" SDS
HTHMQR/L-SDS	1 5/8 – 4 15/16	1 5/8	30°–60°	(34) 1/4" x 3" SDS	(8) 1/4" x 1 1/2" SDS	(4) 1/4" x 1 1/2" SDS
HTHMQR/L-2-SDS	1 5/8 – 4 15/16	3 5/16	30°–60°	(34) 1/4" x 3" SDS	(8) 1/4" x 2 1/2" SDS	(4) 1/4" x 1 1/2" SDS



Typical HTHMQ Installation



## HTHMQ

## Heavy Multiple Truss Hanger (cont.)

Model No.	Factored Resistance — Joist Bearing											
	D.Fir-L						S-P-F					
	Uplift ( $K_D = 1.15$ )			Down ( $K_D = 1.00$ )			Uplift ( $K_D = 1.15$ )			Down ( $K_D = 1.00$ )		
	Hip (ea.)	Jack	Total	Hip (ea.)	Jack	Total	Hip (ea.)	Jack	Total	Hip (ea.)	Jack	Total
	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN
HTHMQ-SDS	2005	1005	5015	5820	2910	14550	1445	720	3610	4735	2365	11835
	8.92	4.47	22.31	25.89	12.94	64.72	6.43	3.20	16.06	21.06	10.52	52.65
HTHMQ-2-SDS	2005	1005	5015	6750	3375	16875	1445	720	3610	5845	2920	14610
	8.92	4.47	22.31	30.03	15.01	75.07	6.43	3.20	16.06	26.00	12.99	64.99
HTHMQN-SDS	1295	—	2590	5820	—	11640	935	—	1870	4735	—	9470
	5.76	—	11.52	25.89	—	51.78	4.16	—	8.32	21.06	—	42.13
HTHMQN-2-SDS	1295	—	2590	6820	—	13640	935	—	1870	4910	—	9820
	5.76	—	11.52	30.34	—	60.68	4.16	—	8.32	21.84	—	43.68
HTHMQR/L-SDS	2140	715	2855	5820	1940	7760	2000	665	2665	4735	1580	6315
	9.52	3.18	12.70	25.89	8.63	34.52	8.90	2.96	11.85	21.06	7.03	28.09
HTHMQR/L-2-SDS	2715	905	3620	10140	3380	13520	2015	670	2685	8190	2730	10920
	12.08	4.03	16.10	45.11	15.04	60.14	8.96	2.98	11.94	36.43	12.14	48.58

See footnotes below.

Model No.	Factored Resistance — End Grain Bearing											
	D.Fir-L						S-P-F					
	Uplift ( $K_D = 1.15$ )			Down ( $K_D = 1.00$ )			Uplift ( $K_D = 1.15$ )			Down ( $K_D = 1.00$ )		
	Hip (ea.)	Jack	Total	Hip (ea.)	Jack	Total	Hip (ea.)	Jack	Total	Hip (ea.)	Jack	Total
	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN
HTHMQ-SDS	1070	535	2675	6750	3375	16875	1000	500	2500	5845	2920	14610
	4.76	2.38	11.90	30.03	15.01	75.07	4.45	2.22	11.12	26.00	12.99	64.99
HTHMQ-2-SDS	1355	680	3390	6750	3375	16875	1265	630	3160	5845	2920	14610
	6.03	3.02	15.08	30.03	15.01	75.07	5.63	2.80	14.06	26.00	12.99	64.99
HTHMQN-SDS	1070	—	2140	6820	—	13640	935	—	1870	4910	—	9820
	4.76	—	9.52	30.34	—	60.68	4.16	—	8.32	21.84	—	43.68
HTHMQN-2-SDS	1295	—	2590	6820	—	13640	935	—	1870	4910	—	9820
	5.76	—	11.52	30.34	—	60.68	4.16	—	8.32	21.84	—	43.68
HTHMQR/L-SDS	1070	355	1425	10140	3380	13520	1000	335	1335	8215	2735	10950
	4.76	1.58	6.34	45.11	15.04	60.14	4.45	1.49	5.94	36.54	12.17	48.71
HTHMQR/L-2-SDS	1355	450	1805	10140	3380	13520	1265	420	1685	8215	2735	10950
	6.03	2.00	8.03	45.11	15.04	60.14	5.63	1.87	7.50	36.54	12.17	48.71

- Uplift resistances have been increased 15% for wind or earthquake loading with no further increase allowed.
- Specify  $W_2$  where applicable and hip skew angle.
- Connector must be installed centred on minimum 2x8 girder vertical web.
- A minimum two-ply carrying member is required for the tabulated loads.
- All multiple members must be fastened together to act as a single unit, as determined by the designer.
- Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws are permitted to be installed through metal truss plates as approved by the truss designer (pre-drilling required through the plate using a maximum of  $\frac{5}{32}$ " bit).
- Tabulated resistances for three-member configurations assume that each hip carries 40% of the total load and the jack carries 20% of the total load. Tabulated resistances for single hip-jack configurations assume that 75% of the total load is distributed to the hip and 25% to the jack.
- Joist bearing assumes the bottom chord of the truss is sitting in the hanger seat where  $Q_r/A_b$  and  $Q_r'/A_b' = 812$  psi D.Fir-L and 615 psi S-P-F. See 6.5.4 and 7.5.9 TPIC 2014.
- End grain bearing assumes a vertical web is sitting in the hanger seat.



# HHSUQ

## Heavy Severe Skew Truss Hanger

The HHSUQ is a high-load, face-mount, truss-to-truss hanger designed to accommodate severe skews (45°–84°) enabling a greater range of installation applications. Fastening the HHSUQ with Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws makes installation fast and easy, while eliminating the inconvenience of bolted applications.

**Material:** Back plate — 3 gauge;  
stirrup — 7 gauge

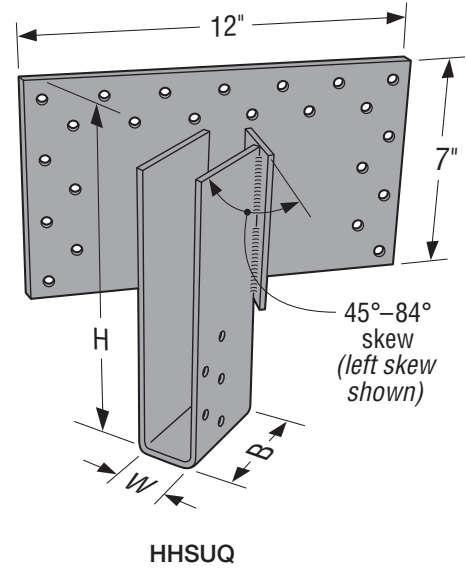
**Finish:** Simpson Strong-Tie® gray paint

**Installation:**

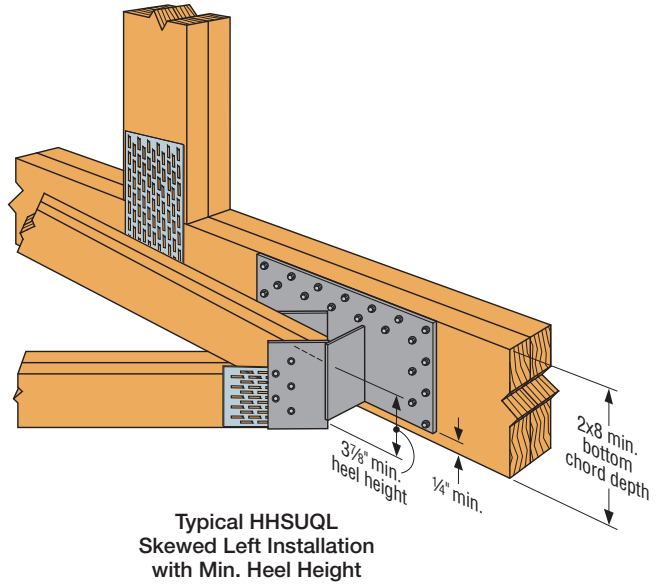
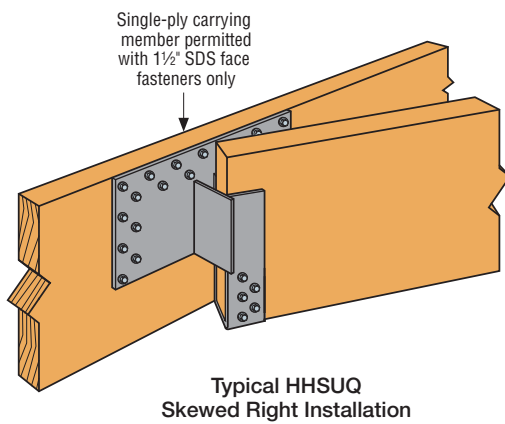
- Use all specified fasteners; see General Notes.
- Illustrations below show left and right skews HHSUQR/L (HHSUQR = skewed right; HHSUQL = skewed left).
- The joist/truss end may be square cut or bevel cut with a 3/8" minimum heel height.
- Strong-Drive SDS Heavy-Duty Connector screws supplied for all round holes.
- All multiple members must be fastened together to act as a single unit.
- When Strong-Drive SDS Heavy-Duty Connector screws are installed through metal truss plates the application must be approved by the truss designer. Pre-drilling is required using a 5/32" bit.

**To Order:**

- Specify left or right skew and the skew angle (degrees).



Plated Truss Connectors





## HHSUQ

## Heavy Severe Skew Truss Hanger (cont.)

Model No.	Dimensions (in.)			Fasteners		Factored Resistance			
	W	H	B	Header	Joist	D.Fir-L		S-P-F	
						Uplift	Normal	Uplift	Normal
						(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
						lb.	lb.	lb.	lb.
kN	kN	kN	kN						
HHSUQ28-SDS	1%	7¼	3½	(23) ¼" x 3" SDS	(5) ¼" x 1½" SDS	1890	5530	1360	5400
						8.41	24.60	6.05	24.02
HHSUQ210-SDS	1%	9¼	3½	(23) ¼" x 3" SDS	(5) ¼" x 1½" SDS	1890	5530	1360	5400
						8.41	24.60	6.05	24.02
HHSUQ212-SDS	1%	11¼	3½	(23) ¼" x 3" SDS	(5) ¼" x 1½" SDS	1890	5530	1360	5400
						8.41	24.60	6.05	24.02
HHSUQ28-2-SDS	3% <sub>16</sub>	7¼	3½	(23) ¼" x 3" SDS	(5) ¼" x 3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ210-2-SDS	3% <sub>16</sub>	9¼	3½	(23) ¼" x 3" SDS	(5) ¼" x 3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ212-2-SDS	3% <sub>16</sub>	11¼	3½	(23) ¼" x 3" SDS	(5) ¼" x 3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ48-SDS	3%	7¼	3½	(23) ¼" x 3" SDS	(5) ¼" x 3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ410-SDS	3%	9¼	3½	(23) ¼" x 3" SDS	(5) ¼" x 3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ412-SDS	3%	11¼	3½	(23) ¼" x 3" SDS	(5) ¼" x 3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60
HHSUQ414-SDS	3%	13¼	3½	(23) ¼" x 3" SDS	(5) ¼" x 3" SDS	1890	5530	1360	5530
						8.41	24.60	6.05	24.60

1. Factored uplift resistances have been increased 15% for wind or earthquake loading; no further increase is allowed. Reduce where other load durations govern.
2. Strong-Drive® SDS Heavy-Duty Connector screws that penetrate all plies of the supporting girder (screws must penetrate a minimum of 1" into the last ply of the truss) may also be used to transfer the load through all of the plies of the supporting girder. When Strong-Drive SDS Heavy-Duty Connector screws do not penetrate all plies of the supporting girder, supplemental Strong-Drive SDS Heavy-Duty Connector screws at the hanger locations may be required to transfer the load to the truss plies not penetrated by the face fasteners, as determined by the designer. 3"-long Strong-Drive SDS header fasteners may be replaced with 4½"- or 6"-long Strong-Drive SDS Heavy-Duty Connector screws with no reduction in capacity.
3. Resistances shown are based on a minimum two-ply 2x8 carrying member. For single 2x carrying members, replace the 3"-long Strong-Drive SDS Heavy-Duty Connector screws with 1½"-long Strong-Drive SDS Heavy-Duty Connector screws and reduce the factored normal resistances to 3820 lb. (16.99 kN) D.Fir-L and 2750 lb. (12.23 kN) S-P-F. The tabulated uplift resistances do not change.
4. Girders must be adequately laterally braced to prevent excessive displacement due to secondary torsional stresses.
5. As per 12.2.2.5 CSA O86-14, the carrying member must be evaluated using a reduced cross-sectional area at the hanger location. The reduction in area is equal to seven (7) ¼"-diameter x 3"-long holes (1½" long for ¼" x 1½" Strong-Drive SDS Heavy-Duty Connector screw).



# TJC

## Jack Truss Connector

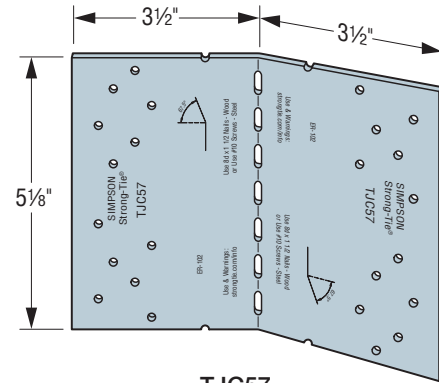
TJC is a versatile connector for jack trusses and adjustable from 0° to 85° (shipped with 67.5° bend). The nail hole locations allow for easy installation. The minimum nailing option on the TJC37 provides faster installation and lower installed cost.

**Material:** 16 gauge

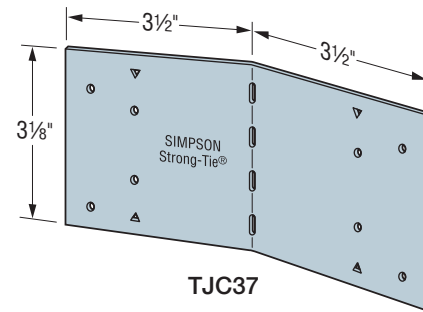
**Finish:** Galvanized

**Installation:**

- Use all specified fasteners; see General Notes.
- TJC37 can be installed filling round holes only, or filling round and triangle holes for maximum values.
- To reduce the potential for splitting, install the TJC with a minimum 3/16" edge distance on the chord members.
- Position the jack truss on the inside of the bend line with the end of the jack truss flush with the bend line.
- Bend the TJC to the desired position (one bend cycle only).
- No bevel cut required.
- Attachment of TJC to the top chord requires the designer to check connection geometry for placement on both carried and carrying chord members. See Top Chord Member Sizes table below for suggested chord sizes.



TJC57

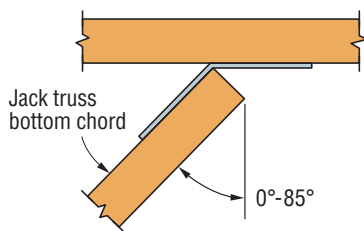


TJC37

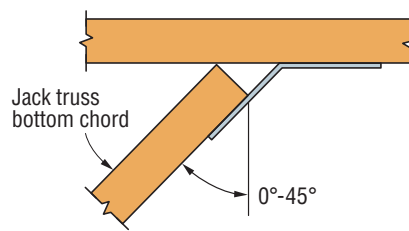
Plated Truss Connectors

### Standard Installation

Model No.	Fasteners		Factored Resistance					
			D. Fir-L		S-P-F			
			(K <sub>D</sub> = 1.00 or 1.15)		(K <sub>D</sub> = 1.00)		(K <sub>D</sub> = 1.15)	
			0°	1° to 85°	0°	1° to 85°	0°	1° to 85°
		lb.	lb.	lb.	lb.	lb.	lb.	
		kN	kN	kN	kN	kN	kN	
TJC37 (Min.)	(4) 8d x 1 1/2"	(4) 8d x 1 1/2"	495	465	350	330	405	380
			2.20	2.07	1.56	1.47	1.80	1.69
TJC37 (Max.)	(6) 8d x 1 1/2"	(6) 8d x 1 1/2"	950	650	675	465	775	535
			4.23	2.89	3.00	2.07	3.45	2.38
TJC57	(12) 8d x 1 1/2"	(12) 8d x 1 1/2"	1170	1110	880	835	1010	960
			5.21	4.94	3.92	3.71	4.49	4.27
	(12) #9 x 1 1/2" SD	(12) #9 x 1 1/2" SD	1425	1425	1075	1075	1235	1235
			6.34	6.34	4.76	4.76	5.49	5.49



Standard Installation  
Top View



Alternate Installation  
Top View



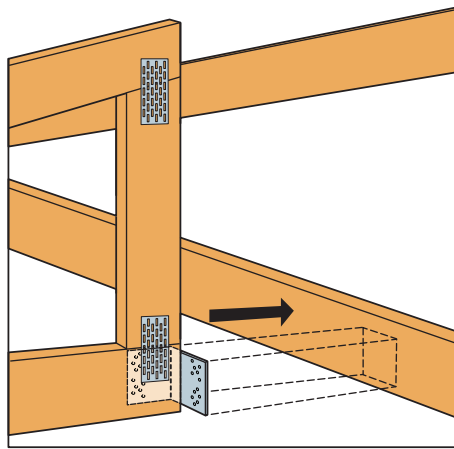
## TJC

## Jack Truss Connector (cont.)

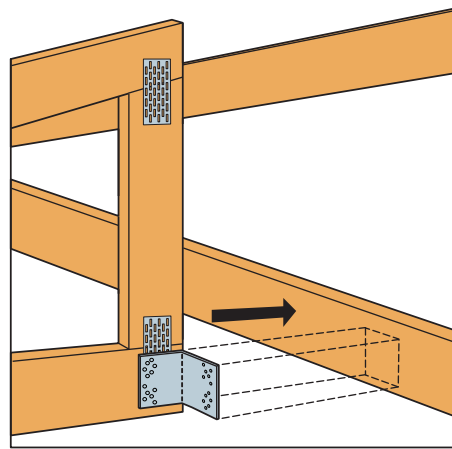
## Alternate Installation

Model No.	Fasteners		Factored Resistance					
			D.Fir-L		S-P-F			
	Carrying Member	Carried Member	$(K_D = 1.00 \text{ or } 1.15)$		$(K_D = 1.00)$		$(K_D = 1.15)$	
			0°	1°-45°	0°	1°-45°	0°	1°-45°
			lb.	lb.	lb.	lb.	lb.	lb.
kN			kN	kN	kN	kN	kN	
TJC37 (Min.)	(4) 8d x 1½"	(4) 8d x 1½"	435	435	305	305	355	355
			1.94	1.94	1.36	1.36	1.58	1.58
TJC37 (Max.)	(6) 8d x 1½"	(6) 8d x 1½"	760	620	540	440	620	505
			3.38	2.76	2.40	1.96	2.76	2.25
TJC57	(12) 8d x 1½"	(12) 8d x 1½"	1165	1100	875	825	1005	950
			5.18	4.89	3.89	3.67	4.47	4.23

1. Factored resistances are for uplift and downward directions.
2. TJC37 and TJC57 require single-ply carried members with minimum 2x4 and 2x6 chord members, respectively.
3. **Nails:** 8d x 1½" = 0.131" dia. x 1½" long. See pp. 22-24 for other nail sizes and information.
4. **Screws:** #9 x 1½" SD = 0.131" dia. x 1½" long (SD9112).



Typical TJC57 Standard Installation  
(TJC37 similar)



Typical TJC57 Alternate Installation  
(TJC37 similar)

## Top Chord Member Sizes

Part	Pitch		
	≤ 3:12	≤ 7:12	≤ 12:12
TJC37	2x6	2x6	2x8
TJC57	2x8	2x8	2x10



# THGQ/THGQH/HTHGQ

## SCL and Truss Girder Hangers



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

A lower cost alternative to bolted hangers, the THGQ and THGQH hangers for multi-ply girder trusses use Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws to provide high load capacities and easier installation compared to bolts. The Strong-Drive SDS Heavy-Duty Connector screws help transfer the load between the plies of the supporting girder when they penetrate all plies.

THGQ and THGQH models offer minimum and optional maximum fastener quantities to accommodate varying design needs. Factored resistances for various girder web member sizes provide additional installation options.

The HTHGQ is a high-load version designed to carry multi-ply trusses or composite lumber up to five-ply girder trusses. For high-load capacities and easier installation compared to bolts, the HTHGQ is designed for use with Strong-Drive SDS Heavy-Duty Connector screws.

**Material:** THGQ — 7 gauge; THGQH/HTHGQ — 3 gauge

**Finish:** THGQ — Galvanized;

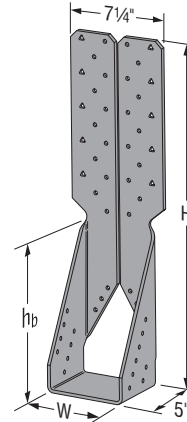
THGQH/HTHGQ — Simpson Strong-Tie gray paint

### Installation:

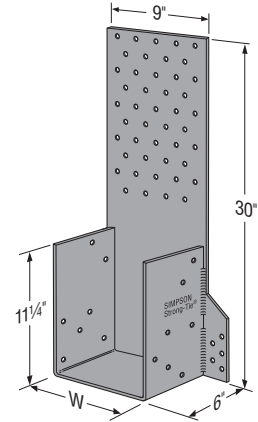
- Use all specified fasteners; see General Notes.
- Can be installed filling round holes only (minimum value), or filling round and triangle holes for maximum values.
- Strong-Drive SDS Heavy-Duty Connector screws supplied for all round and triangle holes. Installation may not require use of all Strong-Drive SDS Heavy-Duty Connector screws.
- All multiple members must be fastened together to act as a single unit.
- The thickness of the supporting girder must be equal to or greater than the screw length. For applications where the length of the supplied screws exceeds the thickness of the supporting girder, 3" or 4½" screws may be substituted for the longer length screws with no load reduction, or a shim block may be used as approved by the designer.
- Girders must be adequately laterally braced to prevent excessive displacement due to secondary torsional stresses.
- Strong-Drive SDS Heavy-Duty Connector screws driven through truss plates must be approved by the designer. Predrilling using a 5/8" bit is required.

### Options:

- THGQH hangers for multi-ply truss girders may be skewed 45°. THGQH for structural composite lumber (SCL) cannot be skewed. See Hanger Options information on pp. 111–113.

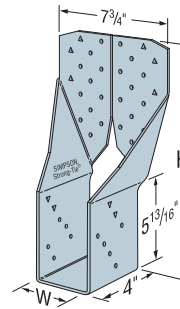


**THGQH5.50**  
(others similar)

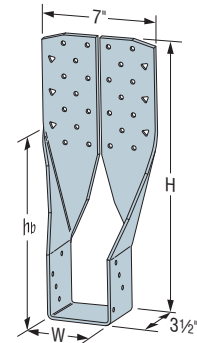


**HTHGQ**  
(others similar)

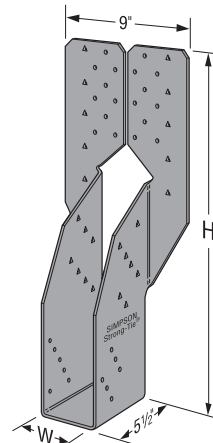
US Patent Pending



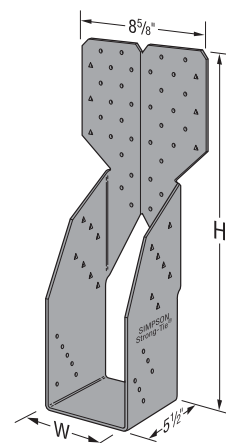
**THGQ2-SDS3**  
(THGQ3-SDS4.5 similar)



**THGQ3.62**  
(others similar)



**THGQH2-SDS3**



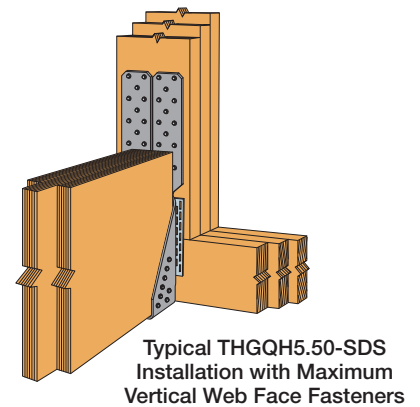
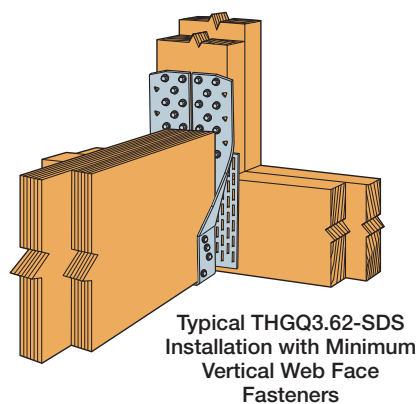
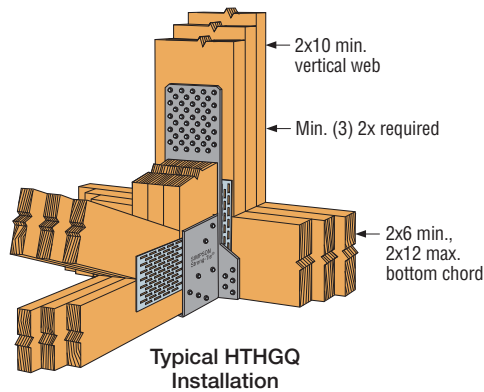
**THGQH3-SDS4.5**  
(THGQH4-SDS6 similar)





## THGQ/THGQH/HTHGQ

## SCL and Truss Girder Hangers (cont.)



Model No.	Dimensions (in.)		Max. Girder Truss B.C. Depth	Min. Vert. Web Size	SDS Fasteners		Factored Resistance			
	W	H			Header	Joist	D.Fir-L		S-P-F	
							Uplift	Normal	Uplift	Normal
							(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.							
						kN	kN	kN	kN	
Multi-Ply Truss Sizes										
THGQ2-SDS3 (Min.)	16	2x6	2x8	(22) ¼" x 3"	(10) ¼" x 3"	5205	11655	3750	8395	
THGQ2-SDS3 (Max.)				(28) ¼" x 3"	(14) ¼" x 3"	23.15	51.85	16.68	37.34	
THGQH2-SDS3 (Min.)	3½	2x10	2x8	(18) ¼" x 3"	(14) ¼" x 3"	5790	12555	4170	9040	
THGQH2-SDS3 (Max.)				(28) ¼" x 3"	(26) ¼" x 3"	25.76	55.85	18.55	40.21	
HTHGQ2-SDS	30	2x12	2x10	(55) ¼" x 4½"	(14) ¼" x 3"	7420	26375	5345	19320	
						33.01	117.33	23.78	85.94	
THGQ3-SDS4.5 (Min.)	16	2x6	2x8	(22) ¼" x 4½"	(10) ¼" x 4½"	5205	11655	3750	8395	
THGQ3-SDS4.5 (Max.)				(28) ¼" x 4½"	(14) ¼" x 4½"	23.15	51.85	16.68	37.34	
THGQH3-SDS4.5 (Min.)	4½	2x10	2x10	(32) ¼" x 4½"	(14) ¼" x 4½"	5790	17860	4170	12860	
THGQH3-SDS4.5 (Max.)				(38) ¼" x 4½"	(26) ¼" x 4½"	25.76	79.45	18.55	57.21	
HTHGQ3-SDS	30	2x12	2x10	(55) ¼" x 4½"	(14) ¼" x 3"	7420	33685	5345	24850	
						33.01	149.84	23.78	110.54	
THGQH4-SDS6 (Min.)	6½	2x12	2x10	(34) ¼" x 6"	(14) ¼" x 6"	5790	17860	4170	12860	
THGQH4-SDS6 (Max.)				(40) ¼" x 6"	(26) ¼" x 6"	25.76	79.45	18.55	57.21	
HTHGQ4-SDS	30	2x12	2x10	(55) ¼" x 4½"	(14) ¼" x 3"	7420	33930	5345	28400	
						33.01	150.93	23.78	126.33	
HTHGQ5-SDS	8½	30	2x12	2x10	(55) ¼" x 4½"	(14) ¼" x 3"	7420	33930	5345	28400
						33.01	150.93	23.78	126.33	

1. Factored uplift resistances have been increased 15% for short-term load duration. No further increase is permitted.
2. A minimum three-ply girder truss (header) is required for all HTHGQ sizes.
3. Minimum bottom chord depth of the joist shall be 2x6.
4. When end grain bearing is used with HTHGQ models, the factored normal resistances are 33930 lb. (150.93 kN) D.Fir-L and 28400 lb. (126.33 kN) S-P-F. The factored uplift resistances are 5300 lb. (23.57 kN) D.Fir-L and 3815 lb. (16.97 kN) S-P-F.
5. Designer must ensure that the girder truss is capable of supporting the applied loads based on the reduced cross sectional area from the ¼"-diameter fasteners.

6. Strong-Drive® SDS Heavy-Duty Connector screws that penetrate all plies of the supporting girder a minimum of 1" into the last ply may also be used to transfer the load between plies of the supporting girder. When Strong-Drive SDS Heavy-Duty Connector screws do not penetrate all plies, supplemental Strong-Drive SDS Heavy-Duty Connector screws may be required to transfer the load to the truss plies not penetrated by the face fasteners, as determined by the designer.
7. All truss sizes assume  $Q_t/A_b$  and  $Q_r/A_b$  = 812 psi D.Fir-L and 615 psi S-P-F for bearing capacities. See 6.5.4 and 7.5.9 TPIC 2014.
8. **Screws:** ¼" x 3" SDS = ¼" dia. x 3" long Simpson Strong-Tie® Strong-Drive SDS Heavy-Duty Connector screw (SDS25300).



# THGQ/THGQH/HTHGQ

## SCL and Truss Girder Hangers (cont.)

Plated Truss Connectors

Model No.	Dimensions (in.)			Max. Girder Truss B.C. Depth	Min. Vert. Web Size	SDS Fasteners		Factored Resistance			
	W	H	h <sub>b</sub>			Header	Joist	D.Fir-L		S-P-F	
								Uplift	Normal	Uplift	Normal
								(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.								
		kN		kN		kN		kN			
<b>Structural Composite Lumber (SCL) Sizes</b>											
THGQ3.62-SDS3 (Min.)	3½"	16 1/16"	10"	2x6	2x8	(22) ¼" x 3"	(8) ¼" x 3"	4725	9510	3400	6850
THGQ3.62-SDS3 (Max.)					2x10	(28) ¼" x 3"	(8) ¼" x 3"	21.02	42.30	15.12	30.47
THGQH3.62-SDS3 (Min.)		24 1/2"	11"	2x8	2x6	(26) ¼" x 3"	(18) ¼" x 3"	6640	16540	4780	11910
THGQH3.62-SDS3 (Max.)					2x8	(36) ¼" x 3"	(18) ¼" x 3"	29.54	73.58	21.26	52.98
THGQ5.50-SDS4.5 (Min.)	5½"	17 1/4"	8 1/4"	2x8	2x8	(24) ¼" x 4 1/2"	(8) ¼" x 4 1/2"	4725	10945	3400	7880
THGQ5.50-SDS4.5 (Max.)					2x10	(32) ¼" x 4 1/2"	(8) ¼" x 4 1/2"	21.02	48.69	15.12	35.05
THGQH5.50-SDS4.5 (Min.)		25"	11 1/4"	2x10	2x6	(28) ¼" x 4 1/2"	(16) ¼" x 4 1/2"	4725	12570	3400	9050
THGQH5.50-SDS4.5 (Max.)					2x8	(38) ¼" x 4 1/2"	(16) ¼" x 4 1/2"	21.02	55.92	15.12	40.26
THGQH7.25-SDS6 (Min.)	7 1/4"	24 1/2"	11 1/4"	2x10	2x6	(28) ¼" x 4 1/2"	(16) ¼" x 4 1/2"	5900	17415	4250	12535
THGQH7.25-SDS6 (Max.)					2x8	(38) ¼" x 4 1/2"	(16) ¼" x 4 1/2"	26.25	77.47	18.91	55.76
THGQH7.25-SDS6 (Max.)					2x12	(46) ¼" x 6"	(16) ¼" x 6"	26.25	111.90	18.91	80.56
THGQH7.25-SDS6 (Max.)					2x8	(28) ¼" x 6"	(16) ¼" x 6"	5900	19750	4250	14220
THGQH7.25-SDS6 (Max.)					2x12	(46) ¼" x 6"	(16) ¼" x 6"	26.25	87.86	18.91	63.26
THGQH7.25-SDS6 (Max.)								5900	26660	4250	19195
THGQH7.25-SDS6 (Max.)								26.25	118.59	18.91	85.39

See footnotes on p. 249.

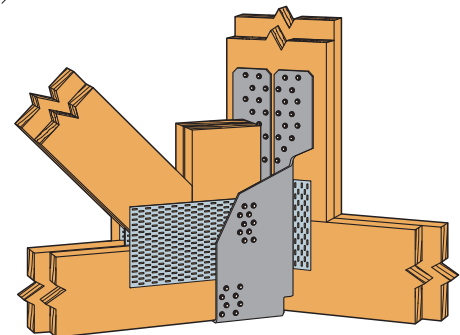
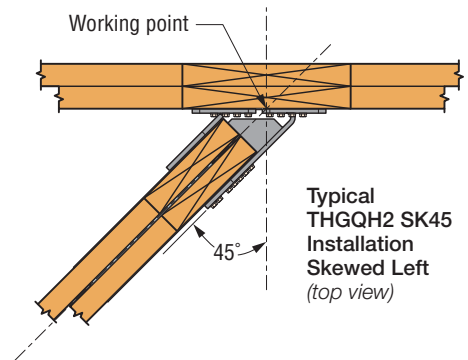
## THGQH

See Hanger Options General Notes on pp. 109–110.

### Skewed Seat

- THGQH may be skewed 45° for the models shown. Carried members may be bevel cut.
- Align centreline of joist and centreline of connecting web at the face of the girder.

Model No.	Max. Girder Truss B.C. Depth	Min. Vert. Web Size	Fasteners		Factored Resistance			
			Header	Joist	D.Fir-L		S-P-F	
					Uplift	Normal	Uplift	Normal
					(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.					
		kN		kN		kN		
THGQH2 SK45	2x10	2x12	(28) ¼" x 3" SDS	(18) ¼" x 3" SDS	6275	15440	4520	11115
THGQH2 SK45					27.91	68.68	20.11	49.44
THGQH3 SK45	2x10	2x12	(36) ¼" x 4 1/2" SDS	(18) ¼" x 4 1/2" SDS	5345	15440	3845	11115
THGQH3 SK45					23.78	68.68	17.10	49.44
THGQH4 SK45	2x12	2x12	(40) ¼" x 6" SDS	(18) ¼" x 6" SDS	5345	20310	3845	14625
THGQH4 SK45					23.78	90.35	17.10	65.06



Typical THGQH2 SK45 Installation Skewed Left



# THGB/THGBH/THGW

## Truss Girder Hangers

High-capacity, welded hangers for multi-ply girder trusses. Two models offer higher design load values and optional installation with Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screw.

**Material:** 3 gauge

**Finish:** Simpson Strong-Tie gray paint

**Design:**

- Vertical web on supporting girder truss must be 2x8 (min.) for four-bolt and six-bolt applications and 2x12 for eight-bolt applications per 5.3.8.2 CSA O86-14
- Designer must ensure that vertical web member supporting hanger is capable of resisting applied loads based on net cross-sectional area
- 1/4" x 3" Strong-Drive SDS Heavy-Duty Connector screw must be attached to a minimum two-ply header (3")
- Joist bearing assumes  $Q_r/A_b$  and  $Q_r'/A_b' = 812$  psi D.Fir-L and 615 psi S-P-F. See 6.5.4 and 7.5.9 TPIC 2014
- Maximum bottom chord depth on header shall be 117/8"
- To achieve the tabulated uplift resistances the maximum bottom chord depth of the joist shall be 7 1/4"

**Installation:**

- Use all specified fasteners; see General Notes.
- All multiple members must be fastened together to act as a single unit.

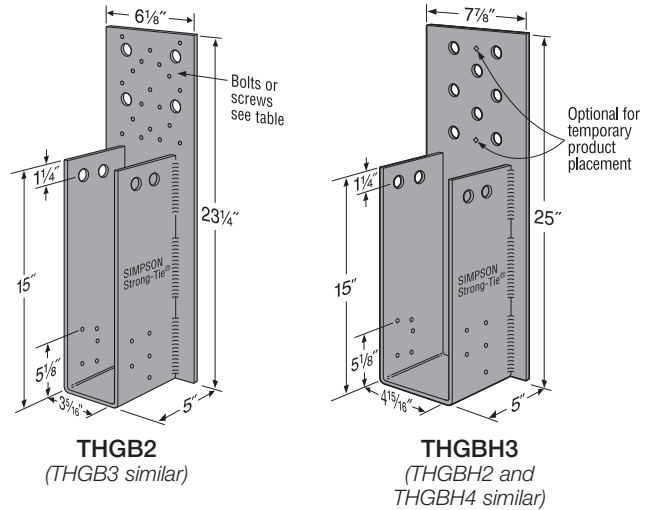
**Options:**

- See Hanger Options information on pp. 111–113.

**Skewed Seat, 45° Maximum:**

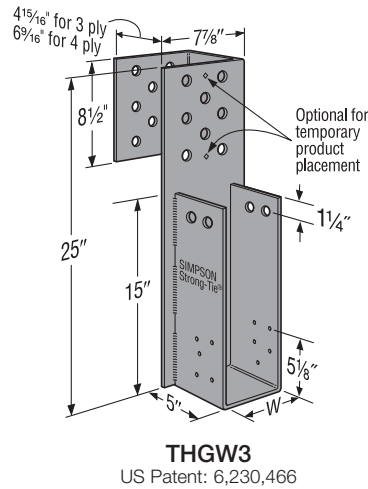
- Multiply the tabulated factored resistances for uplift and download by the following:
 

– THGB2/THGB3	0.74
– THGBH3	0.71
– THGBH4	0.56

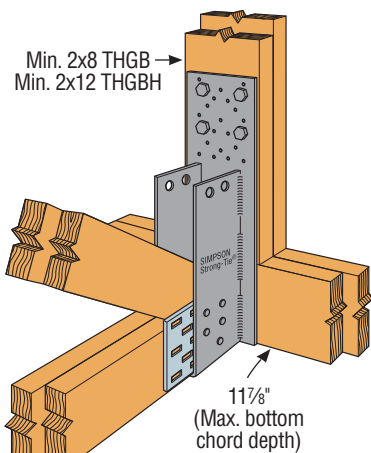


**THGB2**  
(THGB3 similar)

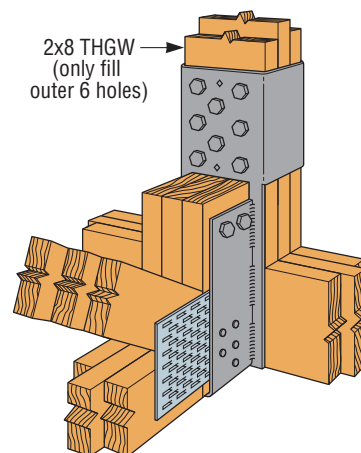
**THGBH3**  
(THGBH2 and THGBH4 similar)



**THGW3**  
US Patent: 6,230,466



**Typical THGB2 Installation**



**Typical THGW3 Installation**



## THGB/THGBH/THGW

## Truss Girder Hangers (cont.)

Model No.	Width (in.)	Fasteners		Minimum Header Thickness (in.)	Factored Resistance			
					D.Fir-L		S-P-F	
		Joist	Header		Uplift	Normal	Uplift	Normal
					(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.					
kN	kN	kN	kN					
THGB2	3 <sup>5</sup> / <sub>16</sub>	(10) 10d and (2) 3/4" MB	(4) 3/4" MB	3	5175	8290	4085	6545
					23.02	36.88	18.17	29.11
				4 1/2	5175	12435	4085	9815
					23.02	55.32	18.17	43.66
				6	5175	13615	4085	10750
					23.02	60.56	18.17	47.82
THGBH2	3 <sup>5</sup> / <sub>16</sub>	(10) 10d and (2) 3/4" MB	(8) 3/4" MB	3	5175	12435	4085	9815
					23.02	55.32	18.17	43.66
				4 1/2	5175	14385	4085	11355
					23.02	63.99	18.17	50.51
				6	5175	14385	4085	11355
					23.02	63.99	18.17	50.51
THGB3	4 <sup>15</sup> / <sub>16</sub>	(10) 10d and (2) 3/4" MB	(4) 3/4" MB	3	7760	8290	6125	6545
					34.52	36.88	27.25	29.11
				4 1/2	7760	12435	6125	9815
					34.52	55.32	27.25	43.66
				6	7760	13615	6125	10750
					34.52	60.56	27.25	47.82
THGBH3	4 <sup>15</sup> / <sub>16</sub>	(10) 10d and (2) 3/4" MB	(8) 3/4" MB	3	7760	12435	6125	9815
					34.52	55.32	27.25	43.66
				4 1/2	7760	18390	6125	14520
					34.52	81.81	27.25	64.59
				6	7760	18605	6125	14690
					34.52	82.76	27.25	65.35
THGW3-3	4 <sup>15</sup> / <sub>16</sub>	(10) 10d and (2) 3/4" MB	(6) 3/4" MB	4 1/2 <sup>3</sup>	7760	18650	6125	14725
THGW3-4				6 <sup>3</sup>	7760	20830	6125	16065
THGBH4	6 <sup>3</sup> / <sub>16</sub>	(10) 10d and (2) 3/4" MB	(8) 3/4" MB	3	8850	12435	8170	9815
					39.37	55.32	36.34	43.66
				4 1/2	8850	18650	8170	14725
					39.37	82.96	36.34	65.50
				6	8850	21865	8170	17265
					39.37	97.26	36.34	76.80
THGW4-3	6 <sup>3</sup> / <sub>16</sub>	(10) 10d and (2) 3/4" MB	(6) 3/4" MB	4 1/2 <sup>3</sup>	8850	18650	8170	14725
THGW4-4				6 <sup>3</sup>	8850	24870	8170	19630
					39.37	110.63	36.34	87.32

1. Uplift resistances have been increased 15% for wind or earthquake loading with no further increase allowed.
2. When using (10) 10d nails only on carried member, uplift resistance is 2945 lb. (13.10 kN) for D.Fir-L and 2590 lb. (11.52 kN) for S-P-F.
3. THGW is sized to fit the header thickness shown.
4. **Nails:** 10d = 0.148" dia. x 3" long. See pp. 22-24 for other nail sizes and information.
5. **Screws:** 1/4" x 3" SDS = 1/4" dia. x 3" long Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screw (SDS25300).
6. **Bolts:** 3/4" MB = 3/4" diameter ASTM A307 Grade A bolt.



## THGBV/THGBHV/THGWV

## SCL-to-Truss Girder Hangers

An extension of the THGB/THGBH/THGW series, these high-capacity, welded hangers are designed for attaching multi-ply structural composite lumber (SCL) beams to girder trusses. Two models offer higher design values and optional installation with the Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws. Two bucket heights are available for each width to accommodate a range of SCL sizes. Options for skewing or dropping the buckets for conditions where the SCL joist is lower than the girder bottom chord provide design flexibility for a variety of SCL-to-truss connections.

**Material:** 3 gauge

**Finish:** Simpson Strong-Tie gray paint

**Design:**

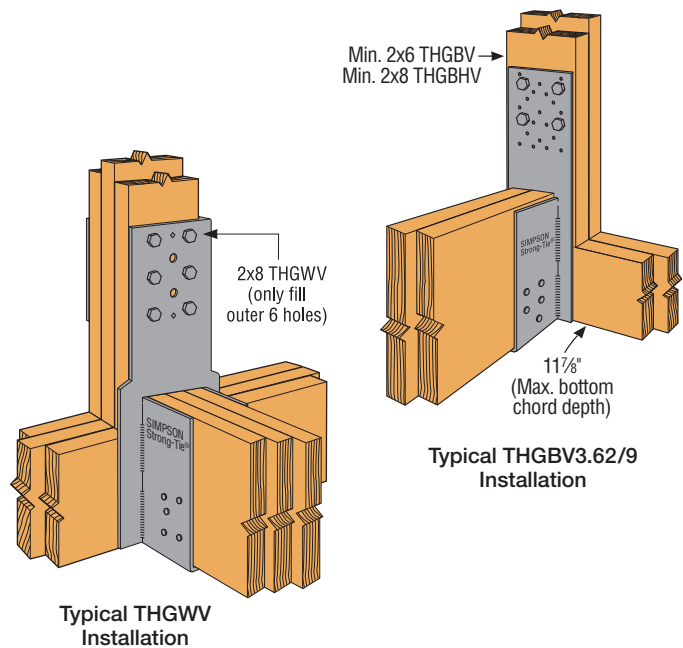
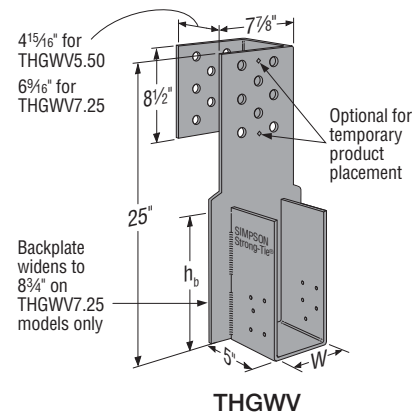
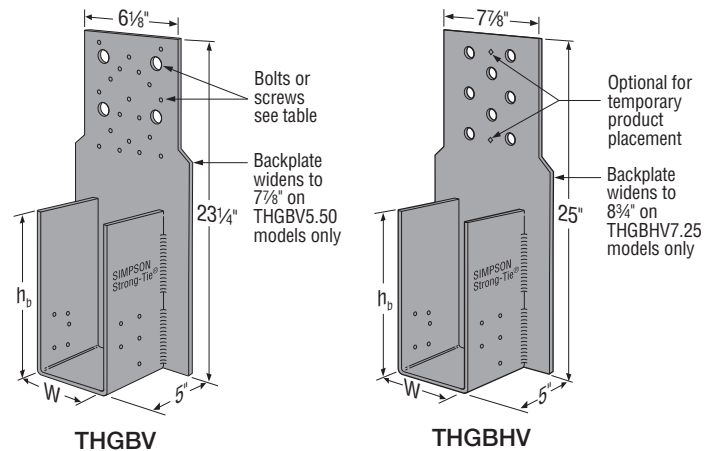
- Vertical web on supporting girder truss must be 2x8 (min.) for four-bolt and six-bolt applications and 2x12 for eight-bolt applications per 5.3.8.2 CSA O86-14
- Designer must ensure that vertical web member supporting hanger is capable of resisting applied loads based on net cross-sectional area
- 1/4" x 3" Strong-Drive SDS Heavy-Duty Connector screws must be attached to a minimum two-ply header (3")
- Maximum bottom chord depth on header shall be 11 7/8"

**Installation:**

- Use all specified fasteners; see General Notes.
- All multiple members must be fastened together to act as a single unit.

**Options:**

- THGBV/THGBHV backplates can be extended to allow for up to a 6" dropped bucket.
- Factored resistances are 100% of the table values.
- Order as "X" version, specify the total backplate height, BK\_PLT, equal to the hanger height (H) plus the dropped bucket amount (d<sub>b</sub>). Ex: a THGBV3.62/9 with a 4" dropped bucket would have a total backplate height of 27 1/4".



Joist Dimensions (in.)		Model No.	Hanger Dimensions (in.)	
Width	Depth		W	h <sub>b</sub>
3 1/2	9 1/4 – 14	THGBV3.62/9	3 5/8	9
		THGBHV3.62/9		
	11 1/4 – 20	THGBV3.62/11		11
		THGBHV3.62/11		
5 1/4	9 1/4 – 14	THGBV5.50/9	5 1/2	9
		THGBHV5.50/9		
		THGWV5.50/9		
	11 1/4 – 20	THGBV5.50/11		11
		THGBHV5.50/11		
		THGWV5.50/11		
7	9 1/4 – 14	THGBHV7.25/9	7 1/4	9
		THGWV7.25/9		
	11 1/4 – 20	THGBHV7.25/11		11
		THGWV7.25/11		



## THGBV/THGBHV/THGWV

## SCL-to-Truss Girder Hangers (cont.)

Model No.	Width (in.)	Fasteners		Minimum Header Thickness (in.)	Factored Resistance			
					D.Fir-L		S-P-F	
		Joist	Header		Uplift	Normal	Uplift	Normal
					(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
					lb.	lb.	lb.	lb.
kN	kN	kN	kN					
THGBV3.62/9 THGBV3.62/11	3%	(10) 10d	(4) ¾" MB	3	2945	8290	2590	6545
					13.10	36.88	11.52	29.11
				4½	2945	12435	2590	9815
					13.10	55.32	11.52	43.66
				6	2945	13615	2590	10750
					13.10	60.56	11.52	47.82
THGBHV3.62/9 THGBHV3.62/11	3%	(10) 10d	(8) ¾" MB	3	2945	12435	2590	9815
					13.10	55.32	11.52	43.66
				4½	2945	14385	2590	11355
					13.10	63.99	11.52	50.51
				6	2945	14385	2590	11355
					13.10	63.99	11.52	50.51
THGBV5.50/9 THGBV5.50/11	5½	(10) 10d	(4) ¾" MB	3	2945	8290	2590	6545
					13.10	36.88	11.52	29.11
				4½	2945	12435	2590	9815
					13.10	55.32	11.52	43.66
				6	2945	13615	2590	10750
					13.10	60.56	11.52	47.82
THGBHV5.50/9 THGBHV5.50/11	5½	(10) 10d	(8) ¾" MB	3	2945	12435	2590	9815
					13.10	55.32	11.52	43.66
				4½	2945	18390	2590	14520
					13.10	81.81	11.52	64.59
				6	2945	18605	2590	14690
					13.10	82.76	11.52	65.35
THGWV5.50/9 THGWV5.50/11	5½	(10) 10d	(6) ¾" MB	4½ <sup>2</sup>	2945	18650	2590	14725
					13.10	82.96	11.52	65.50
THGBHV7.25/9 THGBHV7.25/11	7¼	(10) 10d	(8) ¾" MB	3	2945	12435	2590	9815
					13.10	55.32	11.52	43.66
				4½	2945	18650	2590	14725
					13.10	82.96	11.52	65.50
				6	2945	21865	2590	17265
					13.10	97.26	11.52	76.80
THGWV7.25/9 THGWV7.25/11	7¼	(10) 10d	(6) ¾" MB	6 <sup>2</sup>	2945	24870	2590	19630
					13.10	110.63	11.52	87.32

1. Uplift resistances have been increased 15% for wind or earthquake loading with no further increase allowed.

2. THGWV is sized to fit the header thickness shown.

3. **Nails:** 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.

4. **Screws:** ¼" x 3" SDS = ¼" dia. x 3" long Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screw (SDS25300).

5. **Bolts:** ¾" MB = ¾" diameter ASTM A307 Grade A bolt.



# TSBR

## Truss Spacer-Restraint

The Simpson Strong-Tie® TSBR truss spacer-restraint is a time-saving lateral-restraint product for wood and CFS framing that improves quality and safety while helping to meet the prescriptive recommendations of BCSI Canada. Easier to install than wood bracing, the TSBR firmly grips the trusses, capturing on-centre spacing and keeping them vertical and plumb after placement, resulting in a better truss installation. The unique design eliminates additional time spent measuring truss spacing and laying out temporary lateral bracing. And once installed, the TSBR can remain in place to be sheathed over, thereby eliminating the need to remove temporary bracing and creating a safer, more stable work platform.

### Features:

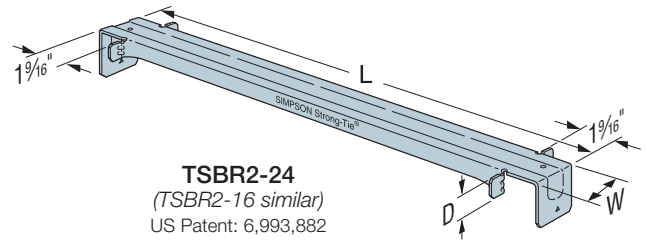
- Enables the quick and accurate spacing of trusses without measuring or adjusting
- Helps meet prescriptive temporary bracing recommendations of BCSI Canada
- Easily “grabs” onto the truss — may be put in place with one hand
- Stays in place during sheathing, saving time and making the roof more stable for workers
- Installs in less time and requires less total bracing material than prescriptive wood bracing methods — reducing labor costs
- The TSBR is a direct replacement for the TSB truss spacer bracer

**Material:** 22 gauge

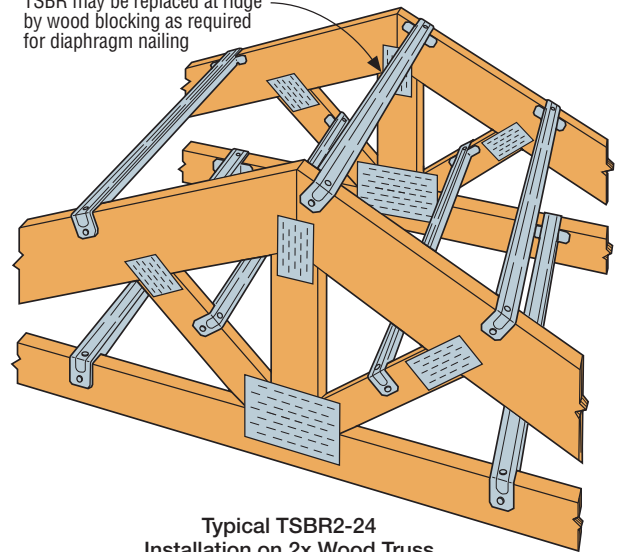
**Finish:** Galvanized

### Installation:

- Use all specified fasteners; see General Notes
- TSBR lateral restraint locations are as recommended in BCSI-B2C. For more information, see the Simpson Strong-Tie *Wood Truss Bracing and Restraint Guide* (F-TSBR2BD22) at [strongtie.com](http://strongtie.com)
- Fill all round and triangular holes



TSBR may be replaced at ridge by wood blocking as required for diaphragm nailing



**Typical TSBR2-24 Installation on 2x Wood Truss**

Model No.	Dimensions (in.)			Fasteners	Factored Resistance ( $K_D = 1.15$ )			
					D.Fir-L		S-P-F	
	L	W	D		Compression	Tension	Compression	Tension
					lb.	lb.	lb.	lb.
			kN	kN	kN	kN		
TSBR2-16	17½	1¼	1¼	(4) 10d x 1½"	885	740	630	525
					3.94	3.29	2.80	2.34
TSBR2-24	25½	1¼	1	(4) 10d x 1½"	685	625	485	445
					3.05	2.78	2.16	1.98

1. No load duration increase allowed.

2. Meets or exceeds the temporary lateral restraint recommendations of BCSI-08.

3. **Nails:** 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.



# VTCR

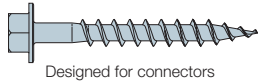
## Single-Sided Valley Truss Clip



This product is preferable to similar connectors because of  
a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

The VTCR is single-sided valley truss clip that provides a positive connection between the valley truss and the supporting framing below. Installed on top of the roof sheathing, it eliminates the need to add a support wedge under the valley truss or to bevel the bottom chord to match the roof pitch.

- Single-sided for new construction or retrofit applications — can be installed after the valley truss is set in place
- Accommodates pitches from 0/12 to 12/12
- Can be installed on either beveled or non-beveled bottom chords
- Installs with nails or Simpson Strong-Tie® Strong-Drive® SD Connector screws

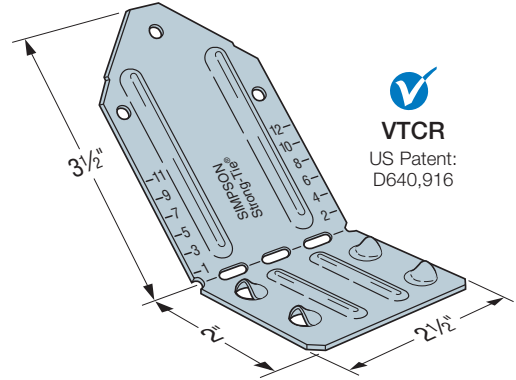


Designed for connectors

**Material:** 18 gauge **Finish:** Galvanized

**Installation:**

- The dome holes assist in installing the fasteners into the supporting framing at approximately 45°
- Install VTCR at all valley truss/common truss intersections
- VTCR must be installed directly over roof sheathing between 7/16" and 5/8" thick



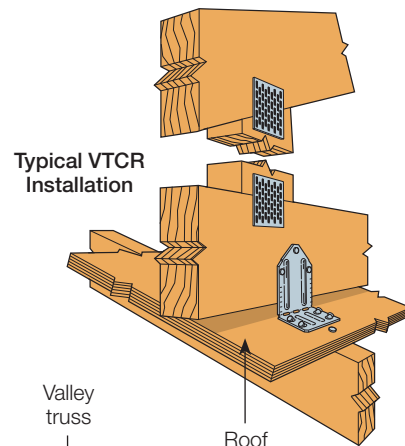
**VTCR**  
US Patent:  
D640,916

Plated Truss Connectors

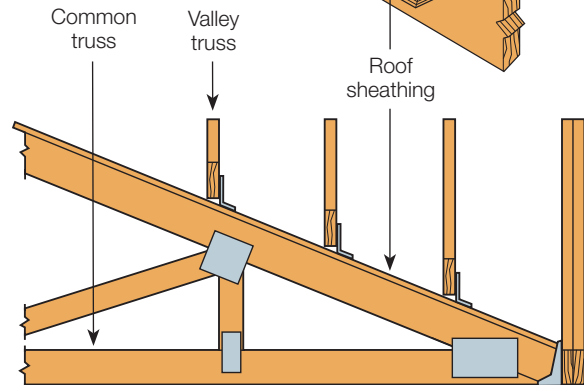
**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Fasteners		Factored Resistance			
			D.Fir-L		S-P-F	
			Uplift	Normal	Uplift	Normal
			(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
		lb.	lb.	lb.	lb.	
		kN	kN	kN	kN	
VTCR	(4) 10d	(3) 10d x 1 1/2"	220	595	160	595
			0.98	2.65	0.71	2.65
	(4) #9 x 2 1/2" SD	(3) #9 x 1 1/2" SD	575	595	405	595
			2.56	2.65	1.80	2.65

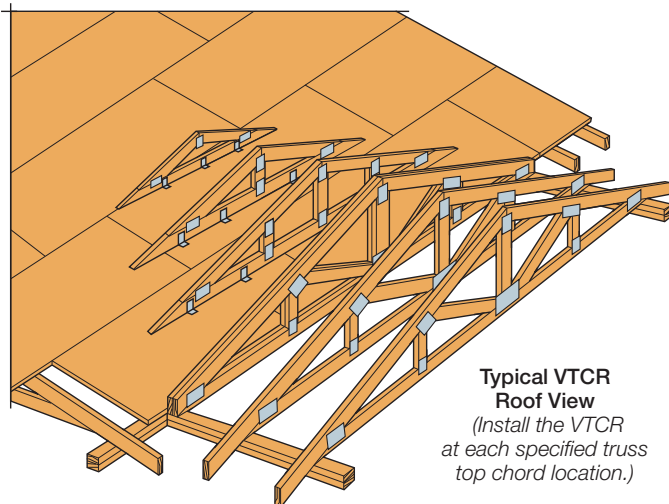
1. Factored uplift resistances have been increased 15% for wind loads. No further increase is permitted.
2. Factored normal resistance assume continuous bearing of the valley truss bottom chord along the roof sheathing. For applications where the supporting framing is less than 24" o/c, the tabulated normal resistances shall be linearly reduced.
3. **Nails:** 10d = 0.148" dia. x 3" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.
4. **Screws:** #9 x 1 1/2" SD = 0.131" dia. x 1 1/2" long (SD9112), #9 x 2 1/2" SD = 0.131" dia. x 2 1/2" long (SD9212).



Typical VTCR Installation



Typical VTCR Side View



Typical VTCR Roof View  
(Install the VTCR at each specified truss top chord location.)





## DSC

## Drag Strut Connector

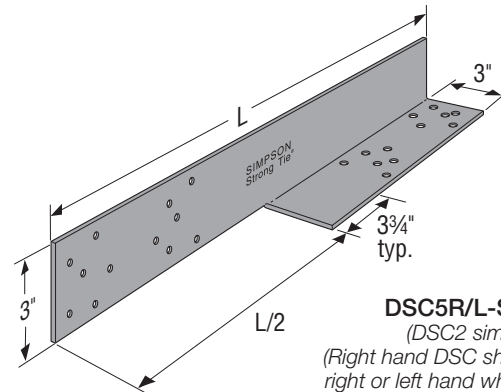
The DSC drag-strut connector transfers the diaphragm shear forces to the shearwalls. The DSC2 is a smaller, lighter version that installs with fewer screws.

**Material:** DSC2 — 8 gauge; DSC5 — 3 gauge

**Finish:** DSC2 — Galvanized;  
DSC5 — Simpson Strong-Tie® gray paint

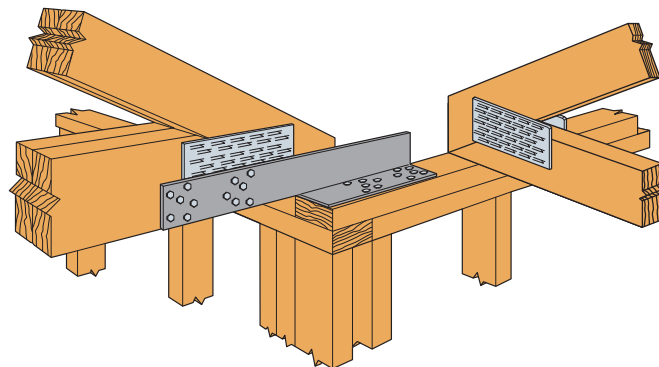
**Installation:**

- Use all specified fasteners; see General Notes
- Simpson Strong-Tie Strong-Drive® SDS Heavy-Duty Connector screws are provided
- Left-hand and right-hand versions available



Model No.	L (in.)	Fasteners	Factored Resistance ( $K_D = 1.15$ )			
			D.Fir-L		S-P-F	
			Compression	Tension	Compression	Tension
			lb.	lb.	lb.	lb.
			kN	kN		
DSC2R/L-SDS3	16	(20) 1/4" x 3" SDS	3545	5890	2750	4540
			15.77	26.20	12.23	20.20
DSC5R/L-SDS3	21	(24) 1/4" x 3" SDS	7620	7965	5485	6190
			33.89	35.43	24.40	27.54

1. Factored resistances have been increased 15% for earthquake and wind loading with no further increase allowed.
2. Lag screws will not generate the tabulated factored resistances.
3. Strong-Drive SDS Heavy-Duty Connector screws minimum penetration is 2 3/4", minimum end distance is 2 1/2" and minimum edge distance is 5/8" for full load values.
4. Installation of Strong-Drive SDS Heavy-Duty Connector through truss plates must be approved by the Truss Engineer. Pre-drilling is required.



Typical DSC5R-SDS3 Installation  
(DSC2 similar)



**GBC**

# Gable Brace Connector



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

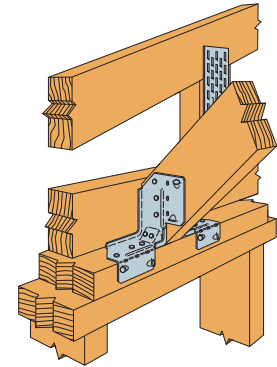
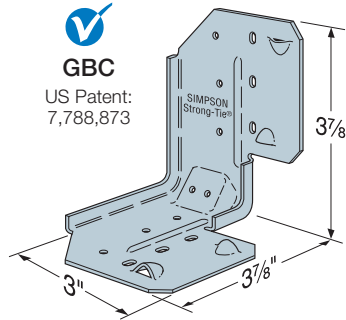
The GBC provides improved anchorage of gable bracing to the exterior wall. Installation flexibility for brace angle. GBC has tension and compression capacities.

**Material:** 16 gauge

**Finish:** Galvanized

**Installation:**

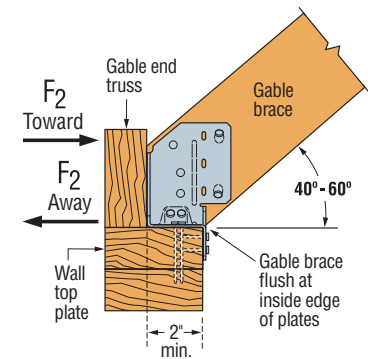
- Use all specified fasteners; see General Notes
- The GBC must be installed in pairs to achieve full load capacity



Typical GBC Installation

Plated Truss Connectors

Model No.	Qty. Reqd.	Fasteners per Connector		Perpendicular to Endwall (F <sub>2</sub> ) Factored Resistance (K <sub>D</sub> = 1.15)							
				D.Fir-L				S-P-F			
				Toward Anchors		Away from Anchors		Toward Anchors		Away from Anchors	
				Gable Brace Angle		Gable Brace Angle		Gable Brace Angle		Gable Brace Angle	
				40°-45°	46°-60°	40°-45°	46°-60°	40°-45°	46°-60°	40°-45°	46°-60°
GBC	2	(5) 8d x 1 1/2"	(7) 8d	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
				kN	kN	kN	kN	kN	kN	kN	kN
				945	830	695	610	665	580	490	425
				4.21	3.70	3.10	2.72	2.96	2.58	2.18	1.89

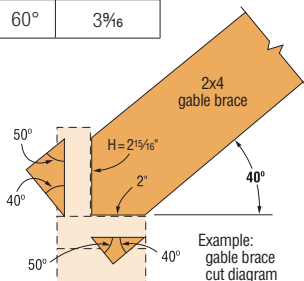


Typical Sloped Installation

1. For 1 1/4" x 3 1/2" (or larger) LVL gable brace, the factored resistance at 40° to 45° is 945 lb. (4.21 kN) towards the anchors and 970 lb. (4.32 kN) away from the anchors.
2. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other loads govern.
3. Use a minimum 2x4 gable brace.
4. **Nails:** 8d = 0.131" dia. x 2 1/2" long, 8d x 1 1/2" = 0.131" dia. x 1 1/2" long. See pp. 22-24 for other nail sizes and information.

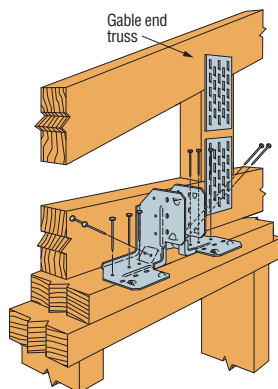
## GBC Installation Sequence

Slope	H Dimension
40°	2 1/16"
50°	3 1/16"
60°	3 9/16"



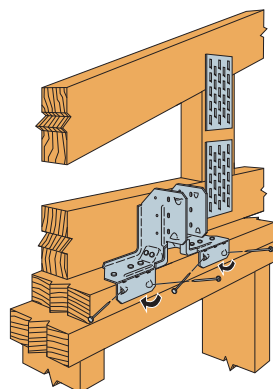
### Step 1

Double angle cut the gable brace to sit flat on the wall double top plate and flush against the gable end truss for 2x4 top plate. The double angle cuts should form a 90° angle on the end of the gable brace.



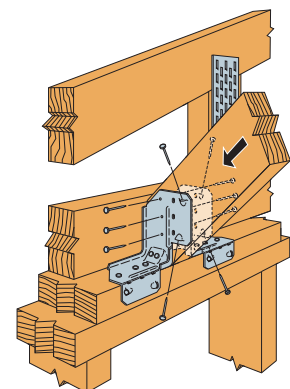
### Step 2

Set each GBC on top of the double top plate so that the bend line slots are flush with the inside edge of the double top plate. Install fasteners into the top of the double top plate.



### Step 3

Bend GBC legs (one time only) over the inside of the double top plate and install fasteners.



### Step 4

Install fasteners into the gable brace.

**Note:** Attach the other end of the gable brace to blocking at the roof diaphragm as directed by the designer.



# TSF

## Truss Spacer

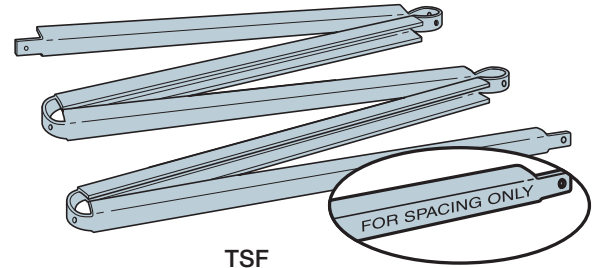
The TSF is a fast and accurate method for spacing trusses that eliminates layout marking of top plates and can be left in place under the sheathing. Accuracy is improved, spacing errors are minimized, and it is easy to use.

**Material:** 24 gauge

**Finish:** Galvanized

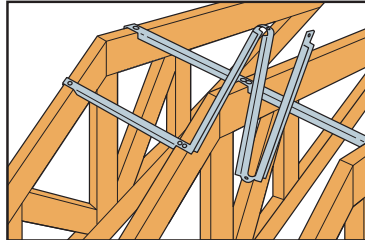
**Installation:**

- See installation sequence below.
- TSF Truss Spacers do not provide bracing of any kind and are not structural members. The TSF is for spacing only. Refer to instructions from architect, engineer, truss manufacturer or other for bracing and installation information.

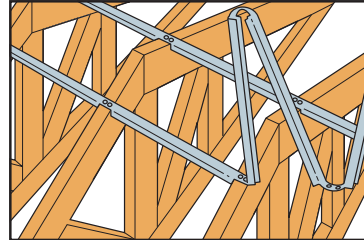


TSF

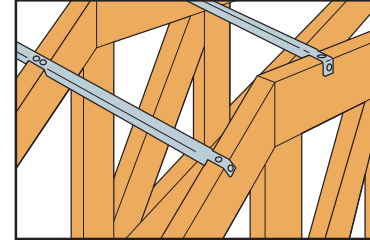
Model No.	Dimensions		
	W	O.C. Spacing	Total Length
TSF2-16	1½"	16"	8'
TSF2-24	1½"	24"	10'



**Step 1**  
Nail starting notch to first member.



**Step 2**  
As each successive member is positioned, unfold TSF to next notch. The notch teeth grip member and align it for nailing.



**Step 3**  
If spacer does not align with end truss, break spacer off at notch. Then, hammer spacer flat, fold it under and nail.



# CP Crush Plates

## Bearing Enhancers

The CP transfers load from the truss or girder to plates for bearing limited conditions. Replaces nail-on scabs or in some cases, an additional ply when needed for bearing.

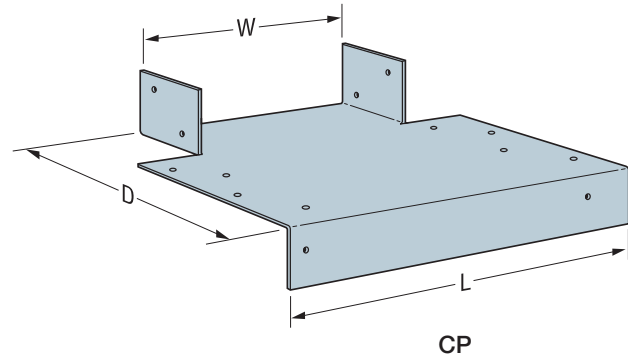
**Material:** See table    **Finish:** Galvanized

**Design:**

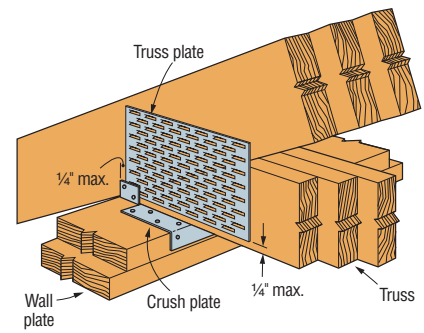
- Factored resistances are in accordance with CSA O86-14 assuming  $Q_r/A_b$  and  $Q_r'/A_b' = 812$  psi for D.Fir-L and 615 psi for S-P-F. See clauses 6.5.4 and 7.5.9 TPIC 2014 when compression loads are applied to both sides of truss chord members at bearing locations.

**Installation:**

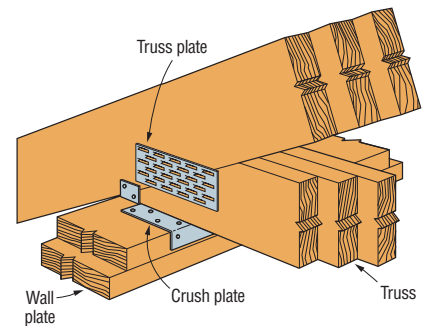
- Use all specified fasteners
- For Case 1, truss plates must be located a maximum of 1/4" from the underside of the truss chord and a maximum of 1/4" from the edge of the wall plates in accordance with the reinforcing requirements of 7.5.9 TPIC 2014



Model No.	Ga.	Wall Plate	Dimensions (in.)			Fasteners		Factored Resistance				
			W	D	L	Wall Plate	Truss	D.Fir-L		S-P-F		
								Uplift	Bearing	Uplift	Bearing	
								(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	
lb.	lb.	lb.	lb.	kN	kN	kN	kN					
<b>Case 1 (Truss Plate Reinforcement)</b>												
CP1-4	20	2x4	1½	3½	4½	(6) 10d	(4) 10d x 1½"	225	5965	225	4515	
								1.00	26.57	1.00	20.11	
CP2-4	16		3¼	3½	5¾	(6) 10d	(4) 10d x 1½"	225	11390	225	9030	
								1.00	53.14	1.00	40.22	
CP3-4	16	4¾	3½	7½	(6) 10d	(4) 10d x 1½"	225	17895	225	13545		
								1.00	79.71	1.00	60.33	
CP4-4	12	6½	3½	9½	(6) 10d	(4) 10d x 1½"	225	23860	225	18065		
								1.00	106.28	1.00	80.47	
CP1-6	20	2x6	1½	5½	4½	(10) 10d	(4) 10d x 1½"	225	9370	225	7095	
									1.00	41.47	1.00	31.60
CP2-6	16		3¼	5½	5¾	(10) 10d	(4) 10d x 1½"	225	18740	225	14190	
									1.00	83.47	1.00	63.21
CP3-6	16	4¾	5½	7½	(10) 10d	(4) 10d x 1½"	225	28110	225	21285		
								1.00	125.21	1.00	94.81	
CP4-6	12	6½	5½	9½	(10) 10d	(4) 10d x 1½"	225	37495	225	28390		
								1.00	167.02	1.00	126.46	
<b>Case 2 (No Reinforcement)</b>												
CP1-4	20	2x4	1½	3½	4½	(6) 10d	(4) 10d x 1½"	225	4685	225	3550	
									1.00	20.87	1.00	15.81
CP2-4	16		3¼	3½	5¾	(6) 10d	(4) 10d x 1½"	225	9370	225	7100	
									1.00	41.74	1.00	31.63
CP3-4	16	4¾	3½	7½	(6) 10d	(4) 10d x 1½"	225	14055	225	10650		
								1.00	62.61	1.00	47.44	
CP4-4	12	6½	3½	9½	(6) 10d	(4) 10d x 1½"	225	18750	225	14195		
								1.00	83.52	1.00	63.23	
CP1-6	20	2x6	1½	5½	4½	(10) 10d	(4) 10d x 1½"	225	7365	225	5575	
									1.00	32.81	1.00	24.83
CP2-6	16		3¼	5½	5¾	(10) 10d	(4) 10d x 1½"	225	14730	225	11150	
									1.00	65.61	1.00	49.67
CP3-6	16	4¾	5½	7½	(10) 10d	(4) 10d x 1½"	225	22095	225	16725		
								1.00	98.42	1.00	74.50	
CP4-6	12	6½	5½	9½	(10) 10d	(4) 10d x 1½"	225	29460	225	22305		
								1.00	131.22	1.00	99.35	



**Case 1**



**Case 2**

1. Factored bearing resistances assume wall plate and truss are the same species. For a mixed species system use S-P-F values.
2. **Nails:** 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22-24 for other nail sizes and information.



## TBE

## Truss Bearing Enhancer

One size works with any number of girder plies. The TBE transfers load from the truss or girder to plates for bearing-limited conditions, and provides exceptional uplift capacity. Replaces nail-on scabs that provide lower load transfer, or in some cases, an additional ply when needed for bearing.

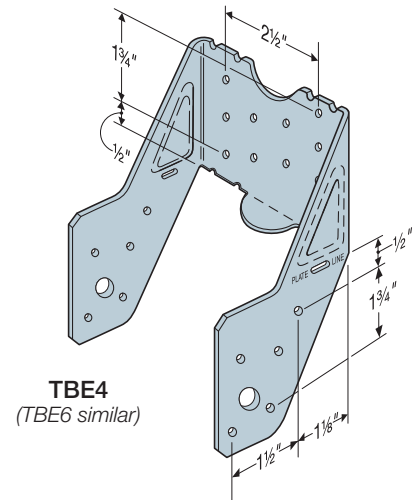
The table lists factored resistances for TBE4 used on 2x4 and TBE6 used on 2x6 top plates. The tables give the different resistances calculated for TBE with and without wood bearing. See below for Alternate Installation.

**Material:** 18 gauge

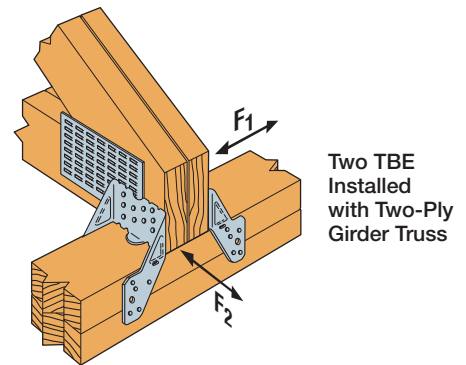
**Finish:** Galvanized. See Corrosion Information, pp. 16–21.

**Installation:**

- Use all specified fasteners; see General Notes.
- TBE must be installed in pairs.
- Top-plate size is 2x4 for TBE4, 2x6 for TBE6. Use alternate installation for TBE4 and TBE6 on larger plates or pre-sheathed walls.
- Do not use TBEs in end-grain-bearing applications.



**TBE4**  
(TBE6 similar)



Two TBE  
Installed  
with Two-Ply  
Girder Truss

## TBE Fastener Schedule

Model No.	Truss Plies	Fasteners per each TBE	
		Rafter	Plate
TBE4	1	(10) 10d x 1 1/2"	(10) 10d x 1 1/2"
	2 or more	(10) 10d	(10) 10d
TBE6	1	(10) 10d x 1 1/2"	(10) 10d x 1 1/2"
	2 or more	(10) 10d	(10) 10d

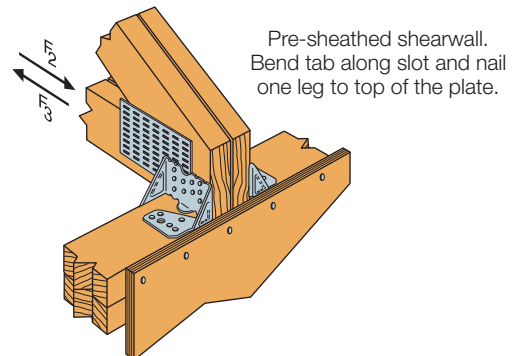
**Nails:** 10d = 0.148" dia. x 3" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.

## Alternate Installation

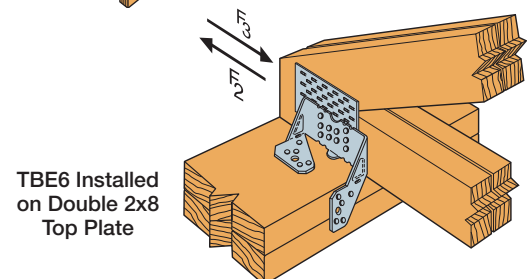
(See illustrations at right)

Model No.	Alternate Installation Factored Resistance							
	D.Fir-L ( $K_D = 1.15$ )				S-P-F ( $K_D = 1.15$ )			
	Uplift	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	Uplift	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>
	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
	kN	kN	kN	kN	kN	kN	kN	kN
TBE4	1605	490	1415	490	1280	370	1005	350
	7.14	2.18	6.29	2.18	5.69	1.65	4.47	1.56
TBE6	1760	490	1415	490	1280	370	1005	350
	7.83	2.18	6.29	2.18	5.69	1.65	4.47	1.56

1. Alternate Installation Factored Normal Resistances are 0.60 of the TBE only tabulated resistances on p. 262.
2. TBL values do not apply to Alternate Installation.
3. See table footnotes on p. 262.



Pre-sheathed shearwall.  
Bend tab along slot and nail  
one leg to top of the plate.



**TBE6 Installed  
on Double 2x8  
Top Plate**



## TBE

## Truss Bearing Enhancer (cont.)

Model No.	No. of Truss Plies	Fasteners		TBE Only Factored Resistance				Combined TBE and Wood Bearing Factored Resistance	
		Truss	Plate	Uplift ( $K_D = 1.15$ )	Normal ( $K_D = 1.00$ )	Lateral ( $K_D = 1.15$ )		Normal ( $K_D = 1.00$ )	TBL <sup>6</sup>
						F <sub>1</sub>	F <sub>2</sub>		
				lb.	lb.	lb.	lb.	lb.	
kN	kN	kN	kN	kN					
<b>D.Fir-L</b>									
TBE4	1	(20) 10d x 1½"	(20) 10d x 1½"	1605	3540	655	1415	7800	6.41
				7.14	15.75	2.91	6.29	34.70	
	2	(20) 10d	(20) 10d	1605	3660	655	1415	12180	5.00
				7.14	16.28	2.91	6.29	54.18	
	3	(20) 10d	(20) 10d	1605	3660	655	1415	16445	4.50
				7.14	16.28	2.91	6.29	73.15	
	4	(20) 10d	(20) 10d	1605	3660	655	1415	20705	4.25
				7.14	16.28	2.91	6.29	92.10	
TBE6	1	(20) 10d x 1½"	(20) 10d x 1½"	1760	3540	490	1745	10235	8.41
				7.83	15.75	2.18	7.76	45.53	
	2	(20) 10d	(20) 10d	1760	3860	490	1745	17250	7.09
				7.83	17.17	2.18	7.76	76.73	
	3	(20) 10d	(20) 10d	1760	3860	490	1745	23945	6.56
				7.83	17.17	2.18	7.76	106.52	
	4	(20) 10d	(20) 10d	1760	3860	490	1745	30640	6.29
				7.83	17.17	2.18	7.76	136.30	
<b>S-P-F</b>									
TBE4	1	(20) 10d x 1½"	(20) 10d x 1½"	1605	3220	615	1415	6445	6.99
				7.14	14.32	2.74	6.29	28.67	
	2	(20) 10d	(20) 10d	1605	3440	615	1415	9890	5.37
				7.14	15.30	2.74	6.29	43.99	
	3	(20) 10d	(20) 10d	1605	3440	615	1415	13120	4.74
				7.14	15.30	2.74	6.29	58.36	
	4	(20) 10d	(20) 10d	1605	3440	615	1415	16345	4.43
				7.14	15.30	2.74	6.29	72.71	
TBE6	1	(20) 10d x 1½"	(20) 10d x 1½"	1760	3220	490	1585	8290	8.99
				7.83	14.32	2.18	7.05	36.88	
	2	(20) 10d	(20) 10d	1760	3540	490	1585	13680	7.42
				7.83	15.75	2.18	7.05	60.85	
	3	(20) 10d	(20) 10d	1760	3540	490	1585	18750	6.78
				7.83	15.75	2.18	7.05	83.41	
	4	(20) 10d	(20) 10d	1760	3540	490	1585	23820	6.46
				7.83	15.75	2.18	7.05	105.96	

1. Factored resistances are for two TBEs only. Wood factored bearing resistance may be added as shown in the table.
2. Factored bearing resistances shown assume  $Q_r/A_b$  and  $Q_r'/A_b'$  = 812 psi (5.60 MPa) for D.Fir-L and 614 psi (4.24 MPa) for S-P-F. See clause 6.5.4 TPIC 2014 for required bearing reinforcement when compression loads are applied to both sides of truss member.
3. Factored uplift resistances have been increased 15% for short-term load duration with no further increase allowed; reduce resistances by 15% for standard term load duration.
4. Factored resistances are determined by nail shear calculations or tests of the metal connectors. The attached wood members must be designed to withstand the loads imposed by the nails.
5. Use lower of top plate or wood truss species.
6. Total bearing length, TBL, equals the plate width plus simulated bearing length provided by the TBE. TBE4 = 3½" plate width; TBE6 = 5½" plate width.
7. Nails: 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22-24 for other nail sizes and information.



## TC

## Truss Connector

The TC truss connector is an ideal connector for scissor trusses and can allow horizontal movement up to 1/4". The TC also attaches plated trusses to top plates or sill plates to resist uplift forces. Typically used on one or both ends of truss as determined by the designer.

**Material:** 16 gauge

**Finish:** Galvanized

**Installation:**

- Use all specified fasteners; see General Notes.
- Drive 10d nails into the truss at the inside end of the slotted holes (inside end is towards the centre of the truss and clinch on back side). Do not seat these nails into the truss — allow room under the nail head for movement of the truss with respect to the wall.
- After installation of roofing materials nails may be required to be fully seated into the truss. (As required by the designer or truss designer.)

**Optional TC Installation:**

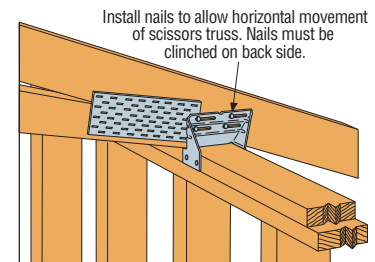
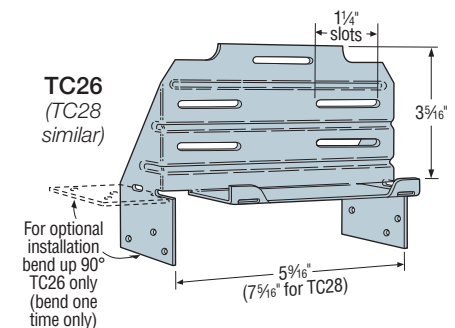
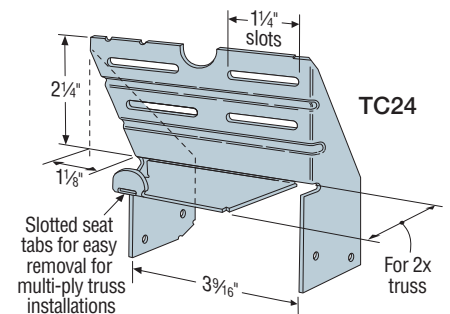
- Bend one flange up 90°. Drive specified nails into the top and face of the top plates or install **Titen Turbo™** screws into the top and face of masonry wall. See optional load tables and installation details.

Model No.	Fasteners		Factored Uplift Resistance (K <sub>D</sub> = 1.15)	
	Truss	Wall Plates	D.Fir-L	S-P-F
			lb.	lb.
TC24	(4) 10d	(4) 10d	605	430
			2.69	1.91
TC26	(5) 10d	(6) 10d	1015	720
			4.51	3.20
TC28	(5) 10d	(6) 10d	1015	720
			4.51	3.20

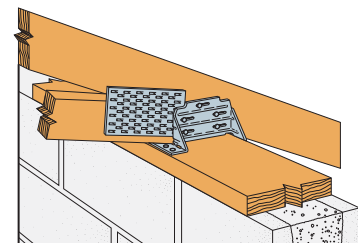
## Optional TC Installation

Model No.	Fasteners		Factored Uplift Resistance (K <sub>D</sub> = 1.15)	
	Truss	Wall Plates	D.Fir-L	S-P-F
			lb.	lb.
TC26	(5) 10d x 1 1/2"	(6) 10d x 1 1/2"	810	660
			3.60	2.94
	(5) 10d	(6) 10d	930	660
			4.14	2.94

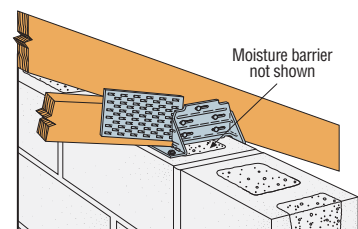
1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other loads govern.
2. Grout strength is 15 MPa minimum.
3. Nail values based on single 2x truss. 10d joist nails must be clinched.
4. Optional TC26 installation with 10d nails requires minimum 3" top plate thickness.
5. TC26 fastened to grouted concrete block with (6) 3/16" x 2 1/4" **Titen Turbo** screws has a factored uplift resistance of 275 lb. (1.22 kN).
6. **Nails:** 10d = 0.148" dia. x 3" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.



Typical TC24 Installation



Optional TC26 Installation for Grouted Concrete Block Using a Wood Nailer (8", 10", 12" wall installation similar)

Optional TC26 Installation for Grouted Concrete Block Using **Titen Turbo** Screws



# HTC

## Heavy Truss Clip

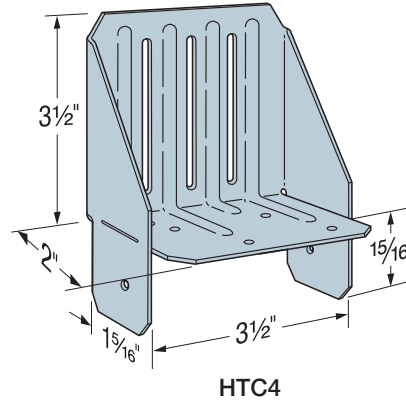
For alignment control between a roof truss and nonbearing walls; the 2½" slot permits vertical truss chord movement when loads are applied.

**Material:** 18 gauge

**Finish:** Galvanized

**Installation:**

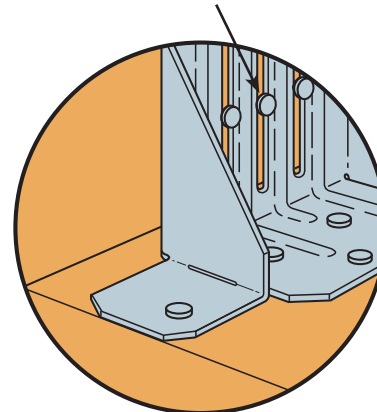
- Use all specified fasteners; see General Notes
- The HTC has a 2½" slot to accommodate truss movement
- This connector has high lateral capacity
- The S/HTC is available for steel truss applications



Plated Truss Connectors

Model No.	Dimensions Top Plate	Fasteners Base	Slot	Factored Resistance (K <sub>D</sub> = 1.15)			
				Without Gap <sup>2</sup>		With 1¼" Gap <sup>3</sup>	
				F <sub>1</sub>	F <sub>2</sub>	F <sub>1</sub>	F <sub>2</sub>
				lb.	lb.	lb.	lb.
				kN	kN	kN	kN
<b>D.Fir-L</b>							
HTC4	2x4 plate	(6) 10d	(3) 10d	735	445	145	470
				3.27	1.98	0.65	2.09
	2x6 plate	(6) 10d	(3) 10d	910	465	265	460
				4.05	2.07	1.18	2.05
<b>S-P-F</b>							
HTC4	2x4 plate	(6) 10d	(3) 10d	530	315	105	340
				2.36	1.40	0.47	1.51
	2x6 plate	(6) 10d	(3) 10d	650	330	190	330
				2.90	1.47	0.85	1.47

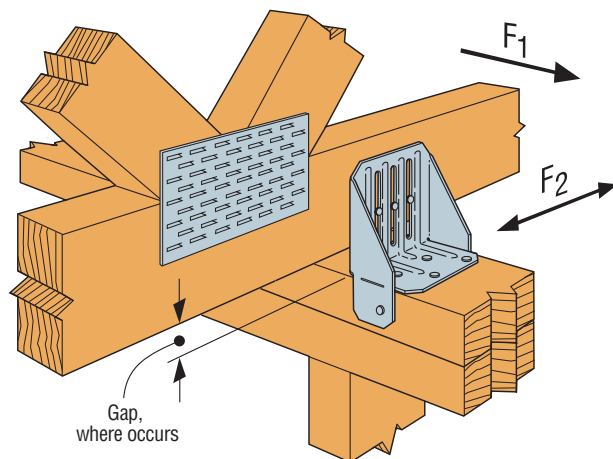
Nails should not be driven completely flush against the connector, to allow vertical truss movement.



Allow 1/16" gap between nail head and truss clip to help prevent squeaking.

**Typical HTC4 Installation on a 2x6 or Larger Plate**

1. Factored resistances have been increased 15% for wind or earthquake loading with no further increase allowed; reduce where other load durations govern.
2. Truss or rafter must be bearing on top plate to achieve factored resistances under "Without Gap."
3. Installed with maximum 1¼" space between rafter or truss and top plate, use values under "With 1¼" Gap." Where resistances are not required, space is not limited to 1¼".
4. **Nails:** 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.



**Typical HTC4 Installation on a 2x4 Plate**





## STC/STCT/DTC

## Roof Truss Clips

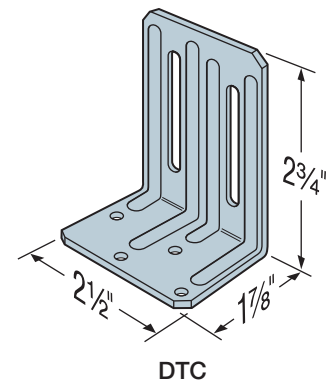
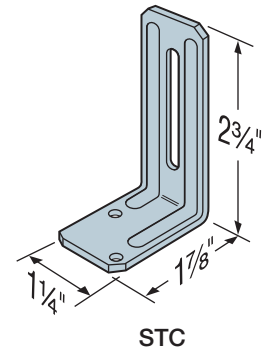
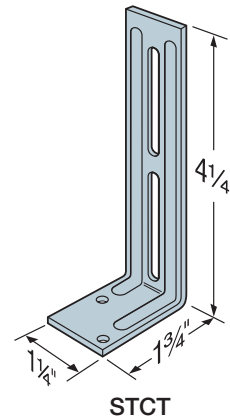
For alignment control between a roof truss and nonbearing walls; the 1½" slot permits vertical truss chord movement when loads are applied.

**Material:** 18 gauge

**Finish:** Galvanized

**Installation:**

- Use all specified fasteners; see General Notes.
- Use STC or DTC depending on required resistances. STC, installed with Drywall Stop (DS), helps prevent fasteners tearing through the ceiling sheetrock (see illustration).
- Use STCT where truss or rafter is separated from the top plate of the nonbearing wall.
- Install slot nails in the middle of the slot.
- Not intended for floor applications.

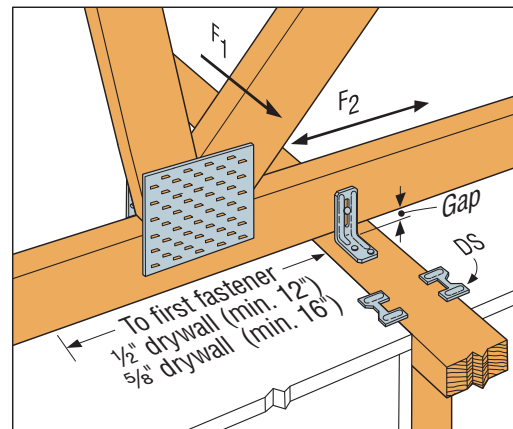


Model No.	Dimensions (in.)		Fasteners		Factored Resistance ( $K_D = 1.15$ )							
					D.Fir-L				S-P-F			
	Plate Base	Vertical Leg	Base	Slot	Without Gap <sup>2</sup>		¼" Max. Gap		Without Gap <sup>2</sup>		¼" Max. Gap	
					F <sub>1</sub>	F <sub>2</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>1</sub>	F <sub>2</sub>
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	
kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	
STC	1¼ x 1⅞	1¼ x 2¾	(2) 8d	(1) 8d	155	85	70	60	110	60	50	45
					0.69	0.38	0.31	0.27	0.49	0.27	0.22	0.20
STCT	1¼ x 1¾	1¼ x 4¼	(2) 8d	(1) 8d	—	—	—	—	—	—	—	—
					—	—	—	—	—	—	—	—
DTC	2½ x 1⅞	2½ x 2¾	(4) 8d	(2) 8d	240	395	155	250	170	280	110	175
					1.07	1.76	0.69	1.11	0.76	1.25	0.49	0.78

1. Factored resistances may not be increased for short-term loading.
2. Truss or rafter must be bearing on top plate to achieve the factored resistances under "Without Gap."
3. Installed with maximum ¼" space between rafter or truss and top plate under "With ¼ Gap." Where resistances are not required, space is not limited to ¼".
4. **Nails:** 8d = 0.131" dia. x 2½" long. See pp. 22–24 for other nail sizes and information.

Nails should not be driven completely flush against the connector, to allow vertical truss movement.

Allow ⅛" gap between nail head and truss clip to help prevent squeaking.



Typical STC Installation with DS  
(see p. 338 for Drywall Stop)



# CHC

## Component Hoist Clip

The CHC component hoist clip provides a tested, load-rated solution for the safe lifting and placement of assembled wood components. The CHC is load-rated with Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws for easy installation and removal, and superior shear and withdrawal strength during lifting.

**Features:**

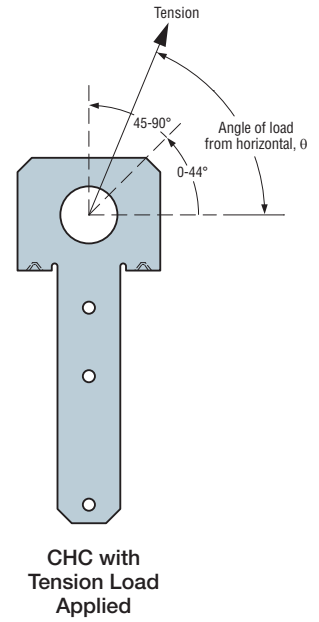
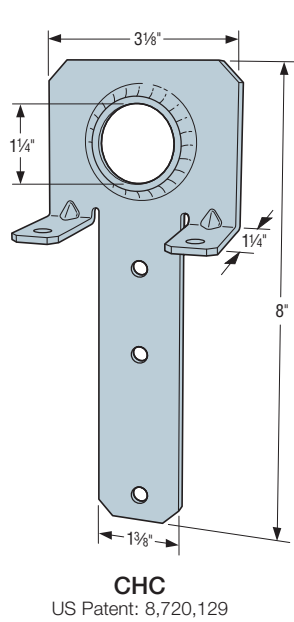
- Attaches easily to wood members using Strong-Drive SDS Heavy-Duty Connector screws (sold separately)
- May be used alone or in pairs for increased load
- Tested in multiple load directions for versatility

**Material:** 12 gauge

**Finish:** Galvanized

**Installation:**

- Use all specified fasteners; see General Notes
- Fasteners require full penetration into the framing members
- Use one time only
- Lifting devices should be connected to the CHC with a closed-loop attachment of sufficient strength to carry the factored resistance



Plated Truss Connectors

## Single Part Safe Working Loads

Model No.	Fasteners <sup>4</sup>		Angle from Horizontal, $\theta$	D.Fir-L/ S-P-F
	Top	Face		
CHC	(2) 1/4" x 3" SDS	(3) 1/4" x 3" SDS	0-44	610
			45-90	975

1. Safe working loads are based on the lowest ultimate test load of three test specimens, or the average of six specimens, divided by five.
2. No load duration increase allowed.
3. Safe working loads are based on installation over sheathing on stud walls with double 2x top plates and max. 5/8" sheathing.
4. Fasteners require full penetration into the framing members.
5. All lifting devices and spreader bars that are used in conjunction with the CHC shall be of sufficient strength to carry the required load. Spreader bars must also have sufficient rigidity to resist bending of the lifted component.

## Safe Working Loads for Two Parts

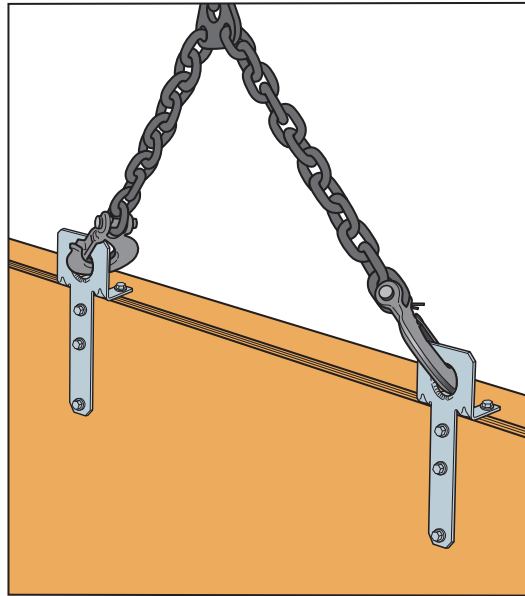
Model No.	Type of Connection	Angle from Horizontal, $\theta$	Line Angle, $\alpha$	D.Fir-L/ S-P-F
CHC	1	30	120	610
		45	90	1380
		60	60	1690
	2	90	—	1950

See footnotes above.

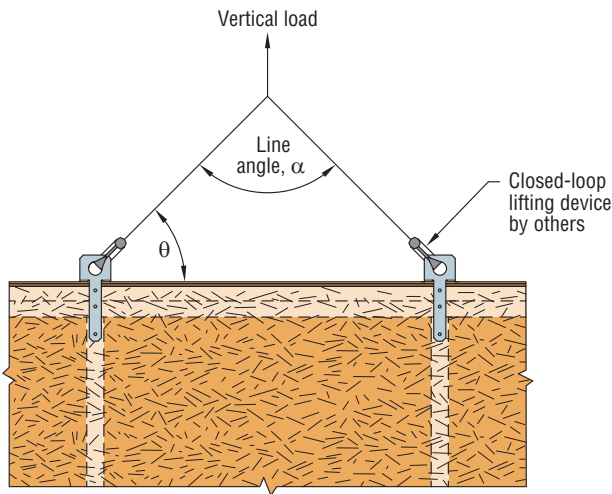


# CHC

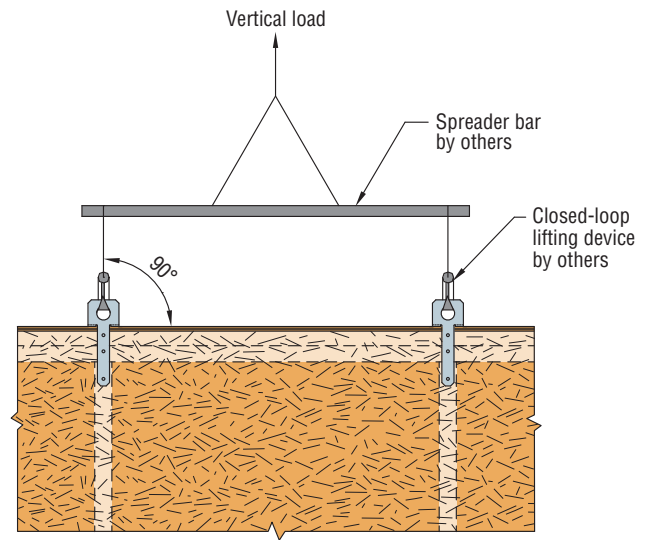
## Component Hoist Clip (cont.)



Typical CHC Installation Using Two Parts



**1** Typical CHC Installation with Angular Loading



**2** Typical CHC Installation with Spreader Bar



# MJC

## Multiple Joist Connector

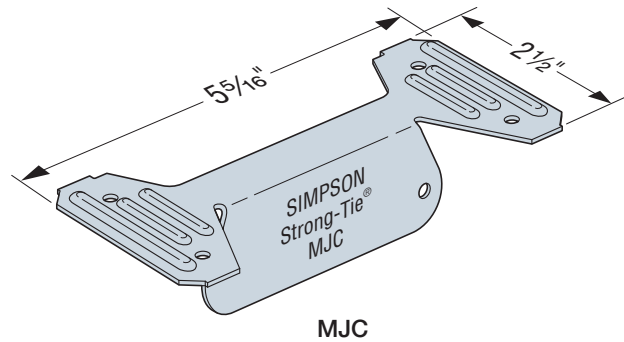
The MJC provides a tested, cost effective solution, for transferring load between plies of metal plate connected wood floor trusses or TRIFORCE® joists.

**Material:** 16 gauge

**Finish:** Galvanized

**Installation:**

- Use all specified fasteners; see General Notes.
- Locate MJC symmetrically about the point load.
- Attach MJC to the top chord of the loaded ply and bottom chord of the unloaded ply (see detail).



### Maximum Transferred Factored Load

Model No.	Fasteners/MJC	Number of MJC	Factored Resistance
			lb.
MJC	(6) 10d x 1½"	4	kN
			1755
		6	7.81
			2635
			11.72

1. Factored resistances shown are for standard term load duration ( $K_D = 1.00$ ). Reduce per 5.3.2 CSA O86-14 where long-term load duration governs. Do not increase for short-term load duration.
2. Factored resistances shown are the maximum factored loads that can be transferred from the loaded ply to the second ply. See additional table for load transfer rates between plies.
3. MJC connectors must be located symmetrically about the point load (see installation details).
4. **Nails:** 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.

### Load Transfer Rate Between Plies

Model No.	Double Joist Length (ft.)	Distance from End of Joist to Point Load (x) (in.)	Load Transfer Rate (%)
<b>TRIFORCE® Joists</b>			
MJC	6' ≤ L < 10'	x ≥ 36"	25
		36" ≤ x < 84"	40
	L ≥ 10'	x ≥ 84"	45
<b>Metal Plate Connected Wood Floor Trusses</b>			
MJC	7' ≤ L < 14'	x ≥ 42"	35
	L ≥ 14'	x ≥ 42"	45

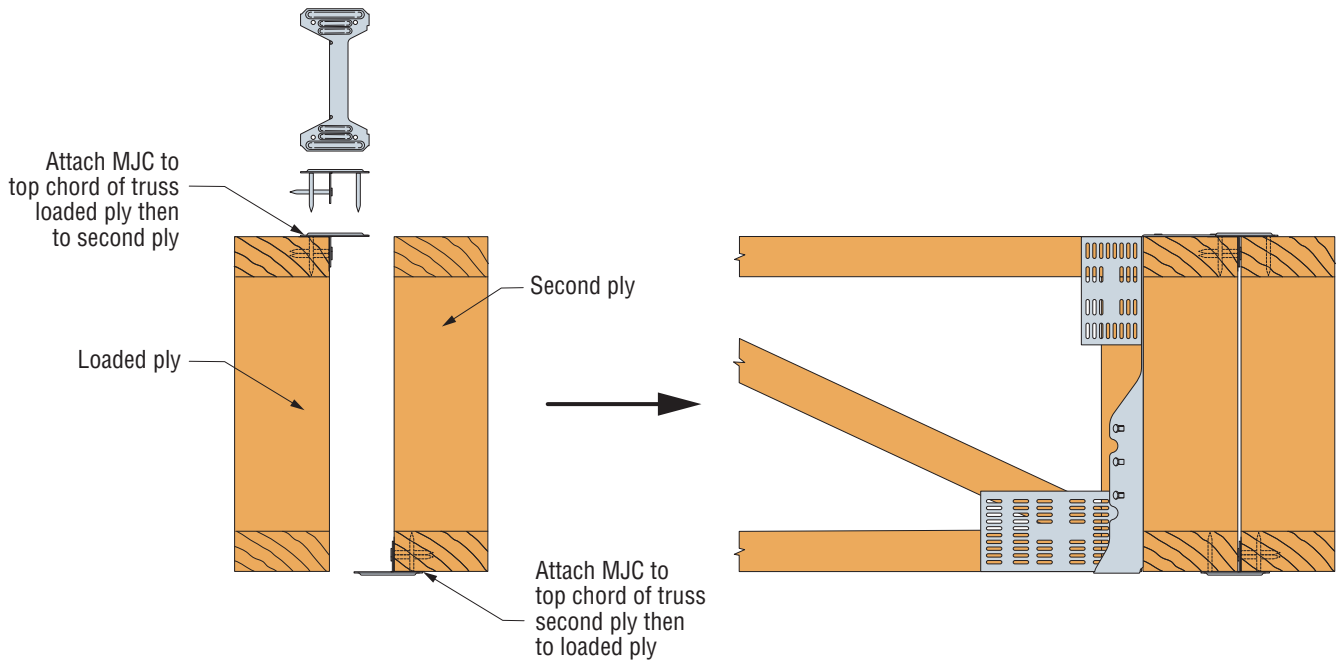
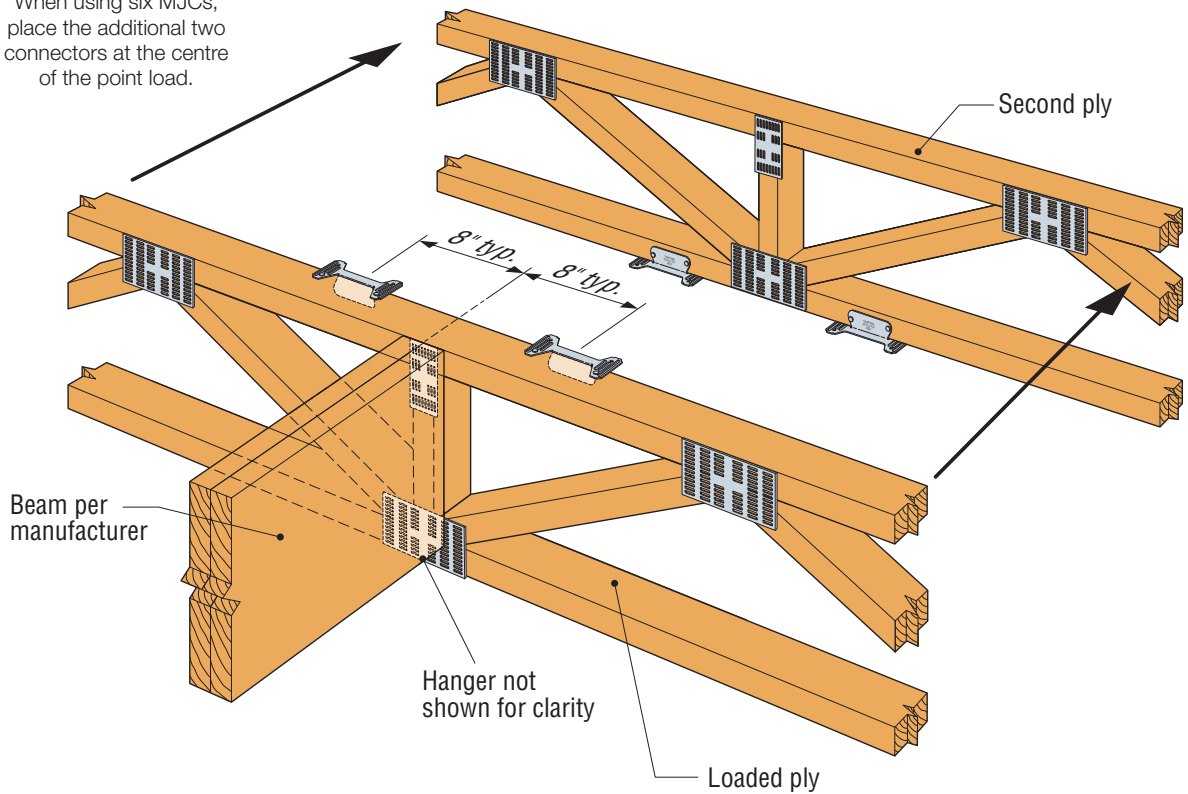
1. Load transfer rates shown are applicable to double joists used as a header or trimmer that have a minimum overall length as indicated.
2. The distance from the end of the joist to the point load (x) is applicable to either end of the joist.
3. The loaded ply must be designed to accommodate a load transfer rate less than 50%, as tabulated above.
4. TRIFORCE® is a registered trademark of Barrette Structural Distribution Inc.



# MJC

## Multiple Joist Connector (cont.)

When using six MJCs, place the additional two connectors at the centre of the point load.



Typical MJC Installation Sequence (Side view)

# Upgrade your coiled strap.



## Introducing our innovative CSHP coiled strap.

Our patent-pending high-performance CSHP coiled strap features an embossment that makes it easy to install with a standard pneumatic framing nailer. This new tested feature provides improved performance — resulting in fewer nails, shorter straps and an overall lower installed cost.

Upgrade your coiled strap, visit [go.strongtie.com/cshp](http://go.strongtie.com/cshp) or call (800) 999-5099.

**SIMPSON**  
**Strong-Tie**



# Continuous Load Path

This drawing shows the connection points for a continuous load path from the rafters to the foundation of a two-story house.

Building with a continuous load path is an essential part of creating a structure better able to withstand the forces of mother nature.

This drawing is for illustrative purposes only and should not be considered an engineered system. Refer to the page numbers for the full range of Simpson Strong-Tie® connectors. Consult a qualified designer to ensure that correct connector quantities and installation methods are used to achieve the full design load values.



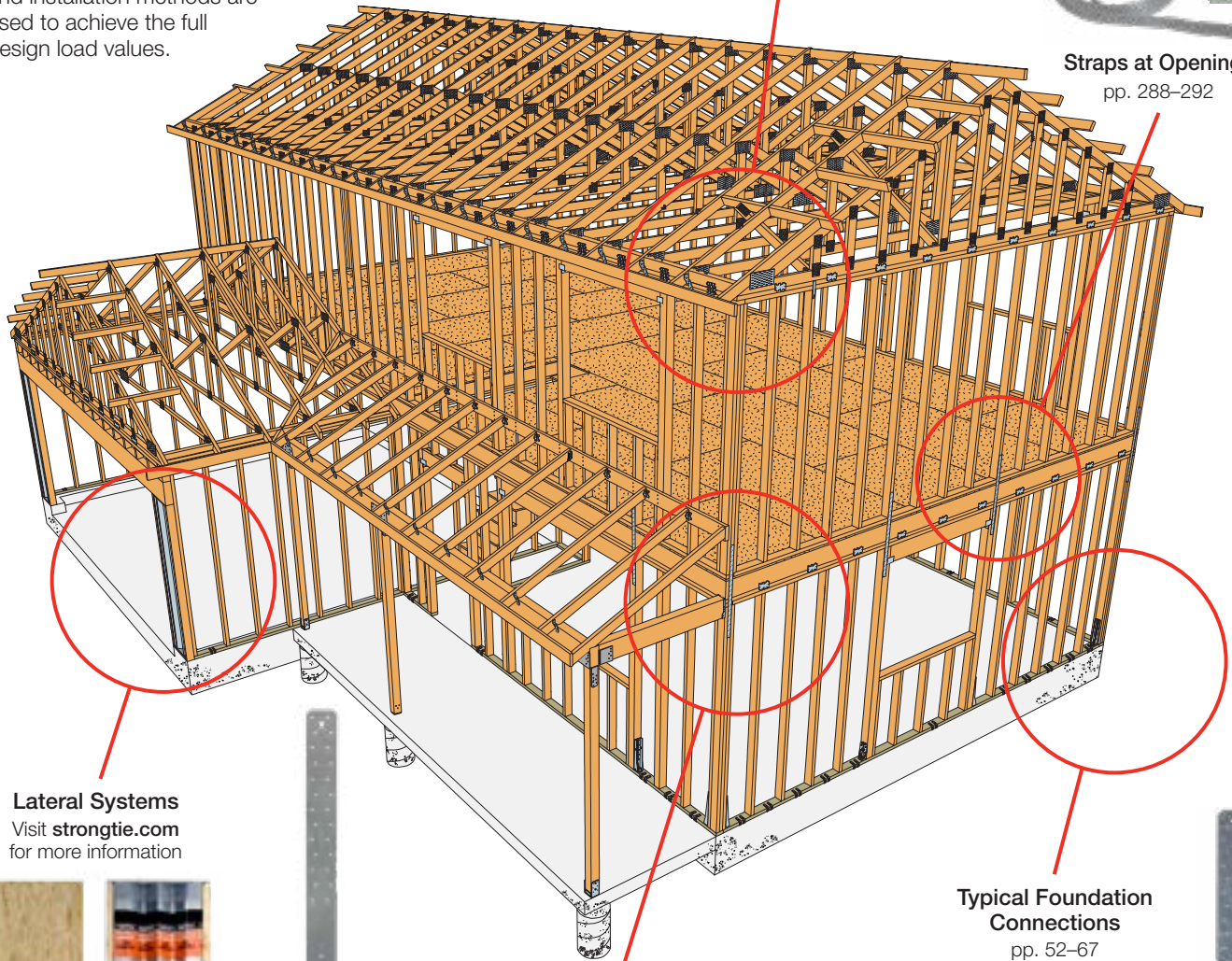
**Typical Roof/Wall Connections**

pp. 274–277, 281–282



**Straps at Openings**

pp. 288–292



**Lateral Systems**

Visit [strongtie.com](http://strongtie.com) for more information



**Typical Floor-to-Floor Connections**

pp. 55–67, 288–292 and 295–296



**Typical Foundation Connections**

pp. 52–67





# Straps and Ties General Notes

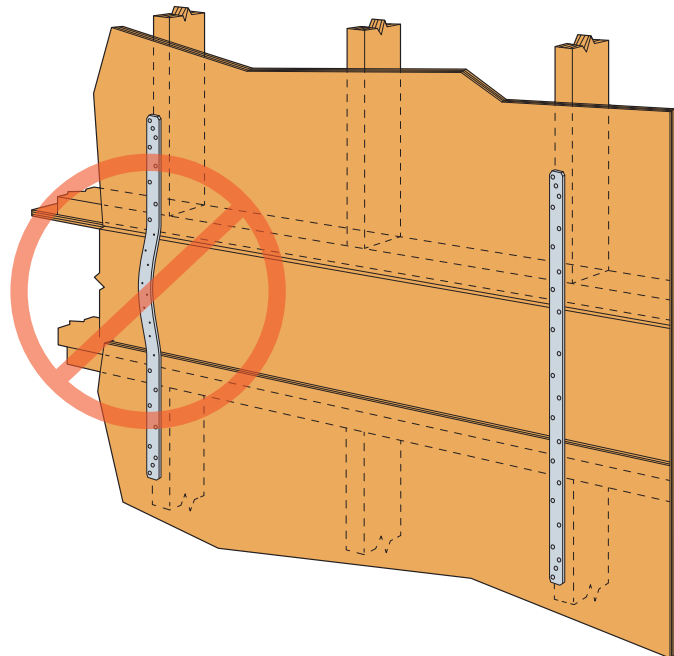
These general notes are provided to ensure proper installation of Simpson Strong-Tie straps and ties.

- Short-term load duration values ( $K_D = 1.15$ ) have been increased 15% for wind or earthquake loading, with no further increase allowed. Reduce where other loads govern.
- When installing straps over wood structural panel sheathing (**maximum 5/8" thick**), use 2 1/2" long nails.
- See pp. 22–24 for additional fastener information.
- For straight straps in tension, use half of the fasteners in each member being connected to achieve the tabulated values.
- Tension values apply for uplift when installed vertically.
- Field-bending straps is not recommended unless otherwise noted.
- If wood splitting is a concern, consider spacing the nails at every other location.
- The cut length of coil strap shall be equal to twice the "end length" noted in the tables plus the clear-span dimension.
- Straps 16 ga. and heavier can be fillet welded to structural steel members. The designer shall specify the weld size and length. Welding and specifications shall be in accordance with CSA W59.

## Resistance Adjustment Factors for Optional Fasteners Used with Straight Straps

Specified Fastener	Replacement Fastener	Factor
8d x 1 1/2" (0.131" x 1 1/2")	#9 x 1 1/2" SD Connector screw	1.00
8d common (0.131" x 2 1/2")	8d spiral (0.110" x 2 1/2")	0.75
	8d x 1 1/2" (0.131" x 1 1/2")	0.98
	#9 x 1 1/2" SD Connector screw	1.00
10d x 1 1/2" (0.148" x 1 1/2")	8d x 1 1/2" (0.131" x 1 1/2")	0.89 <sup>5</sup>
	#9 x 1 1/2" SD Connector screw	1.00
10d common (0.148" x 3")	8d spiral (0.110" x 2 1/2")	0.64 <sup>6</sup>
	8d x 1 1/2" (0.131" x 1 1/2")	0.78
	8d common (0.131" x 2 1/2")	0.80
	10d spiral (0.121" x 3")	0.74
	10d x 1 1/2" (0.148" x 1 1/2")	0.92
	10d x 2 1/2" (0.148" x 2 1/2")	1.00
	#9 x 1 1/2" SD Connector screw	1.00
	#9 x 2 1/2" SD Connector screw	1.00

- Resistance adjustment factors shown in this table are applicable to all straight straps throughout this catalogue, except as noted in the footnotes below.
- Some products have been tested specifically with alternative fasteners and have factored resistances published on the specific product page. Values published on the product page shall be used in lieu of the values shown above.
- For straps installed over 5/8" maximum wood structural panel sheathing, use a 2 1/2" long fastener minimum.
- This table does not apply to straps made of steel 10 gauge or thicker.
- For 10d x 1 1/2" to 8d x 1 1/2" nails with 12 ga. straps, use 0.80.
- For 10d common to 8d spiral nails with 12 ga. straps, use 0.60.
- SD Connector screws are Simpson Strong-Tie Strong-Drive® SD Connector screws. See pp. 382–386 for additional fastener information.



When installing floor-to-floor straps, wood shrinkage and compression that occurs during construction may cause the straps to bow out if both ends of the strap are nailed during initial installation.

To prevent this, filling all fastener holes in the strap (including the rim joist area) will limit the bowing. Alternatively, fill the holes in the top of the strap before the roof is installed and then filling the bottom half of the strap after will also help reduce bowing.





# Straps and Ties General Notes

## Considerations for Hurricane Tie Selection

1. What is the uplift resistance?
2. What is the parallel-to-plate resistance?
3. What is the perpendicular-to-plate resistance?
4. What is the species of wood used for the rafter and the top plates?  
(Select the load table based on the lowest performing species of wood.)
5. Will the hurricane tie be nailed into both top plates or the upper top plate only?
6. What load or loads will the hurricane tie be taking?

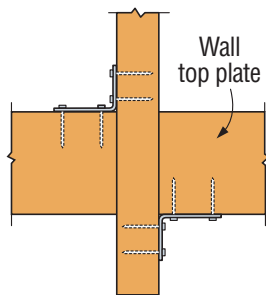
Factored resistances for more than one direction for a single connection cannot be added together. A design load which can be divided into components in the directions given must be evaluated as follows:

$$\text{Factored Uplift} / \text{Uplift Resistance} + \text{Factored Parallel to Plate} / \text{Parallel to Plate Resistance} + \text{Factored Perpendicular to Plate} / \text{Perpendicular to Plate Resistance} < 1.0.$$

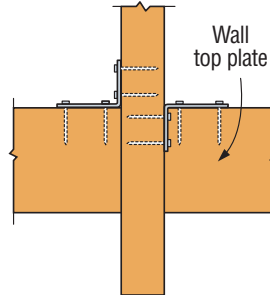
The three terms in the unity equation are due to possible directions that exist to generate force on a hurricane tie. The actual number of terms used in the equation for each condition is dependent on designer's method of calculating wind forces and the utilization of the tie in the structural system.

7. Select hurricane tie based on performance, application, installed cost and ease of installation.

Some hurricane ties **and twist straps** can be installed in pairs to achieve a higher resistance. Both connectors shall be the same model. Refer to the *High Wind Guide, F-C-HWG*, at [strongtie.com](http://strongtie.com).

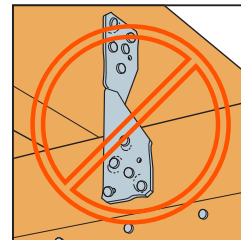


Install diagonally across from each other for minimum 2x truss.

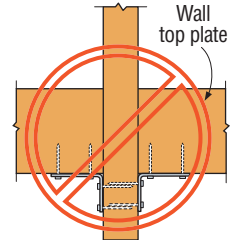


Products can be on the same side of the wall provided they are configured as shown.

### Avoid a Misinstallation



Do not make new holes or overdrive nails.



Nailing into both sides of a single 2x truss may cause the wood to split.



# H/TSP

## Seismic and Hurricane Ties

Simpson Strong-Tie® hurricane ties provide a positive connection between truss/rafter and the wall of the structure to resist wind and seismic forces.

**Material:** See table

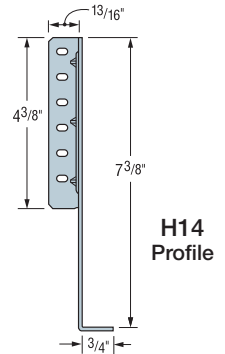
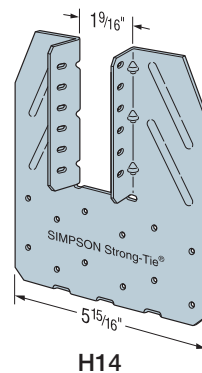
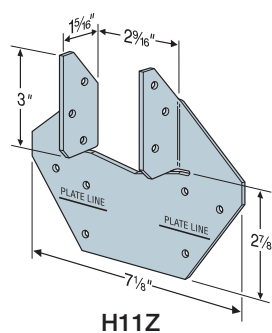
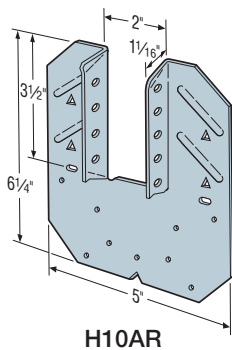
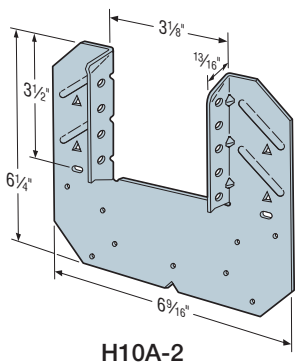
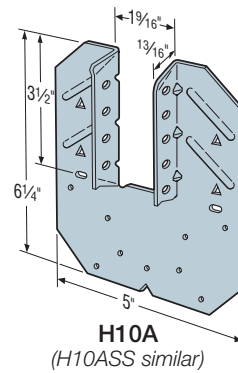
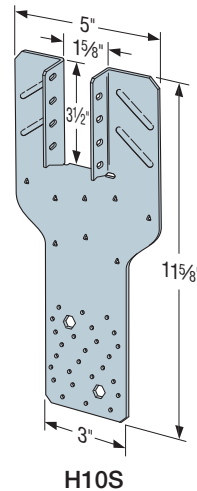
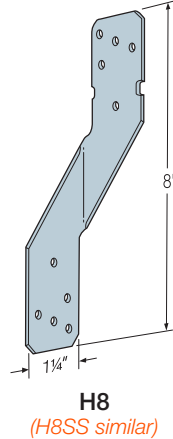
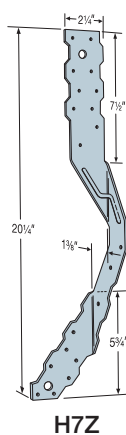
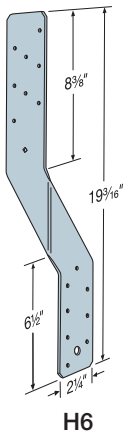
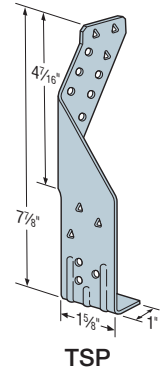
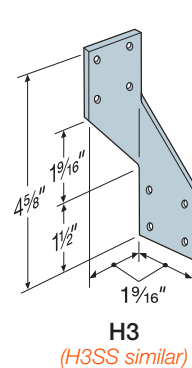
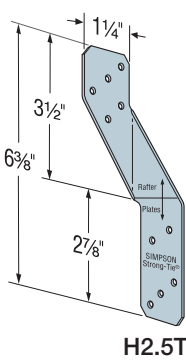
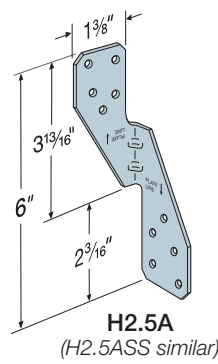
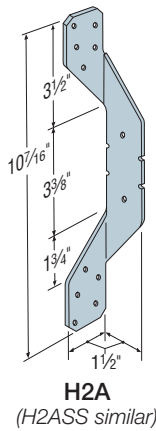
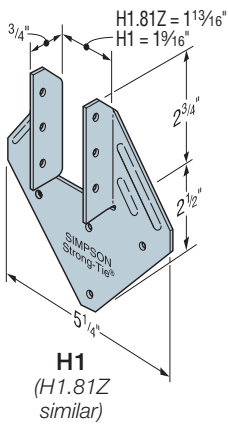
**Finish:** Galvanized. H1.81Z, H7Z and H11Z — ZMAX® coating. Some models available in stainless steel or ZMAX; see Corrosion Information, pp. 16–21 or visit [strongtie.com](http://strongtie.com).

**Installation:**

- Use all specified fasteners; see General Notes.
- Hurricane ties can be installed with flanges facing inward or outward.

- H2.5T, H3 and H6 ties are shipped in equal quantities of right and left versions (right versions shown).
- Hurricane ties do not replace solid blocking.
- When installing ties on plated trusses (on the side opposite the truss plate) do not fasten through the truss plate from behind. This can force the truss plate off of the truss and compromise truss performance.
- H10A optional nailing to connect shear blocking, use 8d nails. Slots allow maximum field bending up to a pitch of 6:12, use H10A sloped loads for field bent installation.

Straps and Ties





## H/TSP

## Seismic and Hurricane Ties (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

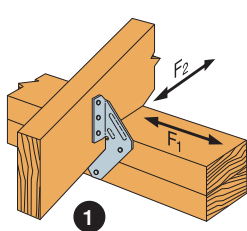
Model No.	Ga.	Fasteners			Factored Resistance ( $K_D = 1.15$ )					
					D.Fir-L			S-P-F		
		To Rafters/ Truss	To Plates	To Studs	Uplift	Lateral		Uplift	Lateral	
						F <sub>1</sub>	F <sub>2</sub>		F <sub>1</sub>	F <sub>2</sub>
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.		
kN	kN	kN	kN	kN	kN	kN	kN	kN		
H1	18	(6) 8d x 1½"	(4) 8d	—	740	685	300	680	485	215
					3.29	3.05	1.33	3.02	2.16	0.96
H1.81Z	18	(6) 8d x 1½"	(4) 8d	—	740	685	300	680	485	215
					3.29	3.05	1.33	3.02	2.16	0.96
SS H2A	18	(5) 8d x 1½"	(2) 8d x 1½"	(5) 8d x 1½"	830	220	75	590	155	55
					3.69	0.98	0.33	2.62	0.69	0.24
SS H2.5A	18	(5) 8d	(5) 8d	—	805	160	160	755	160	160
					3.58	0.71	0.71	3.36	0.71	0.71
		(5) #9 x 1½" SD	(5) #9 x 1½" SD	—	1025	750	185	835	540	130
					4.56	3.34	0.82	3.71	2.40	0.58
H2.5T	18	(5) 8d	(5) 8d	—	835	175	210	740	160	210
					3.71	0.78	0.93	3.29	0.71	0.93
SS H3	18	(4) 8d	(4) 8d	—	740	180	265	615	125	190
					3.29	0.80	1.18	2.74	0.56	0.85
H6	16	—	(8) 8d	(8) 8d	1585	1085	—	1125	770	—
					7.05	4.83	—	5.00	3.43	—
H7Z	16	(4) 8d	(2) 8d	(8) 8d	1390	670	—	990	475	—
					6.18	2.98	—	4.40	2.11	—
SS H8 <sup>9</sup>	18	(5) 10d x 1½"	(5) 10d x 1½"	—	1120	—	—	1025	—	—
					4.98	—	—	4.56	—	—
SS H10A <sup>9</sup>	18	(9) 10d x 1½"	(9) 10d x 1½"	—	1735	795	410	1505	565	290
					7.72	3.54	1.82	6.69	2.51	1.29
H10AR	18	(9) 10d x 1½"	(9) 10d x 1½"	—	1485	690	430	1220	570	305
					6.61	3.07	1.91	5.43	2.54	1.36
H10A-2	18	(9) 10d x 1½"	(9) 10d x 1½"	—	1835	1275	430	1645	880	305
					8.16	5.67	1.91	7.32	3.91	1.36
H10S <sup>7,8</sup>	18	(8) 8d x 1½"	(8) 8d x 1½"	(8) 8d	1465	795	315	1040	565	225
					6.52	3.54	1.40	4.63	2.51	1.00
H11Z	18	(6) 16d x 2½"	(6) 16d x 2½"	—	1095	920	545	780	655	390
					4.87	4.09	2.42	3.47	2.91	1.73
H14	18	1 (12) 8d x 1½"	(13) 8d	—	2390	855	320	1805	610	230
					10.63	3.80	1.42	8.03	2.71	1.02
		2 (12) 8d x 1½"	(15) 8d	—	2390	855	320	1805	610	230
					10.63	3.80	1.42	8.03	2.71	1.02
TSP	16	(9) 10d x 1½"	(6) 10d x 1½"	—	1295	440	—	920	310	—
					5.76	1.96	—	4.09	1.38	—
					1560	440	—	1105	310	—
					6.94	1.96	—	4.92	1.38	—

- Factored resistances have been increased 15% for short-term loading; no further increase is allowed.
- Factored resistances are for one anchor. A minimum rafter thickness of 2½" must be used when framing anchors are installed on the same side of the plate (exception: H2.5A).
- H8 factored uplift resistances for stud-to-bottom plate installations are 595 lb. (2.65 kN) for D.Fir-L and 390 lb. (1.74 kN) for S-P-F.
- When cross-grain bending or cross-grain tension cannot be avoided, mechanical reinforcement to resist such forces should be considered.
- Hurricane ties are shown installed on the outside of the wall for clarity and assume a minimum overhang of 3½". Installation on the inside of the wall is acceptable. For a continuous load path, connections at the top and bottom of the wall must be on the same side of the wall (see technical bulletin T-HTIECONPATH at [strongtie.com](http://strongtie.com)).
- Factored resistances in the F<sub>1</sub> direction are not intended to replace diaphragm boundary members or prevent cross grain bending of the truss or rafter members. Additional shear transfer elements shall be considered where there may be effects of cross grain bending or tension.
- H10S can have the stud offset a maximum of 1" from the rafter (centre to centre) for a reduced uplift of 1435 lb. (6.38 kN) D.Fir-L and 1015 lb. (4.51 kN) S-P-F.
- H10S nails to plates are optional for uplift but required for lateral loads.
- H10A may be field-bent up to a slope of 6/12. Multiply the tabulated uplift value x 0.75. Full tabulated lateral resistances apply.
- The factored resistances of stainless-steel connectors match carbon-steel connectors when installed with Simpson Strong-Tie® stainless-steel, SCNR ring-shank nails. For more information, refer to engineering letter L-F-SSNAILS at [strongtie.com](http://strongtie.com).
- D.Fir-L/S-P-F factored uplift resistances for the H2.5A fastened to a 2x4 truss bottom chord and double top plates using (5) 8d x 1½" nails into the top plates and (3) 8d x 1½" nails into the lowest three flange holes into the truss bottom chord is 495 lb. (2.20 kN).
- Nails:** 16d x 2½" = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long, 8d = 0.131" dia. x 2½" long, 8d x 1½" = 0.131" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.

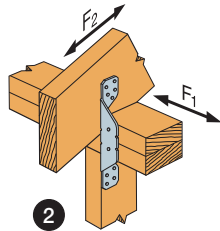


# H/TSP

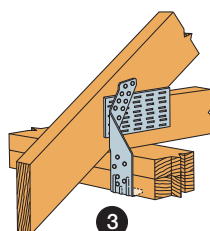
## Seismic and Hurricane Ties (cont.)



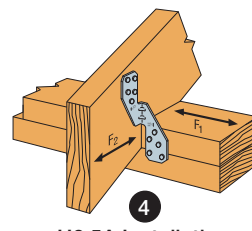
**1** H1 Installation  
(H1.81Z similar)



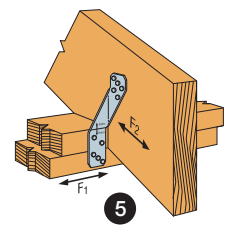
**2** H2A Installation



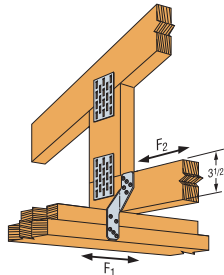
**3** TSP Installation



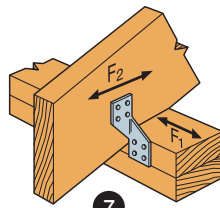
**4** H2.5A Installation  
(Nails into both top plates)



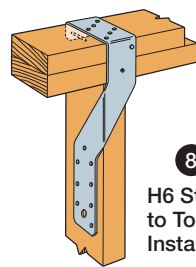
**5** H2.5T Installation  
(Nails into both top plates)



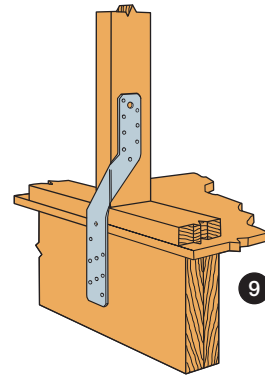
**6** H2.5T Installation



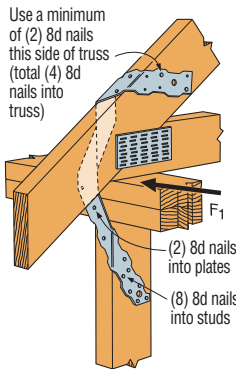
**7** H3 Installation  
(Nails into upper top plate)



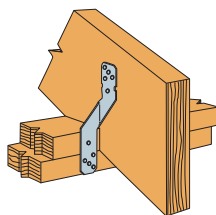
**8** H6 Stud to Top Plate Installation



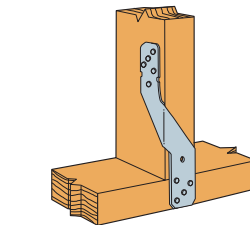
**9** H6 Stud to Band Joist Installation



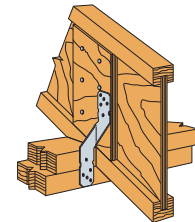
**10** H7Z Installation



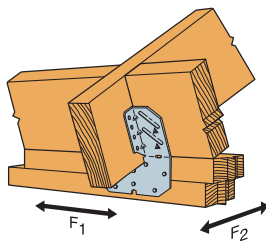
**11** H8 Attaching Rafter to Double Top Plates



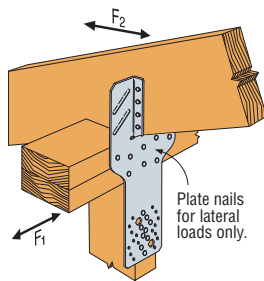
**12** H8 attaching Stud to Sill  
((4) 8d into plate, (5) 8d into stud)



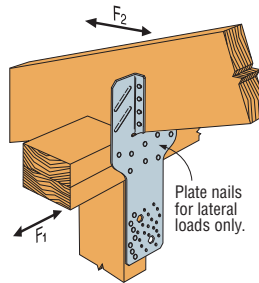
**13** H8 attaching I-Joist to Double Top Plates



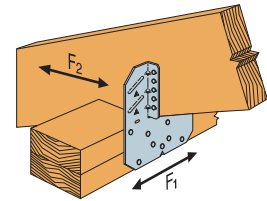
**14** H10A Field-Bent Installation



**15** H10S Installation

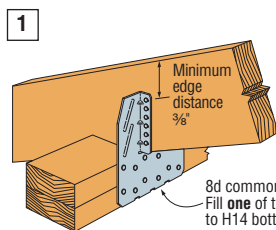


**16** H10S Installation with Stud Offset

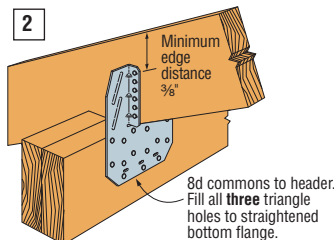


**17** H10A Installation

H10A optional positive angle nailing connects shear blocking to rafter. Use 8d common nails. Slot allows maximum field-bending up to a pitch of 6/12, use 75% of the table uplift value; bend one time only.

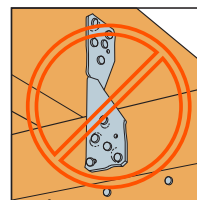


**18** H14 Installation to Double Top Plates



**19** H14 Installation to Double 2x Header

### Avoid a Misinstallation



Do not make new holes or overdrive nails.

**H**

# Seismic and Hurricane Ties

The H series of hurricane ties provides wind and seismic ties for trusses and rafters. The presloped 5:12 seat of the H16 provides for a tight fit and reduced deflection. The strap length provides for various truss height up to a maximum of 13½" (H16 series). Minimum heel height for H16 series is 4".

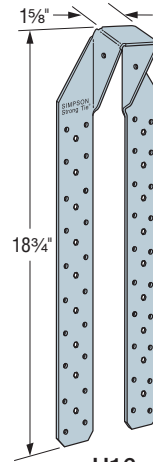
The HGA10 attaches to gable trusses and provides good lateral wind resistance. The HS24 attaches the bottom chord of a truss or rafter at pitches from 0:12 to 4:12 to double 2x4 top plates. Double-shear nailing allows for higher lateral resistance.

**Material:** See table

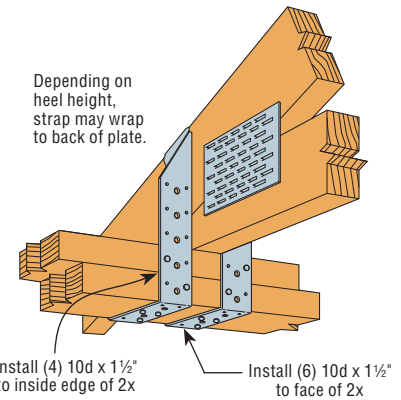
**Finish:** Galvanized; HGA10 also available in HDG; see Corrosion Information, pp. 16–21.

**Installation:**

- Use all specified fasteners; see General Notes.
- HS24 requires slant nailing only when bottom chord of truss or rafter has no slope.
- Hurricane ties do not replace solid blocking.
- HGA10KT — sold as a kit with (10) HGA10 connectors and (40) ¼" x 1½" Strong-Drive® SDS Heavy-Duty Connector screws and (40) ¼" x 3" SDS screws. Additional screws sold separately to install with all ¼" x 1½" SDS screws (SDS25112).

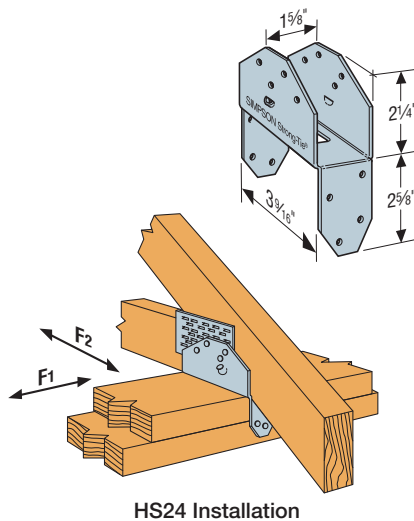
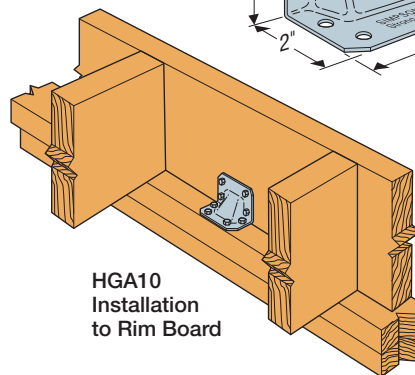
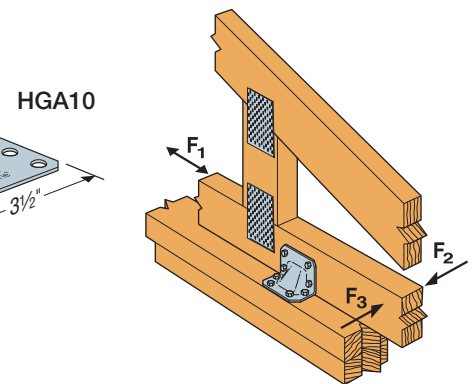
**H16**

Presloped at 5/12.  
Truss/rafter pitch of 3/12 to 7/12 is acceptable.

**H16 Installation**

Model No.	Ga.	Fasteners		Factored Resistance ( $K_D = 1.15$ )					
				D.Fir-L			S-P-F		
		To Rafters/Truss	To Plates	Uplift	Lateral		Uplift	Lateral	
				lb.	F <sub>1</sub>	F <sub>2</sub>		lb.	F <sub>1</sub>
lb.	lb.	lb.	lb.	lb.	lb.	lb.			
kN	kN	kN	kN	kN	kN	kN			
HGA10KT <sup>2</sup>	14	(4) ¼" x 1½" SDS	(4) ¼" x 3" SDS	750	1604	1615	660	1410	1420
				3.34	7.14	7.19	2.94	6.28	6.32
HS24 <sup>4</sup>	18	(8) 8d x 1½" and (2) 8d slant	(8) 8d	1145	1210	1600	805	860	1135
				5.10	5.38	7.12	3.59	3.83	5.05
H16	18	(2) 10d x 1½"	(10) 10d x 1½"	1870	—	—	1330	—	—
				8.32	—	—	5.92	—	—

1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed.
2. Factored F<sub>2</sub> resistances shown for HGA10 are for loading applied into the connector. For loading applied away from the connector, F<sub>3</sub>, the factored resistances are 1020 lb. (4.54 kN) for D.Fir-L and 425 lb. (1.89 kN) for S-P-F.
3. When cross-grain bending or cross-grain tension cannot be avoided, mechanical reinforcement to resist such forces should be considered.
4. HS24 factored resistances without slant nailing are 885 lb. (3.94 kN) D.Fir-L and 630 lb. (2.80 kN) S-P-F for uplift, 985 lb. (4.38 kN) D.Fir-L 700 lb. (3.11 kN) S-P-F for F<sub>1</sub>, 930 lb. (4.14 kN) D.Fir-L and 655 lb. (2.91 kN) S-P-F for F<sub>2</sub>.
5. **Nails:** 10d x 1½" = 0.148" dia. x 1½" long, 8d = 0.131" dia. x 2½" long, 8d x 1½" = 0.131" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.

**HS24 Installation****HS24****HGA10 Installation to Rim Board****HGA10 Installation to Double Top Plates****HGA10**



# LGT/MGT/VGT

## Girder Tiedowns

The LGT, MGT and VGT are girder tiedowns for moderate- to high-load applications. The LGT and VGT are also suitable for retrofit applications.

LGT connectors provide a low-profile connection to the studs for easy installation of drywall. Simple to install and can be installed on the inside or outside of the wall.

The variable girder tiedown (VGT) is a higher capacity alternative to the LGT and MGT for girder trusses. It attaches with Strong-Drive® SDS Heavy-Duty Connector screws to the side of truss and features a predeflected crescent washer that allows it to accommodate top chord pitches up to 8:12. The VGT is also available with one flange concealed for attachment to trusses with no overhang.

**Material:** VGT — 7 gauge, LGT2 — 14 gauge, MGT, LGT3, LGT4 — 12 gauge

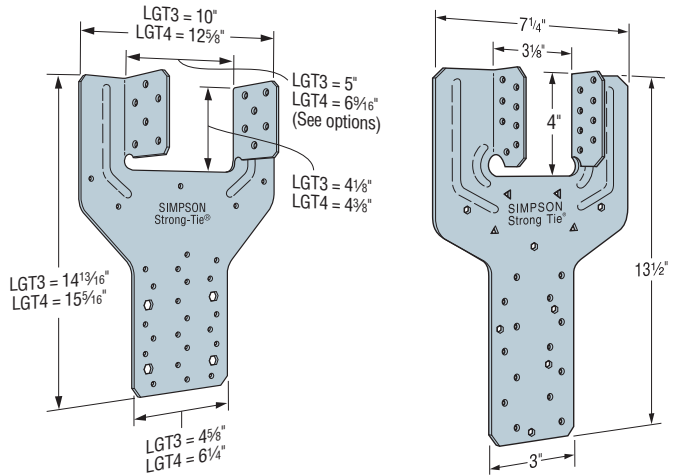
**Finish:** Galvanized

### Installation:

- Before installing fasteners, ensure LGT3-SDS2.5 makes complete contact with bottom of truss.
- Strong-Drive SDS Heavy-Duty Connector screws included with LGT3, LGT4 and VGT series.
- Strong-Drive SDS Heavy-Duty Connector screws driven through truss plates must be approved by the truss designer. Predrilling using a 5/32" bit is required.
- VGT — Can be installed on roof pitches up to 8/12 or on a bottom chord designed to transfer the load.
- VGT — Screw holes are configured to allow for double installation on a two-ply (minimum) truss.
- VGT — The product can be installed in a single application or in pairs to achieve a higher uplift capacity.
- VGT — When installed on trusses with no overhangs, specify VGTR/L.
- VGT — Install washer component (provided) so that top of washer is horizontal as well as parallel with top of wall top plate.
- LGT3-SDS2.5 and LGT4-SDS3 — The four large hexagon holes are intended for GFCMU and concrete applications.
- MGT — May be installed with straps straight vertically on minimum 5 1/2"-wide truss web, or with straps wrapped over truss heel. For wrapped installations, install minimum of (6) 10d nails into the face of the roof member on the same side as MGT base.
- See pp. 316–317 for masonry applications.

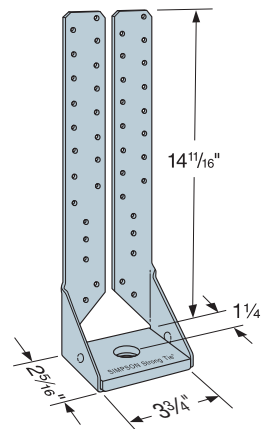
### Options:

- LGT3 and LGT4 are available with reduced widths of  $W = 4\frac{1}{16}"$  and  $W = 6\frac{3}{16}"$  — order as LGT3N-SDS2.5 and LGT4N-SDS3.

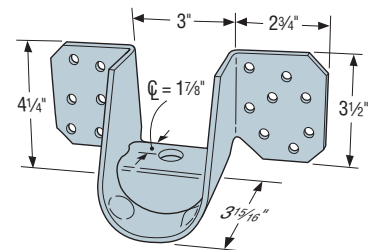


**LGT3-SDS2.5**  
(LGT4-SDS3 similar)

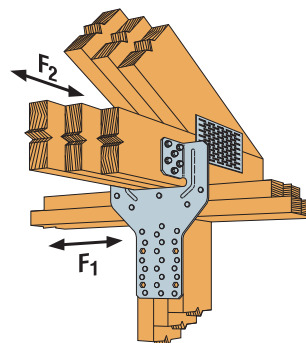
**LGT2**



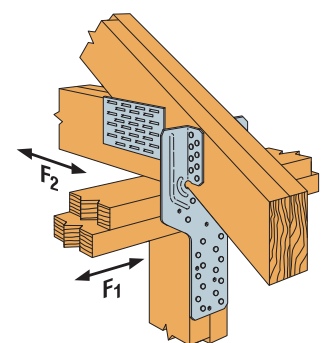
**MGT**



**VGT**  
US Patent:  
7,707,785



**Typical LGT3-SDS2.5**  
Installation



**Typical LGT2**  
Installation



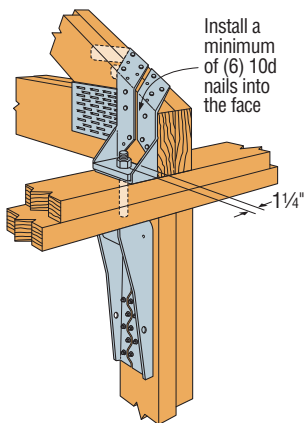
## LGT/MGT/VGT

## Girder Tiedowns (cont.)

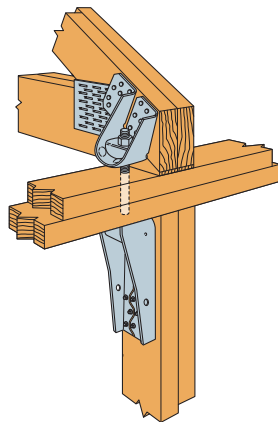
These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Qty.	No. of Plies	Fasteners		Factored Resistance ( $K_D = 1.15$ )					
					D.Fir-L			S-P-F		
			Studs or Anchor	Girder Truss	Uplift	Lateral		Uplift	Lateral	
						F <sub>1</sub>	F <sub>2</sub>		F <sub>1</sub>	F <sub>2</sub>
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.			
kN	kN	kN	kN	kN	kN	kN	kN			
LGT2	1	Two ply	(14) 10d <sup>4</sup>	(16) 10d	3640	1170	285	2610	830	200
			(14) #9 x 1½" SD	(16) #9 x 1½" SD	16.19	5.20	1.27	11.60	3.69	0.89
					4430	1170	285	3390	830	200
					19.71	5.20	1.27	15.08	3.69	0.89
LGT3-SDS2.5	1	Three ply	(26) 10d	(12) ¼" x 2½" SDS	6415	1335	670	4930	945	475
					28.54	5.94	2.98	21.93	4.20	2.11
LGT4-SDS3	1	Four ply	(30) 10d <sup>5</sup>	(16) ¼" x 3" SDS	6030	2785	1125	3980	1980	800
					26.82	12.39	5.00	17.70	8.81	3.56
MGT	1	Two ply min.	(1) ⅝" diameter	(22) 10d	5610	—	—	3985	—	—
					24.96	—	—	17.73	—	—
VGT	1	Two ply min.	(1) ⅝" diameter	(16) ¼" x 3" SDS	8600	—	—	6195	—	—
					38.26	—	—	27.56	—	—
	2	Two ply min.	(2) ⅝" diameter	(32) ¼" x 3" SDS	11690	—	—	8420	—	—
					52.00	—	—	37.46	—	—
VGTR/L	1	Two ply min.	(1) ⅝" diameter	(16) ¼" x 3" SDS	3475	—	—	2505	—	—
					15.46	—	—	11.14	—	—
	2	Two ply min.	(2) ⅝" diameter	(32) ¼" x 3" SDS	6950	—	—	5010	—	—
					30.92	—	—	22.29	—	—

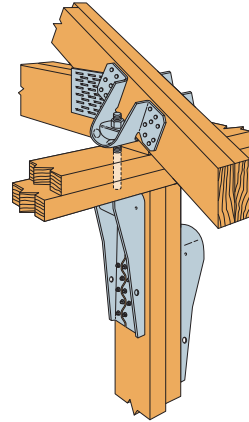
- Attached members must be designed to resist the factored resistances.
- Factored resistances have been increased 15% for uplift with no further increase allowed; reduce where other loads govern.
- Additional anchorage products to be designed by others.
- LGT2 — F<sub>2</sub> factored resistance requires installation of (4) 10d nails or (4) #9 x 1½" SD screws in optional nail holes.
- LGT4 — F<sub>2</sub> factored resistance requires installation of (7) 10d nails in optional nail holes.
- MGT can be installed with straps vertical for full table value provided (22) 10d nails are installed to either a solid header or minimum double 2x6 web. For single-ply truss applications, MGT can be installed with straps vertical using (22) 10d x 1½" nails. Factored resistances are 5370 lb. (23.88 kN) D.Fir-L and 3810 lb. (16.94 kN) S-P-F.
- For LGT2 installed in pairs with SD #9 x 1½" SD Connector screws, multiply the tabulated uplift values x 2 to a maximum of 7985 lb. (35.52 kN). See back-to-back installation detail.
- Nails: 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.
- Screws: #9 x 1½" SD = 0.131" dia. x 1½" long (SD9112).



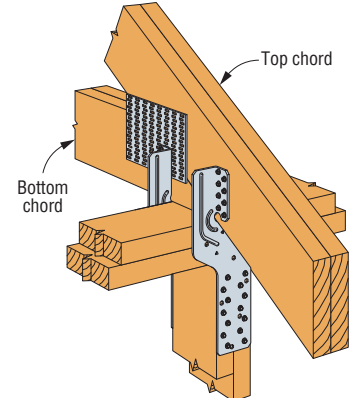
Typical MGT Installation with HDU4



Typical VGTR Single Installation with HDU2



Typical VGT Double Installation with HDU4s



Typical LGT2 Back-to-Back Installation on Separate Truss Members



# HGT

## Heavy Girder Tiedowns

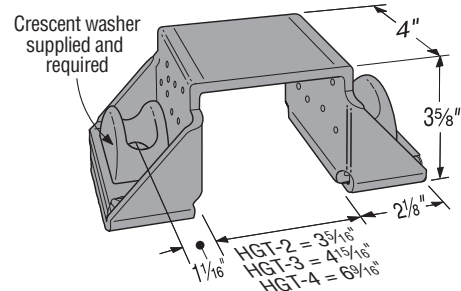
The HGT heavy girder tie-down offers the highest uplift capacity for girders and can be installed on trusses and beams with top chord slopes from 3:12 to 8:12.

**Material:** 7 gauge

**Finish:** Simpson Strong-Tie® gray paint

**Installation:**

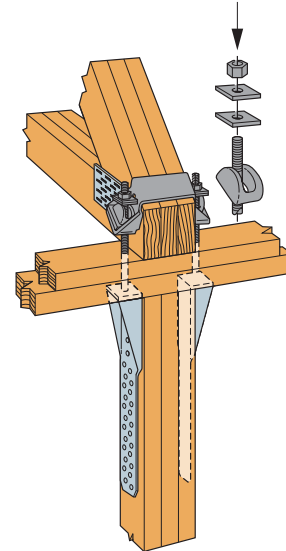
- Install two LBP $\frac{5}{8}$ " washers on top of each crescent washer. LBP $\frac{5}{8}$ " washers are not included with HGT and must be ordered separately. Crescent washers come with the HGT.
- Anchorage from HGT to holdown below shall be with  $\frac{5}{8}$ " diameter ASTM A307 Grade A bolts or threaded rod.
- See p. 318 for masonry or concrete installations.



**HGT-2**  
(HGT-3, HGT-4 similar)

Model No.	Qty.	No. of Plies	O.C. Dimension Between Anchors (in.)	Fasteners		Factored Uplift Resistance (K <sub>D</sub> = 1.15)	
				Anchor Bolts	Girder Truss	D.Fir-L	S-P-F
						lb.	lb.
						kN	kN
HGT-2	1	2 ply	5 3/4	(2) 5/8" $\phi$	(16) 10d	12140	9280
						54.00	41.28
HGT-3	1	3 ply	7 3/8	(2) 5/8" $\phi$	(16) 10d	12140	9280
						54.00	41.28
HGT-4	1	4 ply	9	(2) 5/8" $\phi$	(16) 10d	12140	9280
						54.00	41.28

Install two LBP $\frac{5}{8}$ " washers on top of each crescent washer (total four  $\frac{5}{8}$ " washers) for wood installation. All washers and crescent washers are required. Crescent washers are supplied.



**Typical HGT-3 Installation with HTT5s**

1. Factored resistances have been increased 15% for earthquake or wind load; reduce where other load durations govern.
2. Attached members must be designed to resist the applied loads.
3. Anchorage must be designed by others.
4. **Nails:** 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.





## CS/CMST/CMSTC

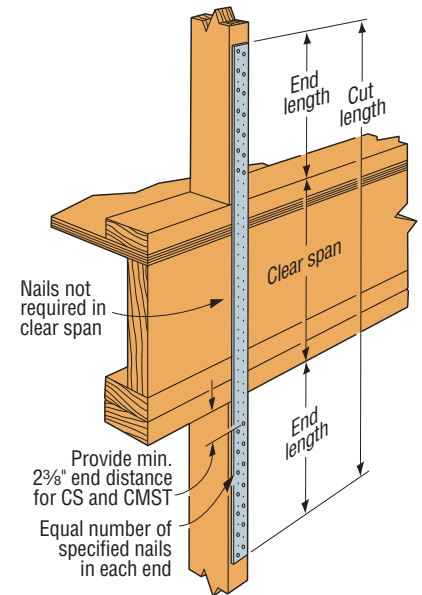
## Coiled Straps

CMSTC provides nail slots for easy installation and coined edges for safe handling. CS are continuous utility straps which can be cut to length on the job site. Packaged in lightweight (about 40 pounds) cartons.

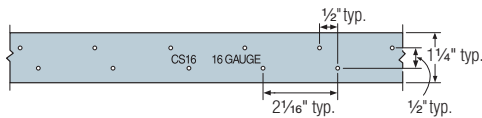
**Finish:** Galvanized. Some products available in ZMAX® coating; CS16 available in stainless steel. See Corrosion Information, pp. 16–21.

**Installation:**

- Use all specified fasteners; see General Notes.
- Wood shrinkage after strap installation across horizontal wood members may cause strap to buckle outward.
- Refer to the applicable code for minimum nail penetration and minimum wood edge and end distances.
- The table shows the maximum factored resistances and the nails required to obtain them. Fewer nails may be used; reduce the factored resistance as shown in footnotes.
- CMST — fill round and triangle holes for resistances shown. If wood tends to split, fill only round holes and double the end length listed for full resistance.
- CS straps are available in 25' lengths. Order CS14-R, CS16-R or CS20-R.

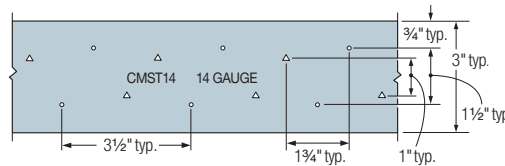


**Typical CS Installation As a Floor-to-Floor Tie**  
(CMST requires minimum (2) 2x studs)

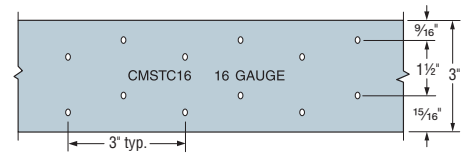


**CS16 Hole Pattern**  
(All other CS straps similar)

Gauge stamped on part for easy identification



**CMST14 Hole Pattern**  
(CMST12 similar)



**CMSTC16 Hole Pattern**

These products are available with additional corrosion protection. For more information, see p. 20.



Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Ga.	Dimensions			Fasteners (Total)	Factored Tensile Resistance			
		Total Coil Length (ft.)	End Length (in.)	Cut Length (in.)		D.Fir-L		S-P-F	
						(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)
						lb.	lb.	lb.	lb.
		kN	kN	kN	kN				
CS20	20	250	12	clear span + 24	(20) 8d	1455	1450	1440	1450
SS CS16	16	150	14	clear span + 28	(24) 8d	2305	2400	2150	2400
						10.25	10.68	9.56	10.68
CMSTC16		54	24	clear span + 48	(50) 10d	6175	6395	5650	6395
						27.47	28.45	25.13	28.45
CS14	14	100	20	clear span + 40	(36) 8d	3510	3500	3275	3500
						15.61	15.57	14.57	15.57
CMST14		52½	33	clear span + 66	(70) 10d	8645	8725	7910	8725
						38.46	38.81	35.19	38.81
CMST12	12	40	44	clear span + 88	(96) 10d	11855	12415	10850	12415
						52.74	55.23	48.27	55.23

1. Factored resistances shown are the lesser of the steel tensile strength (T<sub>T</sub>) or the lateral nail value (N<sub>T</sub>).

2. Use half of the required nails in each member being connected to achieve the listed resistances.

3. Calculate the connector value for a reduced number of nails as follows: Factored resistance =  $\frac{\text{No. of Nails Used}}{\text{No. of Nails in Table}} \times \text{Table Value}$

**Example:** CS14 on D.Fir-L with 30 nails total.

(Half of the nails in each member being connected)

$$\text{Factored resistance} = \frac{30 \text{ Nails (Used)}}{36 \text{ Nails (Table)}} \times 3510 \text{ lb.} = 2925 \text{ lb.}$$

4. **Nails:** 10d = 0.148" dia. x 3" long, 8d = 0.131" dia. x 2½" long. See pp. 22–24 for other nail sizes and information.



# CSHP

## High-Performance Coiled Strap

Coiled straps are continuous utility straps which can be cut to length at the jobsite. The new patent-pending CSHP high-performance coil strap features a raised embossment that makes it easy to install with a power framing nailer. This new tested feature provides improved performance — resulting in fewer nails, shorter straps and overall lower installed cost.

**Features:**

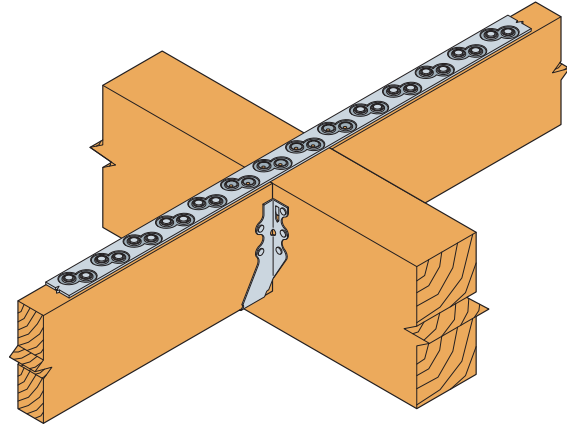
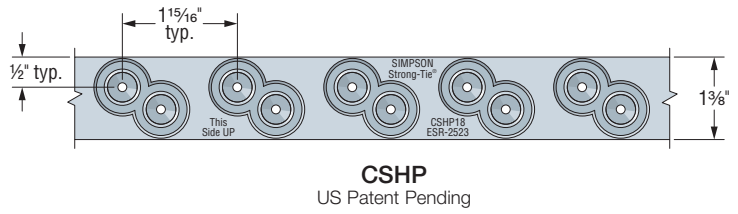
- Designed to be installed with a power framing nailer
- Achieves higher capacities with fewer nails and shorter straps
- Easy identification for proper installation for building inspectors

**Finish:** Galvanized

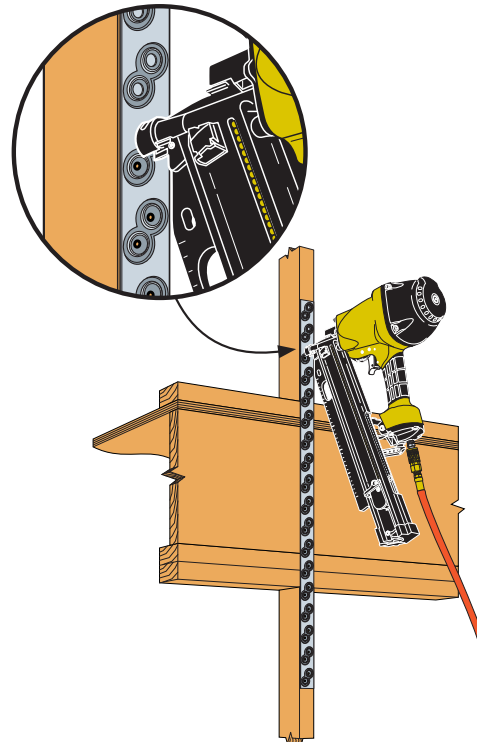
**Material:** See table

**Installation:**

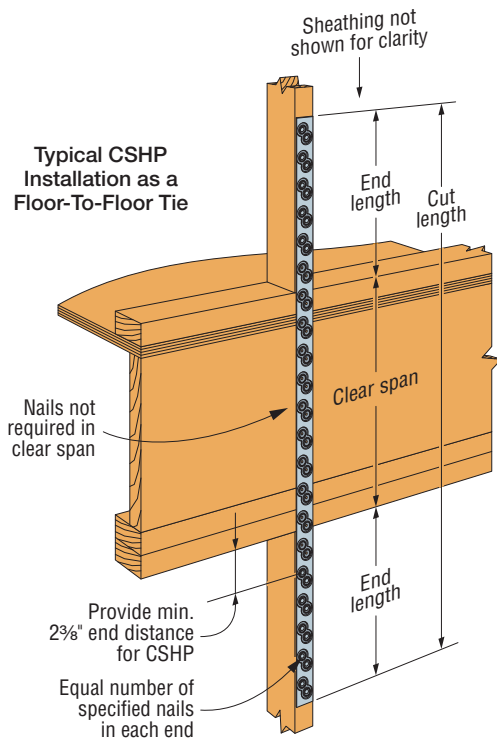
- Use all specified fasteners; see General Notes.
- **Designed to be installed with power framing nailer using concentric, full round-head nails.**
- **“This Side Up” stamp must be installed facing out.**
- Wood shrinkage after strap installation across horizontal wood members may cause strap to buckle outward.
- Refer to the applicable code for minimum nail penetration and minimum wood edge and end distances.
- The table shows the maximum factored resistances and the nails required to obtain them. Fewer nails may be used; reduce the factored resistance as shown in the table notes.
- **CSHP straps are available in 25' lengths (add -R to model no.).**



Typical CSHP Installation



Typical CSHP Installation



CSHP installs with most power framing nailers. Visit [strongtie.com/cshp](http://strongtie.com/cshp) for use and warnings.



## CSHP

## High-Performance Coiled Strap (cont.)

Model No.	Ga.	Total Coil Length (ft.)	Nail	Factored Tensile Resistance							
				D.Fir-L				S-P-F			
				Nail Qty.	End Length (in.)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	Nail Qty.	End Length (in.)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)
						lb.	lb.			lb.	lb.
		kN	kN			kN	kN				
CSHP20	20	75	0.131" x 2½"	18	11	1400	1555	20	12	1415	1555
						6.23	6.92			6.29	6.92
			0.148" x 2½"	14	9	1530	1555	14	9	1550	1555
						6.81	6.92			6.90	6.92
CSHP18	18	75	0.131" x 2½"	22	13	1905	2065	24	14	1910	2065
						8.47	9.19			8.50	9.19
			0.148" x 2½"	16	10	1920	2065	20	12	1990	2065
						8.54	9.19			8.85	9.19

- See pp. 272–273 for Straps and Ties General Notes.
- Fasteners listed show the minimum required length.
- Fasteners can be installed with standard framing nailer.
- Calculate the connector value for a reduced number of nails as follows:

$$\text{Factored Resistance} = \frac{\text{No. of Nails Used}}{\text{No. of Nails in Table}} \times \text{Table Value}$$

Example: CSHP18 in S-P-F with (12) 0.148" x 2½" nails total.  
(Half of the nails in each member being connected)

$$\text{Factored Resistance} = \frac{12 \text{ Nails (Used)}}{20 \text{ Nails (Table)}} \times 2065 \text{ lb.} = 1239 \text{ lb.}$$

- Fasteners:** Nail dimensions in the table are listed diameter by length.  
See pp. 22–24 for fastener information.



# HRS/HST/ST/PS/LSTA/LSTI/MST/MSTA/MSTC/MSTI

## Strap Ties

Straps are designed to transfer tension loads in a wide variety of applications.

**HRS** — Heavy strap designed for installation on the edge of 2x members. The HRS416Z installs with Strong-Drive® SDS Heavy-Duty Connector screws.

**LSTA and MSTA** — Designed for use on the edge of 2x members, with a nailing pattern that reduces the potential for splitting.

**LSTI and MSTI** — Light and medium straps that are suitable where pneumatic-nailing is necessary through diaphragm decking and wood chord open-web trusses.

**MST** — High-capacity strap that can be installed with either nails or bolts. Suitable for double 2x member connections or greater.

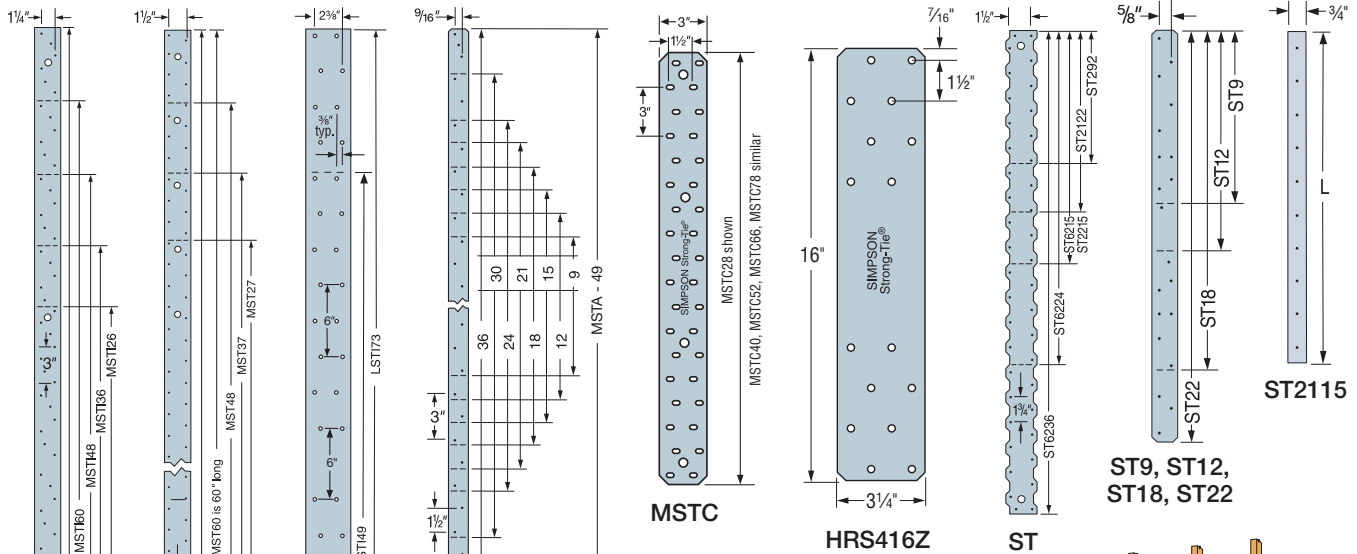
**MSTC** — High-capacity strap that utilizes a staggered nail pattern to help minimize wood splitting. Nail slots have been countersunk to provide a lower nail head profile.

**Finish:** Galvanized. Some products are available in stainless steel, ZMAX® coating or black powder coat (add PC to sku); contact Simpson Strong-Tie. See Corrosion Information, pp. 16–21.

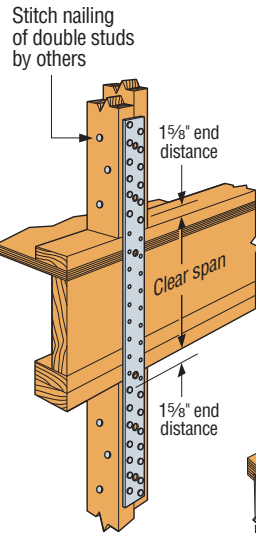
**Installation:** Use all specified fasteners; see General Notes

**Options:** Special sizes can be made to order; contact Simpson Strong-Tie for longer lengths

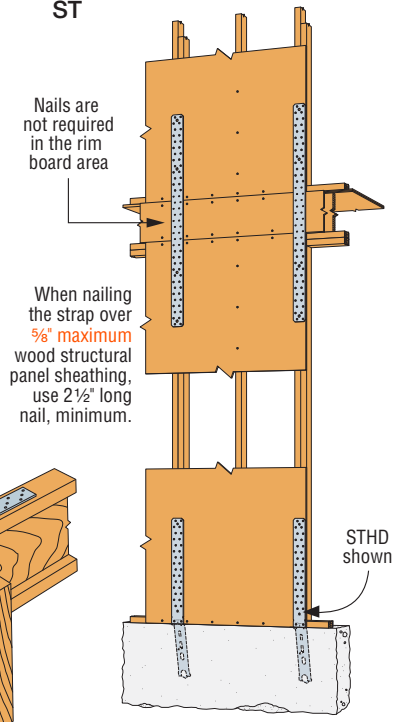
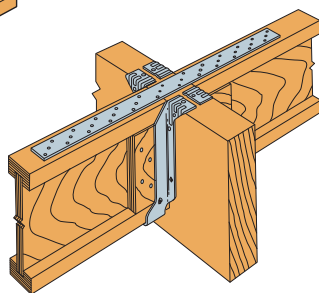
Straps and Ties



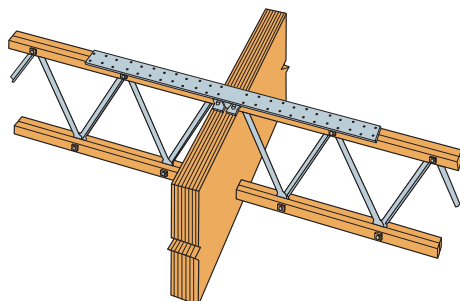
**LSTA and MSTA**  
(Pilot holes not shown)



**Floor-to-Floor Tie Installation**  
Showing a Clear Span



**Typical Detail with Strap Installed over Wood Structural Panel Sheathing**





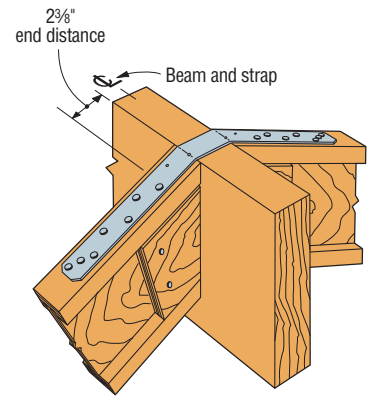
## HRS/HST/ST/PS/LSTA/LSTI/MST/MSTA/MSTC/MSTI

## Strap Ties (cont.)

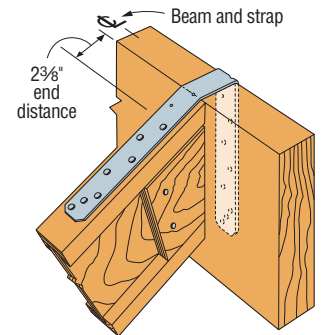
These products are available with additional corrosion protection. For more information, see p. 20.

SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Ga.	Dimensions (in.)		Fasteners (Total)	Factored Tensile Resistance				
		W	L		D-Fir-L		S-P-F		
					(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	
lb.	kN	lb.	kN	lb.	kN	lb.	kN		
LSTA9	20	1¼	9	(6) 10d	600	690	550	635	
LSTA12		1¼	12	(8) 10d	800	920	735	845	
LSTA15		1¼	15	(10) 10d	1000	1150	920	1060	
LSTA18		1¼	18	(12) 10d	1200	1380	1105	1270	
LSTA21		1¼	21	(14) 10d	1400	1610	1290	1485	
LSTA24		1¼	24	(16) 10d	1600	1690	1470	1690	
ST292		2½	9¾	(10) 8d	730	840	670	770	
ST2122		2½	12¾	(14) 8d	1100	1265	1010	1160	
ST2115		¾	16¾	(8) 8d	670	770	615	710	
ST2215		2½	16¾	(18) 8d	1505	1730	1385	1595	
LSTA30		18	1¼	30	(20) 10d	2240	2245	2080	2245
LSTA36			1¼	36	(22) 10d	2250	2245	2250	2245
LSTI49			3¾	49	(32) 10dx1½	3185	3660	2930	3365
LSTI73			3¾	73	(48) 10dx1½	4775	5490	4390	5050
MSTA9	1¼		9	(6) 10d	670	770	620	715	
MSTA12	1¼		12	(8) 10d	890	1025	830	950	
MSTA15	1¼		15	(10) 10d	1115	1280	1035	1190	
MSTA18	1¼		18	(12)-10d	1340	1540	1240	1430	
MSTA21	1¼		21	(14) 10d	1560	1795	1450	1665	
MSTA24	1¼		24	(16) 10d	1785	2050	1655	1905	
HTP37Z	3		7	(20) 10dx1½	1610	1850	1270	1460	
MSTA30	1¼		30	(20) 10d	2470	2800	2260	2600	
MSTA36	1¼		36	(24) 10d	2805	2800	2710	2800	
MSTA49	1¼		49	(26) 10d	2840	2840	2840	2840	
ST6215	16	2½	16¾	(18) 8d	1575	1810	1465	1685	
ST6224		2½	23¾	(26) 8d	2495	2870	2325	2675	
ST9		1¼	9	(8) 16d	655	755	605	695	
ST12		1¼	11¾	(10) 16d	825	950	760	875	
ST18		1¼	17¾	(14) 16d	1170	1345	1075	1235	
ST22		1¼	21¾	(18) 16d	1510	1735	1390	1600	
					6.72	7.72	6.18	7.12	



Typical LSTA Installation  
(hanger not shown)  
Bend strap one time only



Typical LSTA Installation  
(hanger not shown)  
Bend strap one time only

- Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed.
- Use half of the nails in each member being connected to achieve the listed resistances.
- Nails:** 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long, 8d = 0.131" dia. x 2½" long. See pp. 22–24 for other nail sizes and information.



# HRS/HST/ST/PS/LSTA/LSTI/MST/MSTA/MSTC/MSTI

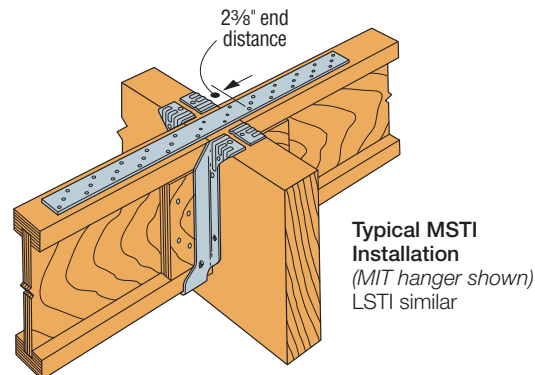
## Strap Ties (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Ga.	Dimensions (in.)		Fasteners (Total)	Factored Tensile Resistance			
		W	L		D.Fir-L		S-P-F	
					(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)
					lb.	lb.	lb.	lb.
				kN	kN	kN	kN	
MSTC28	16	3	28¼	(36) 10d	4445	5115	4070	4680
MSTC40		3	40¼	(48) 10d	19.77	22.75	18.10	20.82
MSTC52		3	52¼	(52) 10d	5930	6645	5425	6240
MSTC66	14	3	65¼	(64) 10d	26.38	29.56	24.13	27.76
MSTC78		3	77¼	(64) 10d	6420	6645	5875	6645
ST6236		2½	33⅞	(36) 16d	28.56	29.56	26.13	29.56
HRS6	12	1¾	6	(6) 10d	8215	8215	7230	8215
HRS8		1¾	8	(10) 10d	36.54	36.54	32.16	36.54
HRS12		1¾	12	(14) 10d	5245	5245	5185	5245
MSTI26		2½	26	(22) 10dx1½"	23.33	23.33	23.06	23.33
MSTI36		2½	36	(32) 10dx1½"	500	575	440	505
MSTI48		2½	48	(44) 10dx1½"	2.22	2.56	1.96	2.25
MSTI60		2½	60	(56) 10dx1½"	795	915	700	805
MSTI72		2½	72	(68) 10dx1½"	3.54	4.07	3.11	3.58
MST27		2½	27	(26) 10d	1090	1250	955	1100
MST37		2½	37½	(38) 10d	4.85	5.56	4.25	4.89
MST48		2½	48	(50) 10d	2970	3415	2605	3000
HRS416Z		¾	16	(16) ¼" x 1½" SDS	13.21	15.19	11.59	13.35
MST60	10	2½	60	(64) 16d	4320	4970	3790	4360
MST72		2½	72	(78) 16d	19.22	22.11	16.86	19.40
MST72		2½	72	(78) 16d	5940	6830	5215	5995
					26.42	30.38	23.20	26.67
					7325	7325	6635	7325
					32.58	32.58	29.52	32.58
					7325	7325	7325	7325
					32.58	32.58	32.58	32.58
					4045	4650	3550	4080
					17.99	20.69	15.79	18.15
					5910	6795	5185	5965
					26.29	30.23	23.06	26.53
					6425	6790	5625	6470
					28.58	30.20	25.02	28.78
					3240	3730	3040	3495
					14.41	16.59	13.52	15.55
					8435	8435	8435	8435
					37.52	37.52	37.52	37.52
					9150	9150	9150	9150
					40.70	40.70	40.70	40.70

1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed.
2. Use half of the nails in each member being connected to achieve the listed resistances.
3. **Nails:** 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long, 8d = 0.131" dia. x 2½" long. See pp. 22–24 for other nail sizes and information.





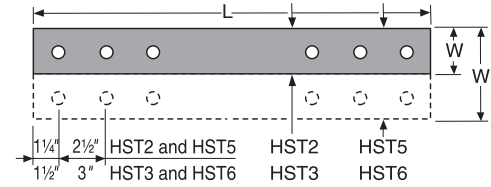
## HRS/HST/ST/PS/LSTA/LSTI/MST/MSTA/MSTC/MSTI

## Strap Ties (cont.)

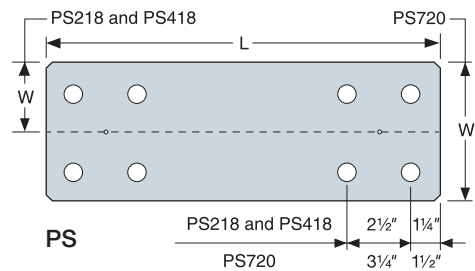
These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Ga.	Dimensions (in.)		Fasteners (Total)	T <sub>r</sub> <sup>1</sup>	
		W	L		lb.	kN
PS218	7	2	18	(4) 3/4" MB	8315	36.99
					PS418	21325
PS720	7	6 3/4	20	(8) 1/2" MB	35985	160.08
HST2	3	2 1/2	21 1/4	(6) 5/8" MB	10205	45.40
HST5		5	21 1/4	(12) 5/8" MB	20405	90.77
HST3		3	25 1/4	(6) 3/4" MB	20520	91.28
HST6	3	6	25 1/4	(12) 3/4" MB	41035	182.54

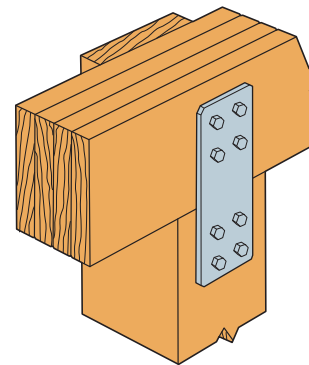
1. T<sub>r</sub> is the factored tensile resistance of the strap in accordance with [CSA S16:19](#). The capacity of the strap, used in a connection, must be verified by the designer using the lower of the strap capacity or the fastener capacity per the applicable CSA standard.



HST



PS



Typical PS720 Installation



# HRS/HST/ST/PS/LSTA/LSTI/MST/MSTA/MSTC/MSTI

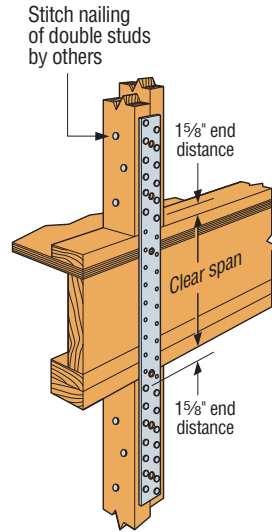
## Strap Ties (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

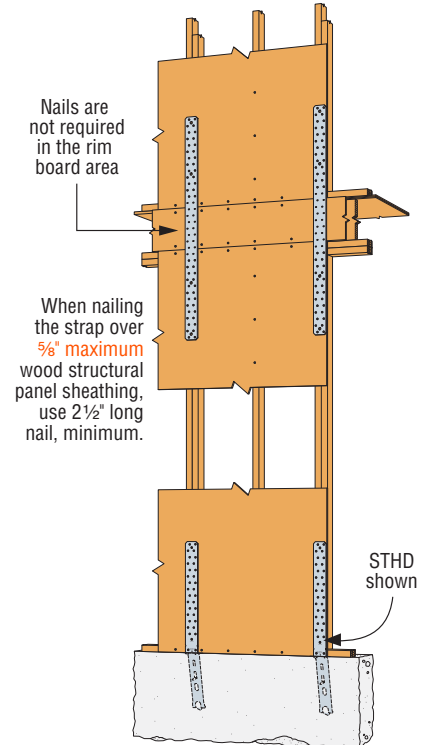
**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

### Floor-to-Floor Clear Span Table

Model No.	Clear Span (in.)	Fasteners (Total)	Factored Tensile Resistance			
			D.Fir-L		S-P-F	
			(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)
			lb.	lb.	lb.	lb.
			kN	kN	kN	kN
MSTA49	16	(26) 10d	2840	2840	2840	2840
			12.63	12.63	12.63	12.63
	18	(26) 10d	2840	2840	2840	2840
			12.63	12.63	12.63	12.63
MSTC28	16	(12) 10d	1480	1705	1355	1560
			6.58	7.58	6.03	6.94
	18	(8) 10d	990	1135	905	1040
			4.40	5.05	4.03	4.63
MSTC40	16	(28) 10d	3460	3975	3165	3640
			15.39	17.68	14.08	16.19
	18	(24) 10d	2965	3410	2710	3115
			13.19	15.17	12.06	13.86
MSTC52	16	(44) 10d	5435	6250	4970	5715
			24.18	27.80	22.11	25.42
	18	(40) 10d	4940	5685	4515	5195
			21.98	25.29	20.08	23.11
MSTC66	16	(60) 10d	7740	8215	6780	7795
			34.43	36.54	30.16	34.68
	18	(60) 10d	7740	8215	6780	7795
			34.43	36.54	30.16	34.68
MSTC78	16	(64) 10d	8215	8215	7230	8215
			36.54	36.54	32.16	36.54
	18	(64) 10d	8215	8215	7230	8215
			36.54	36.54	32.16	36.54
MST37	16	(20) 10d	3110	3575	2730	3140
			13.83	15.90	12.14	13.97
	18	(18) 10d	2800	3220	2455	2825
			12.46	14.32	10.92	12.57
MST48	16	(32) 10d	4110	4345	3600	4140
			18.28	19.33	16.01	18.42
	18	(30) 10d	3855	4075	3375	3880
			17.15	18.13	15.01	17.26
MST60	16	(46) 16d	6060	6060	6060	6060
			26.96	26.96	26.96	26.96
	18	(44) 16d	5800	5800	5800	5800
			25.80	25.80	25.80	25.80
MST72	16	(60) 16d	7625	7625	7625	7625
			33.92	33.92	33.92	33.92
	18	(58) 16d	7370	7370	7370	7370
			32.78	32.78	32.78	32.78



Floor-to-Floor Tie Installation Showing a Clear Span



Typical Detail with Strap Installed over Wood Structural Panel Sheathing

1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed.
2. Use half of the required nails in each member being connected to achieve the listed resistances.
3. When nailing the strap over OSB/plywood, use a minimum 2 1/2" long nail.
4. **Nails:** 10d = 0.148" dia. x 3" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.





# MSTC48B3/MSTC66B3Z

## Pre-Bent Straps

The MSTC48B3 and MSTC66B3Z are pre-bent straps designed to transfer tension load from an upper-storey shearwall to a beam on the storey below.

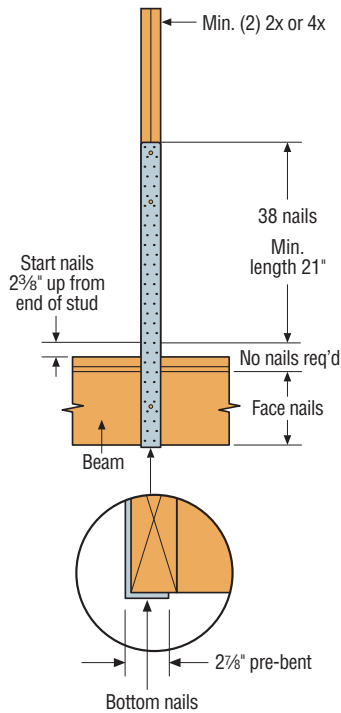
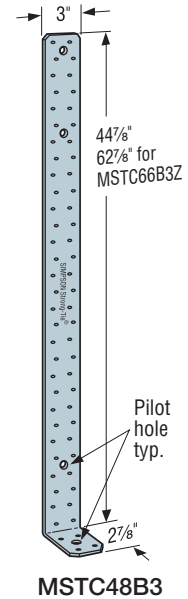
**Material:** 14 gauge

**Finish:** Galvanized

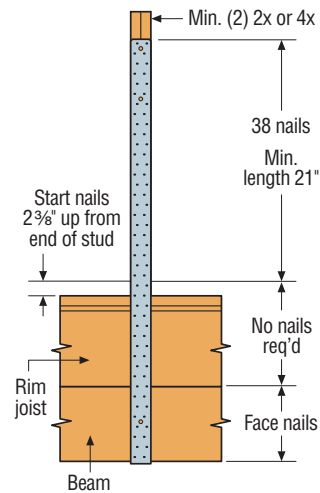
These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Minimum Beam Size (in.)		Fasteners			Factored Tensile Resistance ( $K_D = 1.15$ )	
	Width	Depth	Beam		Studs/Post	D.Fir-L	S-P-F
			Face	Bottom		lb.	lb.
MSTC48B3	3	9¼	(12) 10d	(4) 10d	(38) 10d	5440 24.20	3860 17.17
MSTC66B3Z	3½	11¼	(14) 10d	(4) 10d	(38) 10d	5230 23.27	3715 16.53

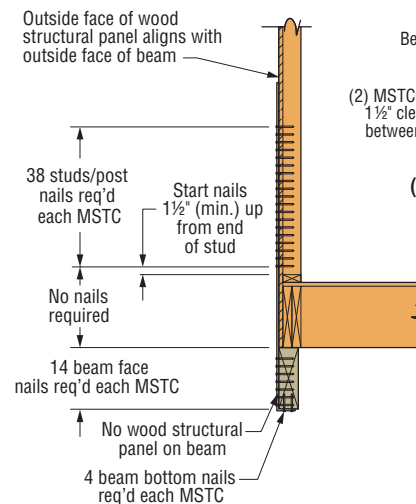
- Factored resistances have been increased 15% for earthquake or wind loading; no further increase is permitted. Reduce where other load durations govern.
- Nails in studs/post shall be installed symmetrically. Nails may be installed over the entire length of the strap.
- The 3"-wide beam may be double 2x members.
- Straps installed over sheathing up to ½" thick can achieve 85% of the tabulated values.
- Nails:** 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.



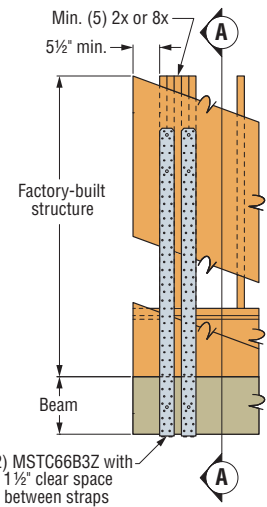
MSTC48B3 Installation with No Rim Board



MSTC66B3Z Installation with Rim Board



Section A-A



(2) MSTC66B3Z Installation



# LTS/MTS/HTS

## Twist Straps

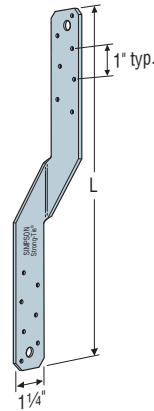
Twist straps provide a tension connection between two wood members. They resist uplift at the heel of a truss economically. LTS/MTS have a 2" bend section and the HTS has a 3¾" bend section that eliminates interference at the transition points between wood members.

**Material:** LTS — 18 gauge; MTS — 16 gauge; HTS — 14 gauge;

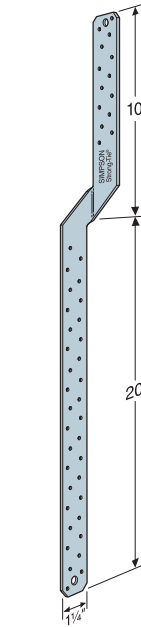
**Finish:** Galvanized. Some products available in stainless steel and ZMAX® coating; see Corrosion Information, pp. 16-21.

**Installation:**

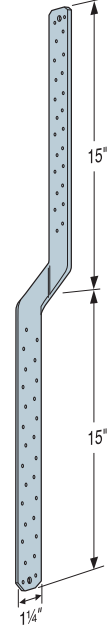
- Use all specified fasteners, **with half into each member being connected, to achieve tabulated values**; see General Notes
- When LTS/MTS is installed as truss-to-top plate tie, install (3) 10d x 1½" nails to the underside of the plate and (3) 10d x 1½" nails into the edge of the double top plate.
- LTS, MTS and HTS are available with the bend reversed. Specify "-REV" after model number, such as MTS16-REV.



**LTS12**  
(MTS and HTS similar)

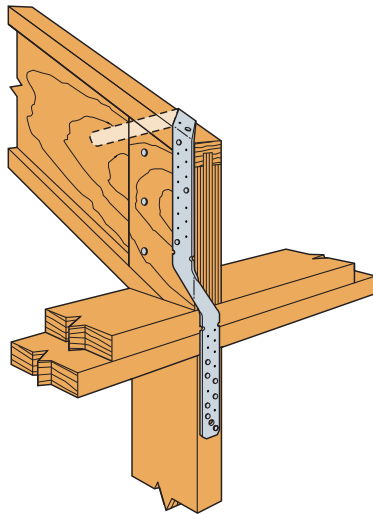


**MTS30**  
(HTS30 similar)

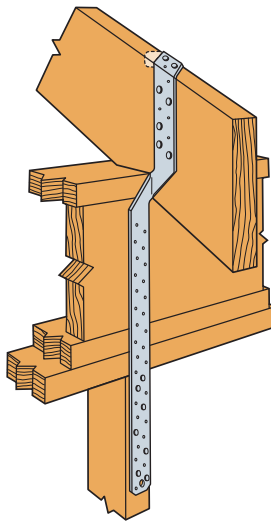


**HTS30C**  
(MTS30C similar)

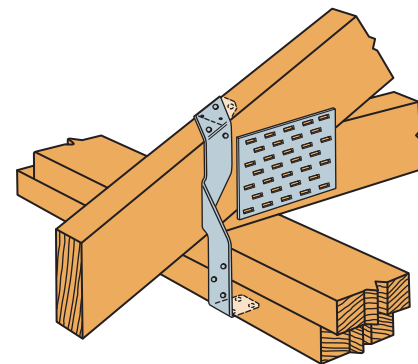
Straps and Ties



**MTS30 Installation**  
with I-Joist Rafter



**Typical MTS30**  
Installation



**MTS Installation**  
as a Truss-to-Top Plate Tie



## LTS/MTS/HTS

## Twist Straps (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.



Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	L (in.)	Fasteners (Total)	Factored Resistance ( $K_D = 1.15$ )	
			D.Fir-L	S-P-F
			lb.	lb.
			kN	kN
SS LTS12	12	(12) 10d x 1 1/2"	1015	720
			4.52	3.20
LTS16	16	(12) 10d x 1 1/2"	1015	720
			4.52	3.20
SS LTS18	18	(12) 10d x 1 1/2"	1015	720
			4.52	3.20
LTS20	20	(12) 10d x 1 1/2"	1015	720
			4.52	3.20
MTS12	12	(14) 10d x 1 1/2"	1570	1180
			6.98	5.25
MTS16	16	(14) 10d x 1 1/2"	1570	1180
			6.98	5.25
MTS18	18	(14) 10d x 1 1/2"	1570	1180
			6.98	5.25
SS MTS20	20	(14) 10d x 1 1/2"	1570	1180
			6.98	5.25
MTS30	30	(14) 10d x 1 1/2"	1570	1180
			6.98	5.25
MTS24C	24	(14) 10d x 1 1/2"	1570	1180
			6.98	5.25
MTS30C	30	(14) 10d x 1 1/2"	1570	1180
			6.98	5.25
HTS16	16	(16) 10d x 1 1/2"	2050	1455
			9.12	6.47
HTS20	20	(24) 10d x 1 1/2"	2050	1455
			9.12	6.47
HTS24	24	(24) 10d x 1 1/2"	2050	1455
			9.12	6.47
HTS28	28	(24) 10d x 1 1/2"	2050	1455
			9.12	6.47
HTS30	30	(24) 10d x 1 1/2"	2050	1455
			9.12	6.47
HTS30C	30	(24) 10d x 1 1/2"	2050	1455
			9.12	6.47

- LTS12 through LTS20, MTS16 through MTS30, HTS24 through HTS30C (except HTS30) have additional nail holes.
- Install half of the fasteners on each end of strap to achieve maximum factored resistance.
- Factored resistances have been increased 15% for earthquake or wind loading. No further increase allowed; reduce where other loads govern.
- All straps except the MTS30 and HTS30 have the twist in the centre of the strap.
- Twist straps do not have to be wrapped over the truss to achieve the load.
- Optional nail holes are provided on some straps.
- When used as a truss-to-top plate tie multiply the tabulated values by 0.95 for LTS and 0.74 for MTS. HTS cannot be used in this application.
- Factored lateral resistances are  $F_1 = 130$  lb. and  $F_2 = 160$  lb. when the following installation requirements are met. The first seven nail holes on each side of the bend must be filled with 0.148" x 1 1/2" minimum nails. All additional fasteners may be installed in any remaining strap holes.
- Nails:** 10d = 0.148" dia. x 3" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.



# DSP/SSP/SP/SPH/RSP4/TSP

## Stud Plate Ties



This product is preferable to similar connectors because of a) easier installation, b) higher capacities, c) lower installed cost, or a combination of these features.

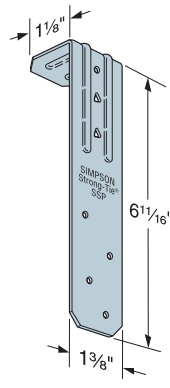
The stud plate tie series offers general solutions for connecting the stud to the top and bottom plates. All models can be used to make a connection to either the top or bottom plate, and several are suitable for double top plates and studs.

**Material:** DSP/SSP/SPH — 18 gauge;  
TSP — 16 gauge; all others — 20 gauge

**Finish:** Galvanized. Some products available in ZMAX® coating; see Corrosion Information, pp. 16–21.

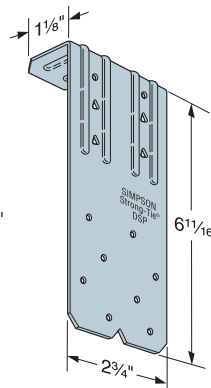
### Installation:

- Use all specified fasteners; see General Notes
- TSP/DSP/SSP — Sill-plate installation: fill all round holes
- TSP/DSP/SSP — Top-plate installation: fill all round and triangle holes
- SP1/SP2 — One of the 10d common stud nails is driven at a 45° angle through the stud into the plate



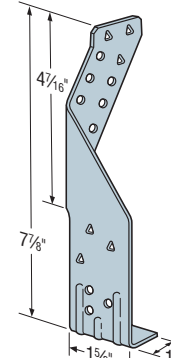
**SSP**

US Patents:  
7,065,932  
7,356,973



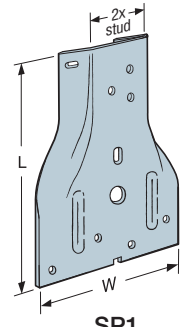
**DSP**

US Patents:  
7,065,932  
7,356,973

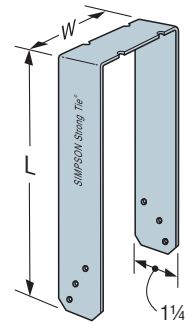


**TSP**

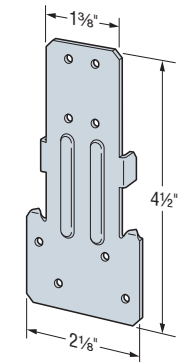
US Patent:  
D618,085



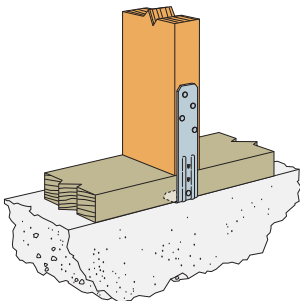
**SP1**  
(SP2 similar)



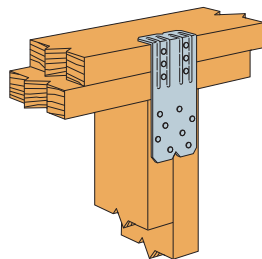
**SP4**  
(SPH similar)



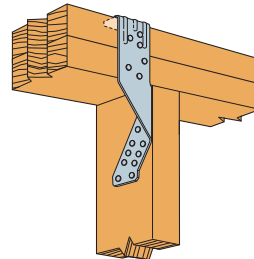
**RSP4**



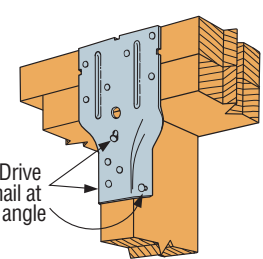
Typical SSP  
Installed to Sill Plate



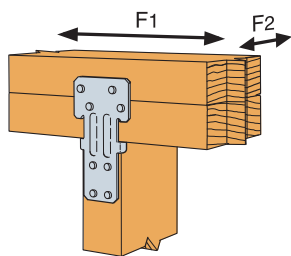
Typical DSP  
Installed to Top Plate



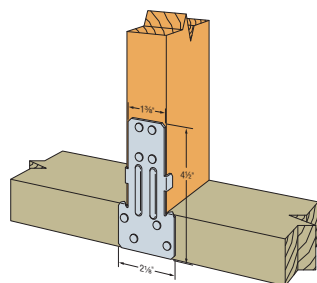
Typical TSP Installed  
to Top Plate



Typical SP2  
Installation

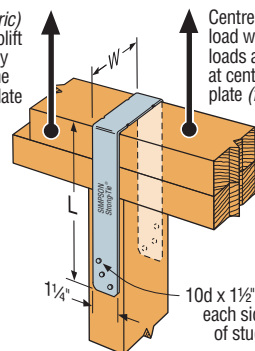


Typical RSP4 Stud  
to Double Top Plate  
(See footnote 2 on p. 293)

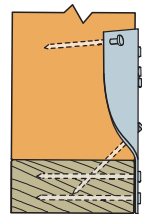


Typical RSP4 Stud to  
Single Bottom Plate

Side (eccentric) load when uplift loads are only applied to one face of top plate (footnote 4)



Typical SP4 Installation  
(SPH similar)



SP1 Nailing  
Profile



## DSP/SSP/SP/SPH/RSP4/TSP

## Stud Plate Ties (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.



Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Stud	Plate Width	Dimensions (in.)		Fasteners			Factored Resistance (K <sub>D</sub> = 1.15)			
			W	L	Studs	Double Top Plate	Single Sill Plate	D.Fir-L		S-P-F	
								Double Top Plate	Single Sill Plate	Double Top Plate	Single Sill Plate
			lb.	lb.	lb.	lb.	kN	kN	kN	kN	
<b>Connector Type</b>											
RSP4	2x	—	2½	4½	(4) 8d x 1½"	(4) 8d x 1½"	(4) 8d x 1½"	670	595	600	535
								2.98	2.65	2.67	2.38
SSP	2x	—	1¾	6¼	(4) 10d x 1½"	(3) 10d x 1½"	(1) 10d x 1½"	570	535	570	535
								2.54	2.38	2.54	2.38
					(4) 10d	(3) 10d	(1) 10d	710	690	710	690
								3.16	3.07	3.16	3.07
SP1	2x	—	3½	5½	(6) 10d	—	(4) 10d	—	810	—	740
								—	3.60	—	3.29
SP2	2x	—	3½	6¾	(6) 10d	(6) 10d	—	1220	—	1110	—
								5.43	—	4.94	—
DSP	(2) 2x	—	2¾	6¼	(8) 10d x 1½"	(6) 10d x 1½"	(2) 10d x 1½"	1270	890	1270	890
								5.65	3.96	5.65	3.96
					(8) 10d	(6) 10d	(2) 10d	1550	985	1550	985
								6.90	4.38	6.90	4.38
TSP	—	—	1½	7¾	(6) 10d x 1½"	—	(3) 10d x 1½"	—	765	—	685
								—	3.40	—	3.05
					(9) 10d x 1½"	(6) 10d x 1½"	—	1325	—	940	—
								5.89	—	4.18	—
					(9) 10d x 1½"	(6) 10d	—	1455	—	1030	—
								6.47	—	4.58	—
<b>Strap Type</b>											
SP4	2x	4x	3¾	7¼	(6) 10d x 1½"	—	—	1135	—	915	—
								5.05	—	4.07	—
SPH4	2x	4x	3¾	8¾	(12) 10d x 1½"	—	—	2450	2010	1815	1430
								10.90	8.94	8.07	6.36
SP6	2x	6x	5¾	7¾	(6) 10d x 1½"	—	—	1135	—	915	—
								5.05	—	4.07	—
SPH6	2x	6x	5¾	9¼	(12) 10d x 1½"	—	—	2450	2010	1815	1430
								10.90	8.94	8.07	6.36
SP8	2x	8x	7¾	8¾	(6) 10d x 1½"	—	—	1135	—	915	—
								5.05	—	4.07	—
SPH8	2x	8x	7¾	8¾	(12) 10d x 1½"	—	—	2450	2010	1815	1430
								10.90	8.94	8.07	6.36

1. Factored resistances have been increased 15% for short-term loading; no further increase is allowed. Reduce values by 15% for standard term loading.
2. RSP4 factored lateral resistance is 345 lb. (1.53 kN) D.Fir-L and 245 lb. (1.09 kN) S-P-F for F<sub>1</sub> direction. The factored resistance in the F<sub>2</sub> direction is 175 lb. (0.78 kN) D.Fir-L and 125 lb. (0.51 kN) S-P-F. These values apply to both single- and double-plate applications.
3. When cross-grain bending or cross-grain tension cannot be avoided, mechanical reinforcement to resist such forces should be considered.
4. Tabulated values for SP4, SPH4, SP6, SPH6, SP8 and SPH8 assume loads are applied through the centre of the stud or plates (concentric loading). For applications where the load is applied to the connector through one side of the stud or plates (eccentric loading) multiply the tabulated values by 0.50.
5. **Nails:** 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" dia. x 1½" long, 8d x 1½" = 0.131" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.



# LTP4/LTP5/A34/A35

## Framing Angles and Plates

The larger LTP5 spans subfloor at the top of the blocking or rim joist. The embossments enhance performance and the min./max. nailing option allows for design flexibility.

The LTP4 lateral tie plate transfers shear forces for top plate-to-rim joist or blocking connections. Nail holes are spaced to prevent wood splitting for single and double top-plate applications. May be installed over plywood sheathing.

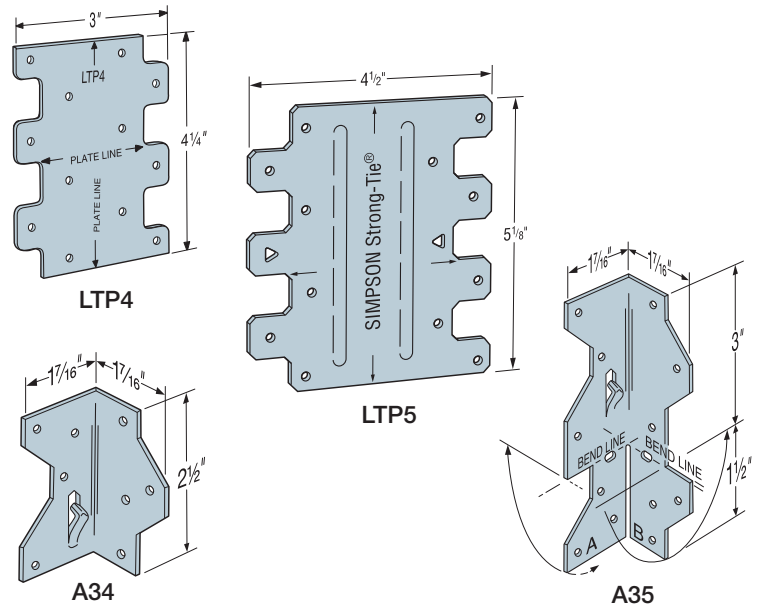
The A35 angle's exclusive bending slot allows instant, accurate field bends for all two- and three-way ties. Balanced, completely reversible design permits the A35 to secure a great variety of connections.

**Material:** LTP4/LTP5 — 20 gauge; all others — 18 gauge

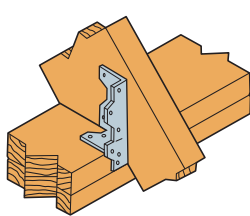
**Finish:** Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, pp. 16–21.

**Installation:**

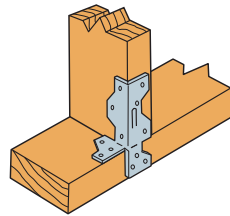
- Use all specified fasteners; see General Notes
- A35 — Bend one time only



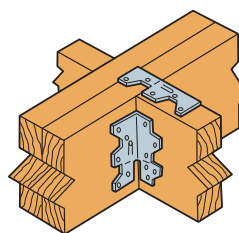
Straps and Ties



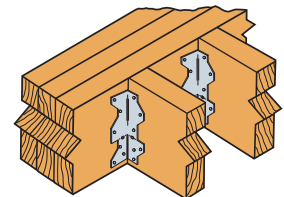
Joists to Plate with A Leg Inside



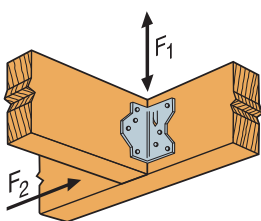
Studs to Plate with B Leg Outside



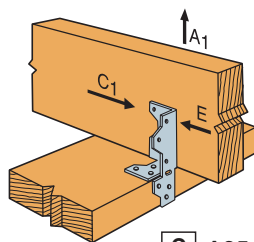
Joists to Beams



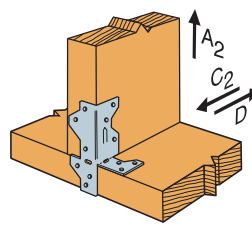
Ceiling Joists to Beam



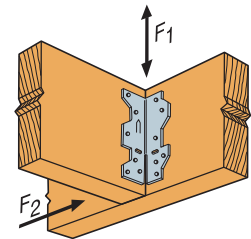
1 A34



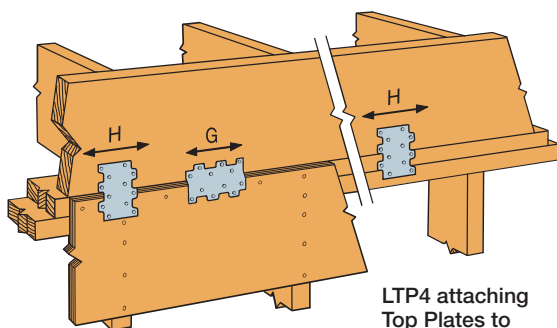
2 A35



3 A35

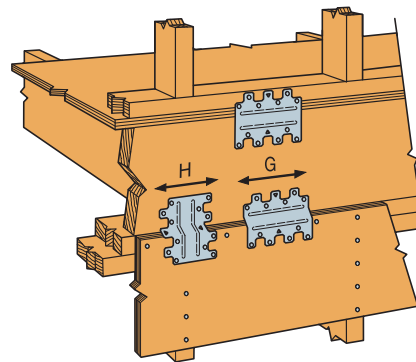


4 A35



5 LTP4 Installed over Plywood Sheathing

LTP4 attaching Top Plates to Rim Joist



6 LTP5 Installed over Plywood Sheathing



## LTP4/LTP5/A34/A35

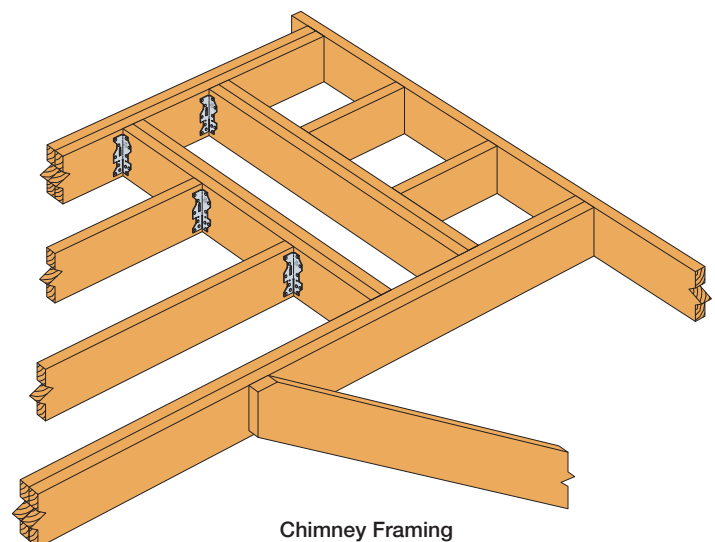
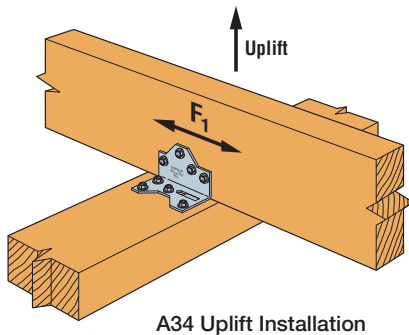
## Framing Angles and Plates (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Type of Connection	Fasteners Total	Direction of Load	Factored Resistance			
				D-Fir-L		S-P-F	
				(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)
				lb.	lb.	lb.	lb.
A34	1	(8) 8d x 1½"	F <sub>1</sub>	640	735	585	670
				2.84	3.27	2.60	2.98
		F <sub>2</sub>		630	640	455	455
				2.80	2.85	2.02	2.02
		(8) #9 x 1½" SD	F <sub>1</sub>	785	785	560	560
				3.49	3.49	2.49	2.49
	F <sub>2</sub>		765	880	545	625	
			3.40	3.91	2.42	2.78	
	Uplift		370	425	265	305	
				1.65	1.89	1.18	1.36
A35	2	(9) 8d x 1½"	A <sub>1</sub> , E	475	545	430	440
				2.11	2.42	1.91	1.96
		C <sub>1</sub>		290	290	205	205
				1.29	1.29	0.91	0.91
	3	(12) 8d x 1½"	A <sub>2</sub>	475	545	375	430
				2.11	2.42	1.67	1.91
			C <sub>2</sub>	475	505	355	355
				2.11	2.25	1.58	1.58
	D		315	365	225	260	
			1.40	1.62	1.00	1.16	
	4	(12) 8d x 1½"	F <sub>1</sub>	950	955	675	675
				4.23	4.25	3.00	3.00
F <sub>2</sub>			920	920	650	650	
			4.09	4.09	2.89	2.89	
LTP4	5	(12) 8d x 1½"	G	815	815	580	580
				3.63	3.63	2.58	2.58
			H	835	835	595	595
				3.71	3.71	2.65	2.65
LTP5	6	(12) 8d x 1½"	G <sup>4</sup>	875	875	620	620
				3.89	3.89	2.76	2.76
			H <sup>4</sup>	865	865	615	615
				3.85	3.85	2.74	2.74

1. Factored resistances are for one anchor. When anchors are installed on each side of the joist, the minimum joist thickness is 3".
2. Some illustrations show connections that could cause cross-grain tension or bending of the wood during loading if not reinforced sufficiently. In this case, mechanical reinforcement should be considered.
3. LTP4 can be installed over ½" plywood sheathing with no reduction in capacity.
4. LTP5 can be installed over ½" plywood sheathing and achieve 0.89 of the tabulated values for loads in the H direction. For load in the G direction, full tabulated values can be achieved.
5. **Nails:** 8d x 1½" = 0.131" dia. x 1½" long.
6. **Screws:** #9 x 1½" SD = 0.131" dia. x 1½" long (SD9112). See pp. 22–24 for other nail sizes and information.





# L/LS/GA

## Reinforcing and Skewable Angles

L — Staggered nail pattern reduces the possibility for splitting.

LS — Field-adjustable 0° to 135° angles.

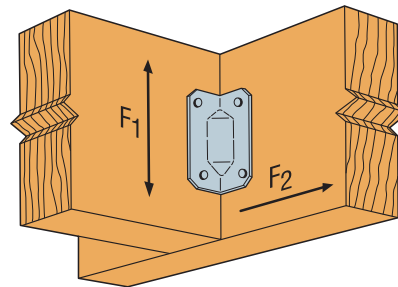
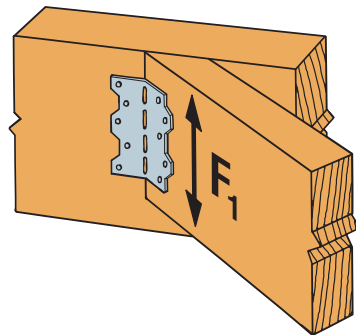
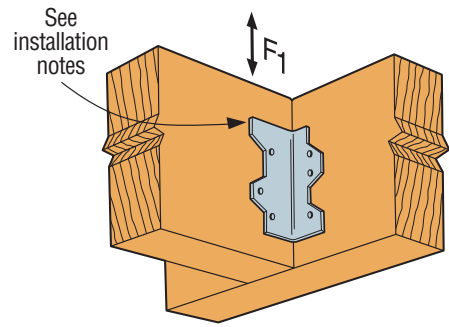
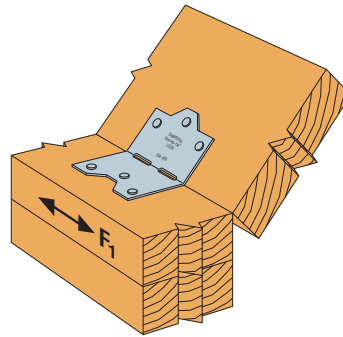
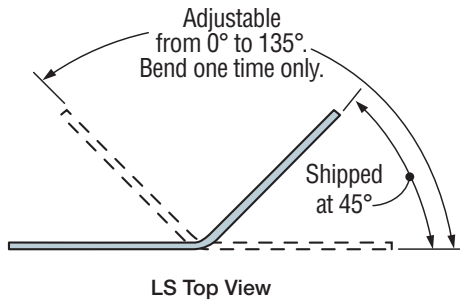
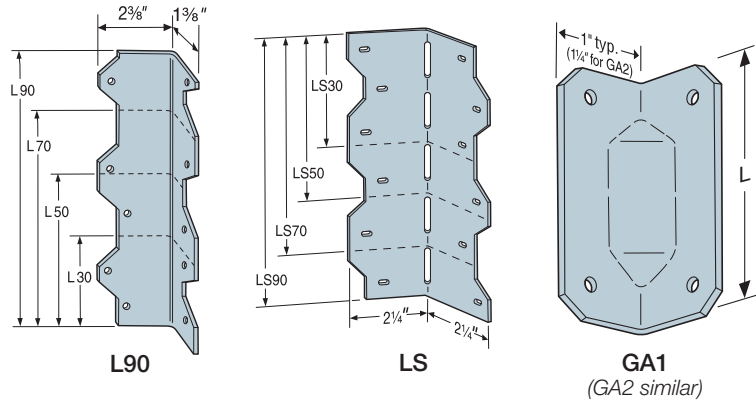
The GA gusset angles' embossed bend section provides added strength.

**Material:** L — 16 gauge; GA and LS — 18 gauge

**Finish:** Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, pp. 16–21.

### Installation:

- Use all specified fasteners; see General Notes
- LS — field skewable; bend one time only
- Joist must be constrained against rotation (for example, with solid blocking) when using a single LS per connection
- Nail the L angle's wider leg into the joist to ensure table values and allow correct nailing







## L/LS/GA

## Reinforcing and Skewable Angles (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.



Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	L (in.)	Fasteners Total	Factored Resistance						
			D.Fir-L		S-P-F				
			(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)			
			lb.	lb.	lb.	lb.			
			kN	kN	kN	kN			
GA1	2¾	(4) 10d x 1½"	305	350	215	245			
			1.36	1.56	0.96	1.09			
		(4) #9 x 1½" SD	420	485	380	400			
			1.87	2.16	1.69	1.96			
GA2	3¼	(6) 10d x 1½"	530	610	485	555			
			2.36	2.71	2.16	2.47			
		(6) #9 x 1½" SD	630	725	575	660			
			2.80	3.23	2.56	2.94			
L30	3	(4) 10d x 1½"	360	360	275	315			
			1.60	1.60	1.22	1.40			
		(4) 10d	420	480	390	445			
			1.87	2.14	1.73	1.98			
L50	5	(6) 10d	625	720	580	670			
			2.78	3.20	2.58	2.98			
		(6) #9 x 1½" SD	685	785	585	675			
			3.05	3.49	2.60	3.00			
		(6) #9 x 2½" SD	830	830	585	675			
			3.69	3.69	2.60	3.00			
L70	7	(8) 10d	835	960	775	890			
			3.71	4.27	3.45	3.96			
		(8) #9 x 1½" SD	910	1050	835	960			
			4.05	4.67	3.71	4.27			
		(8) #9 x 2½" SD	1290	1480	1115	1280			
			5.74	6.58	4.96	5.69			
L90	9	(10) 10d	1045	1200	970	1115			
			4.65	5.34	4.31	4.96			
		(10) #9 x 1½" SD	1140	1310	1045	1200			
			5.07	5.83	4.65	5.34			
		(10) #9 x 2½" SD	1610	1850	1450	1670			
			7.16	8.23	6.45	7.43			
LS30	3¾	(6) 10d x 1½"	475	475	365	415			
			2.11	2.11	1.62	1.85			
		(6) 10d	540	555	385	415			
			2.40	2.47	1.71	1.85			
LS50	4¾	(8) 10d x 1½"	720	800	625	720			
			3.20	3.56	2.78	3.20			
		(8) 10d	770	890	670	720			
			3.43	3.96	2.98	3.20			
LS70	6¾	(10) 10d x 1½"	900	1035	700	805			
			4.00	4.60	3.11	3.58			
		(10) 10d	965	1090	775	805			
			4.29	4.85	3.45	3.58			
LS90	7¾	(12) 10d x 1½"	1080	1240	980	1125			
			4.80	5.52	4.36	5.00			
		(12) 10d	1160	1330	1010	1125			
			5.16	5.92	4.49	5.00			

1. GA resistances are for both F<sub>1</sub> or F<sub>2</sub> direction. L and LS resistances are for F<sub>1</sub> direction only.

2. Factored resistances shown are for one part.

3. L50, L70 and L90 may be installed using 10d x 1½" nails. Multiply the tabulated 10d resistances x 0.92.

4. GA1 uplift resistance with SD9 screws is 455 lb. (2.02 kN) D.Fir-L and 345 lb. (1.53 kN) S-P-F (K<sub>D</sub> = 1.15).

5. GA2 uplift resistance with SD9 screws is 550 lb. (2.45 kN), D.Fir-L and 415 lb. (1.85 kN) S-P-F (K<sub>D</sub> = 1.15).

6. **Nails:** 10d = 0.148" dia. x 3" long, 10d x 1½" = 0.148" x 1½" long. See pp. 22–24 for other nail sizes and information.

7. **Screws:** #9 x 1½" SD = 0.131" dia. x 1½" long (SD9112), #9 x 2½" SD = 0.131" dia. x 2½" long (SD9212).



# A

## Angles

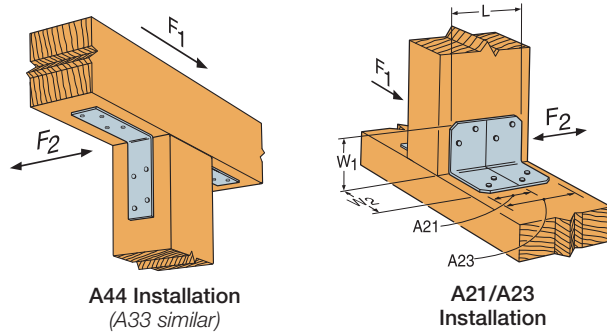
Our line of angles provides a way to make a wide range of 90° connections.

**Material:** A21 and A23 — 18 gauge;  
all other A angles — 12 gauge

**Finish:** Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, pp. 16–21.

**Installation:**

- Use all specified fasteners; see General Notes
- F<sub>1</sub> direction is loading into the part



These products are available with additional corrosion protection. For more information, see p. 20.



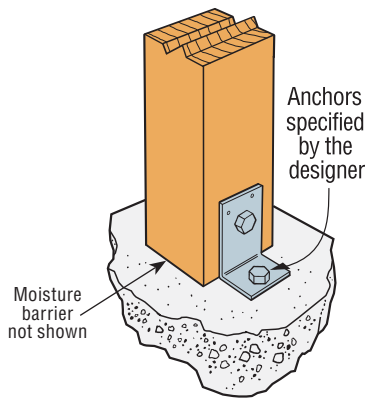
Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Straps and Ties

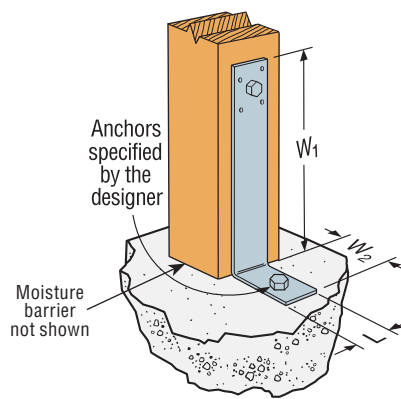
Model No.	Dimensions (in.)			Fasteners				Factored Resistance (K <sub>D</sub> = 1.15)			
	W <sub>1</sub>	W <sub>2</sub>	L	Base		Post		D.Fir-L		S-P-F	
				Bolts	Nails	Bolts	Nails	F <sub>1</sub> lb. kN	F <sub>2</sub> lb. kN	F <sub>1</sub> lb. kN	F <sub>2</sub> lb. kN
A21	2	1½	1¾	—	(2) 10d x 1½"	—	(2) 10d x 1½"	405 1.80	260 1.16	335 1.49	185 0.82
A23	2	1½	2¾	—	(4) 10d x 1½"	—	(4) 10d x 1½"	815 3.63	715 3.18	725 3.23	510 2.27
A33	3	3	1½	—	(4) 10d	—	(4) 10d	1175 5.23	570 2.54	930 4.14	405 1.80
A44	4¾	4¾	1½	—	(4) 10d	—	(4) 10d	1175 5.23	485 2.16	930 4.14	345 1.53
A66	5¾	5¾	1½	(2) ¾" MB	(3) 10d	(2) ¾" MB	(3) 10d	—	—	—	—
A88	8	8	2	(3) ¾" MB	(4) 10d	(3) ¾" MB	(4) 10d	—	—	—	—
A24	3¾	2	2½	(1) ½" MB	—	(1) ½" MB	(2) 10d	—	—	—	—
A311	11	3¾	2	(1) ½" MB	—	(1) ½" MB	(4) 10d	—	—	—	—

1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other loads govern.

2. Nails: 10d x 1½" = 0.148" dia. x 1½" long, 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.



**A24 Installation**



**A311 Installation**



# RBC

## Roof Boundary Clip

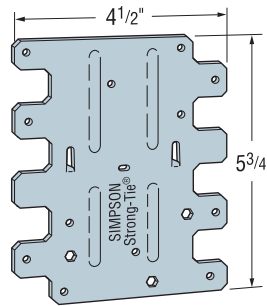
The RBC roof boundary clip is designed to aid installation and transfer shear loads between the roof diaphragm and wall. The locator tabs make proper location of the clip easy. The RBC can be used on wood or masonry walls and will handle roof pitches from 0/12 to 12/12.

**Material:** 20 gauge

**Finish:** Galvanized

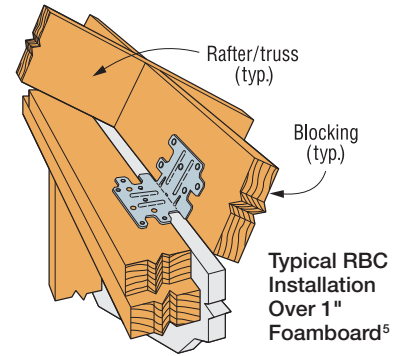
**Installation:**

- Use all specified fasteners; see General Notes
- Field bend to desired angle — one time only
- **Titen Turbo™** screws are not recommended for exposed exterior applications or wet service conditions
- See p. 27 for more information on **Titen Turbo** screws

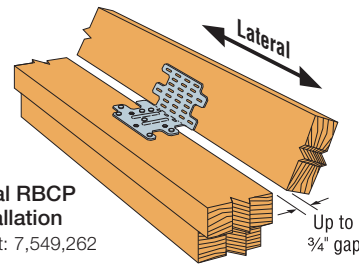


**RBC**

US Patent: 7,293,390



**Typical RBC Installation Over 1" Foamboard<sup>5</sup>**



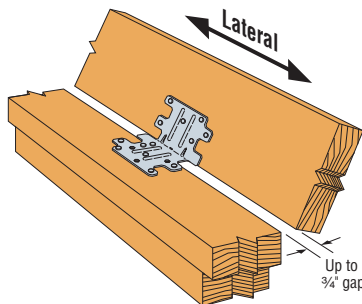
**Typical RBCP Installation**

US Patent: 7,549,262

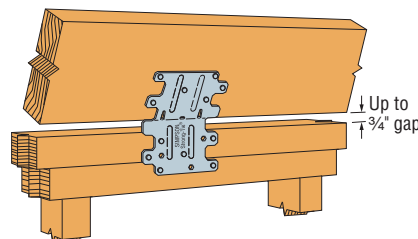
The RBC is available with prongs into one side (RBCP) for pre-attachment of the part to a block at the truss plant. RBCP should be pressed or rolled on in the truss plant.

Model No.	Type of Connection	Bending Angle	Fasteners		Factored Resistance (K <sub>D</sub> = 1.15)	
			To Wall	To Blocking	D.Fir-L	S-P-F
					lb.	lb.
RBC RBCP	1	45° to 90°	(6) 10d x 1 1/2"	(6) 10d x 1 1/2"	660	465
					2.94	2.07
	2	< 30°	(6) 10d x 1 1/2"	(6) 10d x 1 1/2"	645	460
					2.87	2.05
					685	485
	3	0° to 45°	(3) 1/4" x 2 1/4" <b>Titen Turbo</b>	(6) 10d x 1 1/2"	575	410
					2.56	1.82

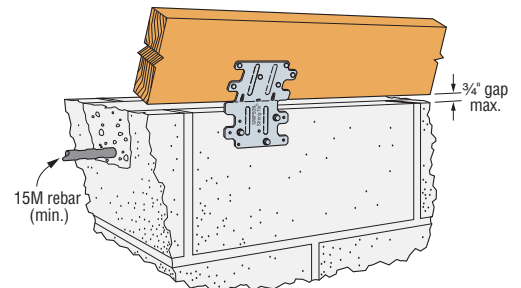
1. Factored resistances are for one anchor attached to blocking minimum 1 1/2" thick.
2. RBC can be installed with up to 3/4" gap and achieve 100% of the listed value.
3. Factored resistances have been increased 15% for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
4. When attaching to concrete use (3) 1/4" x 1 3/4" **Titen Turbo screws (TNT25134H)**.
5. RBC installed over 1" foamboard has a factored resistance of 650 lb. (2.89 kN) in a parallel to wall load direction for D.Fir-L. For S-P-F, the value is 460 lb. (2.05 kN).
6. RBC may be installed over 1/2" structural sheathing using 10d x 1 1/2" nails with no reduction in capacity.
7. **Nails:** 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22-24 for other nail sizes and information.



**1** Typical RBC Installation



**2** Typical RBC Installation



**3** Typical RBC Installation to CMU Block



# HSLQ

## Heavy Shear Transfer Angle

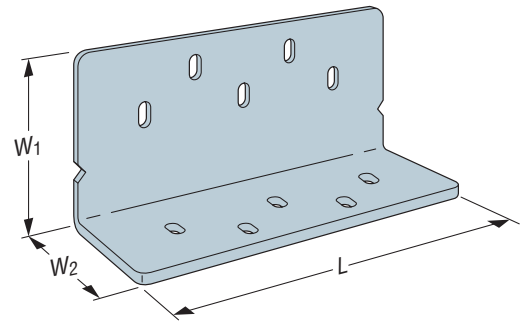
The HSLQ heavy shear transfer angle is designed to transfer lateral loads from wood solid sawn joists or blocking into a wood solid sawn element such as a moment frame nailer. The angle offers versatility by allowing up to a 2" gap between the structural members and easy installation with Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws that are included with the HSLQ. The HSLQ is manufactured with a gap indication notch to make proper installation easy.

**Material:** 12 gauge

**Finish:** Galvanized, available in HDG

**Installation:**

- Use all specified fasteners: see General Notes.
- Use long leg with notch indicator.  
(Notch indicates maximum allowed gap.)
- Minimum 4x8 wood members are required.
- Add filler shims where required in order not to load the angle in any direction other than lateral, as indicated.

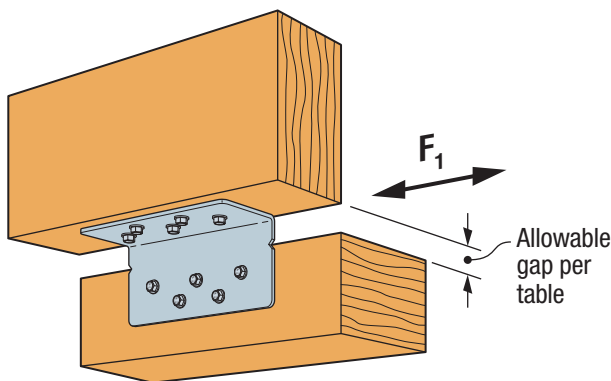


**HSLQ37**  
(HSLQ312, HSLQ47, HSLQ412 similar)

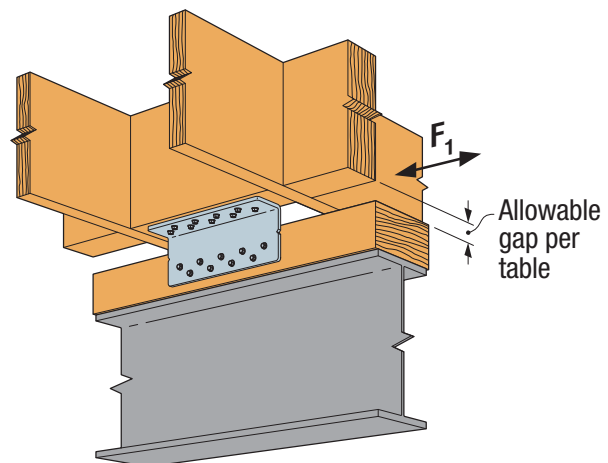
Straps and Ties

Model No.	Allowable Gap	Dimensions (in.)			Fasteners SDS 1/4" x 2 1/2" Screws	Factored Resistance (K <sub>D</sub> = 1.15)	
		W <sub>1</sub>	W <sub>2</sub>	L		D.Fir-L	S-P-F
						lb.	lb.
HSLQ37-SDS2.5	0" – 1"	3 1/4	2 3/4	7 1/4	10	2250	1620
HSLQ312-SDS2.5	0" – 1"	3 1/4	2 3/4	11 3/4	18	10.01	7.21
HSLQ47-SDS2.5	1" – 2"	4 1/4	2 3/4	7 1/4	10	4465	3215
HSLQ412-SDS2.5	1" – 2"	4 1/4	2 3/4	11 3/4	18	19.86	14.30
						1695	1220
						7.54	5.43
						3695	2660
						16.44	11.83

1. Factored resistances have been increased 15% for wind or earthquake loading. Reduce where other load durations govern.
2. Values shown are for one angle.
3. Minimum 4x8 wood members are required.
4. HSLQ is used for in-plane lateral load transfer only. Designer shall provide for frame out-of-plane stability as required.



Typical HSLQ37 Installation



Typical HSLQ412 Installation



## ABR/AE

## Cross-Laminated Timber Connectors

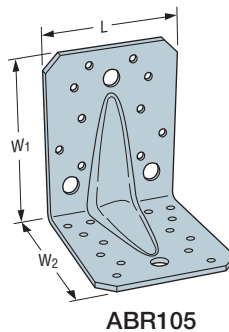
The AE and ABR heavy angles are used to transfer shear forces between CLT wall and floor panels. Both series of angles have been tested using S-P-F cross-laminated timber manufactured to ANSI/APA PRG 320 standard and can be installed using proprietary CNA ring-shank nails or Simpson Strong-Tie® Strong-Drive® SD Connector screws.

**Material:** See table

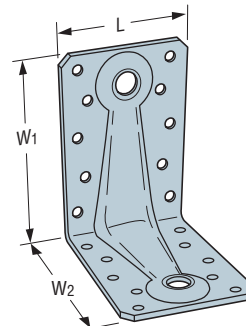
**Finish:** Galvanized

**Installation:**

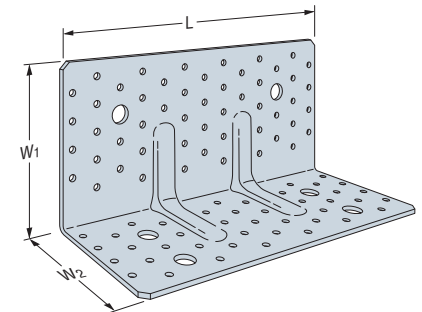
- Use all specified fasteners.
- Installation and fasteners schedule assumes platform framing. Install vertical leg at bottom edge of CLT wall panel and horizontal leg on CLT floor panel with 3 $\frac{3}{8}$ " minimum edge distance.



ABR105

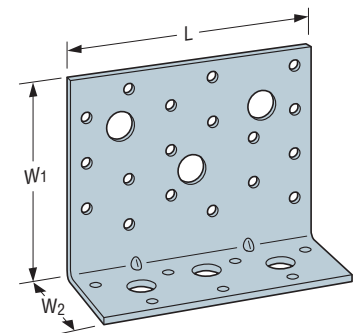


ABR9020

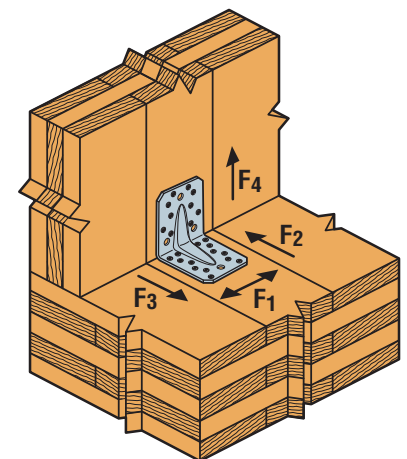


ABR255

Model No.	Dimensions (mm)				Fasteners		Factored Resistance (K <sub>D</sub> = 1.15)			
	t	W <sub>1</sub>	W <sub>2</sub>	L	Horizontal Leg	Vertical Leg	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>
							lb.	lb.	lb.	lb.
ABR9020	2	88	88	65	(10) CNA4 x 60	(10) CNA4 x 60	1755	560	2545	560
							7.81	2.49	11.32	2.49
					(10) #10 x 2½" SD	(10) #10 x 2½" SD	2465	1885	2545	1580
						10.97	8.39	11.32	7.03	
					(10) 16d x 2½"	(10) 16d x 2½"	1225	575	2410	575
							5.45	2.56	10.72	2.56
ABR105	3	105	105	90	(14) CNA4 x 60	(10) CNA4 x 60	2165	560	4050	770
							9.63	2.49	18.02	3.43
					(14) #10 x 2½" SD	(10) #10 x 2½" SD	2965	1905	4405	2330
						13.19	8.47	19.60	10.36	
					(14) 16d x 2½"	(10) 16d x 2½"	1805	575	3255	685
							8.03	2.56	14.48	3.05
AE116	3	90	48	116	(7) CNA4 x 60	(18) CNA4 x 60	2025	1010	2025	385
							9.01	4.49	9.01	1.71
					(7) #10 x 1½" SD	(18) #10 x 1½" SD	2810	1280	2645	1210
						12.50	5.69	11.77	5.38	
					(7) #10 x 2½" SD	(18) #10 x 2½" SD	3475	2485	3475	1340
							15.46	11.05	15.46	5.96
					(7) 16d x 2½"	(18) 16d x 2½"	2190	1030	2190	395
							9.74	4.58	9.74	1.76
ABR255	3	120	100	255	(41) CNA4 x 60	(52) CNA4 x 60	5770	2920	4595	2260
							25.67	12.99	20.44	10.05
					(41) #10 x 2½" SD	(52) #10 x 2½" SD	5505	6995	4595	5785
						6.78	6.78	6.78	6.78	
					(41) 16d x 2½"	(52) 16d x 2½"	4740	2980	4595	2310
							21.09	13.26	20.44	10.28

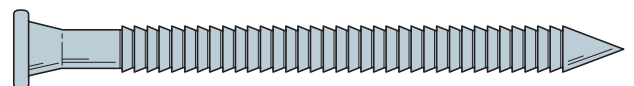


AE116



Typical ABR105 Installation  
(others similar)

1. Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed; reduce where other load durations govern.
2. Factored resistances are based on cross-laminated timber manufactured to ANSI/APA PRG 320 using SPF material. See engineering letter L-C-CLTCNCTRS at [strongtie.com](http://strongtie.com) for additional information and fastener options.
3. **Nails:** CNA4 x 60 = 4.1 mm dia. x 60 mm long proprietary ring-shank nail; 16d x 2½" = 0.162" dia. x 2½" long. See pp. 22–24 for other nail sizes and information.
4. **Screws:** #10 x 2½" SD = 0.131" dia. x 2½" long (model SD10212).



CNA4 x 60



# HL

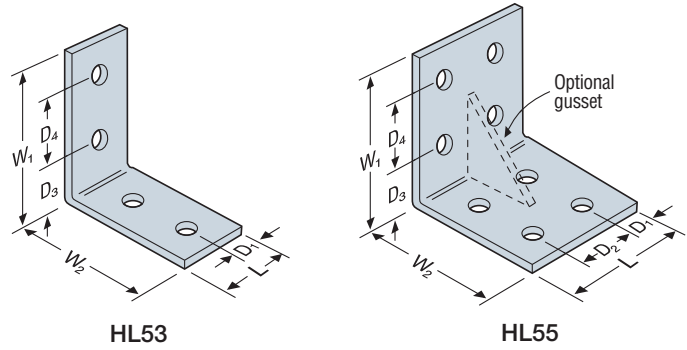
## Heavy Angles and Gussets

Versatile angle gussets and heavy angles promote standardization and construction economy, and are compatible with Simpson Strong-Tie® structural hardware.

**Finish:** HL33, 35, 53, 55 — Galvanized; others Simpson Strong-Tie® gray paint (including all parts with gussets). May be ordered HDG or black powder coat (add HDG or PC to model no.); contact Simpson Strong-Tie.

**Options:**

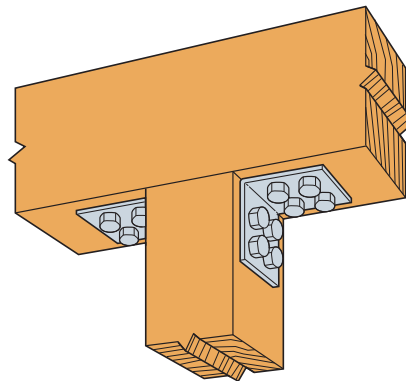
- Gussets may be added to HL models when L ≥ 5" (specify G after model number, as in HL46G)



These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Ga.	Dimensions (in.)						Bolts (Total)	
		W <sub>1</sub> and W <sub>2</sub>	L	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	Quantity	Diameter (in.)
HL33	7	3¼	2½	1¼	—	2	—	2	½
HL35	7	3¼	5	1¼	2½	2	—	4	½
HL53	7	5¾	2½	1¼	—	2	2½	4	½
HL55	7	5¾	5	1¼	2½	2	2½	8	½
HL43	3	4¼	3	1½	—	2¾	—	2	¾
HL46	3	4¼	6	1½	3	2¾	—	4	¾
HL73	3	7¼	3	1½	—	2¾	3	4	¾
HL76	3	7¼	6	1½	3	2¾	3	8	¾

1. Connectors are not load rated.



Typical HL55 Installation



# T and L

## Strap Ties

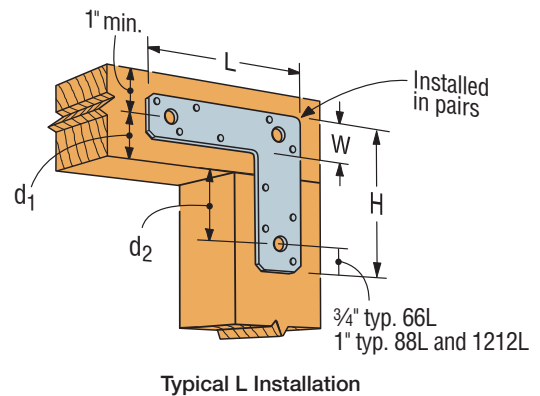
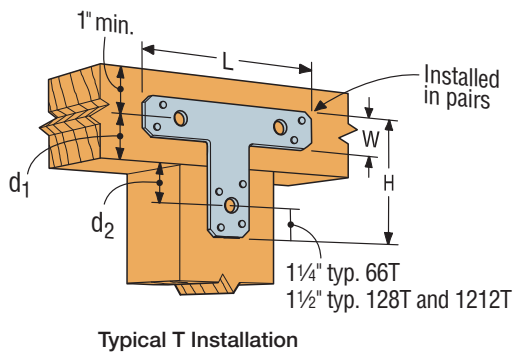
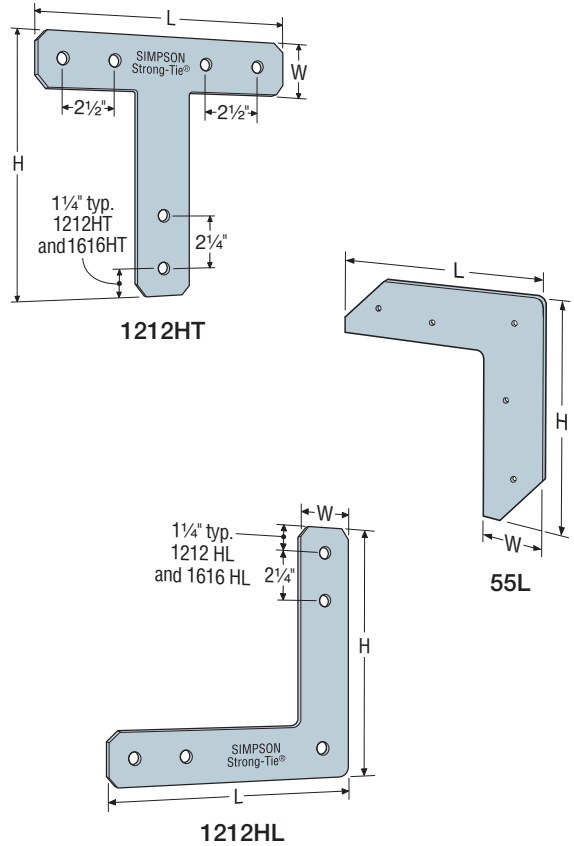
T and L strap ties are versatile utility straps. See Indoor Architectural Products for aesthetically pleasing options with black powder-coated paint.

**Finish:** Galvanized; see Corrosion Information, pp. 16–21. Also available in black powder coat (add PC to model no.); contact Simpson Strong-Tie.

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Ga.	Dimensions (in.)			Fasteners		
		L	H	W	Nails	Bolts	
						Qty.	Dia. (in.)
55L	16	4¾	4¾	1¼	(5) 10d	—	—
66L	14	6	6	1½	(10) 16d	3	¾
88L	14	8	8	2	(12) 16d	3	½
1212L	14	12	12	2	(14) 16d	3	½
1212HL	7	12	12	2½	—	4	⅝
1616HL	7	16	16	2½	—	4	⅝
66T	14	6	5	1½	(8) 16d	3	¾
128T	14	12	8	2	(12) 16d	3	½
1212T	14	12	12	2	(12) 16d	3	½
1212HT	7	12	12	2½	—	6	⅝
1616HT	7	16	16	2½	—	6	⅝

- These connectors are not load-rated and may be installed with nails or bolts.
- Nails:** 16d = 0.162" dia. x 3½" long, 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.





# PWF24

## Strap Tie

The PWF24 is a galvanized metal strap manufactured specifically for connecting preservative-treated wood foundation walls to the floor system. This strap exceeds the prescriptive requirements of CSA S406-14 *Construction of Preserved Wood Foundations*.

**Material:** 20 gauge

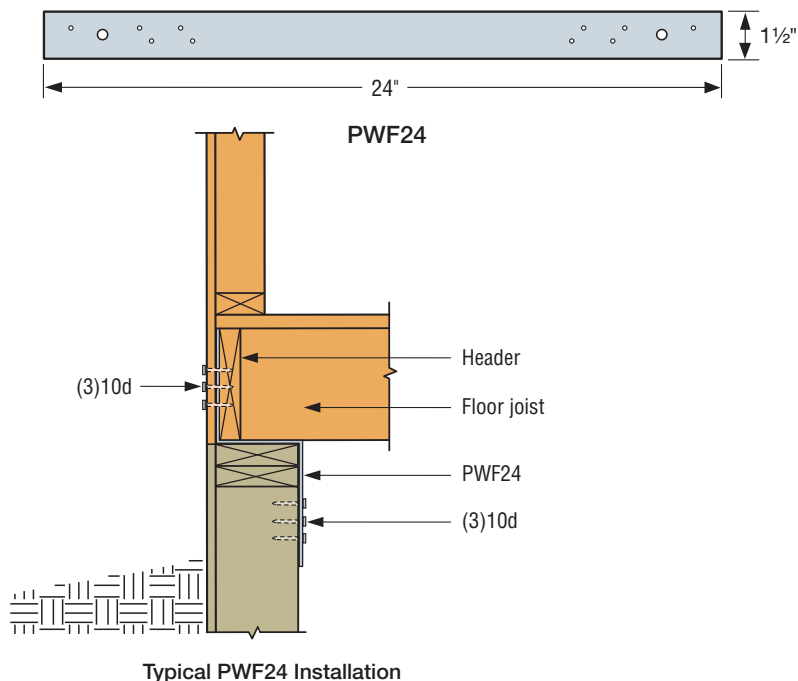
**Finish:** Galvanized

**Installation:**

- All fasteners shall be hot-dip galvanized
- See CSA S406-14
- For installations in interior-dry applications with CCA-treated lumber only

Model No.	Dimensions (in.)		Total Fasteners
	W	L	
PWF24	1½	24	(6) 10d

1. Install three nails into the stud and three nails into the rim board.
2. **Nails:** 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.



## Z

### Clip

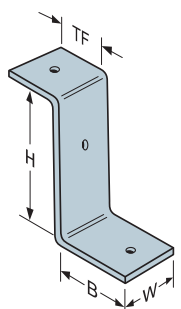
The Z clip secures 2x4 flat blocking between joists or trusses to support sheathing.

**Material:** See table

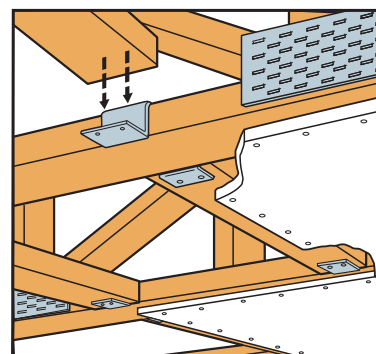
**Finish:** Galvanized

**Installation:**

- Use all specified fasteners; see General Notes.
- Z clips do not provide lateral stability. Do not walk on stiffeners or apply load until diaphragm is installed and nailed to stiffeners.



**Z4**  
(others similar)



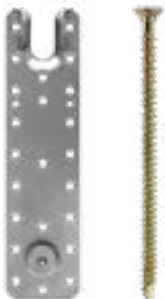
**Typical Z2 Installation**

Model No.	Ga.	Dimensions (in.)				Fasteners <sup>1</sup> Total	Factored Resistance (K <sub>D</sub> = 1.00)	
		W <sub>1</sub>	H	B	TF		D.Fir-L	S-P-F
							lb.	lb.
Z2	20	2⅝	1½	1⅜	1⅜	(4) 10d x 1½"	740	525
							3.29	2.34
Z4	12	1½	3½	2⅝	1¼	(2) 16d	765	545
							3.40	2.42
Z6	12	1½	5⅝	2	1⅜	(2) 16d	790	560
							3.51	2.49
Z28	28	2⅝	1½	1⅜	1⅜	10d x 1½"	—	—
Z38	28	2⅝	2½	1⅜	1⅜	10d x 1½"	—	—
Z44	12	2½	3½	2	1⅜	(4) 16d	1420	1010
							6.32	4.49

1. Z28 and Z38 do not have nail holes. Fastener quantity and type shall be per designer.
2. Z4 and Z6 resistances apply with a nail into the top and a nail into the seat.
3. Factored resistances for Z clips cannot be increased for short-term loading.
4. **Nails:** 16d = 0.162" dia. x 3½" long, 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.



# Bringing unmatched products and service to mass timber.



With over 65 years of leadership in structural engineering, Simpson Strong-Tie is now proud to offer smart solutions for mass timber. From our rigorously tested connectors and fasteners that provide design flexibility, to a nationwide supply network that delivers exactly what you need, when you need it — our products and expertise ensure that your mass timber projects are built faster, easier and stronger than ever.

To learn more, visit [go.strongtie.com/masstimber](https://go.strongtie.com/masstimber) or call (800) 999-5099.





# HU/HUC

## Face-Mount Hangers

HU and HUC products are heavy duty face mount joist hangers.

**Material:** 14 gauge

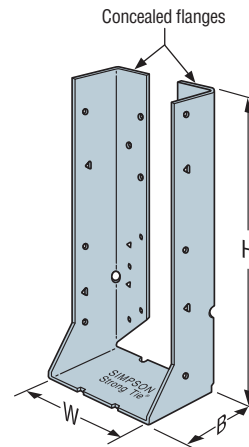
**Finish:** Galvanized; ZMAX® available

**Installation:**

- Attach the hangers to concrete or GFCMU walls using hex-head **Titen Turbo™** screws. **Titen Turbo** screw anchors for GFCMU ( $\frac{1}{4}$ " x  $2\frac{3}{4}$ " — Model TNT25234H) and for concrete ( $\frac{1}{4}$ " x  $1\frac{3}{4}$ " — Model TNT25134H) are not provided with the hangers.
- Drill and prep the holes according to the Installation Instructions provided with the packaging for **Titen Turbo** screw anchors.
- Caution: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with the base material and will reduce the anchor's load capacity.
- The hangers should be installed such that a minimum end distance of  $3\frac{7}{8}$ " and a minimum edge distance of  $1\frac{1}{2}$ " is maintained.
- Where no uplift resistance is required, a minimum edge and end distance of  $1\frac{1}{2}$ " is permitted.
- Stainless-steel HU/HUC hangers and **Titen Turbo** screws are available for some medium corrosion exterior applications.
- GFCMU shall be 15 MPa (min.) concrete block masonry with Type S mortar grout filled in accordance with CSA A179.
- **Titen Turbo** Installation Kits are available (Model TNTINSTALLKIT). A  $\frac{3}{16}$ " x 6" SDS-plus drill bit is also available (Model MDPLO1860SH).
- **Installation on GFCMU** — A minimum edge distance of  $1\frac{1}{2}$ " and a minimum end distance of  $3\frac{7}{8}$ " is required as shown in Figure 1 for full load. Where no uplift is required, a minimum end distance of  $1\frac{1}{2}$ " is permitted.
- **Installation on Concrete** — A minimum end and edge distance of 3" is required for table values. For edge distances of  $1\frac{3}{4}$ " minimum and a minimum end distance of 3", factored normal resistance is 0.90 of table values with no reduction for uplift loads.
- See p. 27 for more information on **Titen Turbo** screws.

**Options:**

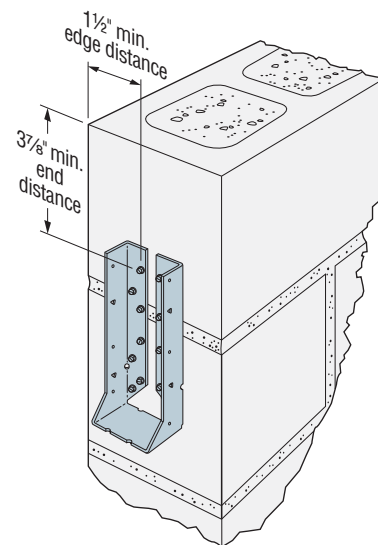
- The HUC is a concealed flange version of the HU. Concealed flange hangers have the face flanges turned in.
- HU is available with A flanges concealed, provided the W dimension is  $2\frac{5}{16}$ " or greater, at 100% of the table value.
- HU is available with one flange concealed when the W dimension is less than  $2\frac{5}{16}$ " at 100% of the table value.
- Skewed HU/HUC hangers attached to masonry have not been evaluated.



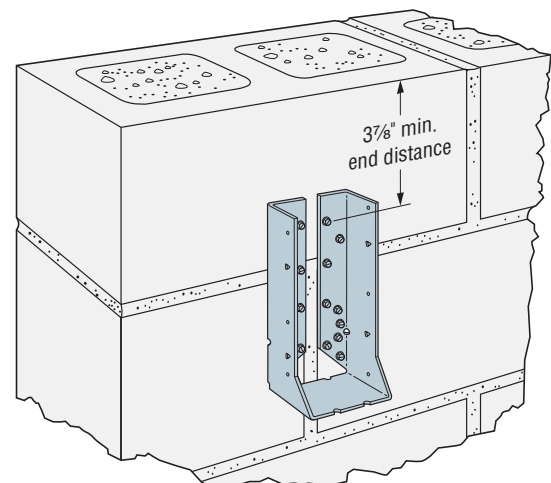
HUC410



**Titen Turbo**  
**Hex-Head Screw**  
Patent Pending



HUC410  
Installed on  
Masonry Block  
Endwall



HUC410 Installed on  
Masonry Block  
Sidewall



## HU/HUC

## Face-Mount Hangers (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.		Dimensions (in.)				Fasteners			Factored Resistance		
									Uplift ( $K_D = 1.15$ )	Normal ( $K_D = 1.00$ )	
Standard	Concealed	W	H	B	$d_e$	GFCMU	Concrete	Joist	lb.	lb.	
						Titen Turbo™	Titen Turbo		kN	kN	
➤ HU26	HU26X	1 $\frac{1}{16}$	3 $\frac{1}{16}$	2 $\frac{1}{4}$	2 $\frac{1}{16}$	(4) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(4) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(2) 10d x 1 $\frac{1}{2}$ "	490	1625	
									2.18	7.23	
➤ HU28	HU28X	1 $\frac{1}{16}$	5 $\frac{1}{4}$	2 $\frac{1}{4}$	4 $\frac{7}{16}$	(6) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(6) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(4) 10d x 1 $\frac{1}{2}$ "	975	2435	
									4.34	10.83	
➤ HU210	HU210X	1 $\frac{1}{16}$	7 $\frac{1}{8}$	2 $\frac{1}{4}$	6 $\frac{3}{4}$	(8) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(8) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(4) 10d x 1 $\frac{1}{2}$ "	975	3250	
									4.34	14.46	
	HU212	HU212X	1 $\frac{1}{16}$	9	2 $\frac{1}{4}$	8 $\frac{5}{16}$	(10) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(10) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(6) 10d x 1 $\frac{1}{2}$ "	1465	4015
									6.52	17.86	
➤ HU26-2	HUC26-2	3 $\frac{1}{8}$	4 $\frac{15}{16}$	2 $\frac{1}{2}$	4 $\frac{1}{2}$	(12) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(12) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(6) 10d	1575	5430	
									7.01	24.15	
➤ HU28-2	HUC28-2	3 $\frac{1}{8}$	6 $\frac{5}{16}$	2 $\frac{1}{2}$	4 $\frac{1}{2}$	(14) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(14) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(6) 10d	1575	5780	
									7.01	25.71	
➤ HU210-2	HUC210-2	3 $\frac{1}{8}$	8 $\frac{9}{16}$	2 $\frac{1}{2}$	7 $\frac{3}{4}$	(18) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(18) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(10) 10d	2620	5780	
									11.65	25.71	
	HU212-2	HUC212-2	3 $\frac{1}{8}$	10 $\frac{9}{16}$	2 $\frac{1}{2}$	7 $\frac{3}{4}$	(22) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(22) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(10) 10d	2620	5780
									11.65	25.71	
➤ HU46	HUC46	3 $\frac{9}{16}$	4 $\frac{1}{16}$	2 $\frac{1}{2}$	4 $\frac{5}{16}$	(12) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(12) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(6) 10d	1575	4870	
									7.01	21.66	
➤ HU48	HUC48	3 $\frac{9}{16}$	6 $\frac{1}{16}$	2 $\frac{1}{2}$	4 $\frac{5}{16}$	(14) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(14) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(6) 10d	1575	5685	
									7.01	25.29	
➤ HU410	HUC410	3 $\frac{9}{16}$	8 $\frac{3}{8}$	2 $\frac{1}{2}$	7 $\frac{9}{16}$	(18) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(18) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(10) 10d	2620	5780	
									11.65	25.71	
	HU412	HUC412	3 $\frac{9}{16}$	10 $\frac{3}{16}$	2 $\frac{1}{2}$	7 $\frac{9}{16}$	(22) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(22) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(10) 10d	2620	5780
									11.65	25.71	
	HU26-3	HUC26-3	4 $\frac{1}{16}$	4 $\frac{9}{16}$	2 $\frac{1}{2}$	4 $\frac{3}{16}$	(12) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(12) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(6) 10d	1575	4870
									7.01	21.66	
	HU210-3	HUC210-3	4 $\frac{1}{16}$	8 $\frac{1}{16}$	2 $\frac{1}{2}$	7 $\frac{5}{16}$	(18) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(18) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(10) 10d	2620	5780
									11.65	25.71	
	HU212-3	HUC212-3	4 $\frac{1}{16}$	9 $\frac{1}{16}$	2 $\frac{1}{2}$	7 $\frac{5}{16}$	(22) $\frac{1}{4}$ " x 2 $\frac{3}{4}$ "	(22) $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	(10) 10d	2620	5780
									11.65	25.71	

- Factored uplift resistances have been increased 15% for wind or earthquake loading with no further increase allowed. The values shown assume a D.Fir-L joist in the hanger and are based on nail values only. The designer must ensure the joist can generate the resistances shown based on the effective shear depth  $d_e$ . For S-P-F joist multiply uplift value by 0.71.
- Factored resistances assume Type S mortar with  $f'_m = 1087$  psi (7.5 MPa) for 15 MPa concrete block masonry as per Table 4 CSA S304-14. For values of  $f'_m < 1085$  psi (7.5 MPa) multiply the tabulated values by  $(f'_m / 1085)^{0.5}$ .
- Factored resistances assume a 28-day concrete compressive strength of  $f'_c = 2500$  psi (17.25 MPa). For values of  $f'_c < 2500$  psi (17.25 MPa) multiply the tabulated values by  $(f'_c / 2500)^{0.5}$ .
- The designer must ensure the joist can generate the factored normal resistances shown.
- $d_e$  is the dimension from the bearing seat to the top joist nail.
- Products shall be installed such that Titen Turbo screws are not exposed to weather.
- Nails:** 10d = 0.148" dia. x 3" long, 10d x 1 $\frac{1}{2}$ " = 0.148" dia. x 1 $\frac{1}{2}$ " long.  
See pp. 22–24 for other nail sizes and information.



# LGUM/HGUM

## High-Capacity Beam/Girder Hangers for Concrete and GFCMU

High-capacity girder hangers for masonry applications. Installation is made easier using Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws into the wood member and Titen HD® heavy-duty screw anchors into the masonry.

**Material:** See table

**Finish:** Galvanized

**Installation:**

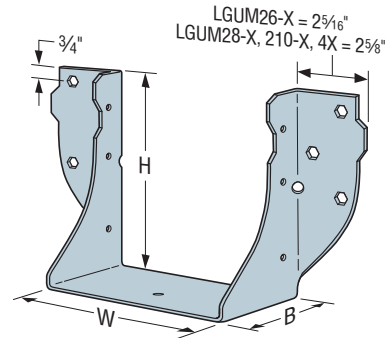
- Use all specified fasteners (included).

**Titen HD:**

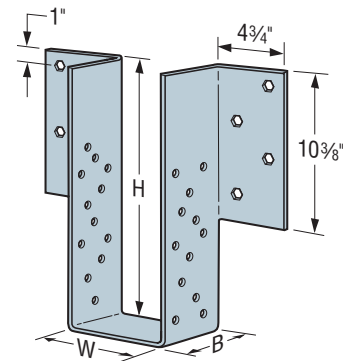
- Drill holes using drill bits equal in diameter to the specified Titen HD screw anchor.
- Holes shall be drilled  $\frac{1}{2}$ " deeper than the specified Titen HD screw anchor length (i.e.,  $4\frac{1}{2}$ " for a 4" long Titen HD screw anchor).
- Caution: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with the base material and will reduce the anchor's load capacity.
- **Carbon steel** Titen HD screw anchor is not recommended for exposed exterior applications or wet service conditions.
- GFCMU shall be Type S mortar with  $f'_m = 1087$  psi (7.5 MPa) for 15 MPa concrete block masonry as per Table 4 CSA S304-14.
- See pp. 28–29 for more information on Titen HD screw anchors.

**Options:**

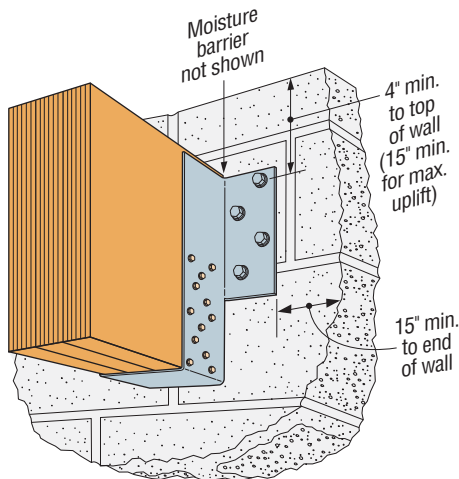
- For HGUM only – Other seat widths available. Order as "X" version.
- HGUM available with one flange concealed.
- LGUM/HGUM available with skews up to 45°. See Hanger Options, pp. 111–113.
- For stainless-steel options, see Simpson Strong-Tie engineering letter L-C-CMUHGRSS at [strongtie.com](http://strongtie.com).



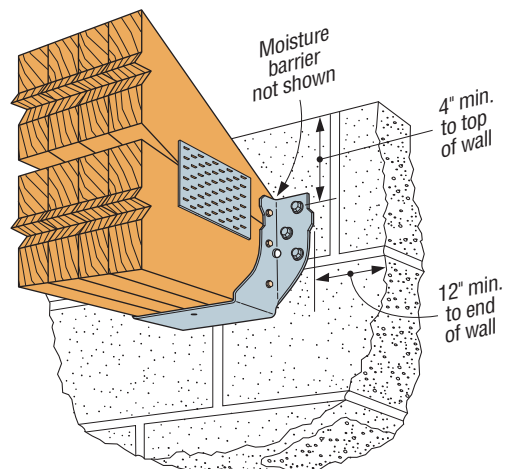
LGUM



HGUM



Typical HGUM Installation



Typical LGUM Installation



## LGUM/HGUM

## High-Capacity Beam/Girder Hangers for Concrete and GFCMU (cont.)

Model No.	Ga.	Dimensions (in.)			Fasteners		Factored Resistance		
							Uplift	Normal	
		$(K_D = 1.15)$	GFCMU	Concrete					
			lb.	lb.	lb.				
							kN	kN	kN
<b>Double 2x Sizes</b>									
LGUM26-2-SDS	12	3 $\frac{5}{16}$	5 $\frac{7}{16}$	4	(4) $\frac{3}{8}$ " x 4"	(4) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	2640	8125	8125
							11.76	36.19	36.19
LGUM28-2-SDS	12	3 $\frac{5}{16}$	7 $\frac{9}{16}$	4	(6) $\frac{3}{8}$ " x 4"	(6) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	4070	10110	10110
							18.13	45.03	45.03
LGUM210-2-SDS	12	3 $\frac{5}{16}$	9 $\frac{3}{16}$	4	(8) $\frac{3}{8}$ " x 4"	(8) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	5430	11585	11585
							24.19	51.60	51.60
<b>Triple 2x Sizes</b>									
LGUM26-3-SDS	12	4 $\frac{15}{16}$	5 $\frac{1}{2}$	4	(4) $\frac{3}{8}$ " x 4"	(4) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	2640	8125	8125
							11.76	36.19	36.19
LGUM28-3-SDS	12	4 $\frac{15}{16}$	7 $\frac{1}{4}$	4	(6) $\frac{3}{8}$ " x 4"	(6) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	4070	10110	10110
							18.13	45.03	45.03
LGUM210-3-SDS	12	4 $\frac{15}{16}$	9 $\frac{1}{4}$	4	(8) $\frac{3}{8}$ " x 4"	(8) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	5430	11585	11585
							24.19	51.60	51.60
<b>Quadruple 2x Sizes</b>									
LGUM26-4-SDS	12	6 $\frac{9}{16}$	5 $\frac{7}{16}$	4	(4) $\frac{3}{8}$ " x 4"	(4) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	2640	8125	8125
							11.76	36.19	36.19
LGUM28-4-SDS	12	6 $\frac{9}{16}$	7 $\frac{9}{16}$	4	(6) $\frac{3}{8}$ " x 4"	(6) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	4070	10110	10110
							18.13	45.03	45.03
LGUM210-4-SDS	12	6 $\frac{9}{16}$	9 $\frac{3}{16}$	4	(8) $\frac{3}{8}$ " x 4"	(8) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	5430	11585	11585
							24.19	51.60	51.60
<b>4x Sizes</b>									
LGUM46-SDS	12	3 $\frac{5}{16}$	5 $\frac{9}{16}$	4	(4) $\frac{3}{8}$ " x 4"	(4) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	2640	8125	8125
							11.76	36.19	36.19
LGUM48-SDS	12	3 $\frac{5}{16}$	7 $\frac{9}{16}$	4	(6) $\frac{3}{8}$ " x 4"	(6) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	4070	10110	10110
							18.13	45.03	45.03
LGUM410-SDS	12	3 $\frac{5}{16}$	9 $\frac{3}{16}$	4	(8) $\frac{3}{8}$ " x 4"	(8) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	5430	11585	11585
							24.19	51.60	51.60
<b>Engineered Wood and Structural Composite Lumber Sizes (Heavy Duty)</b>									
HGUM5.25-SDS	7	5 $\frac{1}{4}$	11 to 30	5 $\frac{1}{4}$	(8) $\frac{5}{8}$ " x 5"	(24) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	8045	15310	22615
							35.84	68.20	100.73
HGUM5.50-SDS	7	5 $\frac{1}{2}$		5 $\frac{1}{4}$	(8) $\frac{5}{8}$ " x 5"	(24) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	8045	15310	22615
							35.84	68.20	100.73
HGUM7.00-SDS	7	7		5 $\frac{1}{4}$	(8) $\frac{5}{8}$ " x 5"	(24) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	8045	15310	22615
							35.84	68.20	100.73
HGUM7.25-SDS	7	7 $\frac{1}{4}$		5 $\frac{1}{4}$	(8) $\frac{5}{8}$ " x 5"	(24) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	8045	15310	22615
							35.84	68.20	100.73
HGUM9.00-SDS	7	9		5 $\frac{1}{4}$	(8) $\frac{5}{8}$ " x 5"	(24) $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "	8045	15310	22615
							35.84	68.20	100.73

- Factored uplift values have been increased 15% for wind or earthquake loading with no further increase allowed; reduce where other load durations govern.
- Factored uplift values assume D.Fir-L joist (SG = 0.49). For S-P-F joist, multiply the tabulated uplift values by 0.72.
- Factored resistances assume Type S mortar with  $f_m = 1087$  psi (7.5 MPa) for 15 MPa concrete block masonry as per Table 4 CSA S304-14. For values of  $f_m < 1085$  psi (7.5 MPa) multiply the tabulated values by  $(f_m / 1085)^{0.5}$ .
- Factored resistances assume a 28-day concrete compressive strength of  $f_c = 2500$  psi (17.25 MPa). For values of  $f_c < 2500$  psi (17.25 MPa) multiply the tabulated values by  $(f_c / 2500)^{0.5}$ .

- Factored resistances for concrete-block masonry assumes minimum 8" (190 mm) block-grouted solid as per CSA A179-14. Designer to design block-wall reinforcing as per CSA S304-14 to carry the applied load.
- Factored resistances for concrete assumes minimum 8" (203 mm) concrete wall. Designer to design concrete wall reinforcing as per CSA A23.3-14 to carry the applied load.
- Factored normal resistances assume D.Fir-L joist. For other joist materials, the designer must ensure that the bearing capacity of the joist does not govern.
- HGUM tabulated factored uplift resistance require a minimum loaded edge distance of 15". For loaded edge distances less than 15" to a minimum of 4", the factored uplift resistance is 5030 lb. (22.38 kN).



# LGUM/HGUM

## High-Capacity Beam/Girder Hangers for Concrete and GFCMU (cont.)

### Hanger Options

See Hanger Options General Notes on p. 111.

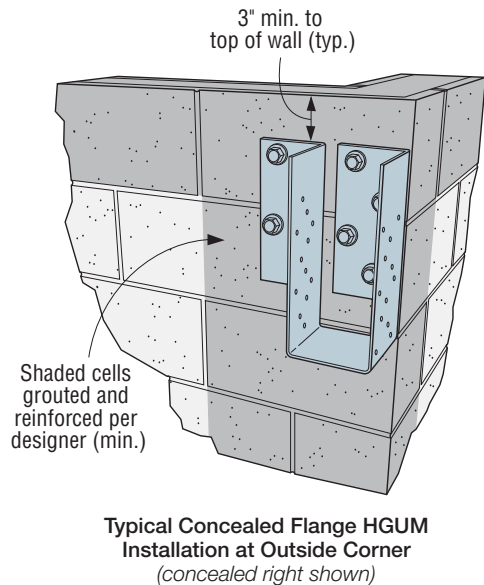
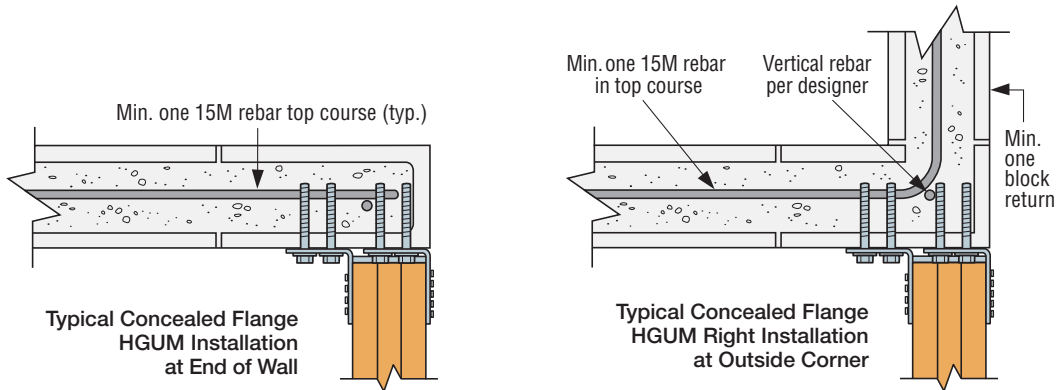
#### Concealed Flange

- HGUM hangers are available with one flange concealed. Specify flange to conceal.

Table 1 — HGUM Factored Resistances for One Flange Concealed Applications

Model No.	Dimensions (in.)		Fasteners		Factored Resistance					
					End of Wall				Outside Corner	
	W	H	GFCMU / Concrete	Joist	GFCMU Wall		Concrete Wall		GFCMU or Concrete Wall	
			Titen HD®	SDS Screws	Uplift	Normal	Uplift	Normal	Uplift	Normal
					(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
					lb.	lb.	lb.	lb.	lb.	lb.
					kN	kN	kN	kN	kN	kN
HGUM	5¼ to 9	11 to 30	(8) 5/8" x 5"	(24) 1/4" x 2½"	1690	7355	4495	9660	3880	9890
					7.52	32.72	20.00	42.97	17.26	43.99

1. Factored uplift resistances shown are for D.Fir-L joist. For S-P-F joist, multiply the value x 0.72.  
 2. See Table 2 on p. 311 for additional notes.



Masonry and Concrete Connectors



## LGUM/HGUM

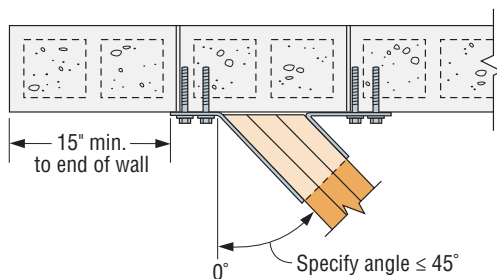
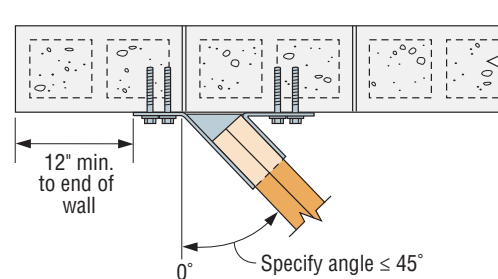
## High-Capacity Beam/Girder Hangers for Concrete and GFCMU (cont.)

## Hanger Options (cont.)

Table 2 — LGUM/HGUM  
Factored Resistances for Skewed Applications

Model No.	Fasteners		Factored Resistance		
			Uplift		Normal
	GFCMU / Concrete	Joist	D.Fir-L	S-P-F	Concrete / GFCMU
			( $K_D = 1.15$ )	( $K_D = 1.15$ )	( $K_D = 1.00$ )
Titen HD®	SDS Screws	lb.	lb.	lb.	
		kN	kN	kN	
LGUM26-2X	(4) 3/8" x 4"	(4) 1/4" x 2 1/2"	875	630	2855
LGUM26-3X			3.89	2.80	12.70
LGUM26-4X					
LGUM46X					
LGUM28-2X	(6) 3/8" x 4"	(6) 1/4" x 2 1/2"	1410	1015	4470
LGUM28-3X			6.27	4.52	19.88
LGUM28-4X					
LGUM48X					
LGUM210-2X	(8) 3/8" x 4"	(8) 1/4" x 2 1/2"	1950	1405	6085
LGUM210-3X			8.67	6.25	27.07
LGUM210-4X					
LGUM410X					
HGUM5.25X	(8) 5/8" x 5"	(8) 1/4" x 2 1/2"	2390	1720	9370
HGUM5.50X			10.63	7.65	41.68
HGUM7.00X	(8) 5/8" x 5"	(8) 1/4" x 2 1/2"	2350	1690	8450
HGUM7.25X			10.45	7.52	37.59
HGUM9.00X	(8) 5/8" x 5"	(8) 1/4" x 2 1/2"	2310	1660	7530
			10.28	7.38	33.50

1. Factored uplift values have been increased 15% for wind or earthquake loading with no further increase allowed; reduce where other load durations govern.
2. Factored resistances assume Type S mortar with  $f_m = 1087$  psi (7.5 MPa) for 15 MPa concrete-block masonry as per Table 4 CSA S304.1-14. For values of  $f_m < 1085$  psi (7.5 MPa) multiply the tabulated values by  $(f_m / 1085)^{0.5}$ .
3. Factored resistances assume a 28-day concrete compressive strength of  $f_c = 2500$  psi (17.25 MPa). For values of  $f_c < 2500$  psi (17.25 MPa) multiply the tabulated values by  $(f_c / 2500)^{0.5}$ .
4. Factored resistances for concrete-block masonry assumes minimum 8" (190 mm) block-grouted solid as per CSA A179-14. Specifier to design block-wall reinforcing per CSA S304.1-14 to carry the applied load.
5. Factored resistances for concrete assumes minimum 8" (203 mm) concrete wall. Specifier to design concrete wall reinforcing as per CSA A23.3-14 to carry the applied load.

Top View HGUM Skewed Right  
Bevel CutTop View LGUM Skewed Right  
Square Cut



# WMU

## GFCMU Top-Flange Hanger

WMUs are designed for use on standard 8" grout-filled masonry block wall construction.

**Material:** 12 gauge top flange and stirrup

**Finish:** Simpson Strong-Tie® gray paint; hot-dip galvanized available: specify HDG

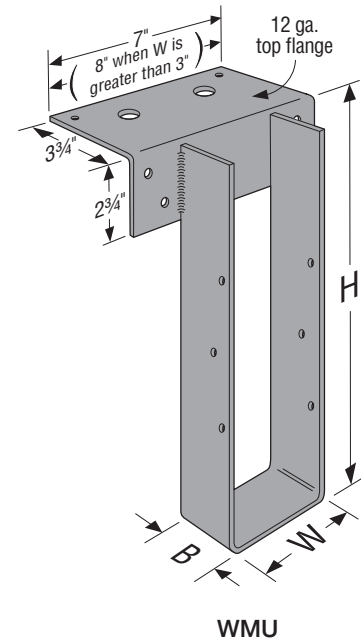
**Factored Resistances:** For hanger heights exceeding the joist height, the factored resistance is 0.50 of the table load.

### Installation:

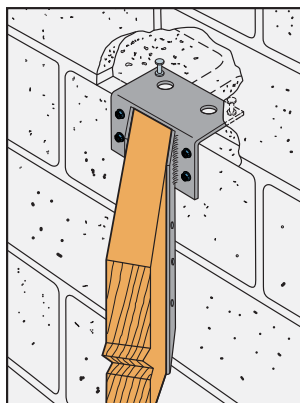
- Use all specified fasteners.
- GFCMU shall be Type S mortar with  $f'_m = 1087$  psi (7.5 MPa) for 15 MPa concrete block masonry as per Table 4 CSA S304-14.
- Mid-Wall — Two 16d duplex nails must be installed into the top flange and embedded into the grouted wall. Embed into block with a minimum of one course above and one course below the top flange with one 15M vertical rebar minimum 24" long in each cell. Minimum grout strength is 2000 psi (13.8 MPa).
- When installed on top of masonry wall, use two 1¼" x 1¾" Titen Turbo™ masonry screws after predrilling into grout.
- See p. 27 for more information on Titen Turbo screws.

### Options:

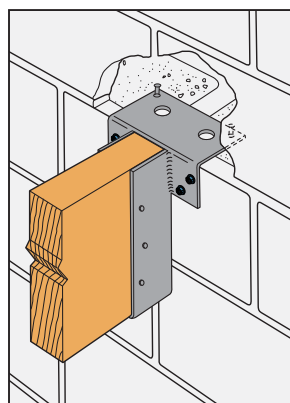
- WMU may be sloped to 45° and/or skewed to 45°. The factored normal resistance is 2290 lb. (10.18 kN) and the factored uplift resistance is 290 lb. (1.29 kN) for either top-of-wall or mid-wall installation.
- WMU may have the top flange offset left or right for placement at corners. The factored normal resistance is 2725 lb. (12.12 kN) and the factored uplift resistance is 360 lb. (1.60 kN) for either top-of-wall or mid-wall installation.



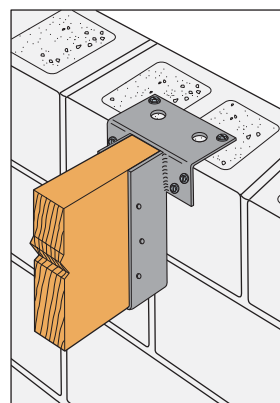
WMU



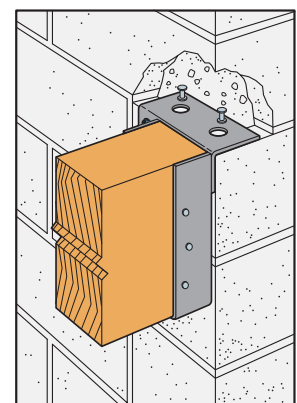
Typical WMU Sloped Down,  
Skewed Right Mid-Wall  
Installation



WMU Mid-Wall  
Installation



WMU Top-of-Wall  
Installation



Typical WMU Installation  
Top Flange Offset Left





## GFCMU Top-Flange Hanger (cont.)

Model No.	Dimensions (in.)			Fasteners				Factored Resistance on GFCMU				
	W	B	H 5 3/8 to 28	Top		Face	Joist	Top-of-Wall Installation		Mid-Wall Installation		
				Top-of-Wall Installation	Mid-Wall Installation			Uplift	Normal	Uplift	Normal (K <sub>D</sub> = 1.00)	
								(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	D.Fir-L	S-P-F
				lb.	lb.			lb.	lb.	lb.		
kN	kN	kN	kN	kN								
WMU1.56X	1 1/8	5	Specify	(2) 1/4" x 1 3/4" Titen Turbo™	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	7625	5960
								2.65	25.09	5.03	33.92	26.51
WMU1.62X	1 5/8	5	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	7625	5960
								2.65	25.09	5.03	33.92	26.51
WMU1.81X	1 3/4	4	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	7220	5650
								2.65	25.09	5.03	32.12	25.13
WMU2.06X	2 1/8	4	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	8030	6265
								2.65	25.09	5.03	35.72	27.87
WMU2.12X	2 1/2	4	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	8225	6415
								2.65	25.09	5.03	36.59	28.54
WMU2.31X	2 5/8	4	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	8845	6880
								2.65	25.09	5.03	39.35	30.60
WMU2.37X	2 3/8	3	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	7170	5615
								2.65	25.09	5.03	31.90	24.98
WMU2.56X	2 5/8	3	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	7625	5960
								2.65	25.09	5.03	33.92	26.51
WMU2.75X	2 3/4	3	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	8080	6305
								2.65	25.09	5.03	35.94	28.05
WMU3.12X	3 1/8	3	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	8845	6880
								2.65	25.09	5.03	39.35	30.60
WMU3.25X	3 1/4	3	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	9150	7110
								2.65	25.09	5.03	40.70	31.63
WMU3.56X	3 3/8	3	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	10060	7800
								2.65	25.09	5.03	44.75	34.70
WMU5.12X	5 1/8	3	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	10125	10125
								2.65	25.09	5.03	45.04	45.04
WMU5.25X	5 1/4	3	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	10125	10125
								2.65	25.09	5.03	45.04	45.04
WMU5.50X	5 1/2	3	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	10125	10125
								2.65	25.09	5.03	45.04	45.04
WMU6.88X	6 7/8	3	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	10125	10125
								2.65	25.09	5.03	45.04	45.04
WMU7.12X	7 1/8	3	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	10125	10125
								2.65	25.09	5.03	45.04	45.04
WMU7.50X	7 1/2	3	Specify	(2) 1/4" x 1 3/4" Titen Turbo	(2) 16d duplex	(4) 1/4" x 1 3/4" Titen Turbo	(6) 10d x 1 1/2"	595	5640	1130	10125	10125
								2.65	25.09	5.03	45.04	45.04

1. Factored uplift resistances have been increased 15% for wind or earthquake loading with no further increase allowed. Reduce where other load durations govern.
2. Factored uplift resistance for top-of-wall installation applies to D.Fir-L and S-P-F joists. For mid-wall installation, the factored uplift resistance for S-P-F joists is 1065 lb. (4.74 kN).
3. Factored resistances assume Type S mortar with  $f_m = 1087$  psi (7.5 MPa) for 15 MPa concrete block masonry as per Table 4 CSA S304-14. For values of  $f_m < 1085$  psi (7.5 MPa) multiply the tabulated values by  $(f_m / 1085)^{0.5}$ .
4. Products shall be installed such that Titen Turbo screws are not exposed to the weather.
5. For hanger heights that exceed the joist height by 1/2", the factored resistance is 50% of the tabulated value.
6. **Fasteners:** 16d duplex = 0.162" x 3 1/2" long, 10d x 1 1/2" = 0.148" dia. X 1 1/2" long, 1/4" x 1 3/4" Titen Turbo = TNT25134H. See pp. 22-24 for other nail sizes and information.



# H

## Seismic and Hurricane Ties

The Hurricane Tie series features various configurations of wind and seismic ties for trusses and rafters. The H10S provides a high-capacity connection from truss or rafter to stud. A flexible nailing pattern allows installation where the stud is offset from the rafter up to 1". Suitable for wood-to-wood and wood-to-GFCMU/concrete application.

The HM9 is designed to retrofit roof trusses/rafters for masonry construction. The HM9 provides high uplift and lateral capacity using Simpson Strong-Tie® Titen Turbo™ concrete and masonry screws.

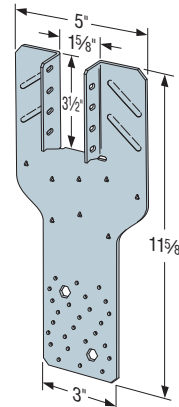
The presloped 5:12 seat of the H16 provides for a tight fit and reduced deflection. The strap length provides for various truss height up to a maximum of 13½". Minimum heel height for H16 series is 4".

**Material:** See table.

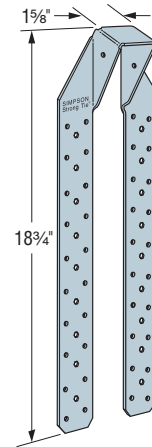
**Finish:** Galvanized; other models available in stainless steel or ZMAX®. See Corrosion Information, pp. 16–21.

### Installation:

- Use all specified fasteners; see General Notes.
- HGAM10 can be installed into grouted concrete block. Screws are provided.
- The HM9KT and the HGAM10KTA are sold with Strong-Drive® SDS Heavy-Duty Connector screws and Titen Turbo screws. 1¼" Titen Turbo screws for concrete sold separately.
- Hurricane ties do not replace solid blocking.
- Attach to grouted concrete block with a minimum one 15M rebar horizontal in the top lintel block.
- Titen Turbo and Titen HD® screws are not recommended for exposed exterior applications or wet service conditions.
- See pp. 27–29 for more information on Titen Turbo screw and Titen HD heavy-duty screw anchor.

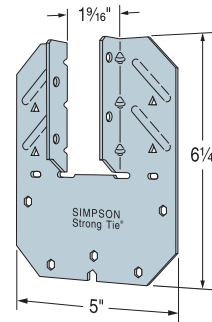


H10S

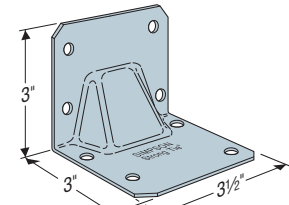


H16

Presloped at 5/12. Truss/rafter pitch of 3/12 to 7/12 is acceptable.

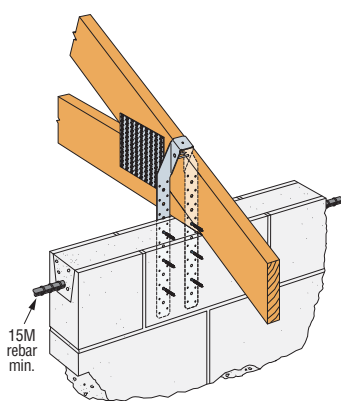


HM9

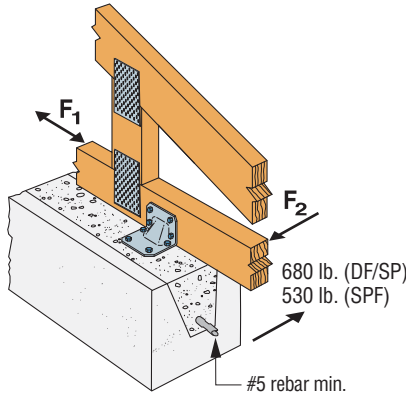


HGAM10

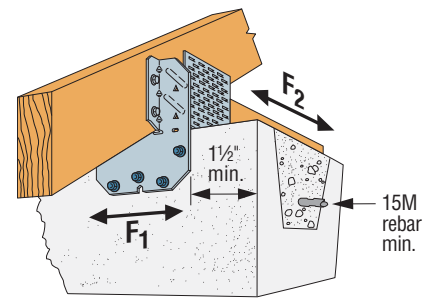
Masonry and Concrete Connectors



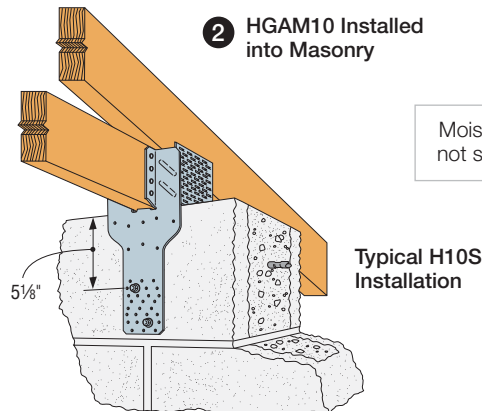
1 H16 Installed into Masonry



2 HGAM10 Installed into Masonry



3 HM9 Attaching Truss to Masonry



Typical H10S Installation

Moisture barrier not shown (typ.)



## Seismic and Hurricane Ties (cont.)

Model No.	Ga.	Dimensions (in.)		Fasteners			Factored Resistance ( $K_D = 1.15$ )					
		W	L	Rafters/ Truss	GFCMU	Concrete	D.Fir-L			S-P-F		
							Uplift	Lateral		Uplift	Lateral	
								F <sub>1</sub>	F <sub>2</sub>		F <sub>1</sub>	F <sub>2</sub>
lb.	lb.	lb.	lb.	lb.	lb.							
kN	kN	kN	kN	kN	kN							
HM9KT	18	1 $\frac{5}{16}$	6 $\frac{1}{4}$	(4) 1/4" x 1 1/2" SDS	(5) 1/4" x 2 1/4" Titen Turbo™	(5) 1/4" x 1 3/4" Titen Turbo	815	580	285	585	580	285
							3.63	2.58	1.27	2.60	2.58	1.27
HGAM10KT	14	—	—	(4) 1/4" x 1 1/2" SDS	(4) 1/4" x 2 3/4" Titen Turbo	(4) 1/4" x 1 3/4" Titen Turbo	1470	1305	1495	1060	940	1310
							6.54	5.81	6.66	4.72	4.18	5.83
H10S	18	1 $\frac{5}{8}$	11 $\frac{5}{8}$	(8) 10d x 1 1/2"	(2) 3/8" x 4" Titen HD	(2) 3/8" x 4" Titen HD	1655	—	—	1175	—	—
							7.36	—	—	5.23	—	—
H16	18	1 $\frac{5}{8}$	18 $\frac{3}{4}$	(2) 10d x 1 1/2"	(6) 1/4" x 2 1/4" Titen Turbo	(6) 1/4" x 1 3/4" Titen Turbo	2075	—	—	1470	—	—
							9.23	—	—	6.54	—	—

- Factored resistances have been increased 15% for earthquake or wind loading with no further increase allowed.
- Factored resistances are for one anchor. A minimum rafter thickness of 2 1/2" must be used when framing anchors are installed on each side of the joist and on the same side of the plate.
- When cross-grain bending or cross-grain tension cannot be avoided, mechanical reinforcement to resist such forces should be considered.
- HGAM10KTA factored  $F_2$  resistances shown are for loading applied into the connector. For loading applied away from the connector, the factored resistances are 960 lb. (4.27 kN) for D.Fir-L and 690 lb. (3.07 kN) for S-P-F.
- Minimum edge distance for Titen Turbo screws is 1 1/2".
- Factored resistances assume Type S mortar with  $f'_m = 1087$  psi (7.5 MPa) for 15 MPa concrete block masonry as per Table 4 CSA S304-14. For values of  $f'_m < 1085$  psi (7.5 MPa) multiply the tabulated values by  $(f'_m / 1085)^{0.5}$ .
- Factored resistances assume a 28-day concrete compressive strength of  $f'_c = 2500$  psi (17.25 MPa). For values of  $f'_c < 2500$  psi (17.25 MPa) multiply the tabulated values by  $(f'_c / 2500)^{0.5}$ .
- Designer to design wall reinforcing to carry the applied loads.
- Nails:** 10d x 1 1/2" = 0.148" dia. x 1 1/2" long, 8d x 1 1/2" = 0.131" dia. x 1 1/2" long. See pp. 22-24 for other nail sizes and information.



# LGT/MGT/VGT

## Heavy Girder Tiedowns

The LGT and VGT products are moderate to high load capacity girder tie-downs for new or retrofit applications.

LGT connectors provide a low profile connection to the wall for easy installation of drywall. Simple to install and can be installed on the inside or outside of the wall.

The Variable Girder Tiedown (VGT) is a higher capacity alternative to the LGT and MGT for girder trusses. It attaches with SDS screws to the side of truss and features a predeflected crescent washer that allows it to accommodate top chord pitches up to 8:12. The VGT is also available with one flange concealed for attachment to trusses with no overhang.

**Material:** VGT — 7 gauge; LGT2 — 14 gauge; MGT/LGT3/LGT4 — 12 gauge

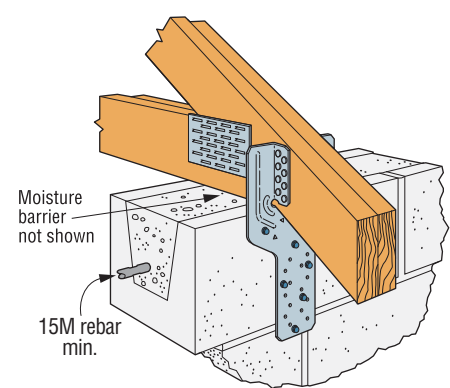
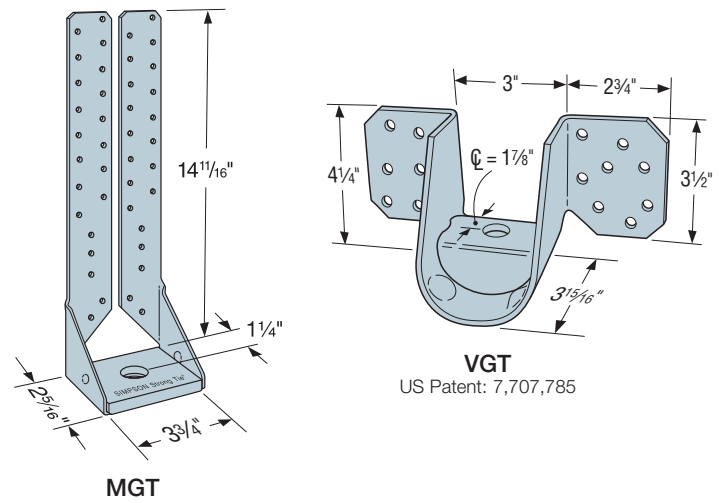
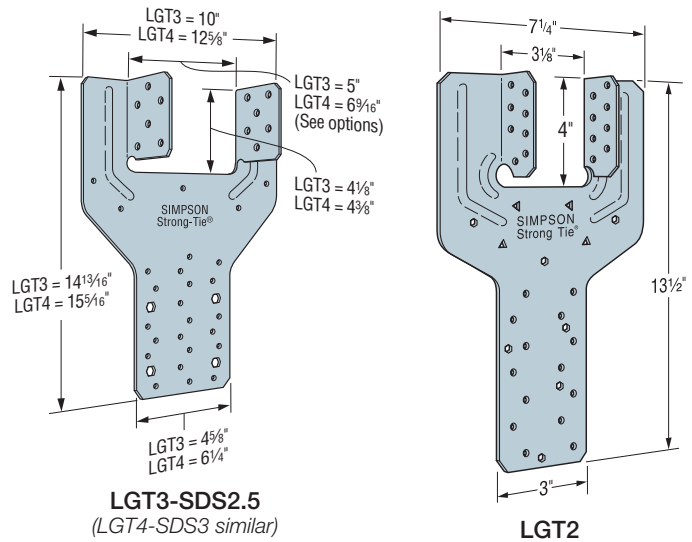
**Finish:** Galvanized

**Installation:**

- Use all specified fasteners; see General Notes.
- To achieve the values listed in the table on p. 316, the product shall be attached to a grouted and reinforced block wall or a reinforced concrete wall designed by others to transfer the high concentrated uplift forces to the foundation.
- SDS screws included with LGT3, LGT4 and VGT series.
- VGT — Screw holes are configured to allow for double installation on a two-ply (minimum) truss.
- VGT — Can be installed on roof pitches up to 8:12 or on a bottom chord designed to transfer the loads.
- VGT — When installed on trusses with no overhangs, specify VGTR/L.
- VGT — Install washer component (provided) so that top of washer is horizontal as well as parallel with top-of-wall.
- MGT — May be installed with straps straight vertically on minimum 5 1/2"-wide truss web, or with straps wrapped over truss heel. For wrapped installations, install minimum of (6) 10d nails into the face of the roof member on the same side as MGT base.
- Titen Turbo™ screws and carbon steel Titen HD® heavy-duty screw anchors are not recommended for exposed exterior applications or wet service conditions.
- See pp. 27–29 for more information on Titen Turbo screw and Titen HD heavy-duty screw anchor.

**Options:**

- LGT3 is available with reduced widths of  $W = 4\frac{13}{16}"$  — order as LGT3N-SDS2.5.



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Masonry and Concrete Connectors

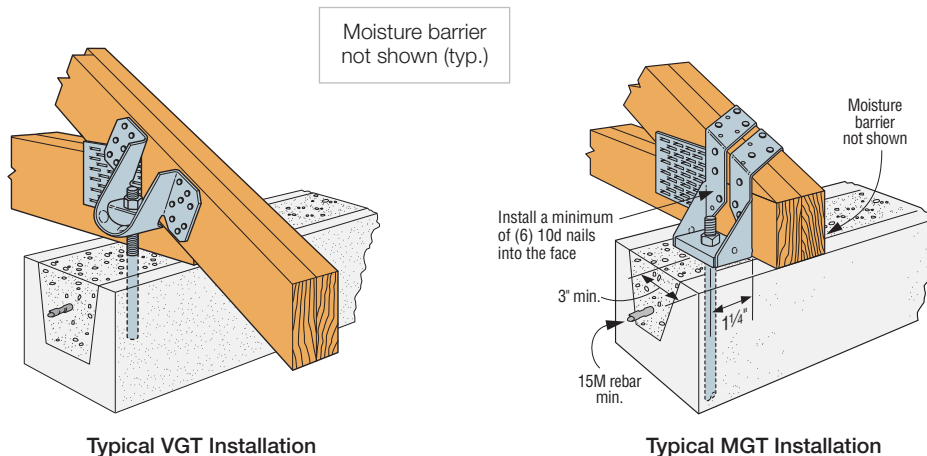


## LGT/MGT/VGT

## Heavy Girder Tiedowns (cont.)

Model No.	Qty.	No. of Plies	Fasteners		Factored Resistance ( $K_D = 1.15$ )	
			Girder Truss	Wall Anchorage	D.Fir-L	S-P-F
					lb.	lb.
					kN	kN
LGT2	1	2 ply	(16) 10d	(7) ¼" x 2¼" Titen Turbo™	3130	2735
					13.92	11.14
			(16) #9 x 1½" SD		3130	2735
					13.92	11.14
LGT3-SDS2.5	1	3 ply	(12) ¼" x 2½" SDS	(4) ⅝" x 5" Titen HD®	5220	3770
					23.22	16.77
LGT4-SDS3	1	4 ply	(16) ¼" x 3" SDS	(4) ⅝" x 5" Titen HD	5220	3770
					23.22	16.77
MGT	1	2 ply min.	(22) 10d	(1) ⅝" diameter	5610	3985
					24.96	17.73
VGT	1	2 ply min.	(16) ¼" x 3" SDS	(1) ⅝" diameter	8600	6195
						38.26
	2	2 ply min.	(32) ¼" x 3" SDS	(2) ⅝" diameter	11690	8420
						52.00
VGTR/L	1	2 ply min.	(16) ¼" x 3" SDS	(1) ⅝" diameter	3475	2505
						15.46
	2	2 ply min.	(32) ¼" x 3" SDS	(2) ⅝" diameter	6950	5010
						30.92

1. Factored resistances have been increased 15% for earthquake or wind load; reduce where other load durations govern.
2. Attached members must be designed to resist the factored loads.
3. The MGT can be installed with straps vertical for full capacity provided (22) 10d nails are installed to either a solid header or minimum double 2x6 web. For single-ply truss applications, MGT can be installed with straps vertical using (22) 10d x 1½" nails. Factored resistances are 5370 lb. (23.88 kN) D.Fir-L and 3810 lb. (16.94 kN) S-P-F.
4. Factored resistances assume Type S mortar with  $f_m = 1087$  psi (7.5 MPa) for 15 MPa concrete block masonry as per Table 4 CSA S304-14. For values of  $f_m < 1085$  psi (7.5 MPa) multiply the tabulated values by  $(f_m / 1085)^{0.5}$ .
5. Factored resistances assume a 28-day concrete compressive strength of  $f'_c = 2500$  psi (17.25 MPa). For values of  $f'_c < 2500$  psi (17.25 MPa) multiply the tabulated values by  $(f'_c / 2500)^{0.5}$ .
6. Products shall be installed such that the Titen Turbo screws and carbon steel Titen HD anchors are not exposed to the weather.
7. For concrete wall applications use ¼" x 1¼" Titen Turbo screws.
8. Nails: 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.



Typical VGT Installation

Typical MGT Installation



# HGT

## Heavy Girder Tiedowns

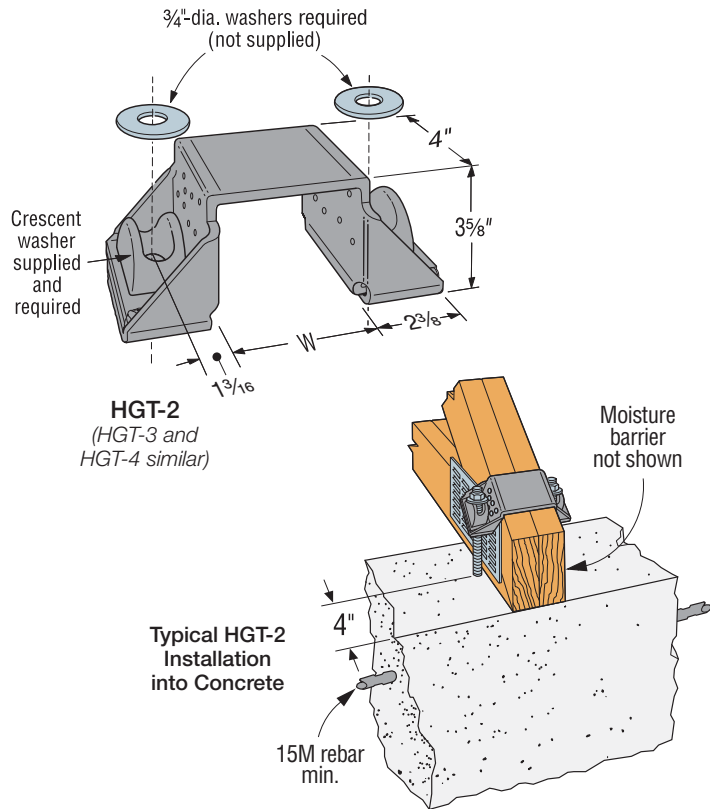
The HGT heavy girder tiedown offers the highest uplift capacity for girders and can be installed on trusses and beams with top chord slopes from 3:12 to 8:12. The HGT is available in sizes for 2-, 3- and 4-ply widths.

**Material:** 7 gauge

**Finish:** Simpson Strong-Tie® gray paint

**Installation:**

- Use all specified fasteners; see General Notes
- Minimum grout or concrete strength  $f'_c = 2500$  psi (17.25 MPa)
- To achieve the values listed in the table below, the product shall be attached to a grouted and reinforced block wall or a reinforced concrete wall designed by others to transfer the high concentrated uplift forces to the foundation
- Anchorage from HGT to wall below shall be with  $\frac{3}{4}$ "-diameter ASTM A307 Grade A bolts or threaded rod
- Standard-cut washers (not supplied) are required between the nut and the HGT
- See p. 280 for wood applications



Masonry and Concrete Connectors

Model No.	Qty.	No. of Plies	O.C. Dimension Between Anchors (in.)	Fasteners		Factored Uplift Resistance ( $K_D = 1.15$ )	
				Girder Truss	Anchor Bolts	D.Fir-L	S-P-F
						lb.	lb.
HGT-2	1	2 ply	5 3/4	(16) 10d	(2) 3/4" $\phi$	12140	9280
						54.00	41.28
HGT-3	1	3 ply	7 3/8	(16) 10d	(2) 3/4" $\phi$	12140	9280
						54.00	41.28
HGT-4	1	4 ply	9	(16) 10d	(2) 3/4" $\phi$	12140	9280
						54.00	41.28

1. Factored resistances have been increased 15% for earthquake or wind load; reduce where other load durations govern.
2. Attached members must be designed to resist the applied loads.
3. Anchorage must be designed by others.
4. **Nails:** 10d = 0.148" dia. x 3" long. See pp. 22-24 for other nail sizes and information.



# MTSM/HTSM

## Twist Straps

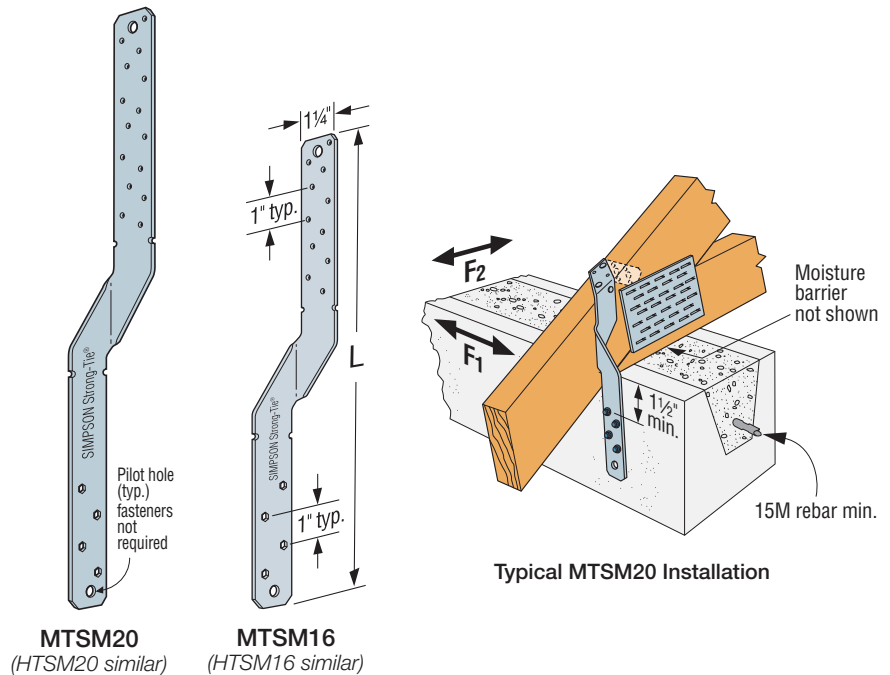
The MTSM and HTSM offer high strength truss-to-masonry connections.

**Material:** MTSM — 16 gauge;  
HTSM — 14 gauge

**Finish:** Galvanized. Some products available in stainless steel or ZMAX®; see Corrosion Information, pp. 16–21.

### Installation:

- Use all specified fasteners; see General Notes
- Attach to either side of grouted concrete block with a minimum one 15M rebar horizontal in the lintel block
- **Titen Turbo™** screws are not recommended for exposed exterior applications or wet service conditions
- See p. 27 for more information on **Titen Turbo** screws



**MTSM20**  
(HTSM20 similar)

**MTSM16**  
(HTSM16 similar)

Typical MTSM20 Installation

Model No.	L (in.)	Fasteners			Factored Resistance (K <sub>D</sub> = 1.15)	
		Truss	GFCMU	Concrete	D.Fir-L	S-P-F
			Titen Turbo	Titen Turbo	lb.	lb.
MTSM16	16	(7) 10d	(4) 1/4" x 2 1/4"	(4) 1/4" x 1 3/4"	1240	880
					5.52	3.91
MTSM20	20	(7) 10d	(4) 1/4" x 2 1/4"	(4) 1/4" x 1 3/4"	1240	880
					5.52	3.91
HTSM16	16	(8) 10d	(4) 1/4" x 2 1/4"	(4) 1/4" x 1 3/4"	1495	1180
					6.65	5.25
HTSM20	20	(10) 10d	(4) 1/4" x 2 1/4"	(4) 1/4" x 1 3/4"	1495	1200
					6.65	5.34

1. Factored resistances have been increased 15% for wind or earthquake loading with no further increase allowed; reduce table values where other loads govern as per code.
2. Factored resistances assume Type S mortar with  $f'_m = 1087$  psi (7.5 MPa) for 15 MPa concrete block masonry as per Table 4 CSA S304-14. For values of  $f'_m < 1085$  psi (7.5 MPa) multiply the tabulated values by  $(f'_m / 1085)^{0.5}$ .
3. Factored resistances assume a 28-day concrete compressive strength of  $f'_c = 2500$  psi (17.25 MPa). For values of  $f'_c < 2500$  psi (17.25 MPa) multiply the tabulated values by  $(f'_c / 2500)^{0.5}$ .
4. Twist straps do not have to be wrapped over the truss to achieve resistances shown.
5. Minimum edge distance for **Titen Turbo** screws is 1 1/2".
6. Products shall be installed such that the **Titen Turbo** screws are not exposed to the weather.
7. **Nails:** 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.



# MSTAM/MSTCM

## Strap Ties

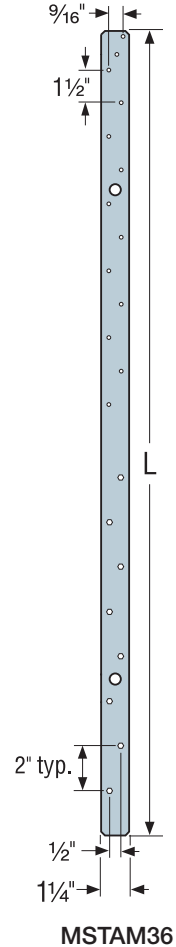
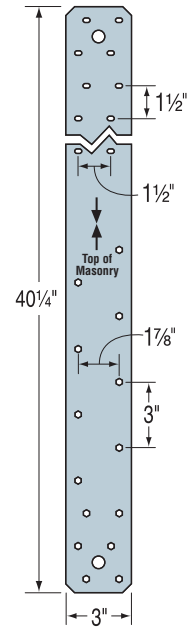
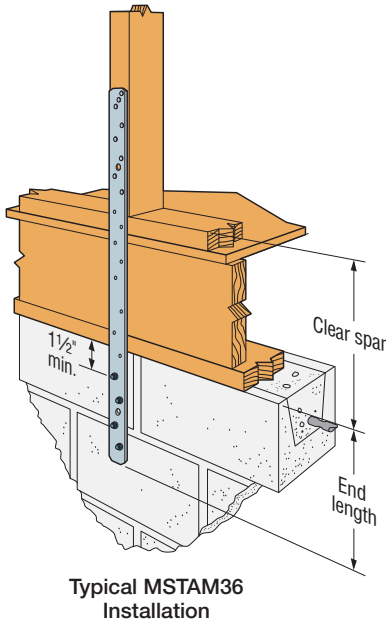
MSTAM and MSTCM models are designed for wood to masonry applications.

The MSTC series has countersunk nail slots for a lower nailing profile. Coined edges ensure safer handling.

**Finish:** Galvanized. Some products are available in stainless steel or ZMAX® coating; see Corrosion Information, pp. 16–21.

**Installation:**

- Use all specified fasteners; see General Notes
- Attaches to grouted concrete block or solid concrete
- **Titen Turbo™** screws are not recommended for exposed exterior applications or wet service conditions
- See p. 27 for more information on **Titen Turbo** screws



These products are available with additional corrosion protection. For more information, see p. 20.

## Masonry and Concrete Applications

Model No.	Ga.	Dimensions (in.)		Fasteners (Total)			Factored Tensile Resistance			
							D.Fir-L		S-P-F	
							(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)
W	L	Nails	GFCMU	Concrete	lb.	lb.	lb.	lb.		
					kN	kN	kN	kN		
MSTAM24	18	1 1/4	24	(8) 10d	(5) 1/4" x 2 1/4"	(5) 1/4" x 1 3/4"	1785	1990	1655	1905
MSTAM36	16	1 1/4	36	(12) 10d	(8) 1/4" x 2 1/4"	(8) 1/4" x 1 3/4"	2560	2560	2560	2560
MSTCM40		3	40 1/4	(26) 10d	(14) 1/4" x 2 1/4"	(14) 1/4" x 1 3/4"	4795	4795	4795	4795
MSTCM60	16	3	59 1/2	(26) 10d	(14) 1/4" x 2 1/4"	(14) 1/4" x 1 3/4"	4795	4795	4795	4795
MSTCM60		3	59 1/2	(26) 10d	(14) 1/4" x 2 1/4"	(14) 1/4" x 1 3/4"	21.33	21.33	21.33	21.33

1. Minimum edge distance 1 1/2" using **Titen Turbo** screws.
2. Factored resistances assume Type S mortar with f<sub>m</sub> = 1087 psi (7.5 MPa) for 15 MPa concrete block masonry as per Table 4 CSA S304-14. For values of f<sub>m</sub> < 1085 psi (7.5 MPa) multiply the tabulated values by (f<sub>m</sub> / 1085)<sup>0.5</sup>.
3. Factored resistances assume a 28-day concrete compressive strength of f<sub>c</sub> = 2500 psi (17.25 MPa). For values of f<sub>c</sub> < 2500 psi (17.25 MPa) multiply the tabulated values by (f<sub>c</sub> / 2500)<sup>0.5</sup>.
4. **Nails:** 10d = 0.148" dia. x 3" long. See pp. 22–24 for other nail sizes and information.

## Floor-to-Floor Clear Span Table

Model No.	Clear Span (in.)	Fasteners (Total)			Factored Tensile Resistance			
					D.Fir-L		S-P-F	
					(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)
Nails	GFCMU	Concrete	lb.	lb.	lb.	lb.		
			kN	kN	kN	kN		
MSTAM36	16 or 18	(6) 10d	(4) 1/4" x 2 1/4"	(4) 1/4" x 1 3/4"	1480	1705	1355	1560
MSTCM60	22 1/4	(26) 10d	(14) 1/4" x 2 1/4"	(14) 1/4" x 1 3/4"	6.58	7.58	6.03	6.94
MSTCM60	22 1/4	(26) 10d	(14) 1/4" x 2 1/4"	(14) 1/4" x 1 3/4"	4795	4795	4795	4795
MSTCM60	22 1/4	(26) 10d	(14) 1/4" x 2 1/4"	(14) 1/4" x 1 3/4"	21.33	21.33	21.33	21.33





## LTA2

## Lateral Truss Anchor

The LTA2 is an embedded truss anchor for grouted CMU and concrete walls that develops high loads with shallow embedment. Designed for 2x4 minimum truss chords, the LTA2 resists uplift and lateral loads parallel and perpendicular to the wall with a minimum heel height requirement.

**Features:**

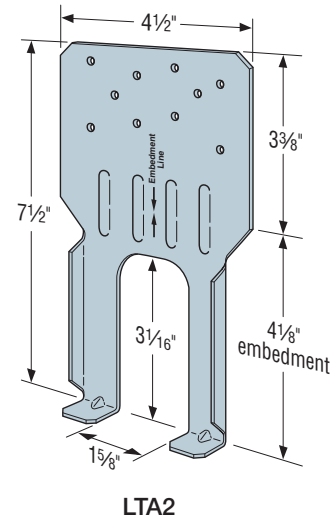
- Simplified design of the embedded portion allows for easy positioning close to rebar
- Ideal for anchoring trusses running perpendicular or parallel to the wall
- Embedment line stamped on part simplifies installation and helps avoid installation errors

**Material:** 18 gauge

**Finish:** Galvanized; see Corrosion Information, pp. 16–21.

**Installation:**

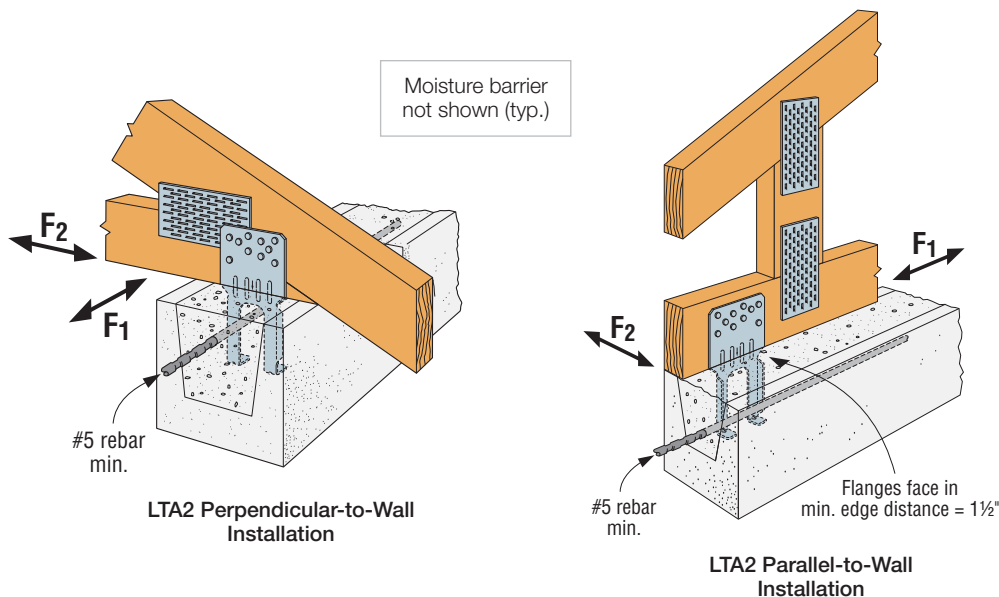
- Use all specified fasteners; see General Notes
- Whether in grouted CMU or concrete, the LTA2 must be embedded to the depth of the embedment line stamped on the part
- A minimum of one horizontal 15M rebar is required at top of concrete or in the top course of grouted CMU
- For parallel-to-wall applications, install the LTA2 with flanges facing the centre of the wall. Minimum edge distance of 1½" required



LTA2

Model No.	Fasteners	Installation	Factored Resistance ( $K_D = 1.15$ )					
			D.Fir-L			S-P-F		
			Uplift	F <sub>1</sub>	F <sub>2</sub>	Uplift	F <sub>1</sub>	F <sub>2</sub>
			lb.	lb.	lb.	lb.	lb.	lb.
			kN	kN	kN	kN	kN	kN
LTA2	(10) 10d x 1½"	Perpendicular to wall	1845	495	1330	1310	350	945
			8.21	2.20	5.92	5.83	1.56	4.20
		Parallel to wall	1825	1305	370	1295	930	265
			8.12	5.81	1.65	5.76	4.14	1.18

1. Factored resistances require one 15M horizontal rebar in the shear cone.
2. Factored uplift resistances have been increased 15% for wind loading with no further increase allowed.
3. Factored resistances assume Type S mortar with  $f_m = 1087$  psi (7.5 MPa) for 15 MPa concrete block masonry as per Table 4 CSA S304-14. For values of  $f_m < 1085$  psi (7.5 MPa) multiply the tabulated values by  $(f_m / 1085)^{0.5}$ .
4. Factored resistances assume a 28-day concrete compressive strength of  $f_c = 2500$  psi (17.25 MPa). For values of  $f_c < 2500$  psi (17.25 MPa) multiply the tabulated values by  $(f_c / 2500)^{0.5}$ .
5. **Nails:** 10d x 1½" = 0.148" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.





# ICFVL

## Ledger Connector System

The ICFVL ledger connector system is engineered to solve the challenges of mounting wood or steel ledgers to insulated concrete form (ICF) walls. The ICFVL is designed to provide both vertical and lateral in-plane performance. The system offers many benefits over traditional anchor bolting, including better on-centre spacing in most cases, faster installation and no protrusions.

The new ICFVL8 is designed to accommodate foam thicknesses up to 4½" whereas the new ICFVL6 replaces the current ICFVL model for foam thicknesses up to 3¼".

The embedded legs of the ICFVL are embossed for additional stiffness and the hole enables concrete to flow through and around the connector. The exposed flange on the face of the ICF provides a structural surface for mounting either a wood or steel ledger.

**Material:** ICFVL — 14 gauge;  
ICFVL-CW and ICFVL-W — 16 gauge

**Finish:** Galvanized

### Installation:

#### ICFVL in ICF

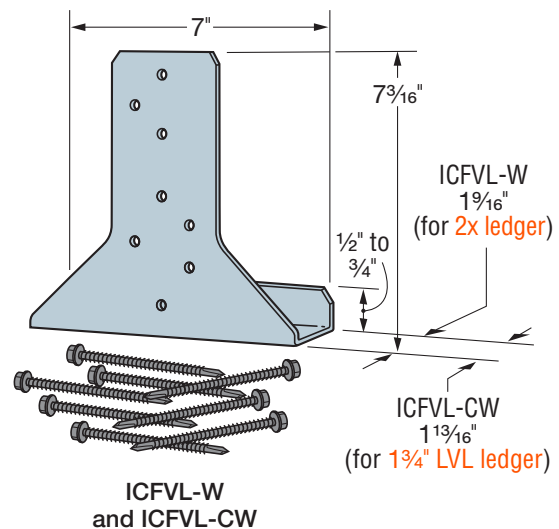
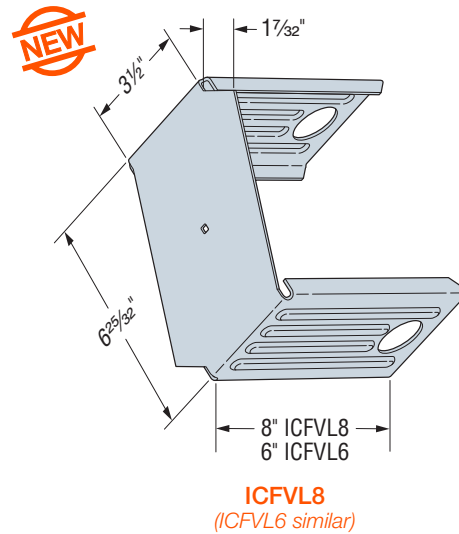
- Snap a chalk line for the bottom of the ledger
- Mark required on-centre spacing
- Use ICFVL to mark kerfs locations
- Cut kerfs as marked
- Insert ICFVL flush to the face of the ICF
- Pour concrete

#### Wood Ledger Attachment — ICFVL-W or ICFVL-CW

- Slip appropriate ledger connector underneath the ledger
- Install the eight ICF-D3.25 screws (included) partially into the ledger. ICF-D3.25 installs best using a low-speed drill with ⅜" hex-head driver.
- For dense wood species (SG > 0.49), such as SCL, predrilling the ledger using a ⅝" bit may be required.
- Position bottom of the ledger level to the chalk line and drive the screws through the wood and into the ICFVL

#### Steel Ledger Attachment

- Position bottom of the ledger level to the chalk line and against the ICFVL
- Attach with four ¼ – 14 x ¾", #3 drill point screws (not provided)
- All screws should be located at least ½" from the edge of the ICFVL
- Space screws evenly



#### Warning:

Industry studies show that hardened fasteners can experience performance problems in wet environments. Accordingly, use this product in dry environments only.

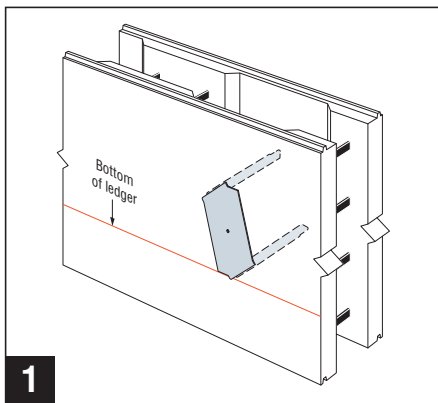


## ICFVL

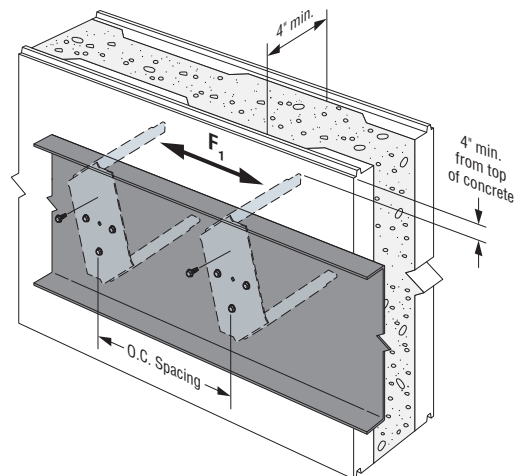
## Ledger Connector System (cont.)

Ledger Type	Model No.	Fasteners	Factored Resistance				
			Vertical		Lateral	Tension	Compression
			D.Fir-L	S-P-F			
			lb.	lb.	lb.	lb.	lb.
kN	kN	kN	kN	kN			
2x Lumber	ICFVL6 or ICFVL8 with ICFVL-W	(8) ICF-D3.25	2865	2655	2400	1055	7555
			12.74	11.81	10.68	4.69	33.61
1¾" SCL	ICFVL6 or ICFVL8 with ICFVL-CW	(8) ICF-D3.25	2865	2865	2400	1055	7555
			12.74	12.74	10.68	4.69	33.61
Steel	ICFVL6 or ICFVL8	(4) #14 x ¾"	2630	2630	2220	1055	7555
			11.70	11.70	9.88	4.69	33.61

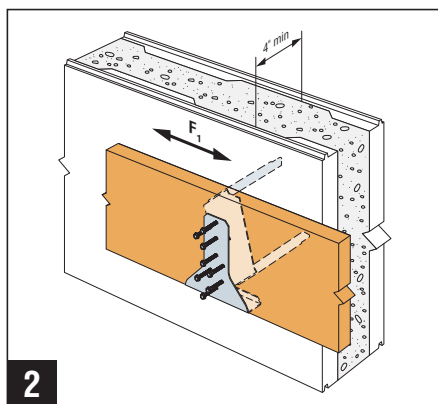
- Factored resistances shown in the vertical direction for 2x Lumber and 1¾" SCL are for standard term loading ( $K_D = 1.00$ ). Values may be increased to a maximum of 2865 lb. (12.74 kN) for short-term loading ( $K_D = 1.15$ ). Reduce where other load durations govern.
- Steel ledger shall have a minimum design thickness of 16 ga. (0.0598 in.) with minimum steel properties of  $f_y = 33$  ksi (230 MPa) and  $f_u = 45$  ksi (310 MPa) in accordance with CSA S136-16.
- Minimum concrete compressive strength shall be 15 MPa.
- Values shown require a minimum embedment depth into the concrete wall of 2¾" for ICFVL6 and 3½" for ICFVL8. Connector spacing shall be determined by the design professional up to a maximum of 48" (1.22 m) on centre.
- Values shown apply to ICF foam thicknesses up to 3¼" (83 mm) for ICFVL6 and 4½" (114 mm) for ICFVL8.
- When combining simultaneous loads in multiple directions, the following interaction equation shall be checked:  
Vertical Load/Vertical Resistance + Lateral Load/Lateral Resistance + Tension Load/Tension Resistance + Compression Load/Compression Resistance  $\leq 1.0$ .
- The ICFVL shall be installed no closer than 4" (102 mm) from the top of the wall.
- Screws shall be located no closer than ½" from the edge of the ICFVL.
- Fasteners:** ICF-D3.25 = ¼"-20 x 3¼" Simpson Ledger Connector screw; #14 x ¾" = #14 x ¾" #3 drill point self-tapping screw.



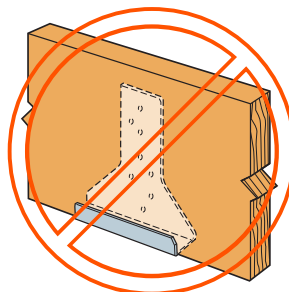
ICFVL



Typical Steel Ledger Installation with ICFVL  
(minimum 16-gauge steel ledger)



Typical Wood Ledger Installation with ICFVL and ICFVL-W



Misinstallation



## ICFVL

## Ledger Connector System (cont.)

The following spacing tables are an alternative to the ICFVL spacing to replace the building code prescribed anchor bolts spacing for vertical loads only. They provide the recommended spacing of the ICFVL ledger connectors based on the factored vertical resistance of the connector, the load on the floor, and the span of the joist. The designer must determine the design load, the ledger design and the joist design. This table is useful if the designer already has loads and spans, but not necessarily anchor bolt spacing.

## ICFVL Spacing for 1 3/4" LVL or 2x D.Fir-L (in.)

Specified Load (psf)		Joist Span (ft.)											
Live	Dead	10	12	14	16	18	20	22	24	26	28	30	32
40	10	48	48	48	47	42	37	34	31	29	27	25	23
	15	48	48	48	43	38	34	31	29	26	24	23	21
	20	48	48	46	40	35	32	29	26	24	23	21	20
	25	48	48	43	37	33	30	27	25	23	21	20	18
	30	48	47	40	35	31	28	25	23	21	20	18	17
50	10	48	48	44	39	34	31	28	26	24	22	20	19
	20	48	45	39	34	30	27	25	22	21	19	18	17
	30	48	40	34	30	27	24	22	20	18	17	16	15
	40	44	36	31	27	24	22	20	18	16	15	14	13
100	10	33	28	24	21	18	16	15	14	13	—	—	—
	20	31	26	22	19	17	15	14	13	—	—	—	—
	30	29	24	20	18	16	14	13	12	—	—	—	—
	40	27	22	19	17	15	13	12	—	—	—	—	—

Values in the cells highlighted in yellow represent the maximum allowable spacing of 48".

See footnotes below.

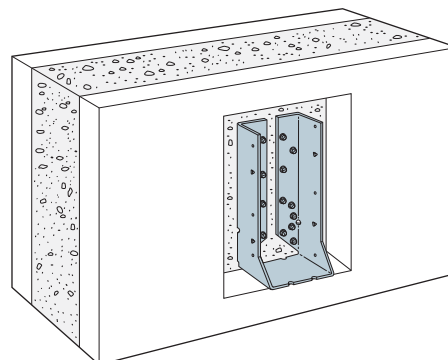
## ICFVL Spacing for Steel Ledger or 2x S-P-F Ledger (in.)

Specified Load (psf)		Joist Span (ft.)											
Live	Dead	10	12	14	16	18	20	22	24	26	28	30	32
40	10	48	48	48	43	38	34	31	29	26	24	23	21
	15	48	48	45	40	35	32	29	26	24	22	21	20
	20	48	48	42	37	33	29	27	24	22	21	19	18
	25	48	46	39	34	30	27	25	23	21	19	18	17
	30	48	43	36	32	28	25	23	21	19	18	17	16
50	10	48	48	41	36	32	28	26	24	22	20	19	18
	20	48	42	36	31	28	25	22	21	19	18	16	15
	30	44	37	32	28	24	22	20	18	17	16	14	14
	40	40	33	28	25	22	20	18	16	15	14	13	12
100	10	31	25	22	19	17	15	14	12	—	—	—	—
	20	28	24	20	18	16	14	13	—	—	—	—	—
	30	26	22	19	16	14	13	12	—	—	—	—	—
	40	25	21	18	15	14	12	—	—	—	—	—	—

1. Values shown are maximum spacing distances (inches) based on two-span ledger and simple supported joists. It does not consider concentrated loads. The engineer of record can modify the spacing accordingly for other conditions.
2. Joist and ledger are to be designed by others.
3. Table above address vertical loads only. If connection is designed to resist lateral loads, spacing will decrease. Contact Simpson Strong-Tie for current information.
4. The ICFVL must be installed no closer than 4" below the top of wall to achieve the connector spacing.
5. The maximum distance between the end of the ledger and the first ICFVL is 12" as per the recommended splicing installation.
6. Tables above assume principal loads only with importance factor = 1.00. For other cases adjust spacing accordingly.

## Alternative Retrofit Solution for Direct Attachment of Joist to Wall

The HU and HUC hangers are heavy-duty face-mount joist hangers made from 14-gauge galvanized steel. These hangers can be directly attached to concrete wall using Simpson Strong-Tie® 1/4" x 1 3/4" Titen Turbo™ hex head screws. See p. 27 for more information on installation and use.



HUC410 Installed on Face of Concrete in ICF



# BT

## Brick Ties

Brick ties provide a connection between the wood structure and brick façade.

**Material:** 22 gauge

**Finish:** Galvanized

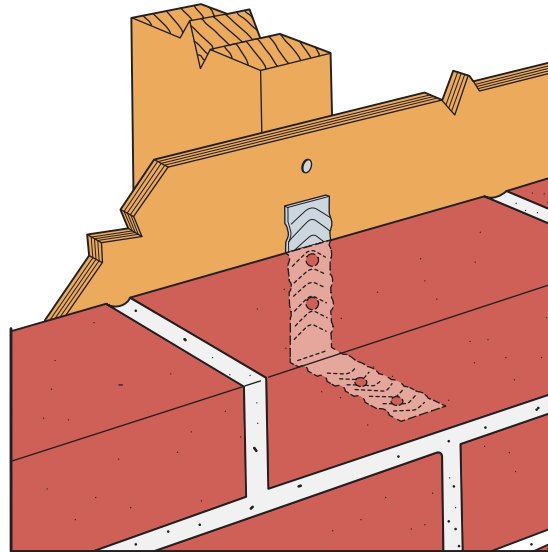
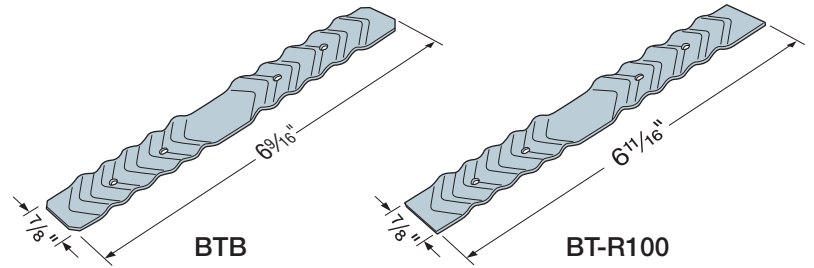
**Installation:**

- Holes sized for 10d commons.  
See code for spacing requirements

**To Order:**

BT-R100 = retail pack of 100

BTB = bulk carton of 500



Typical BT Installation



# DTT2Z/DTT2SS

## Deck Post Connectors

The DTT2 is a safe, cost-effective way to attach deck-railling posts to the deck framing. Because the post is tied back into the deck joists, rather than to the rim joist alone, the connection is stronger than typical through-bolt installations. The DTT2 can be used for laterally tying the deck to the house. Additionally, the versatile DTT2 is load rated as a holdown for light-duty shearwalls and braced-wall panel applications. The DTT2 fastens easily to a single 2x joist or stud using Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws (included) and accepts a 1/2" machine bolt or anchor bolt.

The DTT2SS is made from stainless steel for applications in higher-exposure environments. Whether it's a deck guardrail post application or the lateral-load connection from the deck to the adjacent structure, the stainless-steel DTT2 is the best choice for seaside applications or those calling for more corrosive preservative-treated lumber formulations. It fastens to the framing members with stainless-steel Simpson Strong-Tie Strong-Drive SDS Heavy-Duty Connector screws (included).

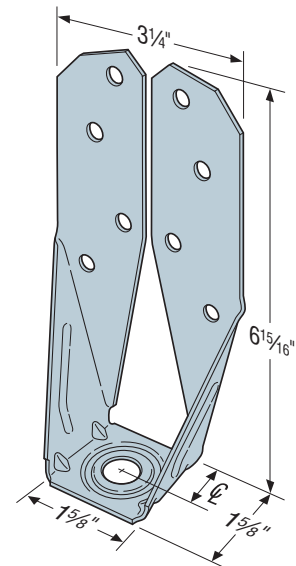
The DTT2Z-SDS2.5 is our standard DTT2Z packaged with 2 1/2" Simpson Strong-Tie Strong-Drive SDS Heavy-Duty Connector screws instead of the standard 1 1/2" fasteners. These longer screws allow the DTT2Z to achieve a higher capacity when used as a holdown on double S-P-F studs in a shearwall application. The DTT2Z-SDS2.5 is also suitable in deck applications when double 2x members are used for deck joists or blocking.

**Material:** 14 gauge

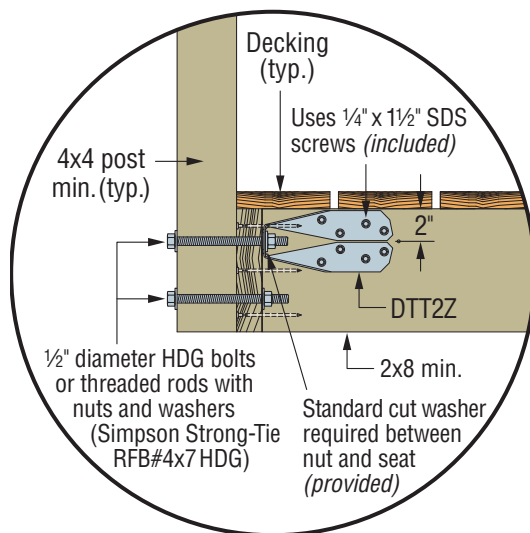
**Finish:** DTT2Z — ZMAX® coating; DTT2SS — Stainless steel; see Corrosion Information, pp. 16–21.

### Installation:

- Use all specified fasteners; see General Notes
- A standard-cut washer (refer to General Notes) must be installed between the nut and the seat
- Strong-Drive SDS Heavy-Duty Connector screws install best with a low-speed high-torque drill with a 3/8" hex-head driver (Model BITHEXR38-R1)

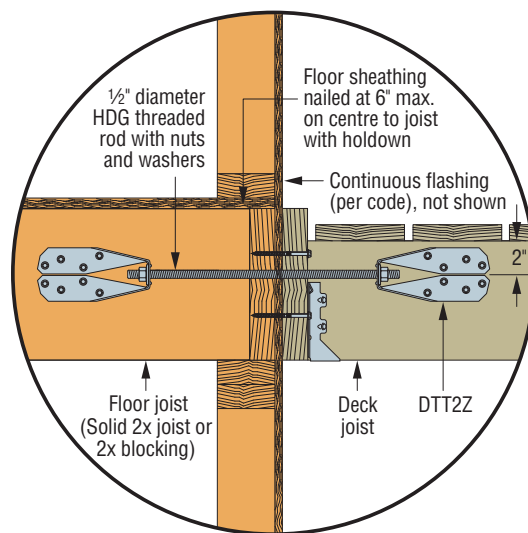


**DTT2Z**  
US Patent: 8,555,580



**DTT2Z Installed as a Lateral Connector for a Deck Guardrail Post**

For more information on guardrail post connections, see technical bulletin T-C-GRDRLPST at [strongtie.com](http://strongtie.com)



**Typical Deck-to-House Lateral Load Connection**



## DTT2Z/DTT2SS

## Deck Post Connectors (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	C (in.)	Fasteners		Minimum Wood Thickness (in.)	Factored Tensile Resistance (K <sub>D</sub> = 1.15)		Deflection <sup>3,4</sup> at Factored Resistance
		Anchor Bolt Dia. (in.)	Fasteners		D.Fir-L	S-P-F	
					lb.	lb.	
					kN	kN	mm
SS DTT2Z/DTT2SS	13/16	1/2	(8) 1/4" x 1 1/2" SDS	1 1/2	2805	2520	0.250
					12.48	11.21	6.35
				3	3060	2565	0.250
					13.61	11.41	6.35
SS DTT2Z-SDS2.5	13/16	1/2	(8) 1/4" x 2 1/2" SDS	3	3060	2950	0.250
					13.61	13.12	6.35

1. Factored resistances have been increased 15% for short-term load duration; reduce where other load durations govern.
2. Tension values are valid for holdowns flush or raised off of the sill plate.
3. Installations shown are for post to joist connections, however these products can be used as a holdown or tension tie for other applications. If used as a holdown or tension tie, the following apply:
  - a. The designer must specify anchor bolt type, length and embedment to ensure adequate anchorage to concrete.
  - b. When using structural composite lumber columns, screws must be applied to the wide face of the column.
  - c. Post design shall be by the designer. Tabulated values are based on a minimum wood member thickness in the direction of the fastener penetration. Post may consist of multiple 2x members provided they are designed to act as one unit independently of the holdown fasteners.
  - d. Holdowns shall be installed centred along the width of the attached post.
  - e. Deflection at Factored Resistance includes fastener slip, holdown elongation and anchor bolt elongation (L = 6"). Additional elongation of anchor bolts shall be accounted for by the designer when the length of the anchor bolt above the top of the concrete to the attachment at the holdown is longer than 6". Similar consideration for floor to floor connections must be addressed by the designer.
4. Deflection values may be reduced linearly for lesser loads including specified wind loads at h/500.



# DPTZ

## Deck Post Tie

The DPTZ deck post tie products are used to attach 2x4 (DPT5Z) or 4x4 (DPT7Z) vertical posts to the side of stringers, rims or other wood members.

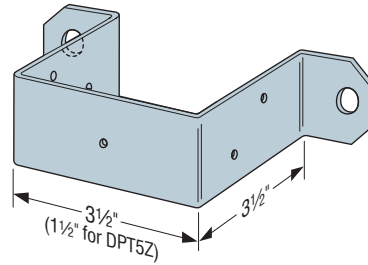
**Material:** 14 gauge

**Finish:** ZMAX® coating;  
see Corrosion Information, pp. 16–21

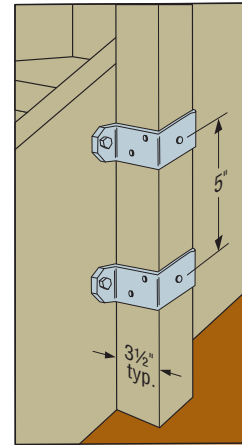
**Installation:**

- Use specified HDG fasteners; see General Notes
- Typically installed in pairs
- Install with two 3/8" through bolts into side member (lag screws not permitted) and  
(5) 10d x 1 1/2" to post for DPT5Z or  
(5) 10d for DPT7Z

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.



**DPT7Z**  
(DPT5Z similar)



**Typical DPT7Z Stairway Installation**  
(DPT5Z similar)

# FC

## Framing Clips

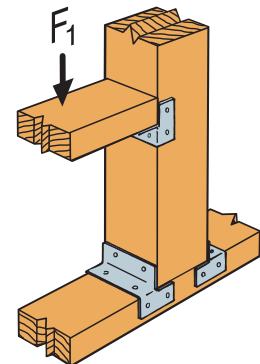
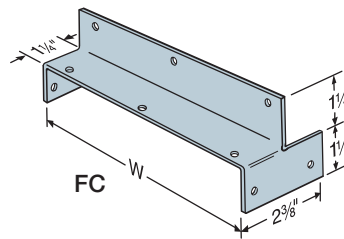
For fast, accurate framing. Three-dimensional nailing pattern results in high-strength joint values. Ideal for fence construction.

**Material:** 16 gauge

**Finish:** Galvanized

**Installation:**

- Use all specified fasteners; see General Notes



**Typical FC Load Installation**

Model No.	W (in.)	Fasteners	F <sub>1</sub> Factored Resistance (K <sub>D</sub> = 1.00)	
			D.Fir-L	S-P-F
			lb.	lb.
FC4	3 3/16	(8) 16d	1415	1005
			6.30	4.47
FC6	5 1/2	(10) 16d	1415	1005
			6.30	4.47

1. Resistances may be increased for other load durations as per code.
2. Multiply values by 0.67 for wet service conditions (K<sub>SF</sub> = 0.67).
3. A 2 1/2" minimum lumber thickness is required to achieve resistances shown.
4. **Nails:** 16d = 0.162" dia. x 3 1/2" long. See pp. 22–24 for other nail sizes and information.





# DJT14Z

## Deck Joist Tie

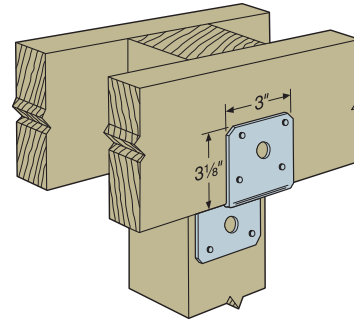
The DJT14Z deck joist tie is designed to attach 2x deck joists to the side of 4x or larger support posts. The DJT14Z can be installed with either nails or bolts.

**Material:** 14 gauge

**Finish:** ZMAX® coating;  
see Corrosion Information, pp. 16–21

**Installation:**

- Use specified HDG fasteners; see General Notes
- Recommended: install on post first
- Minimum 2x4 joist and 4x4 post



Typical DJT14Z  
Installation

These products are available with additional corrosion protection. For more information, see p. 20.

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Ga.	Fasteners	Factored Normal Resistance ( $K_D = 1.00$ )	
			D.Fir-L	S-P-F
			lb.	lb.
			kN	kN
SS DJT14Z	14	(8) 16d	1925	1630
			8.56	7.25
		(2) 5/8" dia. MB	2295	1630
			10.21	7.25

1. Resistances assume a dry service condition ( $K_{SF} = 1.00$ ).

Reduce values for other conditions as per 12.2.1.5 CSA O86-14.

2. Resistances shown are for one DJT14Z.

3. Install bolts or nails as specified by the designer. Bolt and nail values may not be combined.

4. **Nails:** 16d = 0.162" dia. x 3 1/2" long. See pp. 22–24 for other nail sizes and information.



# ML

## Angle

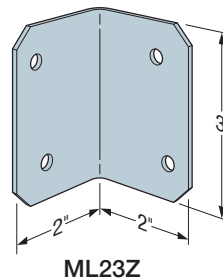
The ML angle combines strength and versatility through the use of Strong-Drive® SDS Heavy-Duty Connector screws. Fastener holes are staggered to minimize wood splitting and opposing hole pattern allows for back-to-back installation without fastener interference.

**Material:** 12 gauge

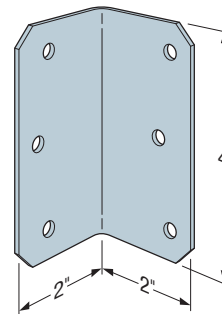
**Finish:** MLZ — ZMAX® coating; MLSS — stainless steel.  
See Corrosion Information, pp. 16–21.

**Installation:**

- Use all specified fasteners; see General Notes
- ¼" x 1½" Strong-Drive SDS Heavy-Duty Connector screws are not provided with the angle
- Use stainless-steel fasteners with stainless connectors

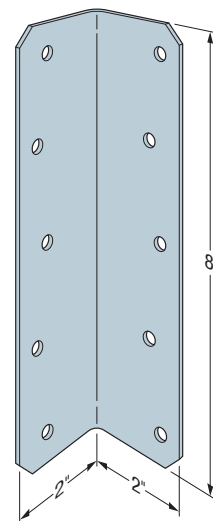


**ML23Z**

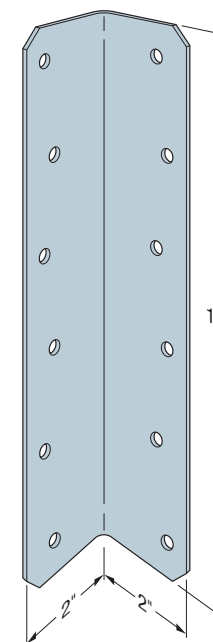


**ML24Z**  
(ML26Z similar)

These products are available with additional corrosion protection. For more information, see p. 20.



**ML28Z**



**ML210Z**

Decks and Fences

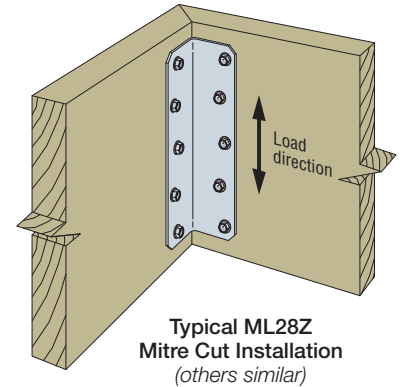
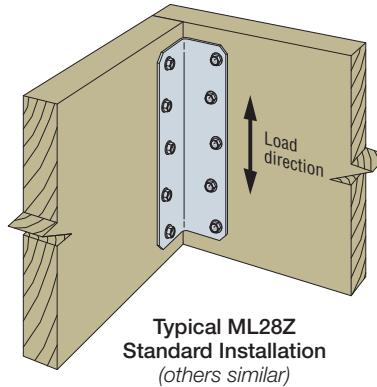
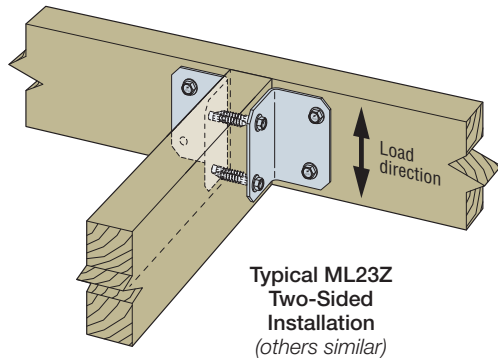
Model No.	H (in.)	Min. Nominal Joist Size	Connection Type	Fasteners (Total)	Factored Resistance							
					D.Fir-L		S-P-F					
					(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)				
					lb.	lb.	lb.	lb.				
					kN	kN	kN	kN				
ML23Z	3	2x6	Mitre cut	(4) ¼" x 1½" SDS	680	680	505	580	3.02	3.02	2.25	2.58
				(4) ¼" x 1½" SDS	625	625	450	450	2.78	2.78	2.00	2.00
			Standard	(8) ¼" x 1½" SDS	1245	1245	895	895	5.54	5.54	3.98	3.98
				(8) ¼" x 1½" SDS	1155	1275	835	960	5.14	5.67	3.71	4.27
			Two-sided	(6) ¼" x 1½" SDS	1155	1180	835	850	5.14	5.25	3.71	3.78
				(12) ¼" x 1½" SDS	2360	2360	1700	1700	10.50	10.50	7.56	7.56
ML24Z	4	2x8	Mitre cut	(8) ¼" x 1½" SDS	1615	1750	1170	1350	7.18	7.78	5.20	6.01
				(8) ¼" x 1½" SDS	1515	1735	1170	1350	6.74	7.72	5.20	6.01
			Standard	(16) ¼" x 1½" SDS	3030	3465	2530	2910	13.48	15.41	11.25	12.94
				(16) ¼" x 1½" SDS	2020	2325	1805	2075	8.99	10.34	8.03	9.23
			Two-sided	(10) ¼" x 1½" SDS	2020	2080	1525	1750	8.99	9.25	6.78	7.78
				(20) ¼" x 1½" SDS	4040	4155	3045	3500	17.97	18.48	13.55	15.58
ML26Z	6	2x10	Mitre cut	(12) ¼" x 1½" SDS	2425	2720	1860	2135	10.79	12.10	8.27	9.50
				(12) ¼" x 1½" SDS	2260	2260	1635	1880	10.05	10.05	7.27	8.36
			Standard	(24) ¼" x 1½" SDS	4515	4515	3265	3755	20.08	20.08	14.52	16.70
				(24) ¼" x 1½" SDS	2425	2720	1860	2135	10.79	12.10	8.27	9.50
			Two-sided	(12) ¼" x 1½" SDS	2260	2260	1635	1880	10.05	10.05	7.27	8.36
				(24) ¼" x 1½" SDS	4515	4515	3265	3755	20.08	20.08	14.52	16.70

1. Multiply values by 0.67 for wet service conditions.



## ML

## Angle (cont.)



## TA

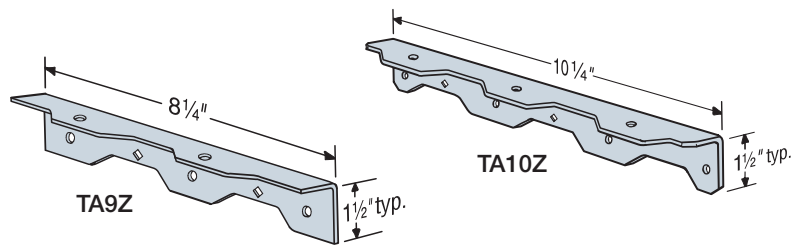
## Staircase Angle

For use in structurally-sound staircase framing.  
The TA eliminates costly conventional notching.

**Material:** 12 gauge

**Finish:** TA9Z/TA10Z — ZMAX® coating;  
TA9SS/TA10SS — stainless steel;  
see Corrosion Information, pp. 16–21

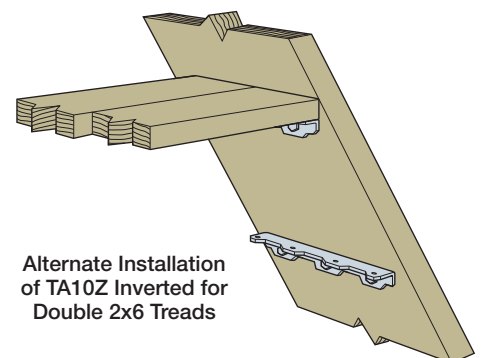
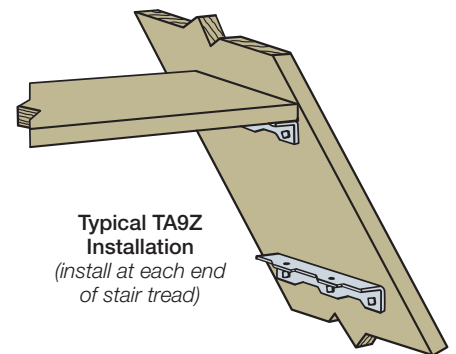
**Order:** May be ordered TA9ZKT and TA10ZKT with  
two ZMAX TAs and Simpson Strong-Tie® ¼" x ½"  
Strong-Drive® SDS Heavy-Duty Connector screws.



These products are available with additional corrosion protection.  
For more information, see p. 20.

Model No.	Fasteners		Factored Resistance (K <sub>D</sub> = 1.00)	
	Stringer	Tread	D.Fir-L	S-P-F
			lb.	lb.
			kN	kN
SS TA9Z	(3) ¼" x ½" SDS	(2) ¼" x ½" SDS	1025	945
			4.56	4.23
SS TA10Z	(3) ¼" x ½" SDS	(4) ¼" x ½" SDS	1025	1260
			4.56	5.60
SS TA10Z	(4) ¼" x ½" SDS	(3) ¼" x ½" SDS	1370	1260
			6.10	5.60

- Values may be adjusted for other load durations according to code.
- See p. 387 for SDS screw information.
- HDG ¼" lag screws may be used. Resistances must be calculated in accordance with CSA O86-14 but may not be greater than tabulated values. Pre-drill in accordance with code.
- Values assume dry service conditions. Multiply values by 0.67 for wet service conditions.





# LSC

## Adjustable Stringer Connector

The LSC adjustable stair-stringer connector offers a versatile, concealed connection between the stair stringer and the carrying header or rim joist while replacing costly framing. Field slopeable to all common stair stringer pitches, the LSC connector is suitable for either solid or notched stringers.

**Features:**

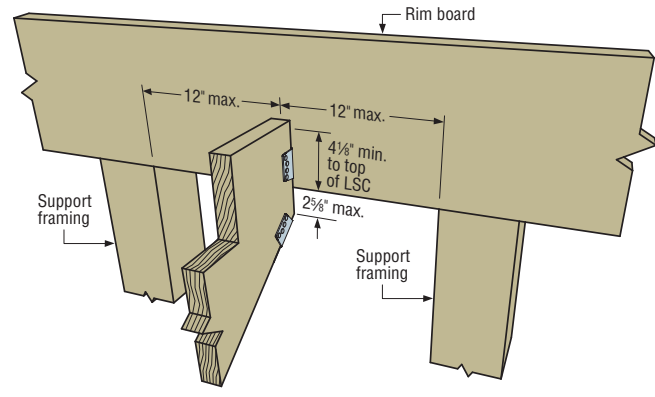
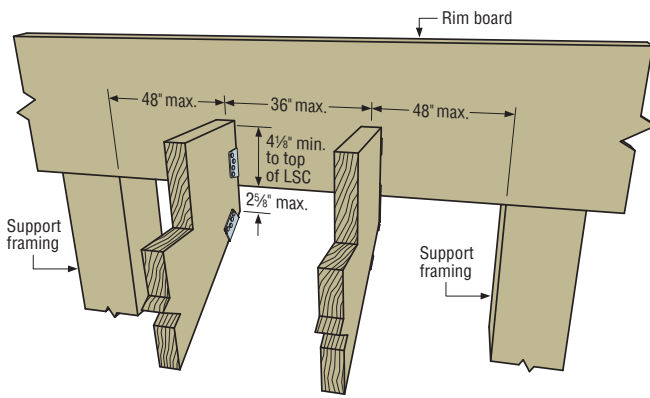
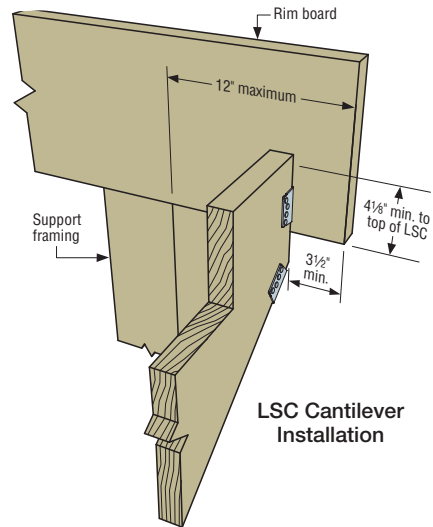
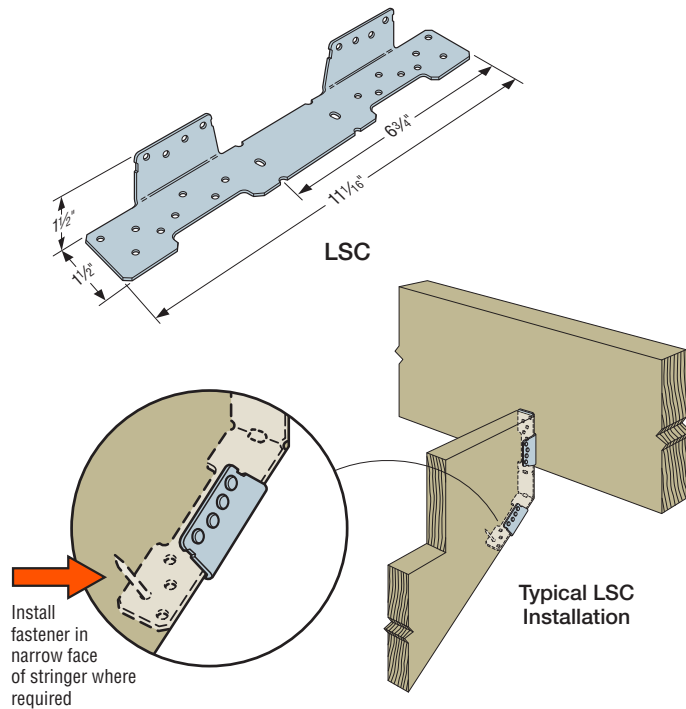
- Replaces additional framing and toe-nailing.
- Suitable for most installations on 2x10 or 2x12 header/rim board.
- May be installed flush with the top of the carrying member (typically suitable for 2x10 or 2x12 header/rim board) or lower on the face (typically suitable for 2x12 header/rim board).
- Interchangeable for left or right applications.
- LSCZ features a ZMAX® coating for additional corrosion protection. Suitable for interior and some exterior applications. LSCSS is made from stainless steel for higher exposure environment. See [strongtie.com/info](http://strongtie.com/info) for more information.

**Material:** 18 gauge

**Finish:** LSCZ — ZMAX® coating;  
LSCSS — Stainless steel

**Installation:**

- Use all specified fasteners, see table
- Before fastening, position the stair stringer with the LSC on the carrying member to verify where the bend should be located
- Tabs on the LSC must be positioned to the inside of the stairs
- The fastener that is installed into the bottom edge of the stringer must go into the second-to-last hole





## LSC

## Adjustable Stringer Connector (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Rim Joist Installation	Fasteners			Factored Normal Resistance (K <sub>D</sub> = 1.00)	
		Rim Joist	Stringer		D.Fir-L	S-P-F
			Wide Face	Narrow Edge	lb.	lb.
					kN	kN
SS LSCZ	Supported <sup>1,7</sup>	(8) 10d x 1½"	(8) 10d x 1½"	(1) 10d x 1½"	1425	1040
					6.34	4.63
		(8) #9 x 1½" SD	(8) #9 x 1½" SD	—	1215	860
					5.40	3.83
	Standard <sup>2</sup>	(8) 10d x 1½"	(8) 10d x 1½"	(1) 10d x 1½"	1165	825
					5.18	3.67
		(8) #9 x 1½" SD	(8) #9 x 1½" SD	(1) #9 x 1½" SD	1165	825
					5.18	3.67
	Cantilevered <sup>5,6</sup>	(8) 10d x 1½"	(8) 10d x 1½"	(1) 10d x 1½"	655	465
					2.91	2.07
	(8) #9 x 1½" SD	(8) #9 x 1½" SD	—	840	600	
				3.74	2.67	

- Supported installations require bearing supports within 12" of LSC.
- Standard installations require bearing support within 4" of LSC.
- When cross grain tension forces cannot be avoided in the member, mechanical reinforcement to resist such forces may be considered.
- A minimum distance of ¾" measured from the lowest rim joist fastener to edge of rim joist is required.
- A minimum distance of 3½" measured from the LSC tabs to the end of the rim joist is required.
- A maximum rim joist cantilever length of 12" measured from the face of the bearing support to the end of the rim joist is required to achieve the tabulated values.
- Simpson Strong-Tie® #9 x 1½" Strong-Drive® SD Connector screws may be substituted for 10d x 1½" nails to achieve the published nail values if the extra screw is installed in the narrow face of the stringer.
- Tabulated values assume seasoned lumber and dry service conditions. Multiply values by 0.67 for wet service conditions.
- Nails:** 10d x 1½" = 0.148" dia. x 1½" long. Nails shall be hot-dip galvanized for LSCZ and stainless steel for LSCSS. See pp. 22–24 for other nail sizes and information.
- Screws (LSCZ only):** #9 x 1½" SD (model SD9112) = 0.131" dia. x 1½" long (see pp. 382–386).



**PGT**®

## Pipe Grip Ties®

Our popular PGT pipe grip tie series now includes more models to meet a variety of conditions for attaching wood fence rails to metal fence posts and eliminating rotted and failed wood posts. PGT is suitable for standard applications as well as corners and splices.

- PGTIC2Z-R is an interior corner pipe grip tie.
- PGT1.5Z-R is for 1½" pipe (1⅞" outside diameter).  
PGT2-R and PGT2Z-R are for 2" pipe (2⅜" outside diameter).
- PGT2A is for 2" pipe (2⅜" outside diameter).
- PGT2E is for 2" pipes and features a two-piece design that provides a solid connection between fence stringer and post.

**Material:** PGT2A — 14 gauge; all others — 12 gauge

**Finish:** PGTA, PGT2-R, PGT2E — galvanized;  
PGTIC2Z, PGT1.5Z, PGT2Z-R — ZMAX®

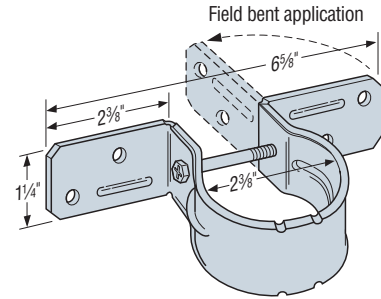
**Installation:**

- Use all specified fasteners; see General Notes.
- PGTIC2Z-R to Post — Install two set screws (supplied) with ⅜" socket in predrilled holes.
- PGTIC2Z-R to Rails — Use ¼" x 1½" Strong-Drive® SDS Heavy-Duty Connector screws (not supplied). **PGTIC set screws are included.**
- Install on vertical pipes, offsetting corners to allow for the correct rail alignment.
- Use three to four PGTs per pipe; line up to stringline.
- Fasten PGT with ¼" hex head bolt (supplied).
- PGT attaches to rails with four ¼" x 1½" Strong-Drive SDS Heavy-Duty Connector screws (not supplied). See p. 387 for Strong-Drive SDS Heavy-Duty Connector screw information.
- ¼" lag screws may be used. Follow the code requirements for predrilling.
- Nail or screw fence boards to rails.
- Field bend PGT flanges to fit corner and angled conditions (bend one time only).
- Fasten to rails using PGT2E with ¼" Strong-Drive SDS Heavy-Duty Connector screws or ¼" lag screws (follow code requirements for predrilling). See p. 387 for Strong-Drive SDS Heavy-Duty Connector screw information.
- PGT2E-R50: Sold as full carton with (50) attachment plates, (50) front straps and (55) ¼" diameter x ¾" long hex-head bolts.
- PGTSCREW-R10 is a pack of (10) ¼" x 2½" replacement hex-head screw bolts for the PGT2A, PGT2-R, PGT2Z-R and PGT1.5Z-R.

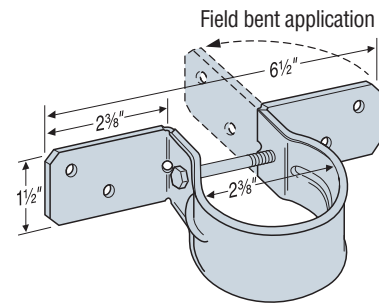
These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Pipe Diameter	Ga.	Width (in.)	Height (in.)	Fasteners	
					Wood Rail SDS ¼" x 1½" (not supplied)	Metal Post
PGT1.5Z	1⅞" OD	12	6½"	1½"	4	(1) bolt supplied
PGT2A	2" OD	14	6⅝"	1¼"	4	(1) bolt supplied
PGT2E		12	7¼"	2"	4	(1) bolt supplied
PGTIC2Z		12	4¾"	2½"	4	(2) set screws supplied
PGT2-R	2" OD	12	6½"	1½"	4	(1) bolt supplied
PGT2Z-R		12	6½"	1½"	4	(1) bolt supplied

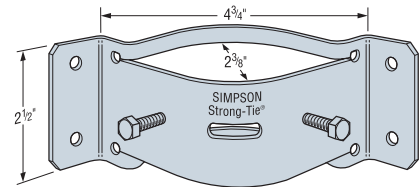
1. **Fasteners:** SDS screws are Simpson Strong-Tie® Strong-Drive screws. See pp. 22–24 for fastener information.



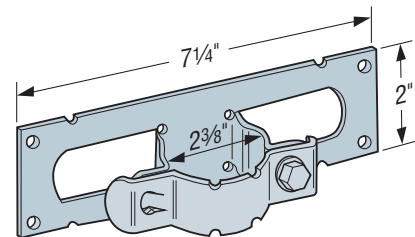
**PGT2A**



**PGT2Z-R**  
(PGT1.5Z-R similar)



**PGTIC2Z-R**

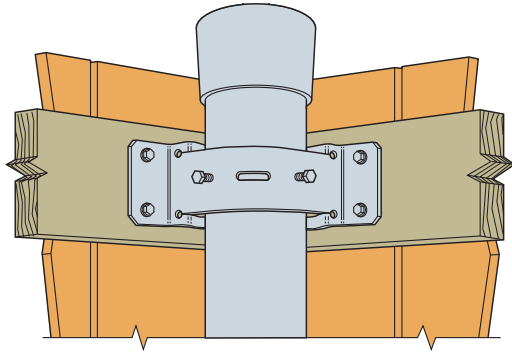


**PGT2E**  
US Patent: 8,220,781

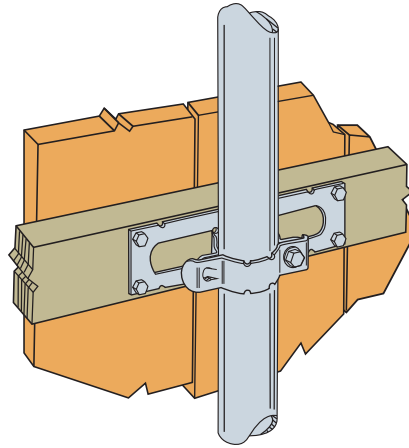


**PGT®**

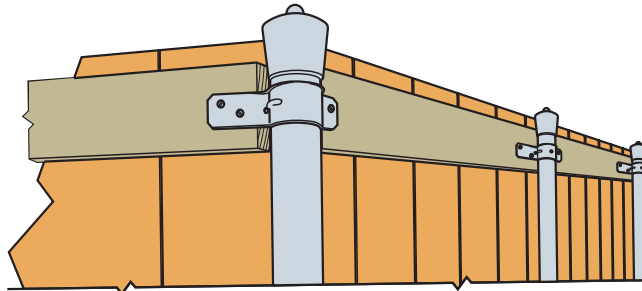
Pipe Grip Ties® (cont.)



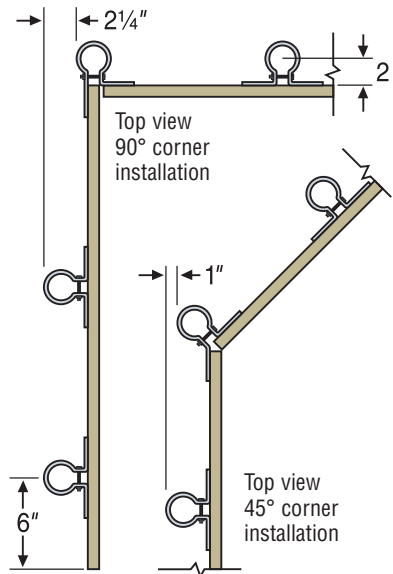
Typical PGTIC2Z-R  
Fence Installation



Typical PGT2E Installation



Typical PGT2Z-R Fence Installation



Corner Installation  
Top View



# E-Z Base™ / E-Z Mender™ / E-Z Spike™

## Fence Products

Replacing an entire fence can be an expensive and difficult task. Simpson Strong-Tie® offers a line of products designed to help make reinforcing fence posts easy and economical. The E-Z Base, E-Z Mender and E-Z Spike offer simple solutions for all types of fence post projects.

### E-Z Spike (Model No. FPBS44)

- Allows easy installation of 4x4 wood posts without digging holes or pouring concrete
- Can be used for a variety of applications where quick-to-install posts are needed

### E-Z Mender (Model No. FPBM44E)

- Allows easy repair of rotted or damaged 4x4 wood posts installed in concrete or dirt
- Reinforces weakened wood posts without having to replace the post or the concrete
- Installs with #9 x 1 1/2" Strong-Drive® SD Connector screws

### E-Z Base (Model No. FPBB44)

- Allows easy installation of 4x4 wood posts on existing concrete

**Material:** 12 gauge

**Finish:** Black powder coat

### Installation:

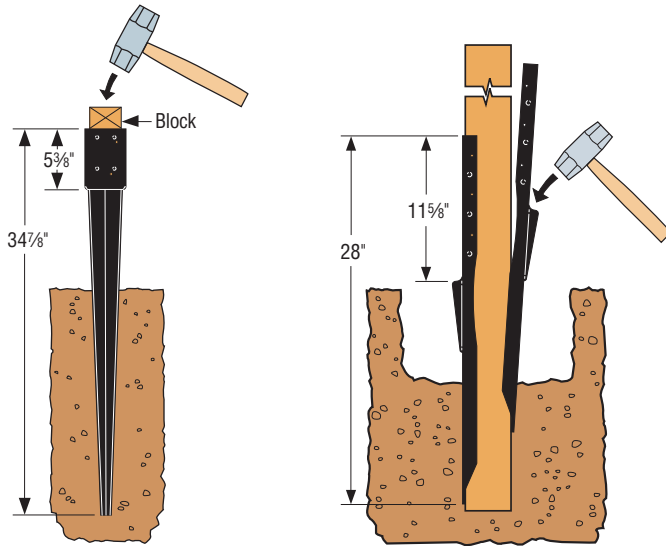
- See flier [F-C-EZFPP](#) at [strongtie.com](#)
- Attach post to E-Z Spike or E-Z Base with 1/4" Strong-Drive SDS Heavy-Duty Connector screws or 1/4" HDG lag screws and attach post to E-Z Mender using HDG nails or screws

### Note:

- Notwithstanding the terms of the Limited Warranty, Simpson Strong-Tie does not guarantee, represent or warrant that this product will perform under, or prevent or reduce damage caused by corrosion, any seismic, wind, atmospheric, or other load-producing event.

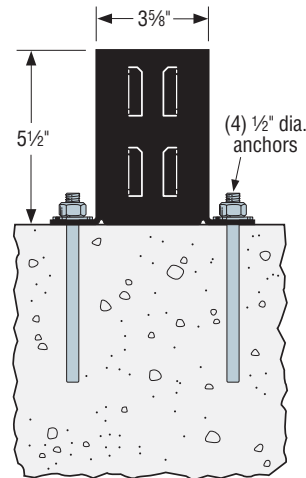
**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

**Warning:** The E-Z Base and E-Z Spike products should not be used for solid fences in excess of 4' in height or that are unprotected from wind forces. These products are not rated for uplift loads, and should not be used with posts for overhead structures or any other structure that requires resistance to wind uplift loads. Notwithstanding the terms of the Limited Warranty, Simpson Strong-Tie does not guarantee, represent or warrant that this product will prevent or reduce damage caused by corrosion, or any seismic, wind, atmospheric, or other load-producing event.

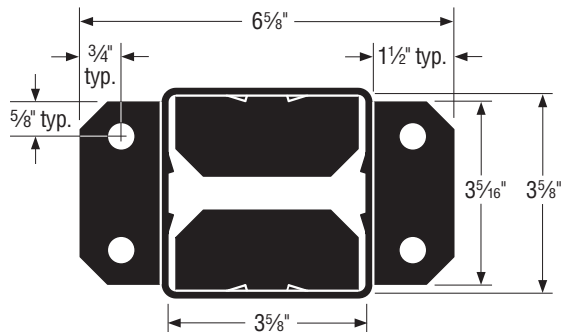


**E-Z Spike (FPBS44)**

**E-Z Mender (FPBM44E)**



**E-Z Base (FPBB44)**



**E-Z Base (FPBB44) Top View**





# FB/FBR/FBFZ

## Fence Rail Brackets

FB and FBR fence brackets make the connection between fence rails and posts simple and strong. Eliminates the need for toe nails or screws. Clean, versatile connections make planning and building fences, deck/porch railings and louvers easier and faster.

The patent-pending FBFZ flat rail bracket offers a more concealed install look. In addition to fence-rail connections, the FBFZ can also be used for handrail attachments for porch and deck railings that are 30" or closer to ground level.

**Material:** See table

**Finish:** FB/FBFZ/FBR — galvanized; FB24SS — stainless steel. Some products available in ZMAX® coating. See Corrosion Information, pp. 16–21.

**Installation:**

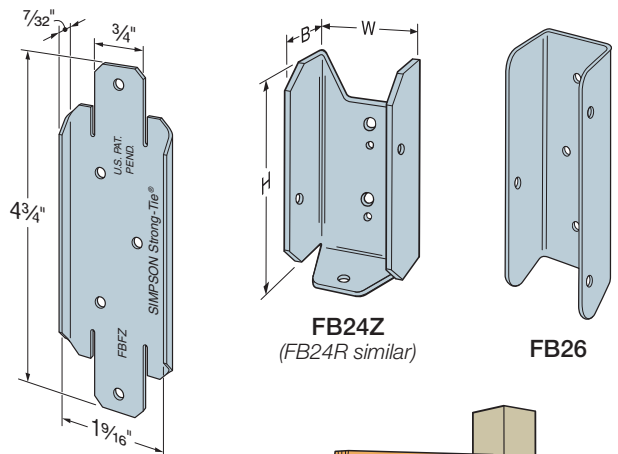
- FB/FBFZ — Install using 8d x 1 1/2" nails or #9 x 1 1/2" Strong-Drive® SD Connector screws.
- FB24R/FB24Z/FB24SS — Install with three fasteners into the rail and two fasteners into the supporting member.
- FB26 — Install with three fasteners into both the rail and the supporting member.
- FBR24Z — 10d x 1 1/2" nails or #9 x 1 1/2" Strong-Drive® SD Connector screws. Install with three fasteners into the rail and two fasteners into the supporting member.
- For FBFZ installation, position the bracket on the end of the 2x4 rail. Install fasteners into all three holes. Slide the rail into place against the post or other wood supporting member. Install one fastener through both the top and bottom holes into the supporting member.

These products are available with additional corrosion protection. For more information, see p. 20.

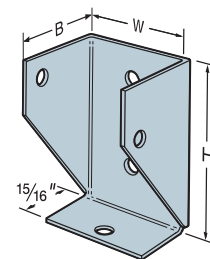
**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Ga.	Member Size	Dimensions (in.)		
			W	H	B
<b>SS</b> FB24Z	20	2x4	1 1/8	3 3/8	3/4
FB24R	20	2x4 RGH	2	3 3/8	3/4
<b>FBR24Z</b>	18	2x4	1 1/8	2 7/8	1 1/2
FB26	18	2x6	1 1/8	5	1 1/2
<b>FBFZ</b>	18	2x4	1 1/8	4 3/4	7/32

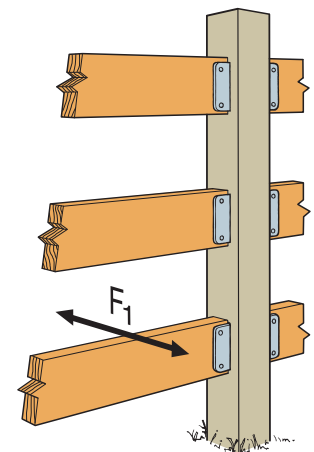
1. FB26 has a factored resistance for F<sub>1</sub> of 460 lb (2.05 kN)
2. FBR24Z: R = rail (not rough).
3. **Nails:** 10d x 1 1/2" = 0.148" dia. x 1 1/2" long, 8d = 0.131" dia. x 2 1/2" long, 8d x 1 1/2" = 0.131" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.



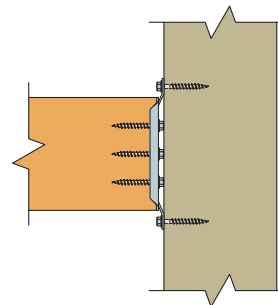
**FBFZ**  
US Patent Pending



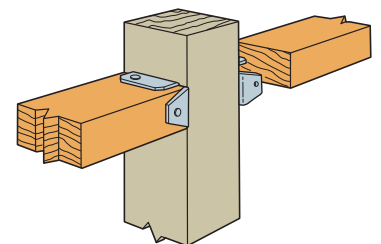
**FBR24Z**



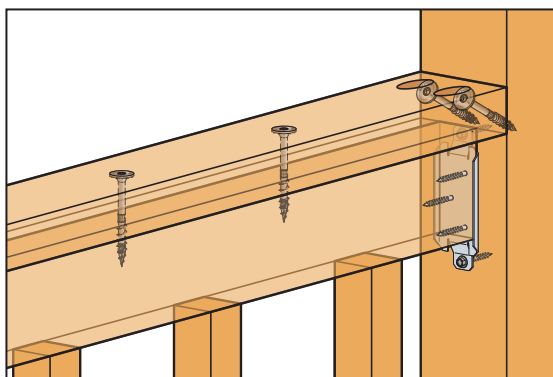
Typical FB26  
Fencing Installation



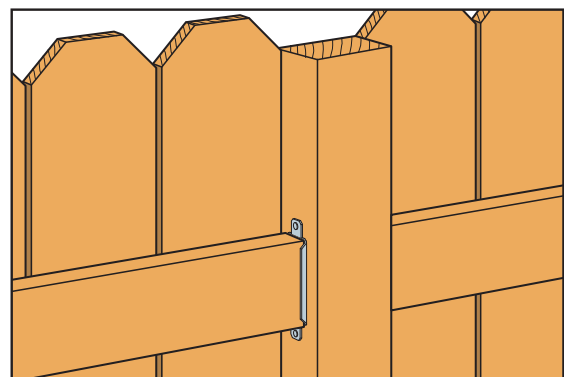
Typical FB24Z  
Installation



Typical FB24Z  
Installation



Typical FBFZ Handrail Installation  
(3" SDWS Timber screws shown)



Typical FBFZ Fence Rail Installation



# KBS1Z

## Knee-Brace Stabilizer

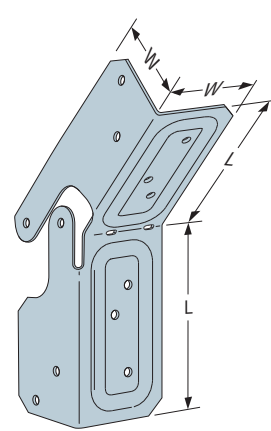
The KBS1Z knee-brace stabilizer makes a structural connection between knee bracing and columns or beams to help stabilize free-standing structures. Factory formed at a 45° angle and easily installed with nails, the KBS1Z braces 2x, 4x and 6x in line post-to-beam configurations. Check with your local building department for deck bracing requirements.

**Material:** 16 gauge

**Finish:** ZMAX® coating

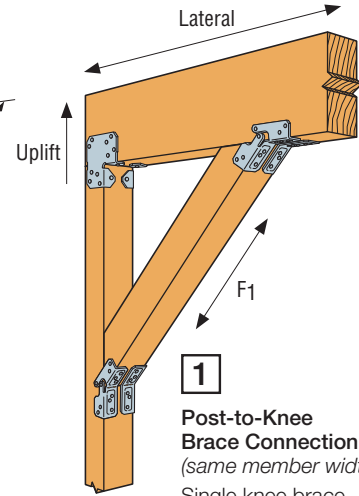
**Installation:**

- Use all specified fasteners; see General Notes.
- For installations at an angle other than 45°, bend KBS1Z along slots to desired angle. Bend one time only.
- **Knee Brace:**
  - Cut braces at desired angle
  - Bend KBS1Z to desired angle if required
  - Install fasteners to secure in place
  - For equal-width members, install (2) KBS1Z on each end of brace (see connection type 1)
  - For 2x knee brace, install single KBS1Z on each end of brace (see connection type 2)
- **Beam-to-Post:**
  - Install in pairs; see illustrations for quantity and configuration
  - Part used as a column cap does not replace required knee brace



**KBS1Z**

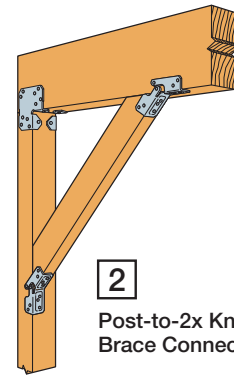
US Patent: 9,045,895



**1**

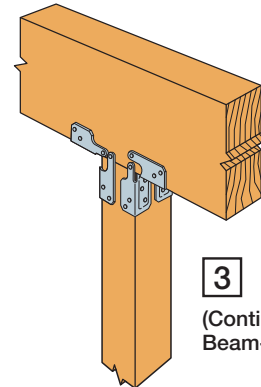
**Post-to-Knee  
Brace Connection**  
*(same member width)*

Single knee brace shown. Double knee brace installation similar.



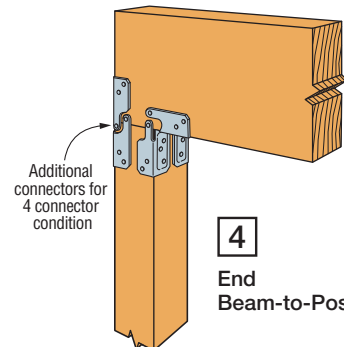
**2**

**Post-to-2x Knee  
Brace Connection**



**3**

**(Continuous)  
Beam-to-Post**



**4**

**End  
Beam-to-Post**

These products are available with additional corrosion protection. For more information, see p. 20.

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Dimensions (in.)		Type of Connection	Connectors per Joint	Direction of Load	Fasteners per Connector	Factored Resistance (K <sub>D</sub> = 1.15)	
	W	L					D.Fir-L	S-P-F
	lb.	lb.					kN	kN
KBS1Z	1 1/2	3	1	2	F <sub>1</sub> – Brace angle = 45°	(12) 8d	1765	1610
					7.85	7.16		
			2	1	F <sub>1</sub> – Brace angle = 30° or 60°	(12) 8d	1285	1110
					5.72	4.94		
			3	4	F <sub>1</sub> – Brace angle = 45°	(12) 8d x 1 1/2"	745	685
					3.31	3.05		
			4	2	F <sub>1</sub> – Brace angle = 30° or 60°	(12) 8d x 1 1/2"	735	680
					3.27	3.02		
			3	4	Uplift	(12) 8d	1750	1590
					7.78	7.07		
			4	2	Lateral	(12) 8d	2415	2205
					10.74	9.81		
3	4	Uplift	(12) 8d	845	730			
		3.76	3.25					
4	2	Lateral	(12) 8d	1255	1080			
		5.58	4.80					
3	4	Uplift	(12) 8d	1550	1170			
		6.90	5.20					
4	2	Lateral	(12) 8d	2290	1625			
		10.19	7.23					

1. Factored resistances have been increased 15% for short-term load duration; no further increase is permitted.
2. For wet service conditions, multiply the tabulated values x 0.67.
3. For all braces installed at intermediate angles between 45° and 30° or 45° and 60°, interpolation between tabulated values may be used.
4. **Nails:** 8d = 0.131" dia. x 2 1/2" long, 8d x 1 1/2" = 0.131" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.



## FWH/RTA/RTB/RTC/RTF/RTR/RTT/RTU

## Rigid Tie® Connectors

Rigid Tie connector products are great utility connectors used to connect wood members together in a variety of ways. See the table and drawings for possible wood member connections.

**Material:** RTC44 — 14 gauge; RTA2 — 16 gauge; RTRZ and RTB — 20 gauge; all others — 18 gauge

**Finish:** Galvanized. Some products available in stainless steel or ZMAX® coating; see Corrosion Information, pp. 16–21. **Select models available in black powder coat; see [strongtie.com](http://strongtie.com) for options.**

**Installation:**

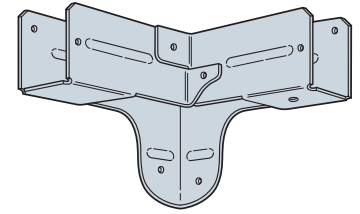
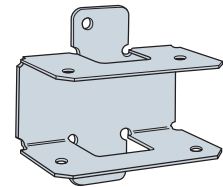
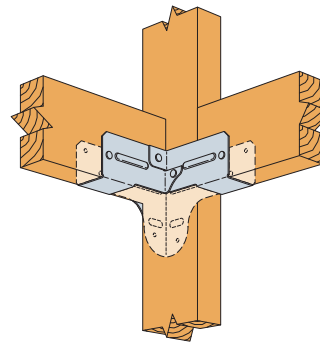
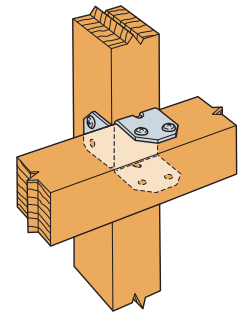
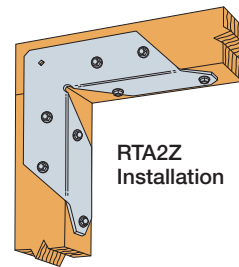
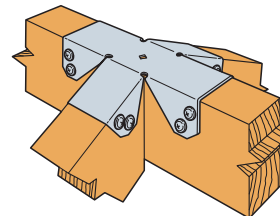
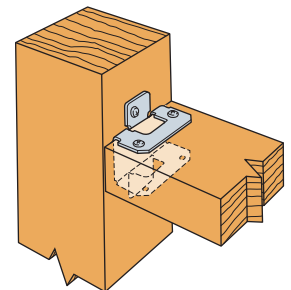
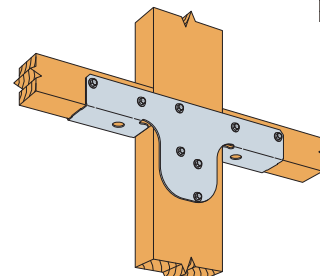
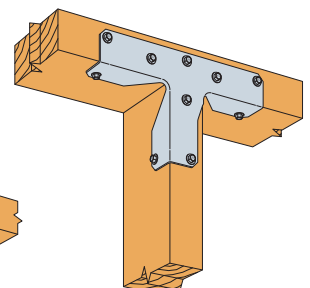
- Use all specified fasteners; see General Notes
- Always follow manufacturer's instructions when using power tools and building equipment

These products are available with additional corrosion protection. For more information, see p. 20.

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

**WBSK**

The Workbench/Shelving Kit is a fast-easy way to build a workbench and many other DIY-type projects that need a four-corner base. Visit [strongtie.com/diy](http://strongtie.com/diy) for more information.

**RTC2Z**  
(RTC22 similar)**RTRZ****RTC2Z Installation****RTB22 Installation****RTA2Z Installation****FWH2 Installation****RTR Installation****RTF2Z Installation****RTT2Z Installation**

Model No.	Post Size	Joist Size	Fasteners (Total)		Factored Normal Resistance (K <sub>D</sub> = 1.00)			
			Post	Joist	D.Fir-L	S-P-F		
					lb.	lb.		
					kN	kN		
FWH2	2x	2x	(8) #8 x 1 1/4" SD	(8) #8 x 1 1/4" SD	—	—	—	—
RTA12	1x	1x	(4) #8 x 3/4"	(4) #8 x 3/4"	—	—	—	—
RTA2Z	2x	2x	(4) #9 x 1 1/2" SD	(4) #9 x 1 1/2" SD	—	—	—	—
RTA4	4x	4x	(7) #8 x 1 1/4" SD	(5) #8 x 1 1/4" SD	—	—	—	—
RTB22	2x	2x	(4) #8 x 1 1/4" SD	(4) #8 x 1 1/4" SD	—	—	—	—
RTC22Z	2x	2x	(5) #9 x 1 1/2" SD	(6) #9 x 1 1/2" SD	—	—	—	—
RTC2Z	2x4	2x	(6) #8 x 1 1/4" SD	(6) #8 x 1 1/4" SD	1080	985	4.80	4.38
RTC42					1905	1750	8.47	7.78
RTC42	4x4	2x	(14) #8 x 1 1/4" SD	(8) #8 x 1 1/4" SD	2700	2480	12.01	11.03
					(14) 10d	(8) 10d x 1 1/2"	3190	2980
RTC44	4x4	4x	(14) 10d	(15) 10d	—	—	—	—
RTF2Z	2x	2x	(4) #9 x 1 1/2" SD	(8) #9 x 1 1/2" SD	—	—	—	—
RTT2Z	2x	2x	(3) #9 x 1 1/2" SD	(7) #9 x 1 1/2" SD	—	—	—	—
RTRZ	2x	2x	(2) #8 x 1 1/4" SD	(4) #8 x 1 1/4" SD	—	—	—	—
RTU2	2x	2x	(2) #8 x 1 1/4" SD	(4) #8 x 1 1/4" SD	—	—	—	—

1. Factored loads must be equally distributed on both joists.
2. Factored resistances may not be increased for short-term loading.
3. **Nails:** 10d = 0.148" dia. x 3" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long. See pp. 22–24 for other nail sizes and information.
4. **Screws:** #8 x 1 1/4" SD = 0.156" dia. x 1 1/4" long (SD8X1.25), #9 x 1 1/2" SD = 0.131" dia. x 1 1/2" long (SD9112).



# NS/NSP/PSPNZ

## Nail Stoppers

Nail stoppers help prevent nails from piercing pipes and electrical lines. Installed over utilities that pass through framing members.

**Material:** 16 gauge

**Finish:** Galvanized; PSPN — ZMAX® coating; see Corrosion Information, pp. 16–21

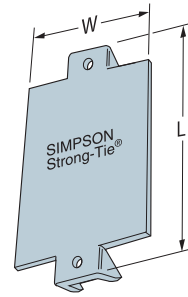
**Installation:**

- NS/NSP/PSPN58Z — 8d commons or prongs
- PSPN516Z — 16d commons

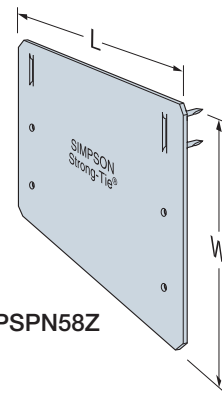
These products are available with additional corrosion protection. For more information, see p. 20.

**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

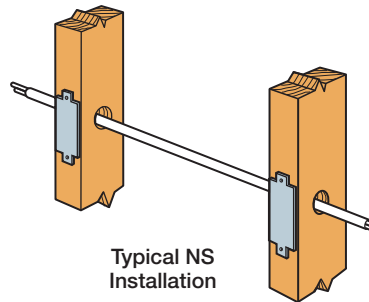
Model No.	W (in.)	L (in.)
NS1	1½	3
NS2	1½	6
PSPN58Z	5	8
PSPN516Z	5	16½



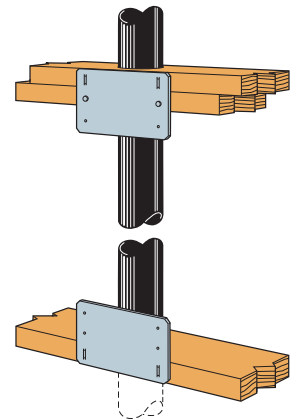
NS



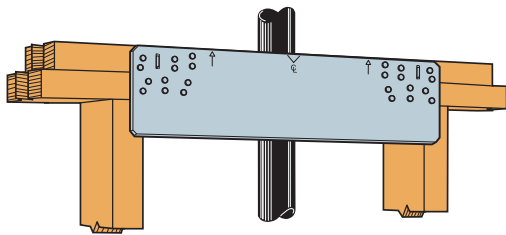
PSPN58Z



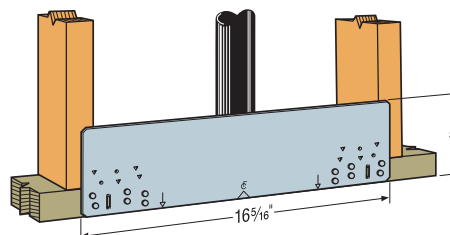
Typical NS Installation



Typical PSPN58Z Installation



PSPN516Z Installed to Double Top Plates



PSPN516Z Installation to Sill Plate

Miscellaneous

## DS

### Drywall Stop

Eliminates costly blocking at top plate, end walls and corners. A typical residence will use several hundred of these inexpensive clips with a substantial savings in blocking and labour.

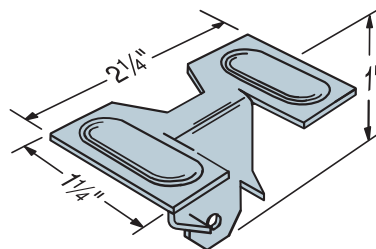
The installation prongs provide even more labour savings.

**Material:** 20 gauge

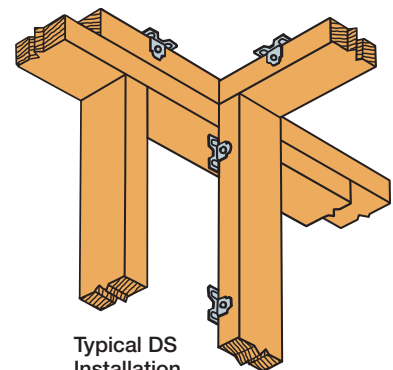
**Finish:** Galvanized

**Installation:**

- 16" on centre or less, using 8d commons
- DS should not be used where gypsum board is used for structural loads



DS



Typical DS Installation



## HSS/SS

## Stud Shoes

Stud shoes reinforce studs notched in construction. They are not a total replacement of removed material.

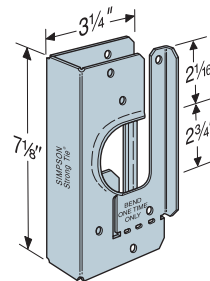
HSS2-3 is designed for triple 2x studs. HSS stud shoes provide tension resistances as well as increased compression resistances. Flared flange provides greater strength. Installs over pipe up to 2 3/8" outside diameter.

**Material:** 16 gauge

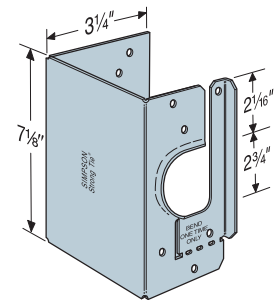
**Finish:** Galvanized

**Installation:**

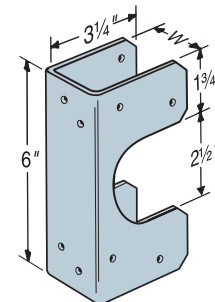
- Use all specified fasteners; see General Notes
- HSS — Bend flanges at 90° angle during installation, then bend back and screw into position (screws supplied)
- Bend flanges one cycle only



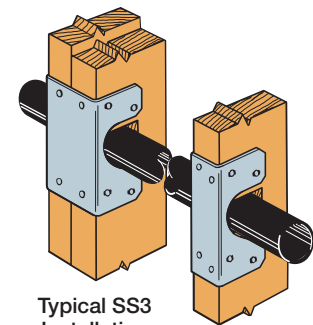
HSS



HSS2-3

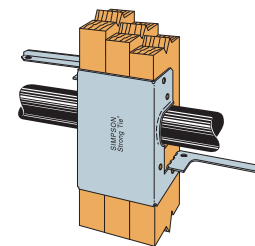


SS

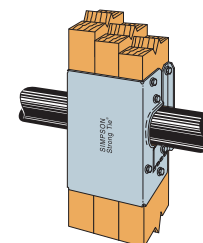


Typical SS3 Installation

Typical SS1.5 Installation

**Step 1**

Install HSS (HSS2-3 shown) over stud with flanges bent at a 90° angle.

**Step 2**

Bend HSS (HSS2-3 shown) flanges one time only. Screw into position.

Model No.	Stud Size	W (in.)	Fasteners	Factored Resistance			
				D.Fir-L		S-P-F	
				Compression	Tension	Compression	Tension
				(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)
				lb.	lb.	lb.	lb.
kN	kN	kN	kN				
SS1.5	2x	1 9/16	(12) 10d x 1 1/2"	875	—	620	—
				3.89	—	2.76	—
SS2.5	3x	2 9/16	(12) 10d x 1 1/2"	1170	—	920	—
				5.20	—	4.09	—
SS3	(2) 2x	3 1/16	(12) 10d	1255	—	970	—
				5.58	—	4.31	—
SS4.5	(3) 2x	4 9/16	(14) 10d	1375	—	975	—
				6.12	—	4.34	—
HSS2-SDS1.5	2x	1 9/16	(12) 1/4" x 1 1/2" SDS	1860	1450	1430	1040
				8.27	6.45	6.36	4.63
HSS2-2-SDS3	(2) 2x	3	(12) 1/4" x 3" SDS	1980	1370	1425	990
				8.81	6.09	6.34	4.40
HSS2-3-SDS3	(3) 2x	4 9/16	(12) 1/4" x 3" SDS	1635	1370	1175	990
				7.27	6.09	5.23	4.40
HSS4-SDS3	4x	3 9/16	(12) 1/4" x 3" SDS	1995	1370	1435	990
				8.87	6.09	6.38	4.40

1. Factored compression resistances cannot be increased for short-term load durations.

2. **Nails:** 10d = 0.148" dia. x 3" long, 10d x 1 1/2" = 0.148" dia. x 1 1/2" long.

See pp. 22–24 for other nail sizes and information.



# RPS

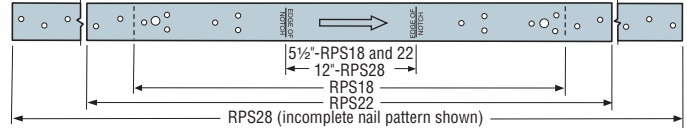
## Strap Ties

The RPS can be used to reinforce notches in wall plates for HVAC and pipe penetrations in walls.

**Finish:** Galvanized, some products available in ZMAX® coating. See Corrosion Information, pp. 16–21.

**Installation:**

- Use all specified fasteners; see General Notes
- Use RPS22 or RPS28 (16 gauge) to reinforce top plate
- Use RPS18Z, RPS22Z or RPS28Z (16 gauge ZMAX) to reinforce sill plate

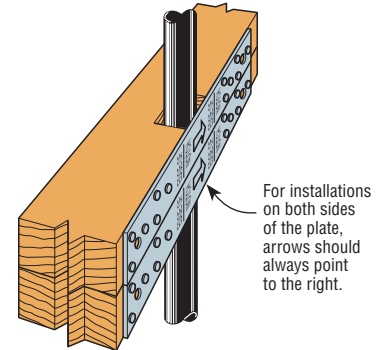


RPS

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Ga.	Dimensions (in.)		Fasteners (Total)	Factored Tensile Resistance			
					D.Fir-L		S-P-F	
		W	L		(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)
					lb.	lb.	lb.	lb.
		kN	kN	kN	kN			
RPS18	16	1½	18½	(12) 16d	1595	1835	1480	1705
					7.10	8.16	6.58	7.58
RPS22	16	1½	22½	(16) 16d	2130	2445	1975	2270
					9.48	10.88	8.79	10.10
RPS28	16	1½	28½	(16) 8d	900	1035	840	965
					4.00	4.60	3.74	4.29

1. Factored resistances have been increased 15% for earthquake or wind loading; no further increase is permitted.
2. **Nails:** 16d = 0.162" dia. x 3½" long; 8d = 0.131" dia. x 2½" long. See pp. 22–24 for other nail sizes and information.



**Typical RPS Installation**  
(only one strap may be necessary to meet code requirements)

## PSCL/PSCA

### Panel Sheathing Clips

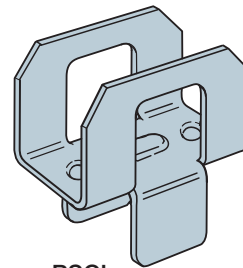
Simpson Strong-Tie® panel sheathing clips are used to brace unsupported sheathing edges and provide a 1/8" gap to address shrinkage and expansion of roof sheathing.

**Material:** 20 gauge

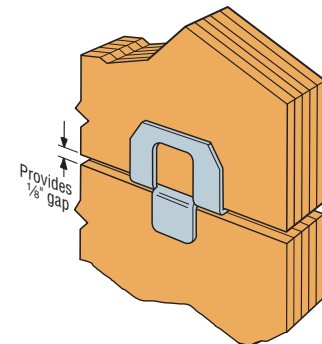
**Finish:** Galvanized

**Installation:**

- Use the same size sheathing clip as the panel thickness



PSCL  
(PSCA similar)



Typical PSCL Installation

Model No.	Panel Thickness
PSCL3/8	3/8
PSCL7/16, PSCA7/16	7/16
PSCL15/32, PSCA15/32	15/32
PSCL1/2, PSCA1/2	1/2
PSCL5/8, PSCA5/8	5/8
PSCL19/32	19/32
PSCL3/4	3/4

1. PSCLs and PSCAs meet the requirements of 9.23.16.6 NBC 2015 for required edge support of panel type sheathing.



# CTS218

## Compression and Tension Straps

The CTS218 is designed to repair wood members such as top plates, studs and trusses, and it handles both tension and compression loads. The unique rolled edges of the strap allow it to span gaps as wide as 4½", and its 1½" width enables installation on the narrow face of 2x lumber.

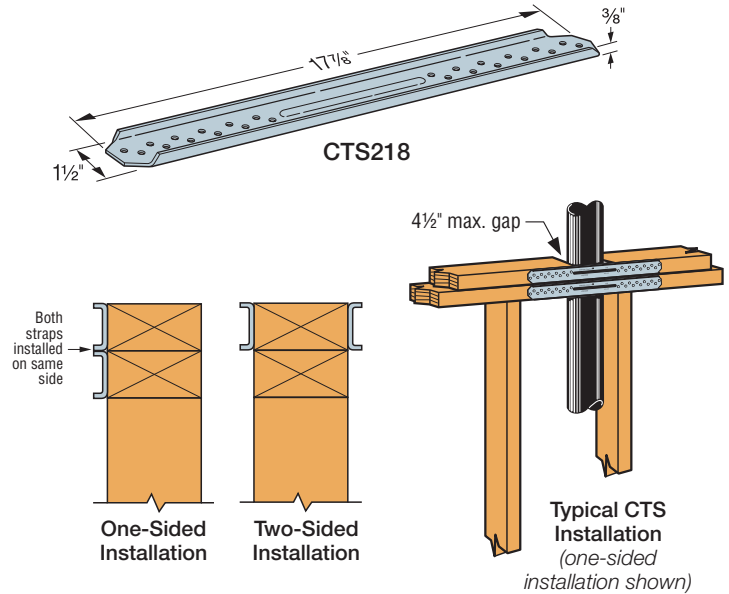
- Tested specifically for top/bottom plate repair with various multi-strap configurations

**Material:** 14 gauge

**Finish:** Galvanized

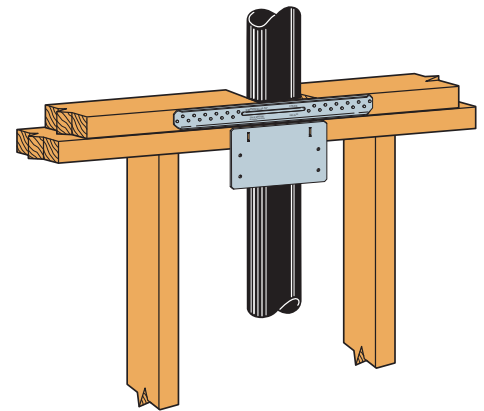
**Installation:**

- Use all specified fasteners; see General Notes.
- One-sided installations — install one or two CTS straps on the same side of the member.
- Two-sided installation — install CTS straps on opposite sides of member. For three-part installations, install two parts on one side, one part on opposite side.

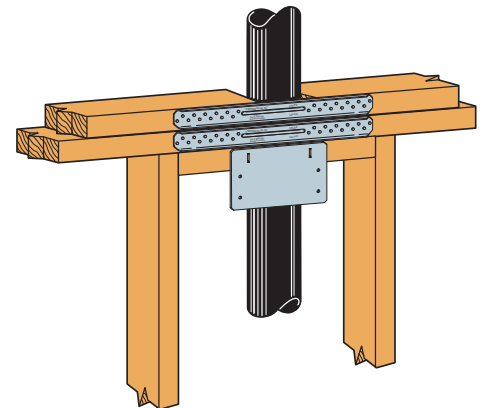


Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Strap Qty.	Installation	Fasteners (per strap)	Factored Resistance ( $K_D = 1.15$ )					
				D.Fir-L		S-P-F			
				Compression	Tension	Compression	Tension		
				lb.	lb.	lb.	lb.		
CTS218	1	One sided	(24) 10d x 1½"	1485	1985	1055	1985		
				6.61	8.83	4.69	8.83		
	2	One sided		2970	3970	2110	3970		
				13.21	17.66	9.39	17.66		
	2	Two sided		3440	3970	2445	3970		
				15.30	17.66	10.88	17.66		
	3	Two sided		5405	5955	3840	5955		
				24.04	26.49	17.08	26.49		
	4	Two sided	6880	7940	4890	7940			
			30.60	35.32	21.75	35.32			
	1	One sided	(24) #9 x 1½" SD	1705	1985	1210	1985		
				7.58	8.83	5.38	8.83		
				2	One sided	3410	3970	2420	3970
						15.17	17.66	10.77	17.66
2				Two sided	3970	3970	2820	3970	
					17.66	17.66	12.54	17.66	
3				Two sided	5995	5955	4255	5955	
					26.67	26.49	18.93	26.49	
4	Two sided	7940	7940	5640	7940				
		35.32	35.32	25.09	35.32				



Single CTS218 and PSPN58 Installation



Double CTS218 and PSPN58 Installation

1. Factored resistances have been increased 15% for wind or seismic with no further increase allowed; reduce where other loads govern.
2. Fastener quantities are for a single strap.
3. Maximum gap between wood members is 4½".
4. **Fasteners:** 10d x 1½" = 0.148" dia. x 1½", #9 x 1½" SD = 0.131" dia. x 1½" long. See pp. 22–24 for other nail sizes and information.



# MMHC

## Hinged Roof Connector

The innovative MMHC hinged roof connector makes it easy to build a stick-frame roof in the factory that can fold flat during shipping. This connector has been tested and load rated in multiple directions. It can be installed on one or both sides of the roof rafter assembly.

**Features:**

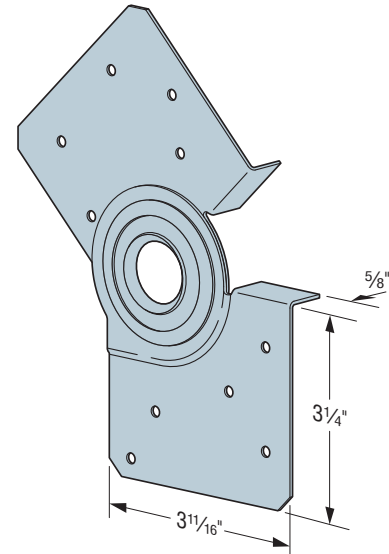
- Innovative hinge rotates easily from open position to folded.
- The offset nail pattern allows for installation on both sides.
- Connector tabs make it intuitive to position before nailing.
- Nails in place for easy installation. No bolts required. (No measuring or predrilling saves installers time.)

**Material:** 18 gauge

**Finish:** Galvanized

**Installation:**

- Minimum 2x6 roof rafter and ceiling joist; minimum 2x4 knee wall stud
- Arrange members in installed position
- Open connector to same position
- Place on wood members using tabs as a guide
- Install with specified nails
- Adjust members for shipping purposes, then reopen at jobsite
- MMHC does not replace solid blocking



**MMHC**  
Patent Pending

## Factored Resistance for Single-Ply Rafter to Ceiling Joist

Model No.	Roof Pitch	Connector Quantity	Fasteners per Member	Factored Resistance							
				D.Fir-L				S-P-F			
				F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	Uplift	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	Uplift
				(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00 or 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00 or 1.15)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.15)
				lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
MMHC	3:12	1	5	160	700	700	715	115	495	495	505
				0.71	3.11	3.11	3.18	0.51	2.20	2.20	2.25
		2	10	360	1385	1385	1430	255	980	980	1015
				1.60	6.16	6.16	6.36	1.13	4.36	4.36	4.52
	12:12	1	5	110	1010	640	830	80	715	455	590
				0.49	4.49	2.85	3.69	0.36	3.18	2.02	2.62
		2	10	235	1990	1235	1350	165	1415	875	960
				1.05	8.85	5.49	6.01	0.73	6.29	3.89	4.27

1. All installations assume at minimum a single-ply 2x member.  
 2. Two-ply applications with two-sided installation will achieve twice the tabulated value for the one-sided installation.  
 3. Linear interpolation of the tabulated values is allowed for roof pitches between 3:12 and 12:12.



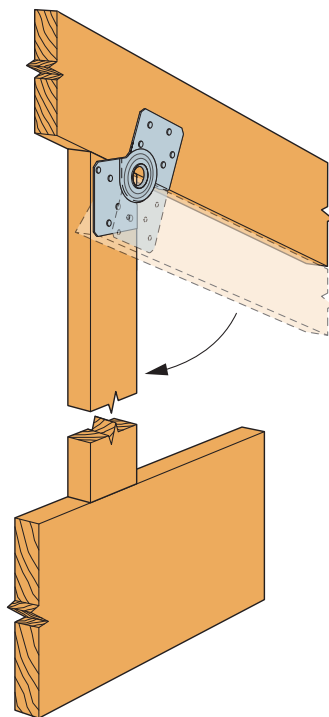


# MMHC

## Hinged Roof Connector (cont.)

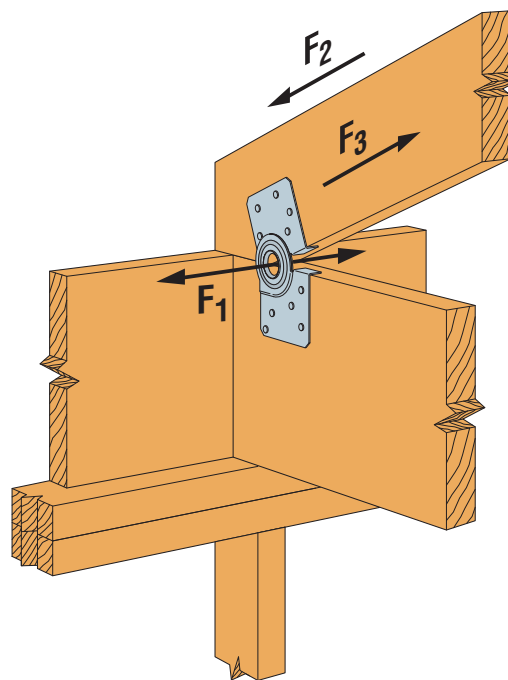
### Factored Resistance for Kneewall Application

Model No.	Roof Pitch	Connector Quantity	Fasteners per Member	Factored Resistance					
				D.Fir-L		S-P-F			
				Download	Uplift	Download	Uplift		
				( $K_D = 1.00$ )	( $K_D = 1.15$ )	( $K_D = 1.00$ )	( $K_D = 1.15$ )		
				lb.	lb.	lb.	lb.		
			10d x 1 1/2" Nails						
MMHC	3:12 – 12:12	1	5						
				1610	630	1145	445		
				7.16	2.80	5.09	1.98		



After shipping, leg rotates to the upright position.

MMHC Installed at Knee Wall



MMHC Installed at Heel



# MP

## Mending Plates

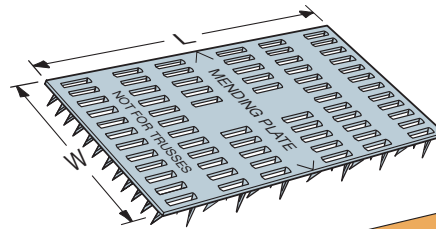
Versatile and easy-to-use mending plates for wood-to-wood connections. No nails or notching of wood required. For non-structural applications only; not for truss applications.

**Material:** 20 gauge

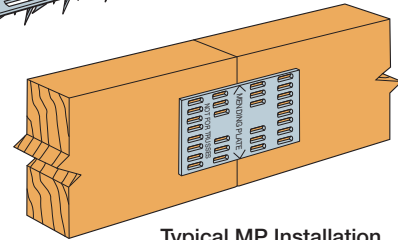
**Finish:** Galvanized

**Installation:**

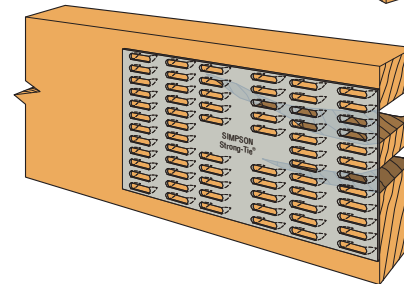
- Place plate over two pieces of aligned wood with arrows aligned at joint
- Place a wood block over the mending plate and hammer the wood block to embed the prongs



**MP36**  
(other sizes similar)



Typical MP Installation



Pallet Repair Application

Model No.	Dimensions (in.)	
	W	L
MP14	1	4
MP24	2	4
MP36	3	6

1. Connectors are not load rated.

## TP/TPA

### Tie Plates

Ties are nail-on tie plates. TPAs are flanged for added support.

**Material:** 20 gauge

**Finish:** Galvanized

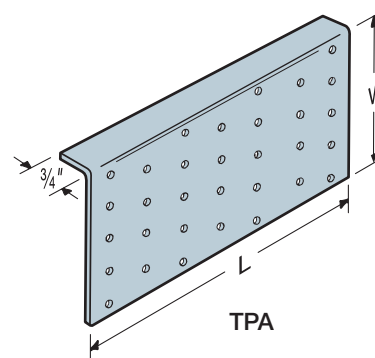
**Installation:**

- Holes are sized for 8d common or 8d x 1 1/2" nails

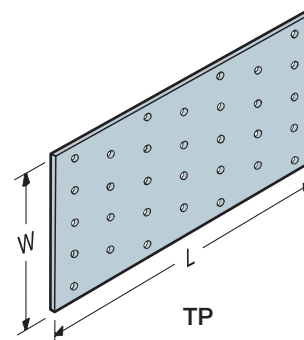
**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 382–386 for more information.

Model No.	Dimensions (in.)		Number of Nail Holes
	W	L	
TP15	1 13/16	5	13
TPA37	3 1/2	7	32
TPA39	3 1/2	9	41
TP35	3 1/8	5	23
TP37	3 1/8	7	32
TP39	3 1/8	9	41
TP311	3 1/8	11	50
TP312	3 1/8	12	54
TP316	3 1/8	16	72
TP45	4 1/8	5	30
TP47	4 1/8	7	42
TP49	4 1/8	9	54
TP411	4 1/8	11	66
TP57	5 3/4	7	60
TPA57	5	7	49

1. Connectors are not load rated.



TPA



TP



# WB/WBC/TWB/RCWB

## Wall Bracing

Simpson Strong-Tie® wall bracing products offer effective options to resist racking during construction. Not designed to replace structural panel shearwall load-carrying component.

The WBC (coiled WB) multiple product dispenser pack weighs less than 40 pounds, making storage and transportation easy. WB106C — 15 pieces per roll, WB126C — 12 pieces per roll, WB143C — 10 pieces per roll.

The RCWB features a rolled edge (the TWB has two rolled edges) for extra strength and safety.

**Material:** WB and WBC — 16 gauge; TWB — 22 gauge; RCWB — 20 gauge

**Finish:** Galvanized

**Installation:**

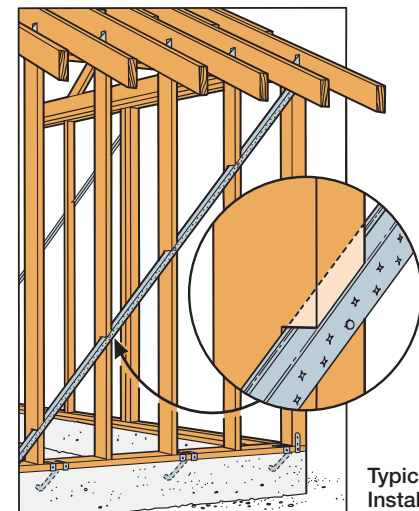
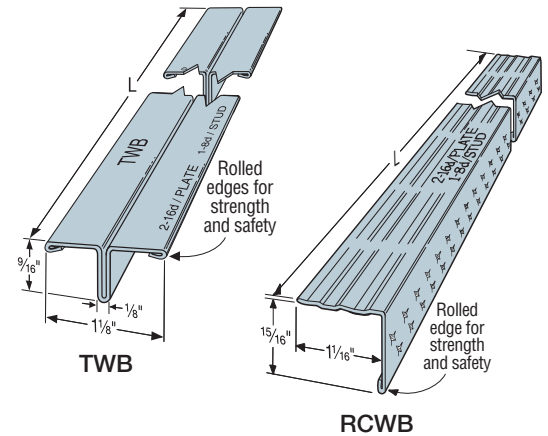
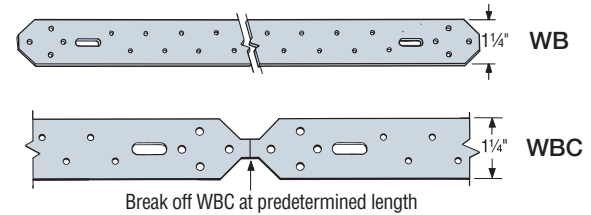
- Use all specified fasteners; see General Notes.

**WB and WBC:**

- Install in “X” pairs or in opposing “V” fashion.
- Use with 16" or 24" o.c. 2x4 (min.) studs.

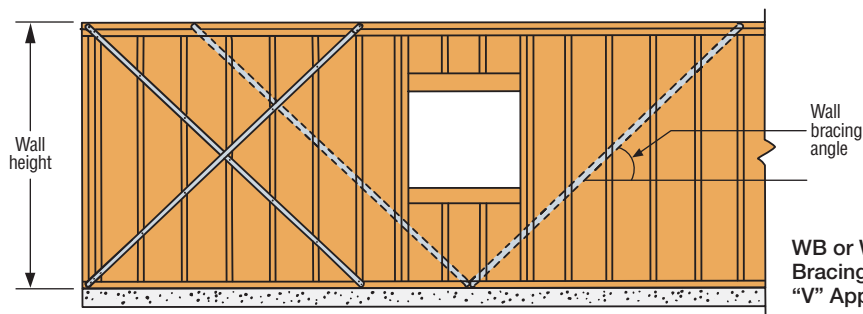
**RCWB and TWB:**

- Use with 16" o.c. studs.
- Use minimum of 2x4 studs with TWB.
- Use minimum of 2x6 studs with RCWB (2x4 min. for interior, non-bearing wall).
- Establish a run-line using the bracing as a straight edge. Single cut a saw kerf  $\frac{5}{8}$ " deep (TWB) or  $1\frac{1}{8}$ " deep (RCWB) along the run line. If the wall is pre-framed on the floor, place the part into the saw kerf, and put one nail into the top plate. Tilt the wall up and plumb before nailing off top plate, bottom plate and studs according to the nailing schedule.



Model No.	L	Wall Height and Angle	Fasteners	
			Plates	Studs
WB106	9'-5 $\frac{5}{8}$ "	8' @ 60	(2) 16d	(1) 8d
WB106C	9'-6"	8' @ 60	(2) 16d	(1) 8d
TWB10	9'-9"	8' @ 55	(2) 16d	(1) 8d
RCWB12	11'-4"	8' @ 45	(2) 16d	(1) 8d
WB126	11'-4 $\frac{3}{8}$ "	8' @ 45	(2) 16d	(1) 8d
WB126C	11'-4 $\frac{3}{4}$ "	8' @ 45	(2) 16d	(1) 8d
TWB12	11'-4"	8' @ 45	(2) 16d	(1) 8d
RCWB12	11'-4"	9' @ 53	(2) 16d	(1) 8d
WB126	11'-4 $\frac{3}{8}$ "	9' @ 53	(2) 16d	(1) 8d
WB126C	11'-4 $\frac{3}{4}$ "	9' @ 53	(2) 16d	(1) 8d
TWB12	11'-4"	9' @ 53	(2) 16d	(1) 8d
WB143C	14'-3"	10' @ 45	(2) 16d	(1) 8d
RCWB14	14'-2"	10' @ 45	(2) 16d	(1) 8d
TWB14	14'-2"	10' @ 45	(2) 16d	(1) 8d

1. Nails: 16d = 0.162" dia. x 3 $\frac{1}{2}$ " long, 8d = 0.131" dia. x 2 $\frac{1}{2}$ " long.  
See pp. 22–24 for other nail sizes and information.



The WBC handy carry carton is convenient to store, transport and use.



# NCA/TB/LTB

## Bridging

**NCA** — Nailless installation eliminates callbacks for nail squeaks. Designed for secure grip before the drive-home blow, and deeper prong penetration. Precision-formed into a rigid “V” section.

**TB** — Tension-type bridging with maximum nailing flexibility. Use just two of the seven nail holes at each end.

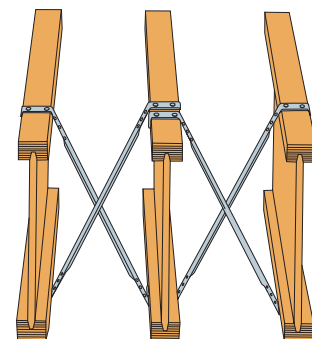
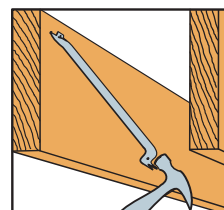
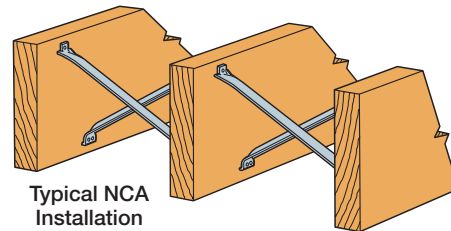
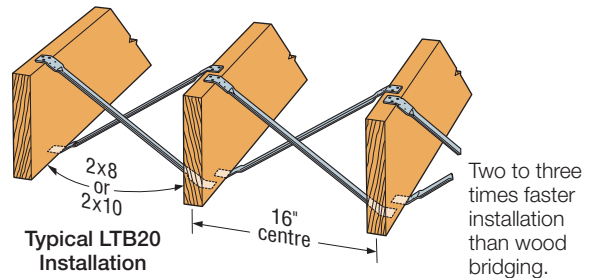
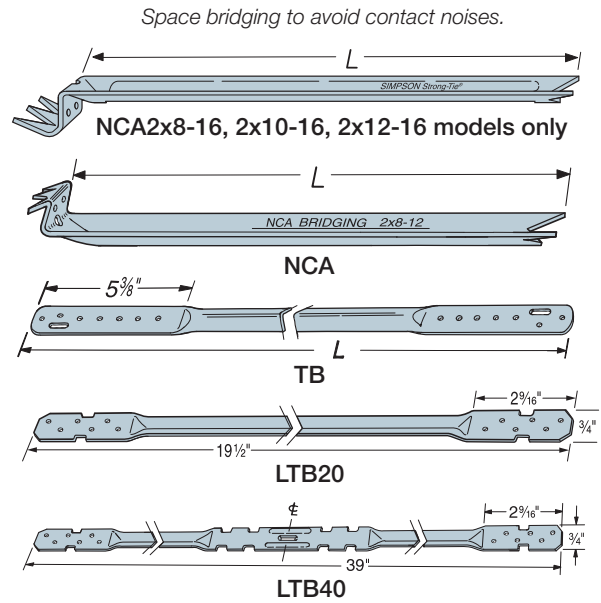
**LTB** — Staggered nail pattern accommodates 2x8 and 2x10 joists. Use just two of the six nail holes at each end. LTB40 has rigid prongs that install easily into the joist, and embossments that allow crisp bends.

**Material:** LTB — 22 gauge; NCA and TB — 20 gauge (except NCA2x12-16 — 18 gauge)

**Finish:** Galvanized

**Installation:** • Support floor joists with a depth-to-thickness ratio of six or more with bridging at intervals not exceeding 8'. If span is greater than 8', install on 2x8 or larger joists. If span is greater than 16', use more than one pair.

- Tension bridging works only in tension, so must be used in cross pairs.
- Install bridging tightly; loose installation may allow floor movement.
- NCA may be installed before or after sheathing, from the top or bottom. Simply locate the bend line approximately 1" from the joist edge.
- NCA has nail holes in one end for use if a prong is bent during installation. Fully seat nails if they are used; otherwise, they may lead to squeaks.
- TB requires two 10d x 1½" fasteners per end.
- LTB requires two 6d commons per end
- **Nail Bridging Only** — When installation for the connection to the top of the stud wall instead of the joist underside, use a strap one size smaller than shown in the table.
- **NCA, TB or LTB tension bridging does not replace prescriptive floor bridging as required per 9.23.9.4 NBC.**



For all bridging avoid contact between steel members (this may cause squeaks).

## Tension Bridging for I-Joists

Joist Height (in.)	Joist Spacing (in.)								
	12	16	19.2	24	30	32	36	42	48
9½	TB20	TB27	TB27	TB30	TB36	TB36	TB42	TB48	TB54
10	TB20	TB27	TB27	TB30	TB36	TB36	TB42	TB48	TB54
11¾	TB20	TB27	TB27	TB30	TB36	TB36	TB42	TB48	TB54
12	TB20	TB27	TB27	TB30	TB36	TB36	TB42	TB48	TB54
14	TB27	TB27	TB27	TB36	TB36	TB42	TB42	TB48	TB54
16	TB27	TB27	TB30	TB36	TB42	TB42	TB42	TB48	TB54
18	TB27	TB30	TB30	TB36	TB42	TB42	TB48	TB54	TB56
20	TB30	TB30	TB36	TB36	TB42	TB42	TB48	TB54	TB56
22	TB30	TB36	TB36	TB36	TB42	TB42	TB48	TB54	TB56
24	TB36	TB36	TB36	TB42	TB42	TB48	TB48	TB54	TB56
26	TB36	TB36	TB36	TB42	TB48	TB48	TB48	TB54	TB60
28	TB36	TB36	TB42	TB42	TB48	TB48	TB54	TB54	TB60
30	TB36	TB42	TB42	TB42	TB48	TB48	TB54	TB56	TB60
32	TB42	TB42	TB42	TB42	TB48	TB48	TB54	TB56	TB60

## Tension Bridging for Solid Sawn Lumber

Joist Size	Spacing	NCA		TB		LTB
		Model No.	L (in.)	Model No.	L (in.)	Model No.
2x10	12" o.c.	NCA2x10-12	12½	TB20	20	—
2x12	12" o.c.	NCA2x12-12	13¾	TB20	20	—
2x14	12" o.c.	NCA2x8-16	15¼	TB27	27	—
2x16	12" o.c.	NCA2x10-16	15¾	TB27	27	—
2x8	16" o.c.	NCA2x8-16	15¼	TB27	27	LTB20 or 40
2x10	16" o.c.	NCA2x10-16	15¾	TB27	27	LTB20 or 40
2x12	16" o.c.	NCA2x12-16	16¾	TB27	27	—



# SBV/CF-R

## Shelf Brackets / Concrete Form Angles

Use the SBV for shelving, counter brackets, window ledge supports, at a very competitive price.

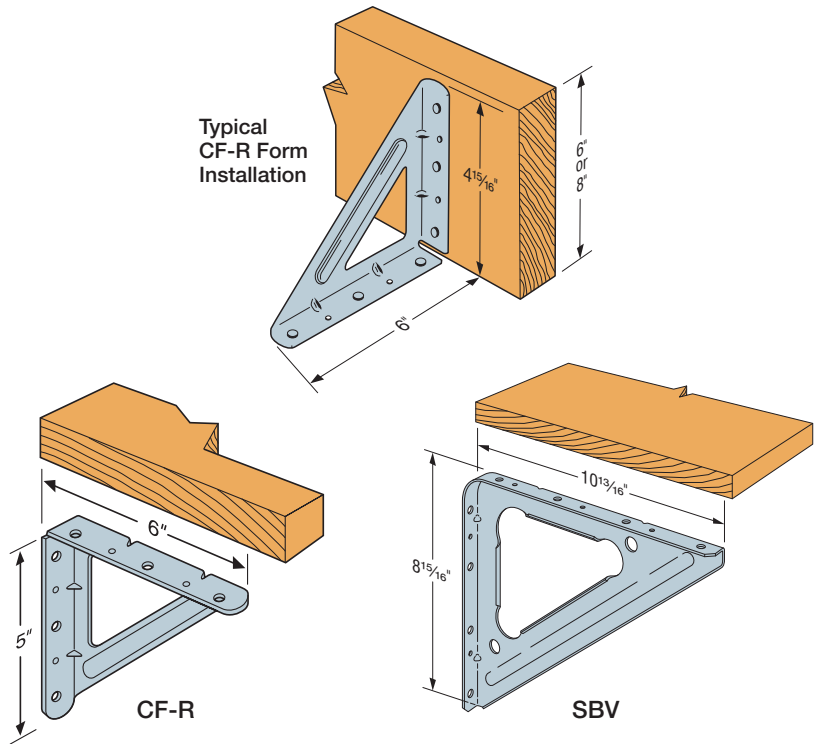
The CF-R is used where a moderate size shelf bracket and reinforcing angle is needed. When used for tilt-up perimeter forming, the nail hole placement ensures substantial re-use.

**Material:** 16 gauge

**Finish:** Galvanized

**Installation:**

- Use all specified fasteners; see General Notes.
- SBV — Reversible for nominal 10" or 12" shelves of any thickness.
- CF-R (Retail Pack) — Recommended spacing is 36" **on centre** for 2x's and 18" **on centre** for 1x's. Use the 5" leg for 6" lumber and the 6" leg for 8" lumber. Holes are sized for ¼" Strong-Drive® SDS Heavy-Duty Connector screws, 10d common nails or #9 Strong-Drive SD Connector screws.



Model No.	Fasteners	Factored Resistance ( $K_D = 0.65$ )	
		D.Fir-L	S-P-F
		lb.	lb.
CF-R	(3) ¼" x 2" SDS	140	130
		0.62	0.58
SBV	(4) ¼" x 2" SDS	150	140
		0.67	0.62

1. Factored resistances have been decreased for permanent loading. Values can be increased for other load durations as per code.



# Outdoor Accents®

## Decorative Hardware

The Outdoor Accents decorative hardware product line features connectors and fasteners that bring strength and style to custom outdoor living structures.

The Avant Collection™ is the newest addition to the Outdoor Accents; featuring straight edges and chamfered corners, this collection offers a clean, timeless design that compliments nearly every architectural style. The Mission Collection® adds a hint of southwestern flair to any project.

Both collections have the same installation, fasteners and capacities. Load tables show information for both styles. Both model numbers are shown for each part in the load tables; Avant model numbers are differentiated with a "V" in the name.

Outdoor Accents post bases secure wood columns to concrete while providing a 1" stand-off height that helps reduce decay. These bases accommodate 4x4, 6x6, 8x8 and 10x10 lumber in both sawn and rough sizes. Optional decorative side plates are available to give the look of a four-sided post base.

The Outdoor Accents structural screw reduces installation time by driving easily without predrilling. When combined with the new load-rated hex-head washer, the solution delivers the appearance of a bolt while providing the easy installation and convenience of a screw for the installer.

Outdoor Accents angles make connections between beams and posts stronger and provide more consistent, straight corners for a variety of outdoor projects. Flat T and L straps provide reinforcement for connections where one lumber piece intersects another at a 90° angle. The angles and straps are also installed with the Outdoor Accents structural screws and hex-head washers.

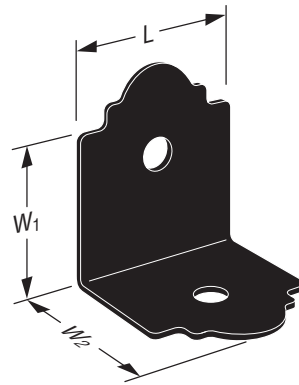
The Outdoor Accents lines also feature gable plates and decorative washers to add decorative flair to any outdoor living project.

**Material:** See tables

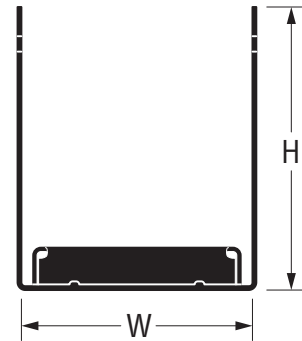
**Finish:** ZMAX® with textured powder-coated, flat black paint

**Installation:**

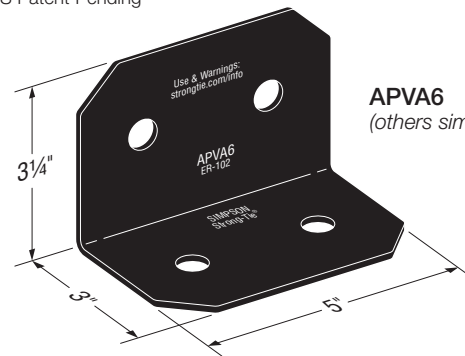
- Use all specified fasteners; see General Notes.
- Use of the Outdoor Accents connectors requires the use of Hex-Head Washer (STN22) with Structural Wood screw (SDWSDBB). Some items require Strong-Drive® SD Connector screws or Strong-Drive SDS Heavy-Duty Connector screws.



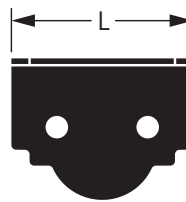
**APA4**  
US Patent Pending



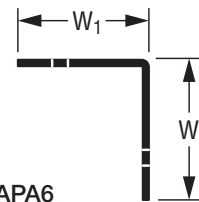
**APB**



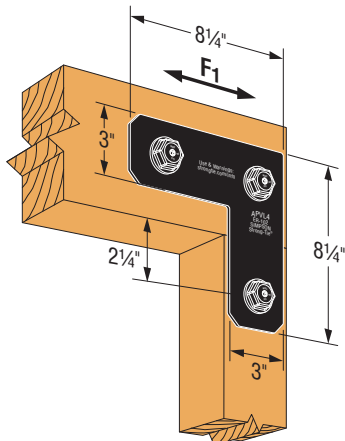
**APVA6**  
(others similar)



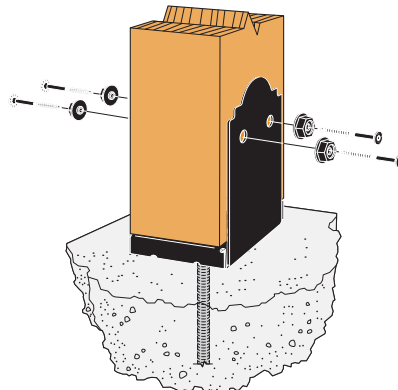
**APA6**



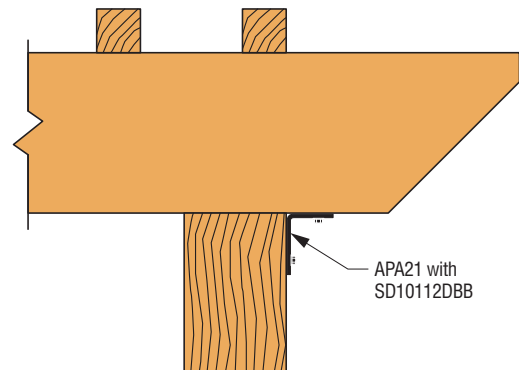
**APA21**



**Typical APVL4 Installation**  
(APA4 similar)



**Typical APB Installation**



**Typical APA21 Installation**

APA21 with SD10112DBB



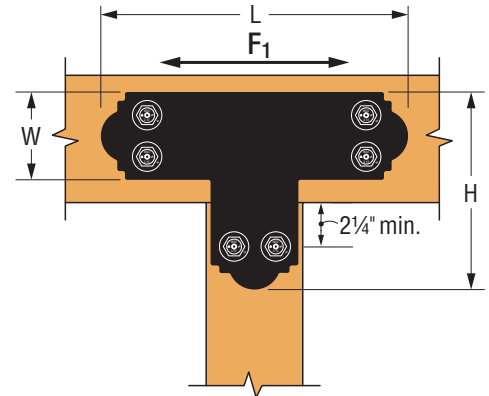
## Outdoor Accents®

## Decorative Hardware (cont.)

## Beam-to-Column Ties

Mission Model No.	Avant Model No.	Ga.	Dimensions (in.)			Fastener Qty.		Factored Resistance ( $K_D = 1.15$ )			
			W	L	H	Column	Beam	D.Fir-L		S-P-F	
								Uplift	$F_1$	Uplift	$F_1$
								lb.	lb.	lb.	lb.
kN	kN	kN	kN								
APL4	APVL4	12	3	8¼	8¼	2	4	1255	1120	1150	795
								5.60	5.00	5.10	3.55
APL6	APVL6	12	5	11¼ (10½)	11¼ (10½)	4	6	2505	2235	2290	1585
								11.15	9.95	10.20	7.05
APT4	APVT4	12	3	13½	8¼	2	4	1255	1255	1150	1150
								5.60	5.60	5.10	5.10
APT6	APVT6	12	5	17½ (16)	11¼ (10½)	4	8	2505	2380	2300	1690
								11.15	10.60	10.25	7.50

1. Factored resistances have been increased 15% for wind or seismic loads with no further increase allowed. Reduce where other load durations govern.
2. Connectors must be installed in pairs. Factored resistances do not apply to single parts.
3. Lateral resistances are for loading along the plane of the beam ( $F_1$ ).
4. All fasteners are a Simpson Strong-Tie® SDWS22312DBB inserted through an STN22 washer.
5. Factored resistances assume dry service condition ( $K_{sf} = 1.00$ ). Reduce uplift resistance per 12.2.1.5 CSA 086-14 for other conditions.
6. Dimensions in parentheses are for Avant models which have "V" in the model number.
7. Fasteners sold separately.

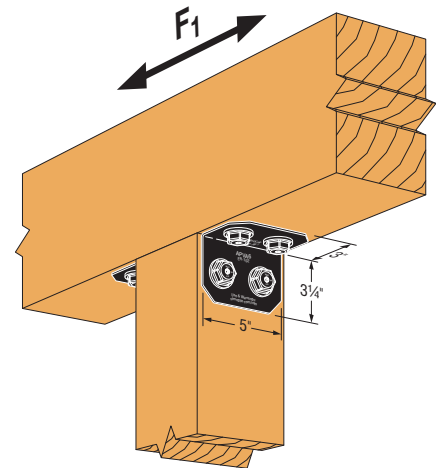


Typical APT6 Installation  
(APTV6 similar)  
(Screws and washers sold separately)

## Heavy Angles

Mission Model No.	Avant Model No.	Ga.	Dimensions (in.)			Fastener Qty.		Factored Resistance ( $K_D = 1.15$ )			
			L	$W_1$	$W_2$	Column	Beam	D.Fir-L		S-P-F	
								Uplift	$F_1$	Uplift	$F_1$
								lb.	lb.	lb.	lb.
kN	kN	kN	kN								
APA4	APVA4	12	3	3¼	3	2	2	1250	1255	885	1150
								5.55	5.60	3.95	5.10
APA6	APVA6	12	5	3¾ (3¼)	3½ (3)	4	4	2160	2505	1700	2300
								9.60	11.15	7.55	10.25

1. Factored resistances have been increased 15% for wind or seismic loads with no further increase allowed. Reduce where other load durations govern.
2. Connectors must be installed in pairs. Factored resistances do not apply to single parts.
3. Lateral resistances are for loading along the plane of the beam ( $F_1$ ).
4. All fasteners are a Simpson Strong-Tie® SDWS22312DBB inserted through an STN22 washer.
5. Factored resistances assume dry service condition ( $K_{sf} = 1.00$ ). Reduce uplift resistance per 12.2.1.5 CSA 086-14 for other conditions.
6. Dimensions in parentheses are for Avant models which have "V" in the model number.
7. Fasteners sold separately.

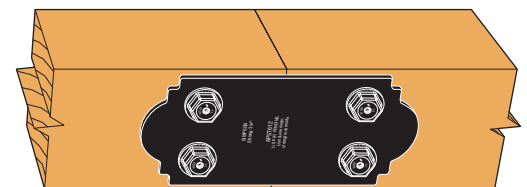


Typical APVA6 Installation  
(APA6 similar)  
(Screws and washers sold separately)

## Flat Straps

Mission Model No.	Avant Model No.	Ga.	Dimensions (in.)		Fasteners Total	Factored Tensile Resistance			
			W	L		D.Fir-L		S-P-F	
						( $K_D = 1.00$ )	( $K_D = 1.15$ )	( $K_D = 1.00$ )	( $K_D = 1.15$ )
						lb.	lb.	lb.	lb.
kN	kN	kN	kN						
APST412	APVST412	12	3	11¼	8	1520	1740	1090	1260
						6.76	7.74	4.85	5.60
APST612	APVST610	12	5	11¼ (9¾)	8	2180	2510	2000	2300
						9.70	11.17	8.90	10.23

1. Factored resistances have been increased 15% for wind or earthquake loading with no further increase allowed.
2. Factored tensile resistances and fastener quantities shown are for two parts. For single part installation, use half of the listed values.
3. All fasteners are Simpson Strong-Tie® SDWS22312DBB with STN22 nut.
4. Use half of the fasteners specified in each member.
5. Dimensions in parentheses are for Avant models which have "V" in the model number.
6. Fasteners sold separately.



Typical APST612 Installation  
(APSTV similar)  
(Screws and washers sold separately)

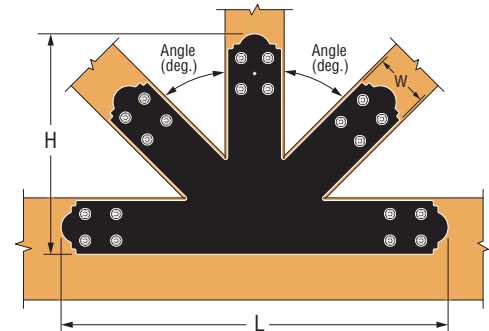


# Outdoor Accents®

## Decorative Hardware (cont.)

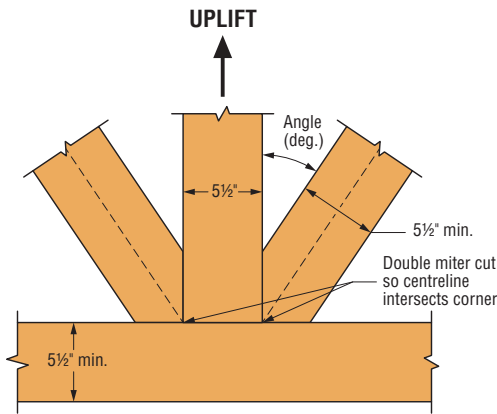
### Gable Plates

Mission Model No.	Avant Model No.	Ga.	Roof Pitch	Angle (deg.)	Dimensions (in.)			Fastener Qty.		
					W	H	L	Beam	Centre Column	Angled Struts
APGP612	APVGP612	12	6:12	27°	5	20½ (19¾)	36 (34½)	16	8	16
APGP812	APVGP812		8:12	34°						
APGP1212	APVGP1212		12:12	45°						

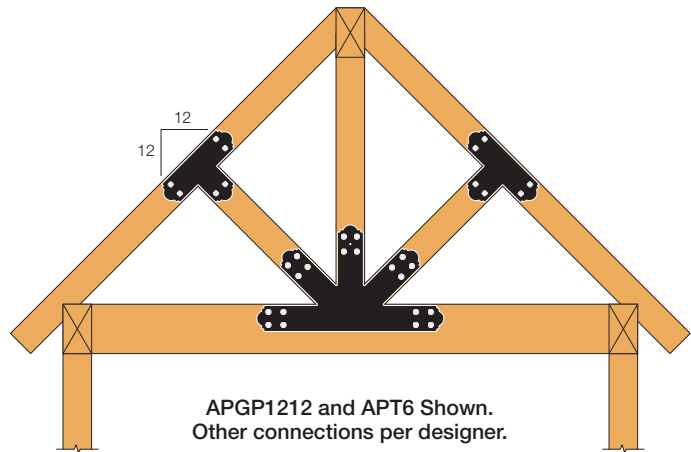


**APGP1212 Shown**  
(APVGP similar)

1. All fasteners are a Simpson Strong-Tie® SDWS22312DBB inserted through an STN22 washer. Quantities listed are for two parts.
2. Fasteners sold separately.
3. Dimensions in parentheses are for Avant models which have "V" in the model number.



**Note:** 12:12 will have equal cuts.  
Other sizes will have unequal cuts.

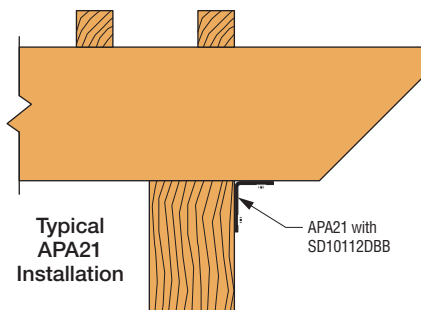


**APGP1212 and APT6 Shown.**  
Other connections per designer.

### Light Rafter Tie

Mission Model No.	Avant Model No.	Ga.	Dimensions (in.)			Fastener Qty.		Factored Resistance (K <sub>D</sub> = 1.15)			
			L	W <sub>1</sub>	W <sub>2</sub>	Column	Beam	D.Fir-L		S-P-F	
								Uplift	F <sub>2</sub>	Uplift	F <sub>2</sub>
APA21	APVA21	14	1%	2	1½	1	1	lb.	lb.	lb.	lb.
								kN	kN	kN	kN
								280	200	215	145
								1.25	0.90	0.95	0.65

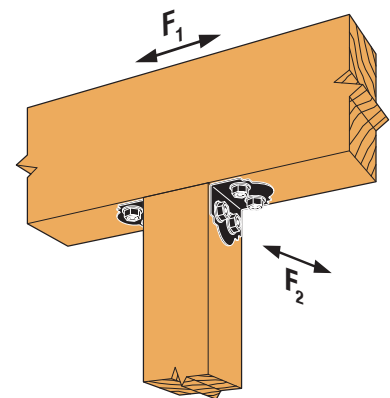
1. Factored resistances have been increased 15% for wind or seismic loads with no further increase allowed. Reduce where other load durations govern.
2. Factored resistances are for a single part.
3. Lateral resistances are for loading perpendicular to the plane of the beam (F<sub>2</sub>).
4. All fasteners are a Simpson Strong-Tie SD10112DBB.
5. Factored resistances assume dry service condition (K<sub>sf</sub> = 1.00). Reduce uplift resistance per 12.2.1.5 CSA 086-14 for other conditions.
6. Fasteners sold separately.



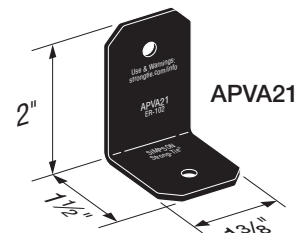
**Typical APA21 Installation**



**APA21**



**Typical APA6 Installation**  
(APA21 similar)



**APVA21**





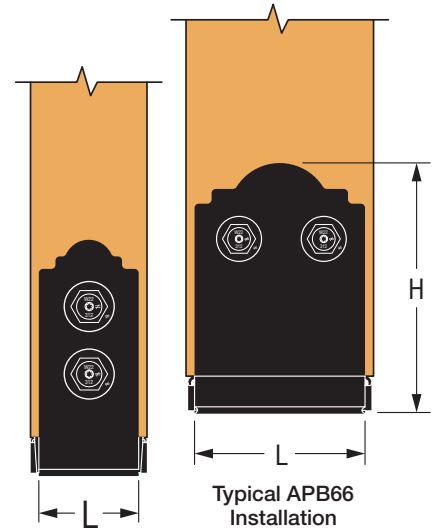
## Outdoor Accents®

## Decorative Hardware (cont.)

## Post Bases

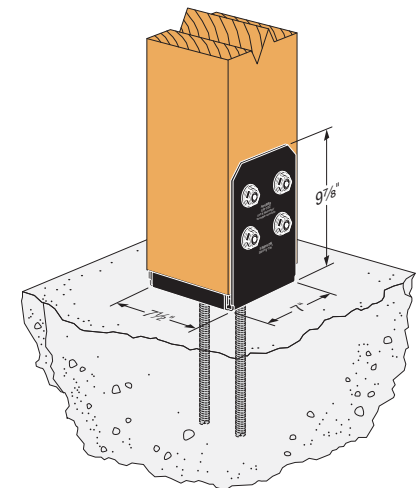
Mission Model No.	Avant Model No.	Material (Ga.)		Dimensions (in.)			Fasteners		Factored Resistance							
									D.Fir-L		S-P-F					
		Base	Strap	W	L	H	Column	Anchor	Uplift	Normal	Uplift	Normal				
									(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)				
		lb.	lb.	lb.	lb.			kN	kN	kN	kN					
APB44	APVB44	16	12	3 <sup>9</sup> / <sub>16</sub>	3	7 (6 <sup>3</sup> / <sub>4</sub> )	4	5/8"	1725	9230	1225	7580	7.65	41.05	5.45	33.70
APB44R	APVB44R	16	12	4 <sup>1</sup> / <sub>16</sub>	3	6 <sup>3</sup> / <sub>4</sub> (6 <sup>1</sup> / <sub>2</sub> )	4	5/8"	1725	9230	1225	7580	7.65	41.05	5.45	33.70
APB66	APVB66	12	12	5 <sup>1</sup> / <sub>2</sub>	5	7 <sup>1</sup> / <sub>2</sub> (6 <sup>13</sup> / <sub>16</sub> )	4	5/8"	2100	15385	1490	11115	9.35	68.45	6.65	49.45
APB66R	APVB66R	12	12	6	5	7 <sup>1</sup> / <sub>4</sub> (6 <sup>9</sup> / <sub>16</sub> )	4	5/8"	2100	15385	1490	11115	9.35	68.45	6.65	49.45
APB88	APVB88	14	12	7 <sup>1</sup> / <sub>2</sub>	7	10 <sup>9</sup> / <sub>16</sub> (9 <sup>7</sup> / <sub>8</sub> )	8	(2) 5/8"	4360	27900	3210	20090	19.40	124.10	14.30	89.35
APB88R	APVB88R	14	12	8	7	10 <sup>5</sup> / <sub>16</sub> (9 <sup>5</sup> / <sub>8</sub> )	8	(2) 5/8"	4360	27900	3210	20090	19.40	124.10	14.30	89.35
APB1010	APVB1010	14	12	9 <sup>1</sup> / <sub>2</sub>	9	11 (9 <sup>3</sup> / <sub>4</sub> )	8	(2) 5/8"	3950	33400	2845	24050	17.55	148.55	12.65	107.00
APB1010R	APVB1010R	14	12	10	9	10 <sup>3</sup> / <sub>4</sub> (9 <sup>1</sup> / <sub>2</sub> )	8	(2) 5/8"	3950	33400	2845	24050	17.55	148.55	12.65	107.00

1. Factored uplift resistance has been increased 15% for wind or seismic loads with no further increase allowed. Reduce where other load durations govern.
2. Factored Normal resistance may not be increased for short-term loading.
3. Specifier to design concrete for uplift capacity.
4. Factored Normal resistance shall be reduced where limited by capacity of the post.
5. All post fasteners are a Simpson Strong-Tie® SDWS22312DBB inserted through an STN22 washer.
6. Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non-top-supported installations (such as fences or unbraced carports).
7. Dimensions in parentheses are for Avant models which have "V" in the model number.
8. Fasteners sold separately.



Typical APB44 Installation

Typical APB66 Installation

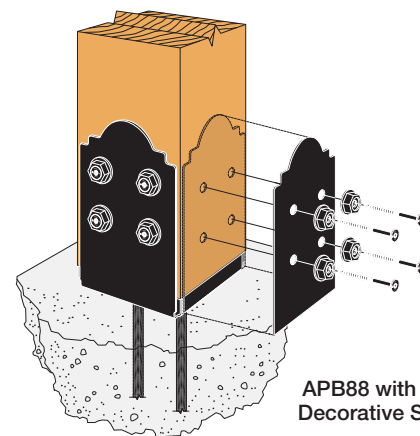


Typical APVB88 Installation

## Decorative Side Plates

Mission Model No.	Avant Model No.	Ga.	Dimensions (in.)		Fastener Qty.
			W	H	
APB44DSP	APVB44DSP	12	3	6 <sup>3</sup> / <sub>4</sub> (6 <sup>1</sup> / <sub>2</sub> )	4
APB66DSP	APVB66DSP		5	7 <sup>1</sup> / <sub>4</sub> (6 <sup>9</sup> / <sub>16</sub> )	
APB88DSP	APVB88DSP		7	10 <sup>5</sup> / <sub>16</sub> (9 <sup>5</sup> / <sub>8</sub> )	8
APB1010DSP	APVB1010DSP		9	10 <sup>3</sup> / <sub>4</sub> (9 <sup>1</sup> / <sub>2</sub> )	

1. All fasteners are a Simpson Strong-Tie SDWS22312DBB inserted through an STN22 washer. Quantities listed are for two parts.
2. Install top of decorative side plates flush to top of post base strap legs. Decorative side plates installed on APB post bases will be raised up 1/4" from the bottom of the post base, while installations on rough models will not.
3. Dimensions in parentheses are for Avant models which have "V" in the model number.
4. Screws and washers sold separately.



APB88 with Optional Decorative Side Plate



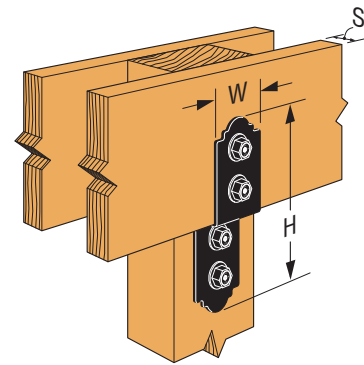
# Outdoor Accents®

## Decorative Hardware (cont.)

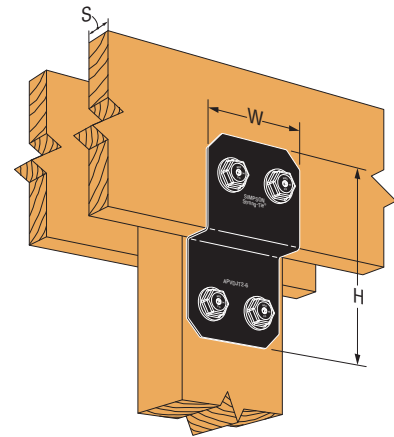
### Deck Joist Ties

Mission Model No.	Avant Model No.	Ga.	Dimensions (in.)			Fastener Qty.		Factored Normal Resistance (K <sub>D</sub> = 1.00)	
			S	W	H	Column	Joist	D.Fir-L	S-P-F
								lb.	lb.
APDJT2-4	APVDJT2-4	12	1½	3	10	2	2	1980	1790
								8.80	7.95
APDJT1.75-4	APVDJT1.75-4	12	1¾	3	9¾	2	2	1980	1790
								8.80	7.95
APDJT2R-4	APVDJT2R-4	12	2	3	9½	2	2	1980	1790
								8.80	7.95
APDJT2-6	APVDJT2-6	12	1½	5	10 (8½)	2	2	1980	1790
								8.80	7.95
APDJT1.75-6	APVDJT1.75-6	12	1¾	5	9¾ (8¼)	2	2	1980	1790
								8.80	7.95
APDJT2R-6	APVDJT2R-6	12	2	5	9½ (8)	2	2	1980	1790
								8.80	7.95

1. Factored resistance shown are per part.
2. Joist fastener is a Simpson Strong-Tie® SDWS22512DBB inserted through an STN22 washer. Post fastener is a Simpson Strong-Tie SDWS22312DBB inserted through an STN22 washer.
3. Factored resistances assume dry service condition (K<sub>SF</sub> = 1.00). Reduce resistance per 12.2.1.5 CSA 086-14 for other conditions.
4. Dimensions in parentheses are for Avant models which have "V" in the model number.
5. Screws and washers sold separately.



Typical APDJT2-4 Installation

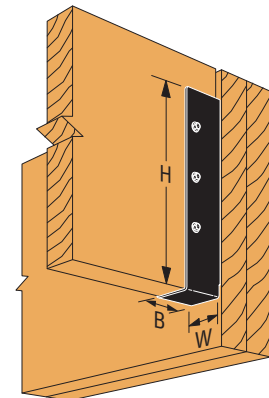


Typical APVDJT2-6 Installation

### Light Joist Hangers

Joist Size	Model No.	Ga.	Dimensions (in.)			Fastener Qty.		Factored Resistance			
			W	H	B	Header	Joist	D.Fir-L		S-P-F	
								(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
								Uplift	Normal	Uplift	Normal
								lb.	lb.	lb.	lb.
								kN	kN	kN	kN
2x4	APLH24	14	1⅞	3⅞	1⅞	4	2	640	1580	455	1125
								2.85	7.03	2.02	5.00
2x6 or 2x8	APLH26	14	1⅞	5⅞	1⅞	6	4	1315	2380	1220	1690
	APLH1.75-6		1⅜	7⅞	1⅞	6	4	5.85	10.59	5.43	7.52
2x10 or 2x12	APLH210	14	1⅞	8	1⅞	10	6	1975	4000	1760	2880
	APLH1.75-10		1⅜	7⅞	1⅞	10	6	8.79	17.79	7.83	12.81
2x4 Rough	APLH24R	14	2⅞	3⅞	1⅞	4	2	640	1580	455	1125
								2.85	7.03	2.02	5.00
2x6 Rough	APLH26R	14	2⅞	4⅞	1⅞	6	4	1315	2380	1220	1690
								5.85	10.59	5.43	7.52
2x10 Rough	APLH210R	14	2⅞	7¾	1⅞	10	6	1975	4055	1760	2880
								8.79	18.04	7.83	12.81

1. Factored resistances have been increased 15% for wind or seismic loads with no further increase allowed. Reduce where other load durations govern.
2. All fasteners are Simpson Strong-Tie SD10112DBB connector screws.
3. Fasteners sold separately.



APLH210



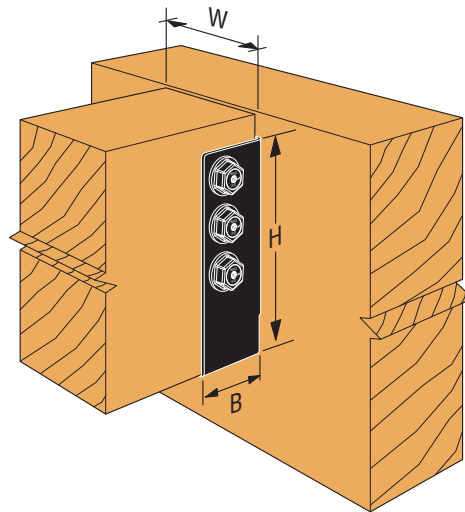
# Outdoor Accents®

## Decorative Hardware (cont.)

### Heavy Joist Hangers

Joist Size	Model No.	Ga.	Dimensions (in.)			Fastener Qty.		Factored Resistance			
								D.Fir-L		S-P-F	
			W	H	B	Header	Joist	Uplift	Normal	Uplift	Normal
								(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.			
kN	kN	kN	kN	kN	kN	kN	kN	kN			
4x6	APHH46	12	3 <sup>5</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>8</sub>	3	6	2	1255	3310	1150	2385
								5.58	14.72	5.12	10.61
4x6 Rough	APHH46R	12	4 <sup>1</sup> / <sub>16</sub>	4 <sup>7</sup> / <sub>8</sub>	3	6	2	1255	3310	1150	2385
								5.58	14.72	5.12	10.61
6x10	APHH610	12	5 <sup>1</sup> / <sub>2</sub>	8 <sup>1</sup> / <sub>2</sub>	3	14	6	3760	10915	3450	7860
								16.73	48.55	15.35	34.96
6x10 Rough	APHH610R	12	6	8 <sup>1</sup> / <sub>4</sub>	3	14	6	3760	10915	3450	7860
								16.73	48.55	15.35	34.96

1. Factored resistances have been increased 15% for wind or seismic loads with no further increase allowed. Reduce where other load durations govern.
2. All fasteners are Simpson Strong-Tie® SDS25300 to the header and SDWS22312DBB with STN22 to the joist.
3. Screws and washers sold separately.



Typical APHH610  
Installation



# Outdoor Accents®

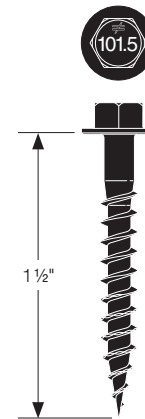
## Outdoor Accents Fasteners

### Outdoor Accents Connector Screw

The Outdoor Accents Connector Screw reduces installation time by driving easily without predrilling. Designed for installation with the Outdoor Accents APA21 90-degree angle and APLH light joist hangers, the screw's black finish accents any outdoor living project. The sharp point of the screw enables fast starts and drivability.

**Features:**

- Use with Outdoor Accents Decorative Hardware (sold separately) for an appealing look
- ¼" hex head reduces cam-out for easier installation and helps avoid stripping of the head during installation (¼" hex drive included)
- Optimized heat treating for ductility and strength
- The single-fastener steel-side-plate factored resistance of the SD10 exceeds the shear load of a 16d common nail

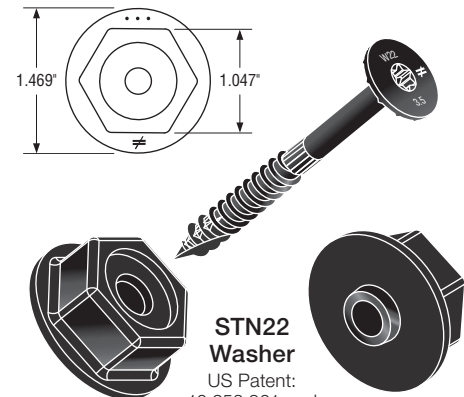
**Material:** Heat-treated carbon steel**Finish:** Double-barrier black proprietary coating**SD10112DBB**

### Outdoor Accents Hex-Head Washer

The Outdoor Accents Hex-Head Washer provides the decorative appearance of a bolted connection. Its patent-pending design provides an easier and significantly faster installation time compared to through-bolting. The patent-pending Hex-Head Washer is designed exclusively to help fasten Outdoor Accents post bases, T and L straps and angles.

**Features:**

- Combined with the Outdoor Accents structural wood screw, it provides a structural load-rated solution
- Easy to install

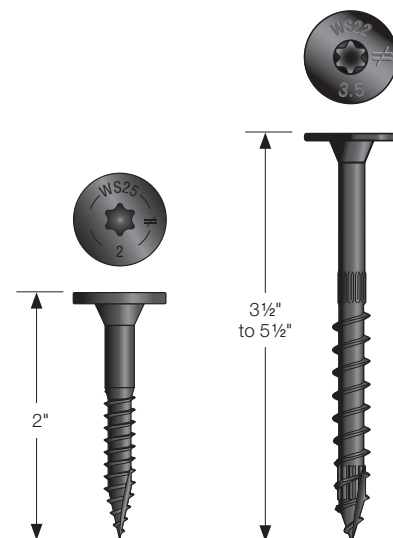
**Finish:** Quik Guard® black coating for exterior use**STN22 Washer**US Patent: 10,253,801 and  
Design Patent: D733,546

### Outdoor Accents Structural Wood Screw

The Outdoor Accents structural wood screw reduces installation time by driving easily without predrilling. When combined with the **patented**, load-rated Outdoor Accents Hex-Head Washer, the solution delivers the decorative appearance of a bolt connection but with a much easier installation. **The structural wood screw is now available in three sizes: 2", 3 ½" and 5 ½". The 3 ½" and 5 ½" screws are ideal for structural applications. They feature a bold thread design that enables superior holding to attach ledgers and other secure connections. The 2" screw is ideal for use with 2x lumber, and for adding style to any DIY project. Note: The 2" screw has lower load values than the 3 ½" and 5 ½" screws. It may not be substituted where the longer screws are required.** The structural screw and washer are sold separately from each other and from the Outdoor Accents connectors.

**Features:**

- Use Outdoor Accents Structural Wood Screw solitarily as a wood-to-wood fastener
- **Patented SawTooth® point (3 ½" and 5 ½" screws only)** reduces installation torque and eliminate the need for predrilling in most applications. **Type-17 point on 2" screw ensures easy installation with no predrilling.**
- Underhead nibs offer greater control when seating the head

**Finish:** Double-barrier black proprietary coating**SDWS25200DBB****SDWS22312DBB**  
(SDWS22512DBB similar)

US Patent: 9,523,383



## Outdoor Accents®

## Outdoor Accents Fasteners (cont.)



## Outdoor Accents Connector Screw

Size	Model No.	Thread Length (in.)	Factored Lateral Resistance ( $K_D = 1.00$ )					
			20 ga. Steel Side Member			12 ga. Steel Side Member		
			D.Fir-L	S-P-F	Northern	D.Fir-L	S-P-F	Northern
			lb.	lb.	lb.	lb.	lb.	lb.
			kN	kN	kN	kN	kN	kN
#10 x 1½"	SD10112DBB	1	220	200	175	340	320	300
			0.98	0.89	0.78	1.51	1.42	1.33

1. Factored resistances have been developed in accordance with 12.11 CSA O86-14, based on testing per ICC-ES AC233, assuming full penetration into the main member. Apply the adjustment factors  $K_D$ ,  $K_{SF}$  and  $K_T$  per 12.11.4.1 when applicable.
2. Factored resistances shown assume steel side plates with  $F_U = 45000$  psi (310 MPa).
3. Factored withdrawal resistances may be calculated in accordance with 12.11.5.2 CSA O86-14 assuming a nominal diameter of 0.20" and a head diameter of 0.38".
4. Minimum spacing, edge and end distance shall be calculated in accordance with 12.9.2.1 CSA O86-14 assuming a diameter of 0.20".



## Outdoor Accents Structural Wood Screw with STN22 Hex-Head Washer

Size	Model No.	Thread Length (in.)	Factored Lateral Resistance ( $K_D = 1.00$ )					
			2x Wood Side Member			12 ga. Steel Side Member		
			D.Fir-L	S-P-F	Northern	D.Fir-L	S-P-F	Northern
			lb.	lb.	lb.	lb.	lb.	lb.
			kN	kN	kN	kN	kN	kN
0.25 x 2"	SDWS25200DBB with STN22	1¼	—	—	—	405	365	345
			—	—	—	1.81	1.62	1.53
0.22 x 3½"	SDWS22312DBB with STN22	2	340	290	240	545	500	450
			1.51	1.29	1.07	2.42	2.22	2.00
0.22 x 5½"	SDWS22512DBB with STN22	2¾	445	395	340	610	565	515
			1.98	1.76	1.51	2.71	2.51	2.29

See footnotes below.

## Outdoor Accents Structural Wood Screw (Wood-to-Wood)



Size	Model No.	Thread Length (in.)	Factored Resistance					
			2x Wood Side Member					
			Lateral ( $K_D = 1.00$ )			Withdrawal ( $K_D = 1.15$ )		
			D.Fir-L	S-P-F	Northern	D.Fir-L	S-P-F	Northern
			lb.	lb.	lb.	lb.	lb.	lb.
			kN	kN	kN	kN	kN	kN
0.25 x 2"	SDWS25200DBB	1¼	—	—	—	330	255	190
			—	—	—	1.48	1.12	0.86
0.22 x 3½"	SDWS22312DBB	2	340	290	240	665	505	365
			1.51	1.29	1.07	2.96	2.25	1.62
0.22 x 5½"	SDWS22512DBB	2¾	445	395	340	935	620	515
			1.98	1.76	1.51	4.16	2.76	2.29

1. Factored resistances have been developed in accordance with 12.11 CSA O86-14, based on testing per ICC-ES AC233, assuming full penetration into the main member. Apply the adjustment factors  $K_D$ ,  $K_{SF}$  and  $K_T$  per 12.11.4.1 when applicable.
2. Factored resistances shown for steel side members assume  $F_U = 45000$  psi (310 MPa).
3. Minimum spacing, edge and end distance shall be calculated in accordance with 12.9.2.1 CSA O86-14 assuming a diameter of 0.30".



## Outdoor Accents®

### Decorative Washers

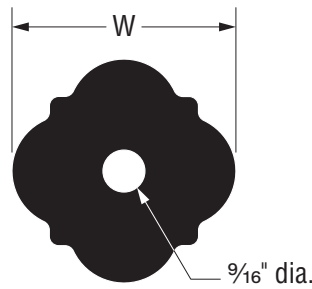
The APDMW56 or APVDW56 decorative washers install easily with the structural wood screw and hex-head washer combination and can be used in a variety of wood-to-wood connections.

**Material:** 12 gauge

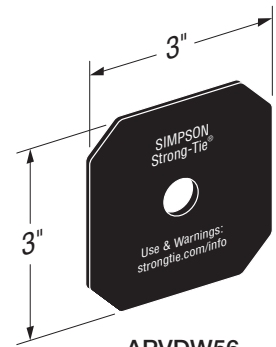
**Finish:** ZMAX® with textured, flat black powder coat

Model No.	Ga.	Hole Diameter	W
APDMW56 APVDW56	12	9/16"	3"

1. Fastener is SDWS22312DBB or SDWS22512DBB, inserted through an STN22 washer.



APDMW56



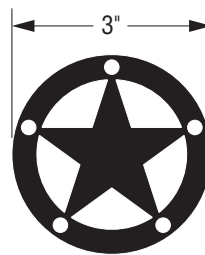
APVDW56

### Decorative Star — APDTS3

The APDTS3 decorative star installs easily with the Outdoor Accents Connector screw (SD10112DBB) and is an accent piece for decorative hardware.

**Material:** 12 gauge

**Finish:** ZMAX with textured, flat black powder coat



### Decorative Post Cap

Model No.	Material and Finish	Post Size	L (in.)	W (in.)	Fasteners
APDPC4	Black composite	4x4	3 3/4	3 3/4	(1) 0.131" x 2 1/2" or (1) 0.148" x 3"
APDPC6		6x6	5 3/4	5 3/4	(1) 0.131" x 2 1/2" or (1) 0.148" x 3"

1. **Fasteners:** Nail dimensions are listed diameter by length. See pp. 22–24 for fastener information.



APDPC6  
(APDPC4 similar)

### APBO Bottle Opener

This new bottle opener is made of black textured, UV-protected composite. It features a metal bottle opener and a removable catch cup. It attaches with three corrosion-resistant fasteners (included).



APBO-KT

### APBDW Decorative Post Base Cover

The APBDW decorative post base wrap was developed for the MPBZ moment post base, but also accommodates other post bases, including the CBSQ, ABUZ, ABWZ and ABAZ (only with screw and nail application; will not work over bolts). It can also be used without a post base and wrapped around a post.

Fabricated in black composite, the four-piece cover easily screws together outside the post base (screws included). No need to drill into the post.



Model No.	Post Size	H (in.)	W (in.)	Installs With	Coating Material	Packaging Quantity
APBDW44	4x4	10 1/16	4 3/4	(12) black screws (included)	Composite plastic	(1) 4-sided set
APBDW66	6x6	11 7/16	6 7/8	(12) black screws (included)	Composite plastic	(1) 4-sided set



# APGT

## Gazebo Tie

The APTG Gazebo Tie series adds strength and rigidity to six-sided gazebo connections.

APGT2 — Connects 2x rafter and top plate to post in six-sided gazebo. Adds strength and rigidity to 3-way connection.

APGT6 — Connects six 2x rafters at top of six-sided gazebo.

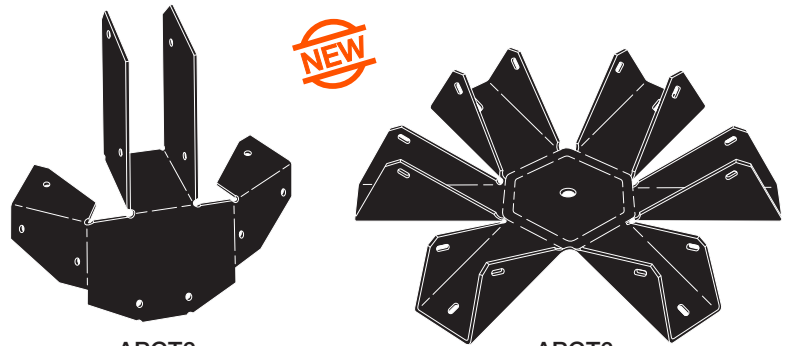
APGTF — Connects bottom 2x rim joists to post in six-sided gazebo. Allows installation over post base for adjustable height of rim joists.

**Material:** APTG6 — 18 gauge; APTG2, APTGTF — 16 gauge

**Finish:** ZMAX® with black powder coat. See Corrosion Information, pp. 16–21. Also available without black powder coat. See GT series on [strongtie.com](http://strongtie.com).

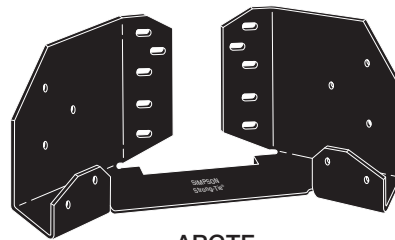
**Installation:**

- Use all specified fasteners. See General Notes.
- Minimum 2x6 rafter size.
- APTG6 — Bend one time only.

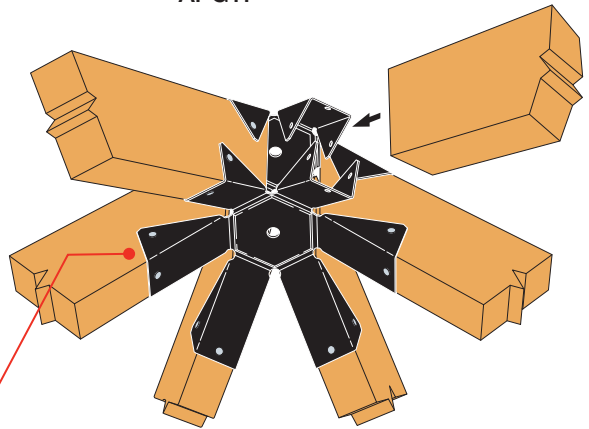


APGT2

APGT6



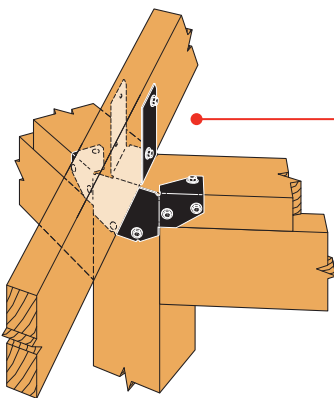
APGTF



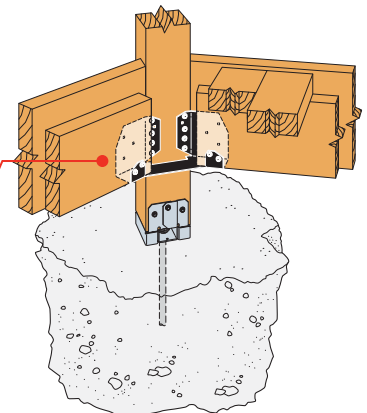
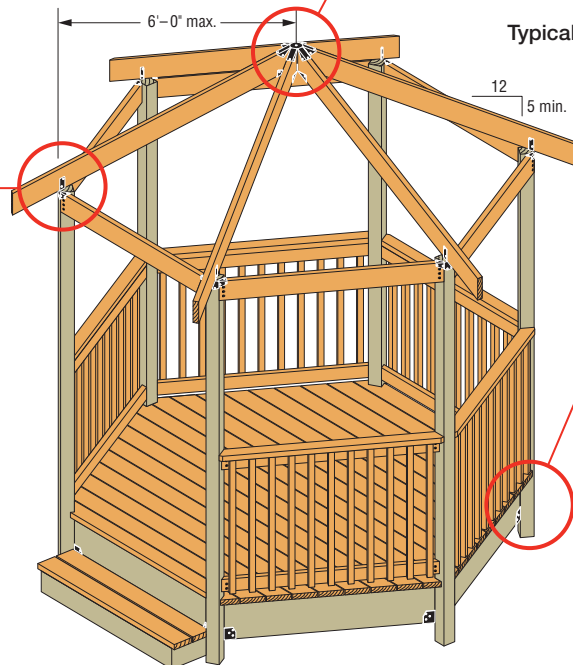
Typical APGT6 Installation

Model No.	Fasteners (in.)		Code Ref.
	Rafter or Rim Joist	Top Plate or Post	
APGT2	8	4	—
APGT6	18	—	
APGTF	10	10	

1. All fasteners are Outdoor Accents® SD10112DBB connector screws.



Typical APGT2 Installation



Typical APGTF Installation



# Indoor Architectural Products

Indoor Architectural Products consist of aesthetically pleasing, pre-finished connectors and innovative concealed joist ties designed for exposed wood applications. These connectors provide structural performance while adding a unique appearance feature to a project. There are two styles available to meet different design needs. The Classic Collection features modern smooth edges and clean lines that work as well in a contemporary loft as they would in a century-old warehouse. The Rustic Collection features notched detailing to create the look and feel of a rugged cabin. Used with heavy timbers and beams, these connectors have an antique quality. The product group also features specialty connectors that can stand alone or work with any classic or rustic design. This group includes bearing plates, specialty joist hangers, stand-off bases, custom plates and concealed connectors.

• **Architectural Finishes**

Eliminate time-consuming prep work and costly field painting. Available finishes include textured flat black powder coat, gray paint and hot-dip galvanized coating.

• **Availability**

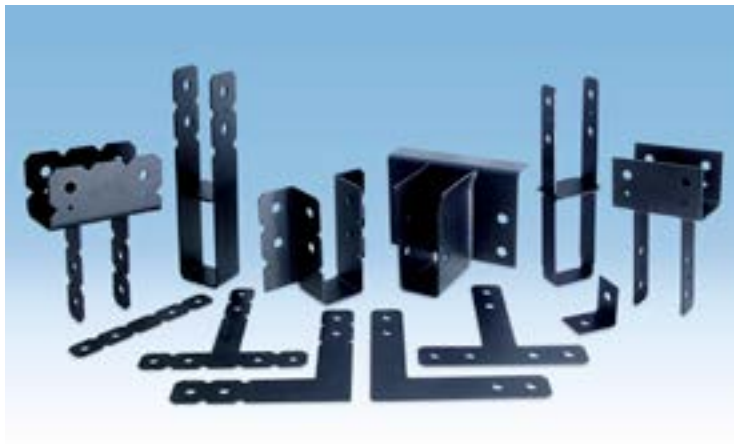
Select products are in stock and readily available. Contact Simpson Strong-Tie for product availability and lead times for non-stocked items.

• **Preengineered and Tested**

Load-rated products are verified to perform to design loads, unlike custom-designed and -fabricated connectors.

• **Quality Assurance**

No-Equal quality-controlled manufacturing ensures product consistency and high quality.



Products shown in this section come with textured flat black powder coat unless otherwise noted. Most are also available with a galvanized coating or gray primer. Contact Simpson Strong-Tie for availability.

[strongtie.com/apg](http://strongtie.com/apg)







# Indoor Architectural Products

## BP – Bearing Plates

Bearing plates give greater bearing surface than standard cut washers and help distribute the load at critical connections.

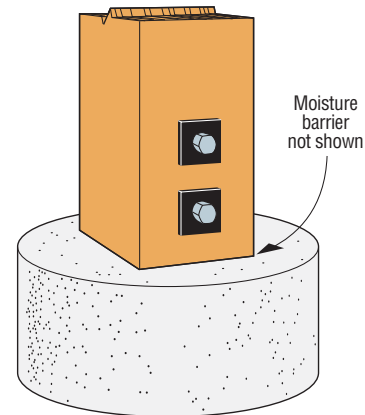
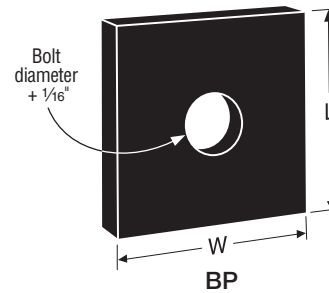
**Material:** See table

**Finish:** Textured flat black powder coat

**Installation:**

- See General Notes

Model No.	Thickness (in.)	Dimensions (in.)		Bolt Dia. (in.)
		W	L	
BP1½PC	¾	2	2	½
BP¾-2PC	¾	2	2	¾
BP¾PC	¼	2½	2½	¾
BP¾PC	⅝	2¾	2¾	¾
BP7⁄8PC	⅝	3	3	7⁄8
BP1PC	¾	3½	3½	1



Typical BP Installation

## Special Order Plates

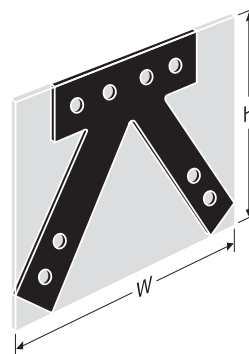
Simpson Strong-Tie can make a variety of flat and bent steel shapes, which include gusset plates for heavy timber trusses, custom ornamental shapes and retaining plates.

**Material:** 3 gauge maximum

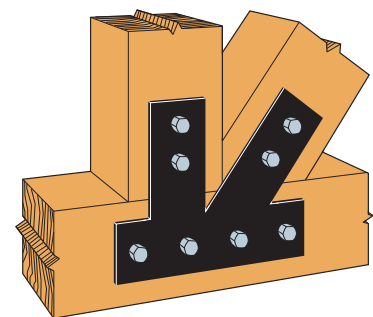
**Finish:** Galvanized, textured powder-coated flat black, Simpson Strong-Tie® gray paint, stainless steel. Contact Simpson Strong-Tie for availability.

**To Obtain a Quote:**

- Supply a CAD drawing in .dxf format complete with plate dimensions, hole diameter and locations, steel thickness, desired finish (Simpson Strong-Tie gray paint, black powder-coat, HDG or raw steel)
- Total plate shape and size up to maximum dimensions of 48" x 48" (approx. 1⁄16" tolerance)
- Simpson Strong-Tie does not provide product engineering or load values for special order plates
- Contact Simpson Strong-Tie for pricing information



"W" and "H" indicate the envelope size of the steel shape.



Typical Installation  
(plate shown has black powder-coat)



# Indoor Architectural Products

## Classic Collection

**Material:** As noted in tables

**Finish:** Textured powder-coated flat black paint

**Installation:** • Use all specified fasteners; see General Notes

### Strap Ties

Model No.	Ga.	Dimensions (in.)		Bolts	
		W	L	Qty.	Dia.
HST2PC	7	2½	21¼	6	⅝"
HST5PC	7	5	21¼	12	⅝"
HST3PC	3	3	25½	6	¾"
HST6PC	3	6	25½	12	¾"
PS218PC	7	2	18	4	¾"
PS418PC	7	4	18	4	¾"
PS720PC	7	6¾	20	8	½"

### Beam-to-Column Ties

Model No.	Ga.	Dimensions (in.)			Minimum Bolt End and Edge Distances (in.)		Bolts	
		W	H	L	d <sub>1</sub>	d <sub>2</sub>	Qty.	Dia.
1212HLPC	7	2½	12	12	2½	4¾	5	⅝"
1616HLPC	7	2½	16	16	2½	4¾	5	⅝"
1212HTPC	7	2½	12	12	2½	4¾	6	⅝"
1616HTPC	7	2½	16	16	2½	4¾	6	⅝"

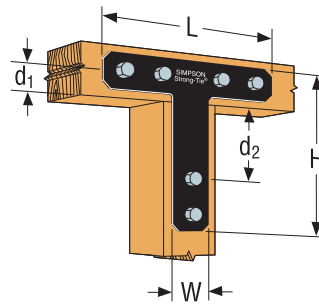
1. 1212HL, 1616HL, 1212HT and 1616HT are to be installed in pairs with machine bolts in double shear.

### Column Bases

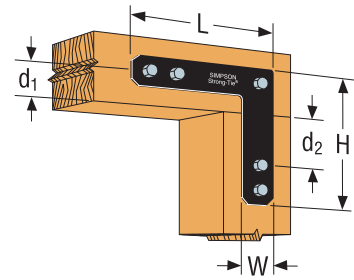
**Installation:** • Minimum side cover is 3" for CBs.

- Install with bottom of base flush with concrete.
- Post bases do not provide adequate resistance to prevent members from rotating about the base and therefore are not recommended for non-top-supported installations (such as fences or unbraced carports).

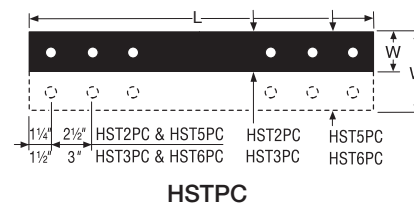
Model No.	Ga.	Dimensions (in.)		Bolts	
		W <sub>1</sub>	W <sub>2</sub>	Qty.	Dia.
CB44PC	7	3¾	3½	2	⅝"
CB46PC	7	3¾	5½	2	⅝"
CB48PC	7	3¾	7½	2	⅝"
CB66PC	7	5½	5½	2	⅝"
CB68PC	7	5½	7½	2	⅝"
CB88PC	3	7½	7½	2	¾"
CB810PC	3	7½	9½	2	¾"



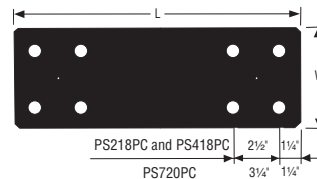
Typical 1212HTPC Installation  
(1616HTPC similar)



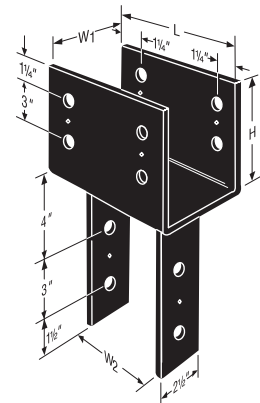
Typical 1212HLPC Installation  
(1616HLPC similar)



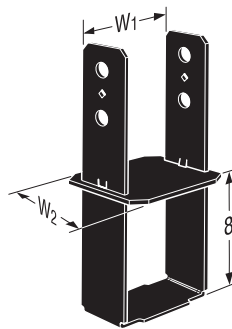
HSTPC



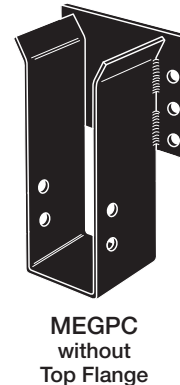
PSPC



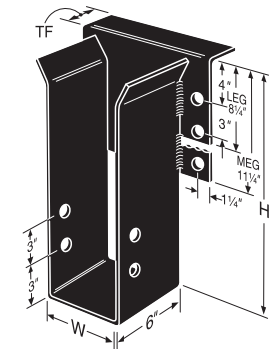
CCPC



CBPC



MEGPC  
without  
Top Flange



LEGPC/MEGPC

### Beam Hangers

**Material:** Top flange — 7 gauge, stirrups — 7 gauge

Model No.	Dimensions (in.)			Bolts			
	W	Min. H	TF	Header		Joist	
				Qty.	Dia.	Qty.	Dia.
LEG3PC	3¼	9	2½	4	¾"	2	¾"
LEG5PC	5¼	9	2½	4	¾"	2	¾"
MEG5PC	5¼	9	2½	6	¾"	2	¾"
LEG7PC	6⅞	9	2½	4	¾"	2	¾"
MEG7PC	6⅞	9	2½	6	¾"	2	¾"

1. See Glulam Connectors section of this catalogue for additional information on these products.

### Column Caps

**Installation:** • Bolt holes shall be a minimum of ½" to a maximum of ⅞" larger than the specified bolt's diameter (12.4.1.2 CSA O86-14).

Model No.	Ga.	Dimensions (in.)				Bolts			
		W <sub>1</sub>	W <sub>2</sub>	L	H	Beam		Post	
						Qty.	Dia.	Qty.	Dia.
CC44PC	7	3¾	3¾	7	4	2	⅝"	2	⅝"
CC46PC	7	3¾	5½	11	6½	4	⅝"	2	⅝"
CC66PC	7	5½	5½	11	6½	4	⅝"	2	⅝"
CC68PC	7	5½	7½	11	6½	4	⅝"	2	⅝"
CC88PC	3	7½	7½	13	8	4	¾"	2	¾"



## Indoor Architectural Products

## Rustic Collection

**Material:** As noted in tables

**Finish:** Textured powder-coated flat black paint

**Installation:** • Use all specified fasteners; see General Notes

## Strap Ties

Model No.	Ga.	Dimensions (in.)		Bolts	
		W	L	Qty.	Dia.
OS	12	2	12	4	1/2"
OHS	7	2 1/2	12	4	5/8"
OHS135	7	6	13 1/2	4	3/4"
OHS195	7	6	19 1/2	8	3/4"

## Beam-to-Column Ties

Model No.	Ga.	Dimensions (in.)			Minimum Bolt End and Edge Distances		Bolts	
		W	H	L	d <sub>1</sub>	d <sub>2</sub>	Qty.	Dia.
OL	12	2	12	12	2	3 1/2	5	1/2"
OHL	7	2 1/2	12	12	2 1/2	4 3/8	5	5/8"
OT	12	2	12	12	2	3 1/2	6	1/2"
OHT	7	2 1/2	12	12	2 1/2	4 3/8	6	5/8"

1. OL, OHL, OT and OHT must be installed in pairs with machine bolts in double shear.

## Heavy Angles

Model No.	Ga.	Dimensions (in.)		Bolts	
		W	L	Qty.	Dia.
OHA33	7	3 1/8	3	2	3/4"
OHA36	7	3 1/8	6	4	3/4"

## Column Bases

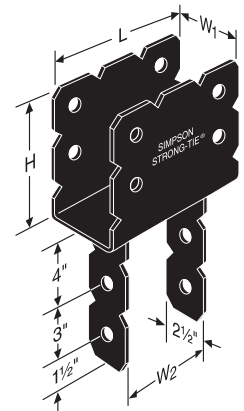
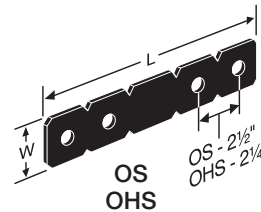
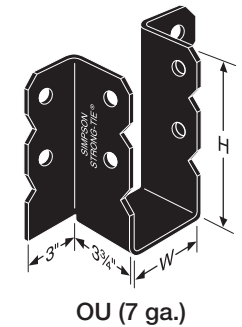
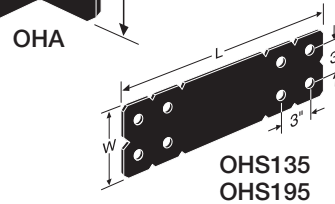
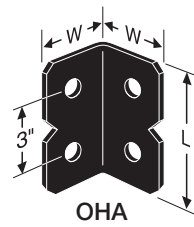
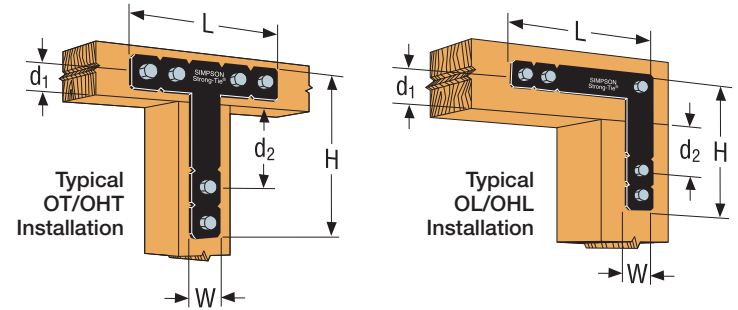
Model No.	Ga.	Dimensions (in.)		Bolts	
		W <sub>1</sub>	W <sub>2</sub>	Qty.	Dia.
OCB44	3	3 9/16	3 1/2	2	5/8"
OCB46	3	3 9/16	5 1/2	2	5/8"
OCB48	3	3 9/16	7 1/2	2	5/8"
OCB66	3	5 1/2	5 1/2	2	5/8"
OCB68	3	5 1/2	7 1/2	2	5/8"
OCB88	3	7 1/2	7 1/2	2	3/4"
OCB810	3	7 1/2	9 1/2	2	3/4"

1. Minimum side cover is 3" for OCBs.

## Column Caps

Model No.	Ga.	Dimensions (in.)				Bolts			
		Beam		Post		Beam		Post	
		W <sub>1</sub>	W <sub>2</sub>	L	H	Qty.	Dia.	Qty.	Dia.
OCC44	3	3 3/8	3 3/8	9	4 1/2	2	5/8"	2	5/8"
OCC46	3	3 3/8	5 1/2	12	7 1/2	4	5/8"	2	5/8"
OCC66	3	5 1/2	5 1/2	12	7 1/2	4	5/8"	2	5/8"
OCC68	3	5 1/2	7 1/2	12	7 1/2	4	5/8"	2	5/8"
OCC88	3	7 1/2	7 1/2	15	7 1/2	4	3/4"	2	3/4"

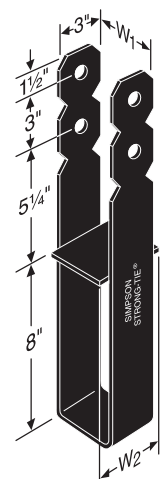
1. For end conditions, specify OECC.



## Joist Hangers

Model No.	Dimensions (in.)		Bolts	
	W	H	Header	Joist
OU46	3 9/16	5	(2) 3/4"	(1) 3/4"
OU48	3 9/16	7	(4) 3/4"	(2) 3/4"
OU410	3 9/16	9	(4) 3/4"	(2) 3/4"
OU412	3 9/16	11	(6) 3/4"	(3) 3/4"
OU414	3 9/16	13	(6) 3/4"	(3) 3/4"
OU68	5 1/2	7	(4) 3/4"	(2) 3/4"
OU610	5 1/2	9	(4) 3/4"	(2) 3/4"
OU612	5 1/2	11	(6) 3/4"	(3) 3/4"
OU614	5 1/2	13	(6) 3/4"	(3) 3/4"
OU810	7 1/2	9	(4) 3/4"	(2) 3/4"
OU812	7 1/2	11	(6) 3/4"	(3) 3/4"
OU814	7 1/2	13	(6) 3/4"	(3) 3/4"

1. Glulam beam sizes are available. Add an "X" to the name and specify width, i.e., OU68X, W = 5.25".



OCB (3 ga.)



# Indoor Architectural Products

## CPS – Standoff Bases

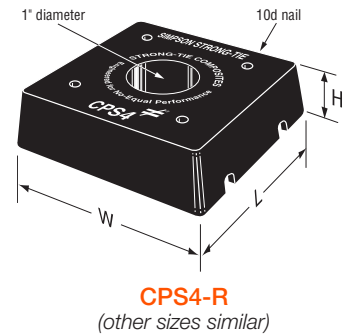
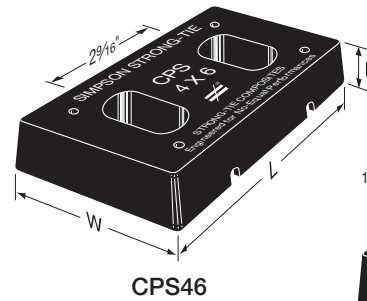
**Features:**

- Designed for increased concrete surface area
- Corrosion resistant
- Sized for 10d nails
- Can be used with rough lumber

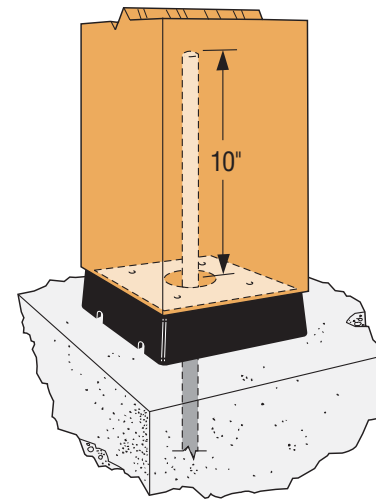
**Material:** Engineered composite plastic

**Installation:**

- See General Notes
- Not recommended for non-top-supported installations such as fences
- Attach to post before installation using four nail holes
- Embed minimum 1/2"-diameter rod into concrete and extend into wood member (two rods required for CPS46)
- For nominal or rough sawn lumber



Model No.	Post or Column Size	Dimensions (in.)			Factored Compressive Resistance	
		L	W	H	lb.	kN
CPS4-R	4x4	3 1/4	3 1/4	1	5685	25.32
					8065	35.92
CPS46	4x6	5 5/16	3 5/16	1	6945	30.94
					10655	47.46
CPS5	5x5	4 1/8	4 1/8	1	11430	50.91
					26315	103.20
CPS6	6x6	5 5/16	5 5/16	1	31450	128.78
CPS7	8x8	7 1/4	7 1/4	1 1/4		
CPS10	10x10	9 1/4	9	1		
CPS12	12x12	11	11	1		



Typical CPS4-R Installation

1. Resistances may not be increased for short-term load duration.  
2. Resistance is calculated based on the CPS bearing area and concrete strength of 20 MPa.



# Indoor Architectural Products

## HL – Heavy Angles and Gussets

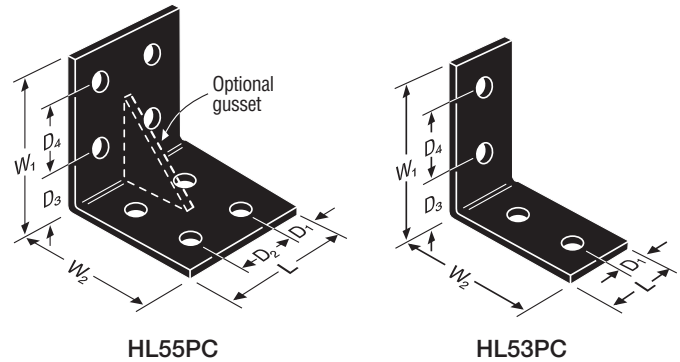
Versatile angle gussets and heavy angles promote standardization and construction economy, and are compatible with Simpson Strong-Tie® structural hardware.

**Finish:** Textured powder-coated flat black paint; Simpson Strong-Tie gray paint and also available galvanized

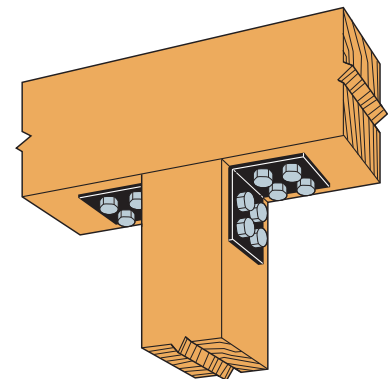
**To Order:** All products with PC suffix are textured powder-coated flat black paint. 7 gauge products without the PC suffix are galvanized. 3 gauge products without the PC suffix are Simpson Strong-Tie gray paint.

**Options:**

- Gussets may be added to HL models when  $L \geq 5"$ . Specify G after numbers in model number as in HL46GPC.



Model No.	Ga.	Dimensions (in.)						Bolts (Total)	
		W <sub>1</sub> and W <sub>2</sub>	L	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	Qty.	Dia. (in.)
HL33PC	7	3¼	2½	1¼	—	2	—	2	½
HL35PC	7	3¼	5	1¼	2½	2	—	4	½
HL37PC	7	3¼	7½	1¼	2½	2	—	6	½
HL53PC	7	5¾	2½	1¼	—	2	2½	4	½
HL55PC	7	5¾	5	1¼	2½	2	2½	8	½
HL57PC	7	5¾	7½	1¼	2½	2	2½	12	½
HL43PC	3	4¼	3	1½	—	2¾	—	2	¾
HL46PC	3	4¼	6	1½	3	2¾	—	4	¾
HL49PC	3	4¼	9	1½	3	2¾	—	6	¾
HL73PC	3	7¼	3	1½	—	2¾	3	4	¾
HL76PC	3	7¼	6	1½	3	2¾	3	8	¾
HL79PC	3	7¼	9	1½	3	2¾	3	12	¾



Typical HL55PC Installation



# CJTZ

## Concealed Joist Ties

The CJTZ is a concealed connector. It can be installed three ways: with no routing of header/post or beam; a routed header/post, or a routed beam.

**Material:** CJTZ — 12 gauge

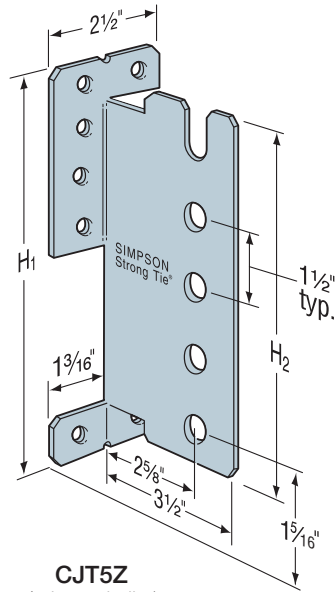
**Finish:** Galvanized

**Installation:**

- Use all specified fasteners; see General Notes.
- The CJTZ is supplied with all dowels and screws required. Screws require a hex-head driver.
- Router end of beam for screw heads for flush installation.
- To provide maximum beam width for use with short dowels, centre in beam.
- The joist/beam may be sloped to 45° with full tabulated resistances.
- See technical bulletin T-C-CJTZ at [strongtie.com](http://strongtie.com) for Installation Instructions and ordering information.

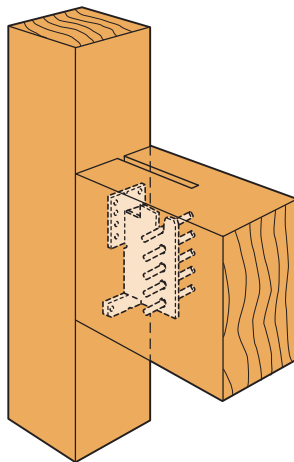
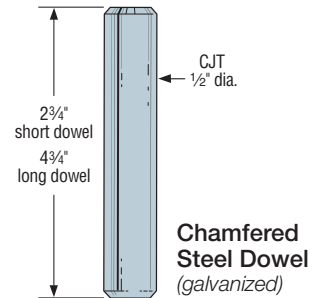
**Options:**

- To order: specify short (e.g. CJT3ZS) or long dowels (e.g., CJT3ZL).



**CJT5Z**  
(others similar)

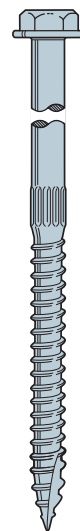
**Warning:** This connector requires special attention to ensure correct installation. The beam must be installed perpendicular to the support member. The connection's components may be damaged if the beam is rotated from its opposite end during or after installation. Damaged components may not be noticeable and may reduce the connector's load carrying capacity.



**Typical CJTZ Installation**  
(Dowels should be centred in beam.)



Identification on all Strong-Drive® SDS Heavy-Duty Connector screw heads  
(1/4" x 3" SDS shown)



**1/4" x 3" SDS HEAVY-DUTY CONNECTOR Screw**



## Concealed Joist Ties (cont.)

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Minimum Joist Size	Dimensions (in.)		Fasteners		Factored Resistance			
		H <sub>1</sub>	H <sub>2</sub>	1/4" x 3" SDS Screws	Dowels Qty. and Diameter (in.)	Short Dowels		Long Dowels	
						Uplift	Normal	Uplift	Normal
						(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
lb.	lb.	lb.	lb.						
kN	kN	kN	kN						
<b>D.Fir-L</b>									
▶ CJT3Z	4x8	5 <sup>9</sup> / <sub>16</sub>	4 <sup>7</sup> / <sub>16</sub>	6	(3) 1/2	2580 11.48	2510 11.17	2580 11.48	2510 11.17
▶ CJT4Z	4x10	7	5 <sup>15</sup> / <sub>16</sub>	8	(4) 1/2	3935 17.50	3470 15.44	3935 17.50	4200 18.68
▶ CJT5Z	4x12	8 <sup>9</sup> / <sub>16</sub>	7 <sup>7</sup> / <sub>16</sub>	10	(5) 1/2	4535 20.17	3945 17.55	4940 21.98	5065 22.53
▶ CJT6Z	6x12	10	8 <sup>15</sup> / <sub>16</sub>	12	(6) 1/2	— —	— —	5900 26.25	5130 22.82
<b>D.Fir-L Glulam</b>									
▶ CJT3Z	3 <sup>1</sup> / <sub>8</sub> " x 7 <sup>1</sup> / <sub>2</sub> "	5 <sup>9</sup> / <sub>16</sub>	4 <sup>7</sup> / <sub>16</sub>	6	(3) 1/2	2460 10.94	2140 9.52	2580 11.48	2660 11.83
▶ CJT4Z	3 <sup>1</sup> / <sub>8</sub> " x 9"	7	5 <sup>15</sup> / <sub>16</sub>	8	(4) 1/2	3055 13.59	2655 11.81	3935 17.50	4200 18.68
▶ CJT5Z	3 <sup>1</sup> / <sub>8</sub> " x 10 <sup>1</sup> / <sub>2</sub> "	8 <sup>9</sup> / <sub>16</sub>	7 <sup>7</sup> / <sub>16</sub>	10	(5) 1/2	3635 16.17	3160 14.06	4940 21.98	5215 23.20
▶ CJT6Z	3 <sup>1</sup> / <sub>8</sub> " x 12"	10	8 <sup>15</sup> / <sub>16</sub>	12	(6) 1/2	4190 18.64	3640 16.19	6910 30.74	6005 26.71
<b>Spruce-Pine Glulam</b>									
▶ CJT3Z	3 <sup>1</sup> / <sub>8</sub> " x 7 <sup>1</sup> / <sub>2</sub> "	5 <sup>9</sup> / <sub>16</sub>	4 <sup>7</sup> / <sub>16</sub>	6	(3) 1/2	1855 8.25	1875 8.34	1855 8.25	1915 8.52
▶ CJT4Z	3 <sup>1</sup> / <sub>8</sub> " x 9"	7	5 <sup>15</sup> / <sub>16</sub>	8	(4) 1/2	2670 11.88	2325 10.34	2830 12.59	3505 15.59
▶ CJT5Z	3 <sup>1</sup> / <sub>8</sub> " x 10 <sup>1</sup> / <sub>2</sub> "	8 <sup>9</sup> / <sub>16</sub>	7 <sup>7</sup> / <sub>16</sub>	10	(5) 1/2	3180 14.15	2765 12.30	3555 15.81	4560 20.28
▶ CJT6Z	3 <sup>1</sup> / <sub>8</sub> " x 12"	10	8 <sup>15</sup> / <sub>16</sub>	12	(6) 1/2	3665 16.30	3185 14.17	6045 26.89	5255 23.38
<b>Parallam®</b>									
▶ CJT3Z	3 <sup>1</sup> / <sub>2</sub> " x 9 <sup>1</sup> / <sub>2</sub> "	5 <sup>9</sup> / <sub>16</sub>	4 <sup>7</sup> / <sub>16</sub>	6	(3) 1/2	2580 11.48	3150 14.01	2580 11.48	3150 14.01
▶ CJT4Z	3 <sup>1</sup> / <sub>2</sub> " x 9 <sup>1</sup> / <sub>2</sub> "	7	5 <sup>15</sup> / <sub>16</sub>	8	(4) 1/2	3935 17.50	4085 18.17	3935 17.50	4085 18.17
▶ CJT5Z	3 <sup>1</sup> / <sub>2</sub> " x 11 <sup>7</sup> / <sub>8</sub> "	8 <sup>9</sup> / <sub>16</sub>	7 <sup>7</sup> / <sub>16</sub>	10	(5) 1/2	4940 21.98	5250 23.35	4940 21.98	5250 23.35
▶ CJT6Z	3 <sup>1</sup> / <sub>2</sub> " x 11 <sup>7</sup> / <sub>8</sub> "	10	8 <sup>15</sup> / <sub>16</sub>	12	(6) 1/2	7245 32.23	6300 28.02	7245 32.23	6300 28.02

1. Centre dowel in beam. Short dowel (2<sup>3</sup>/<sub>4</sub>" ) for use with 3<sup>1</sup>/<sub>8</sub>" GLB, 4x sawn lumber or 3<sup>1</sup>/<sub>2</sub>"-wide PSL.  
Long dowel (4<sup>3</sup>/<sub>4</sub>" ) for use with 5<sup>1</sup>/<sub>8</sub>" GLB, 6x sawn lumber or greater widths.



# CBH

## Concealed Beam Hanger

Computer modeling and CNC manufacturing enables glulam to be delivered to the job site in precise lengths and with preinstalled concealed hangers. The CBH concealed beam hanger is specifically designed for such applications, and is installed with readily available Simpson Strong-Tie® SDS Heavy-Duty Connector screws. The CBH hanger design provides for a  $\pm 1/32$ " beam length tolerance at each connector, making it easier to crane into place than other concealed hanger designs that use machined aluminum.

**Material:** 3 gauge

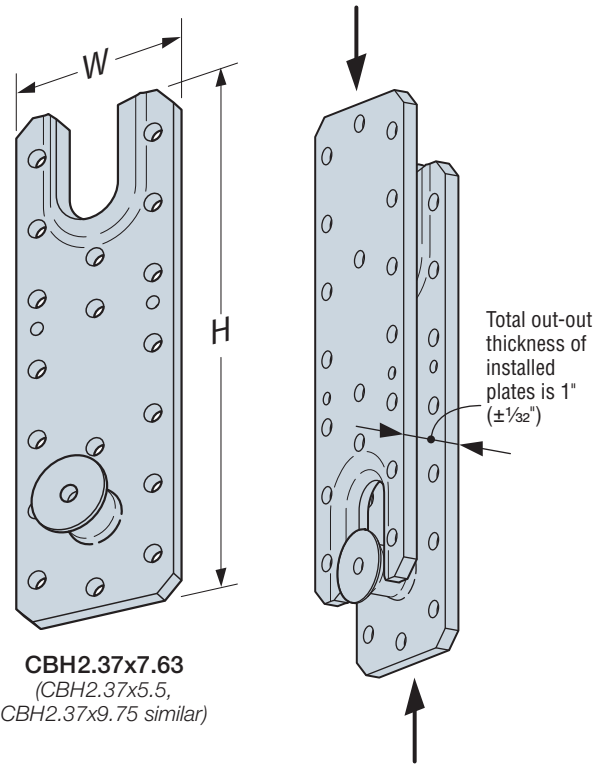
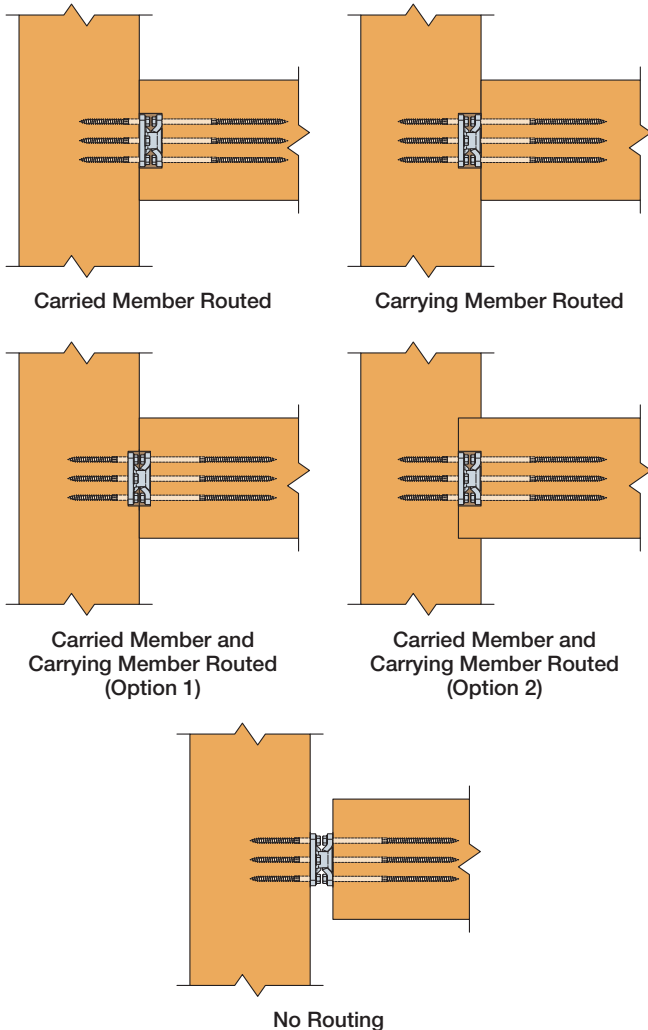
**Finish:** Galvanized

**Installation:**

- Use all specified fasteners; see General Notes
- Rout carried and/or carrying member according to application needs
- Install CBH plates on carried and carrying members using all specified SDS fasteners
- Mate carried member to carrying member according to installation illustrations

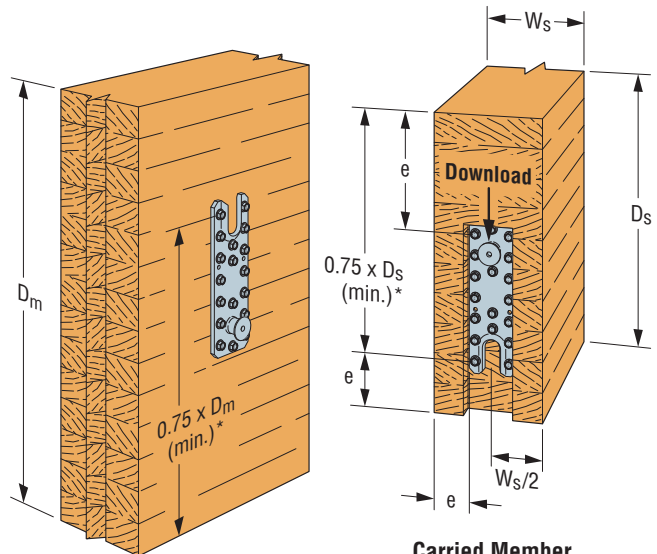
**Codes:** Code report is pending

### Plan View



**CBH2.37x7.63**  
(CBH2.37x5.5,  
CBH2.37x9.75 similar)

**CBH2.37x7.63**  
Plates Mate Together in  
Direction of Arrows  
(CBH2.37x5.5,  
CBH2.37x9.75 similar)



**Carrying Member**

**Carried Member**

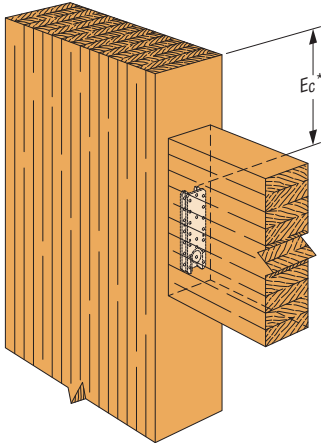
\*Dimension line is to centre line of first row of fasteners  $e = 1\frac{1}{2}$ " (min.)

**CBH Placement Relative to Member Depth/Width**



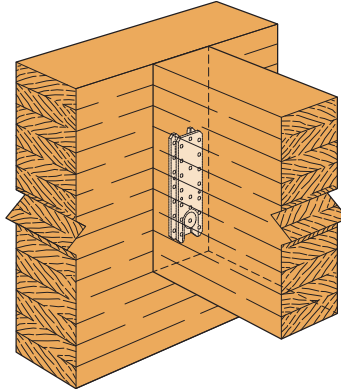
**CBH**

## Concealed Beam Hanger (cont.)

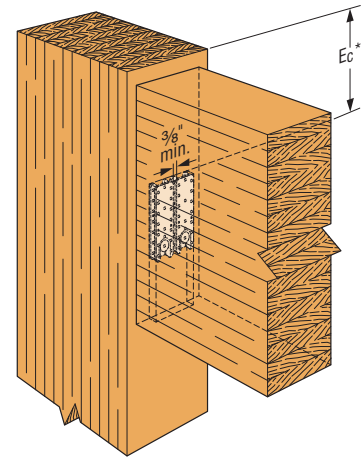


\*Reference Simpson Strong-Tie engineering letter L-C-CBHDRIFT21 for guidance on CBH drift behavior at columns and  $E_{c,min}$  requirement.

**Typical CBH2.37x7.63**  
**Installation at Column**  
(CBH2.37x5.5 and  
CBH2.37x9.75 similar)



**Typical CBH2.37x7.63**  
**Installation at Girder**  
(CBH2.37x5.5 and  
CBH2.37x9.75 similar)



\*Reference Simpson Strong-Tie engineering letter L-C-CBHDRIFT21 for guidance on CBH drift behavior at columns and  $E_{c,min}$  requirement.

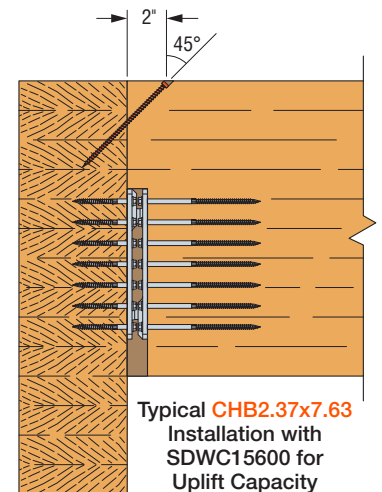
**Typical Double CBH2.37x7.63**  
**Installation at Column**  
(CBH2.37x5.5 and CBH2.37x9.75  
and installation at girder similar)

Model No.	Minimum Joist Size	Dimensions in. (mm)			Fasteners (SDS Screws)		Factored Resistance			
		W	H	Rout Depth	Joist	Beam/Column	D.Fir-L Glulam		Spruce-Pine Glulam	
							Uplift ( $K_D = 1.15$ )	Normal ( $K_D = 1.00$ )	Uplift ( $K_D = 1.15$ )	Normal ( $K_D = 1.00$ )
		lb.	lb.	lb.	lb.	kN	kN	kN	kN	
CBH2.37x5.5B CBH2.37x5.5C	5 1/8" x 9"	2 3/8" (60.3)	5 1/2" (139.7)	1 (25.4)	(13) 1/4" x 6"	(13) 1/4" x 3" (13) 1/4" x 6"	475	6000	385	5245
	2.11						26.69	1.71	23.33	
CBH2.37x7.63B CBH2.37x7.63C	5 1/8" x 12"	2 3/8" (60.3)	7 3/8" (193.7)	1 (25.4)	(18) 1/4" x 6"	(18) 1/4" x 3" (18) 1/4" x 6"	475	7990	385	7000
	2.11						32.74	1.71	27.05	
CBH2.37x9.75B CBH2.37x9.75C	5 1/8" x 15"	2 3/8" (60.3)	9 3/4" (247.7)	1 (25.4)	(23) 1/4" x 6"	(23) 1/4" x 3" (23) 1/4" x 6"	475	10000	385	8750
	2.11						44.48	1.71	38.92	
	5 1/8" x 19 1/2"						475	13000	385	10925
							2.11	57.83	1.71	48.60

1. Factored resistances shown are based on the lower of the tested assembly or the effective shear capacity of the joist, assuming  $d_e = 0.75d$  per 12.2.1.5 CSA O86-14. For other joist sizes or configurations that meet the minimum dimensional requirements shown in the installation details, the connection capacity is the lower of the effective shear of the joist vs. the highest tabulated value for the specific model number based on the glulam species shown.
2. Minimum member sizes shown are not required edge distances for fire resistance ratings. Fire resistance ratings shall be determined by the Engineer of Record.
3. Minimum edge distance for SDS screws is 1 1/2".
4. Factored uplift resistances shown are for installation through the top of the joist at 45° into the header using SDWC15600. See installation details.
5. For attachment to columns, the header fasteners supplied will be 6" long (SDS25600). For attachment to beams, the header fasteners supplied will be 3" long (SDS25300).

## Ordering Information

Model No.	Application	Ordering SKU	Kit Contents		
			CBH Plates	Number of Screws	
				SDS25300	SDS25600
CBH2.37x5.5B	Joist to beam	CBH2.37x5.5B-KT	Each kit contains two backplates that make up one connection	13	13
CBH2.37x7.63B		CBH2.37x7.63B-KT		18	18
CBH2.37x9.75B		CBH2.37x9.75B-KT		23	23
CBH2.37x5.5C	Joist to column	CBH2.37x5.5C-KT	—	26	
CBH2.37x7.63C		CBH2.37x7.63C-KT	—	36	
CBH2.37x9.75C		CBH2.37x9.75C-KT	—	46	



**Typical CBH2.37x7.63**  
**Installation with**  
**SDWC15600 for**  
**Uplift Capacity**  
(side view)



# ETB

## Hidden Connector Kit

The ETB hidden connector provides a load-tested beam connection without any visible hardware. Interlocking plates are fastened onto each member and lock together for a secure structural connection.

**Material:** Plates — Aluminum 6082-T6

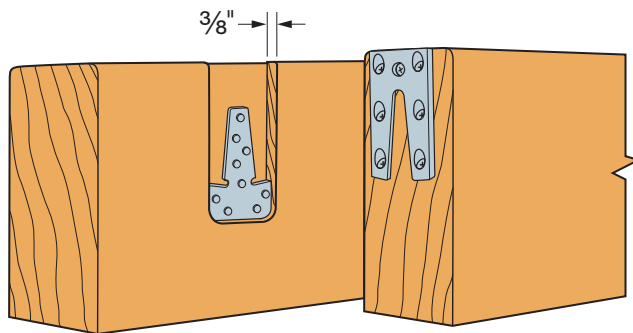
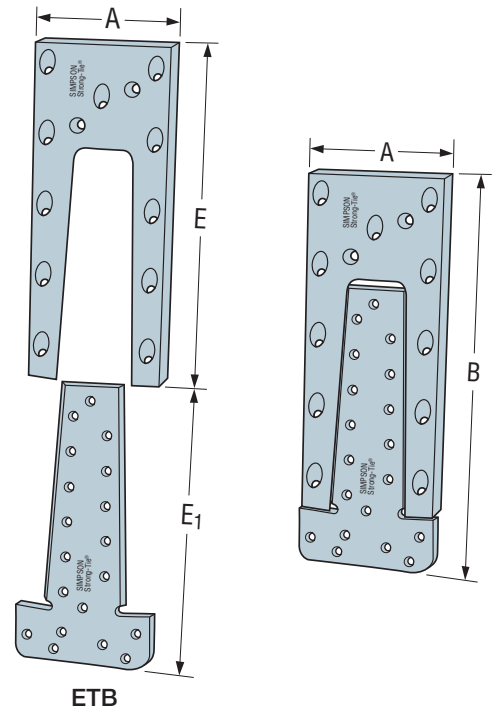
**Finish:** Plates — none; screws — Dacromet® corrosion resistant coating

**Installation:**

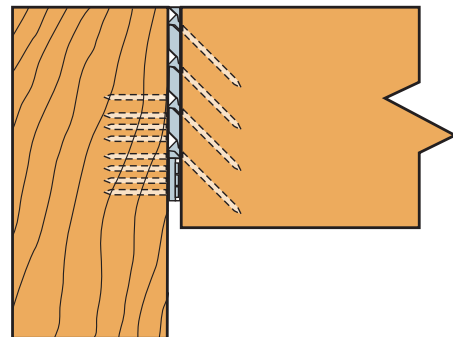
- Use all specified fasteners; see General Notes.
- Rout a 3/8" (10mm) deep pocket into the side of the supporting beam as shown for the lower plate.
- Install lower plate with 16d hot-dip galvanized nails (not included in kit).
- Install horseshoe plate onto end of supported beam using SCRBS screws supplied in kit. Screws are installed at a downward angle (approx. 45°).

### Dimensional and Fabrication Information

Model No.	Dimensions (in.)					
	A	B	E	E <sub>1</sub>	t <sub>1</sub>	t <sub>2</sub>
ETB90	2.36	3.62	2.72	2.26	0.236	0.393
ETB160	2.36	6.61	5.12	3.74	0.236	0.393
ETB230	2.95	9.13	7.87	5.43	0.236	0.393



Typical ETB Installation



ETB Installation with Non-Routed Header  
(side view)



## ETB

## Hidden Connector Kit (cont.)

Model No.	Fasteners		Joist Size	Factored Resistance ( $K_D = 1.00$ )				
				D.Fir-L	S-P-F	Northern		
	Header			Joist		( $K_D = 1.00$ )	( $K_D = 1.00$ )	( $K_D = 1.00$ )
						lb.	lb.	lb.
				kN	kN	kN		
ETB90	(6) 16d HDG	(5) SPAX 5x80 SCRB screw	4x6	1870	1525	1325		
				8.34	6.78	5.89		
			4x8	1675	1325	1145		
				7.45	5.89	5.09		
			4x10	1545	1220	1060		
				6.87	5.43	4.72		
			4x12	1415	1120	970		
				6.29	4.98	4.31		
			6x6	1870	1640	1385		
				8.32	7.30	6.16		
			6x8	1870	1640	1385		
				8.32	7.30	6.16		
			6x10	1870	1535	1280		
				8.32	6.83	5.69		
6x12	1755	1410	1175					
	7.81	6.27	5.23					
ETB160	(11) 16d HDG	(10) SPAX 5x80 SCRB screw	4x8	3430	2965	2545		
				15.26	13.19	11.32		
			4x10	3430	2740	2375		
				15.26	12.19	10.56		
			4x12	3175	2510	2175		
				14.12	11.17	9.68		
			6x8	3430	2985	2545		
				15.26	13.28	11.32		
			6x10	3430	2985	2545		
				15.26	13.28	11.32		
			6x12	3430	2985	2545		
				15.26	13.28	11.32		
ETB230	(19) 16d HDG	(16) SPAX 5x80 SCRB screw	4x12	4925	3890	3375		
				21.91	17.30	15.01		
			6x12	5930	4420	3770		
				26.38	19.66	16.77		

1. Factored resistances assume standard term load duration; reduce value where other load durations govern. Do not increase value for short-term load duration.
2. Factored resistances have been calculated in accordance with CSA O86-14 assuming dry service condition ( $K_S = 1.00$ ) and seasoned lumber (moisture content  $\leq 15\%$ ) at time of fabrication. For unseasoned lumber (moisture content  $> 15\%$ ) multiply tabulated values by 0.80. For wet service condition multiply tabulated values by 0.67.
3. Do not use ETB connectors with preservative-treated woods.
4. Factored resistances shown are the lower of the test value, the fastener capacity or the effective shear capacity of the joist assuming joist and headers are same species.
5. Substitution for fasteners is not permitted. All fasteners must be used as specified.
6. **Nails:** 16d HDG = 0.162" dia. x 3 1/2" long hot-dip galvanized.



# Indoor Architectural Products

## Ornamental – Joist Hanger

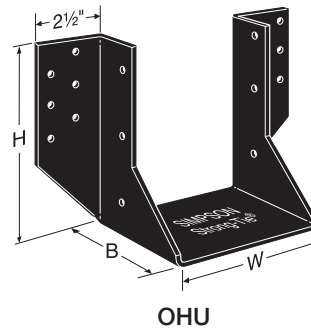
The OHU ornamental joist hangers are heavy-duty, load-rated joist hangers that are attached with Simpson Strong-Tie® Strong-Drive® 1/4" x 3" double-barrier coating SDS Heavy-Duty Connector screws (supplied with product).

**Material:** 12 gauge

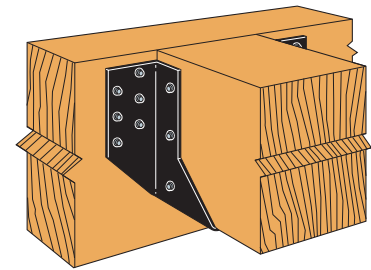
**Finish:** Textured powder-coated flat black paint

**Options:**

- No modifications

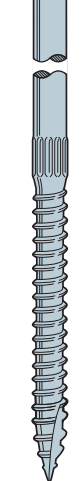


OHU



Typical OHU Installation

Joist Size	Model No.	Ga.	Dimensions (in.)			No. of 1/4" x 3" SDS Screws		Factored Resistance			
								D.Fir-L		S-P-F	
			W	H	B	Face	Joist	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)	(K <sub>D</sub> = 1.15)	(K <sub>D</sub> = 1.00)
								lb.	lb.	lb.	lb.
						kN	kN	kN	kN		
4x6	OHU46-SDS3	12	3 9/16	5	4	6	4	2415	3885	2080	2795
								10.74	17.28	9.25	12.43
4x8	OHU48-SDS3	12	3 9/16	6 3/4	4	8	6	2890	3885	2080	2795
								12.86	17.28	9.25	12.43
4x10	OHU410-SDS3	12	3 9/16	8 3/4	4	12	6	3620	8175	3275	5885
								16.10	36.37	14.57	26.18
4x12	OHU412-SDS3	12	3 9/16	10 3/4	4	12	8	4755	8175	3425	5885
								21.15	36.37	15.24	26.18
4x14	OHU414-SDS3	12	3 9/16	12 3/4	4	14	10	4755	8175	3425	5885
								21.15	36.37	15.24	26.18
6x6	OHU66-SDS3	12	5 1/2	5	4	6	4	2415	3885	2080	2795
								10.74	17.28	9.25	12.43
6x8	OHU68-SDS3	12	5 1/2	7	4	12	6	3620	8175	3275	5885
								16.10	36.37	14.57	26.18
6x10	OHU610-SDS3	12	5 1/2	9	4	14	6	3620	8175	3275	5885
								16.10	36.37	14.57	26.18
6x12	OHU612-SDS3	12	5 1/2	11	4	16	8	4830	9435	4370	6795
								21.49	41.97	19.44	30.23
6x14	OHU614-SDS3	12	5 1/2	13	4	18	10	6035	9435	5360	6795
								26.85	41.97	23.84	30.23



1/4" x 3" SDS  
HEAVY-DUTY  
CONNECTOR  
Screw

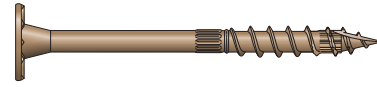
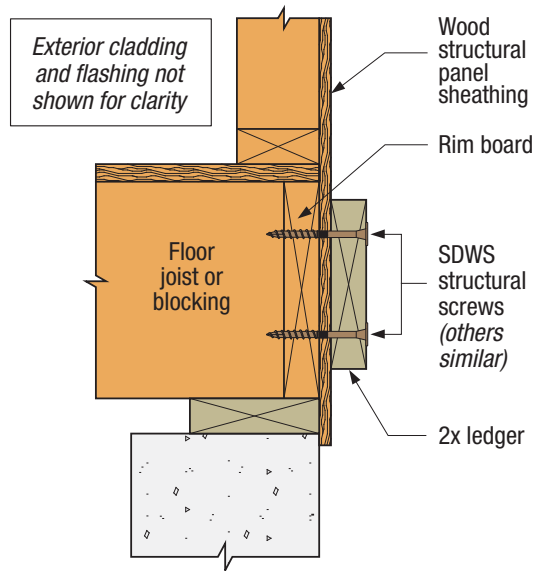
1. Factored resistances have been increased 15% for wind or earthquake loading with no further increase allowed.



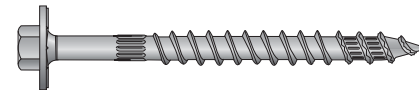
# Fastener Application Guide

The *Fastening Systems* catalogue and the *Fastening Systems Technical Supplement for Canada* (C-F-2017CANADD) are your complete guides to comprehensive information for our complete line of screws and nails, collated nails and staples, collated screws, and Quik Drive® auto-feed screw driving systems. Visit [strongtie.com](http://strongtie.com) to download the latest version of our catalogue or to find more information. You can find product, installation and technical details about the following applications:

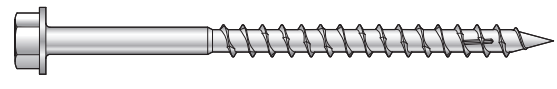
## Ledger



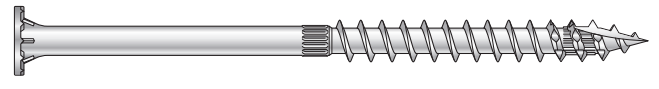
Strong-Drive® SDWS TIMBER Screw (Exterior Grade)



Strong-Drive SDWH TIMBER-HEX HDG Screw

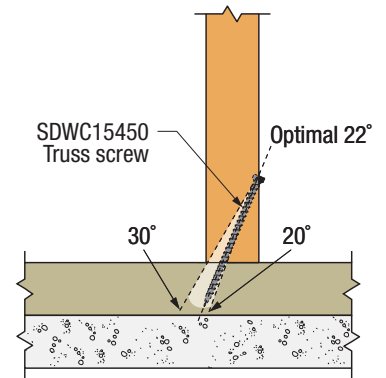
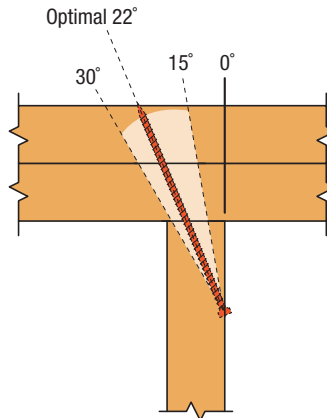
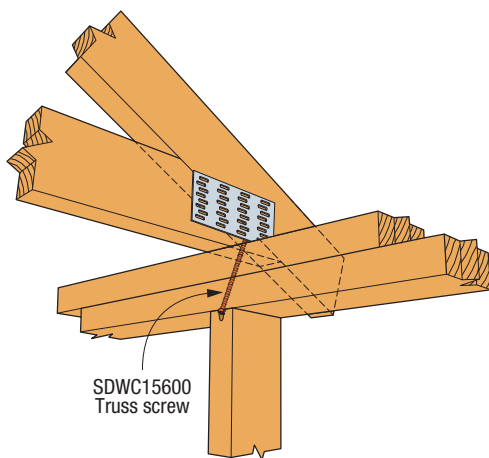


Strong-Drive SDWH TIMBER-HEX SS Screw

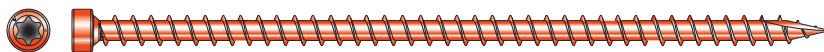


Strong-Drive SDWS TIMBER SS Screw

## Roof-to-Wall / Stud-to-Plate / Stud-to-Sill



Strong-Drive SDWC TRUSS Screw (SDWC15450)



Strong-Drive SDWC TRUSS Screw (SDWC15600)



SDWC15600 Installation Using Quik Stik™ Rafter and Truss Fastening System



# Fastener Application Guide

## Non-Load-Bearing Partition Wall Connection



SDPW14312 – Strong-Drive® SDPW Deflector Screw  
0.140" x 3½" – Blue



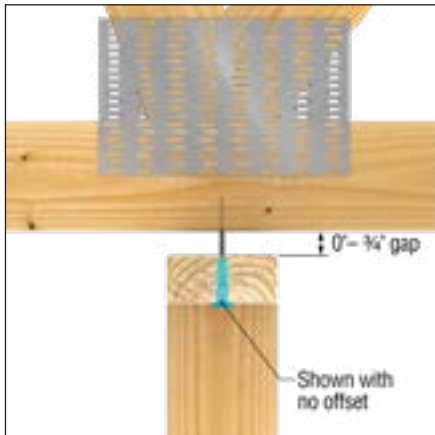
SDPW14500 – Strong-Drive® SDPW Deflector Screw  
0.140" x 5" – Orange



SDPW19600 – Strong-Drive® SDPW Deflector Screw  
0.195" x 6" – Grey

### SDPW Deflector Screw Usage

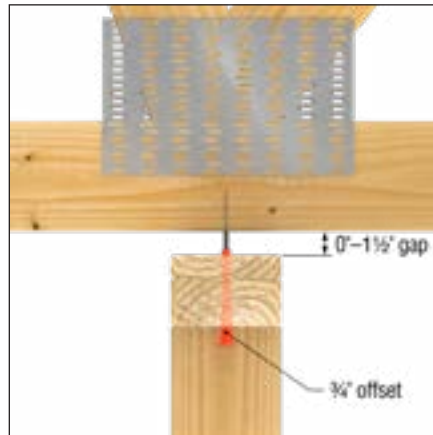
SDPW14312



**3½"**

3½" length for single 2x plate connections, provide up to a ¼" gap (between top plate and truss/joist).

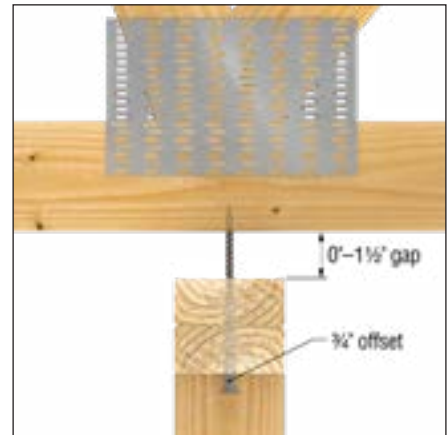
SDPW14500



**5"**

5" length for built-up top plate (single 2x plus ¾" member, to be connected per code), providing a 0" to 1½" gap.

SDPW19600



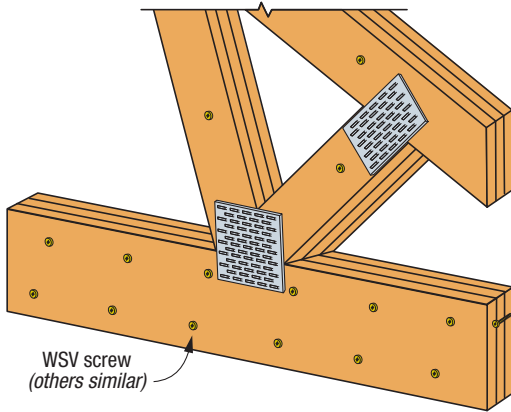
**6"**

6" length for (2) 2x top plate connections, providing a 0" to 1½" gap



# Fastener Application Guide

## Multi-Ply Truss



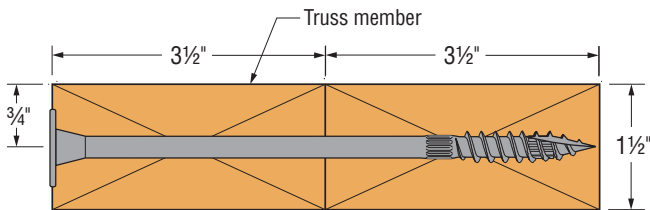
**Strong-Drive® WSV SUBFLOOR Screw**  
Size range: #9 x 1¾", 2", 2½", 3"



**Strong-Drive SDW TRUSS-PLY and EWP-PLY Screws**

Size range:  
SDW Truss-Ply — 0.220" x 2¼", 4¾", 4¾", 6", 6¾"  
SDW EWP-Ply — 0.220" x 3¾", 5", 6¾"

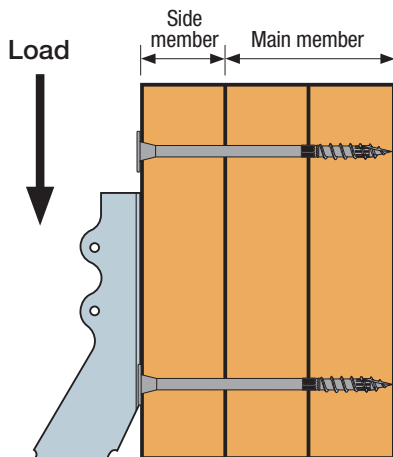
## Multi-Ply Floor Truss



**Strong-Drive SDW TRUSS-PLY and EWP-PLY Screws**

Size range:  
SDW Truss-Ply — 0.220" x 5", 6¾"

## Multi-Ply Beam or Girder



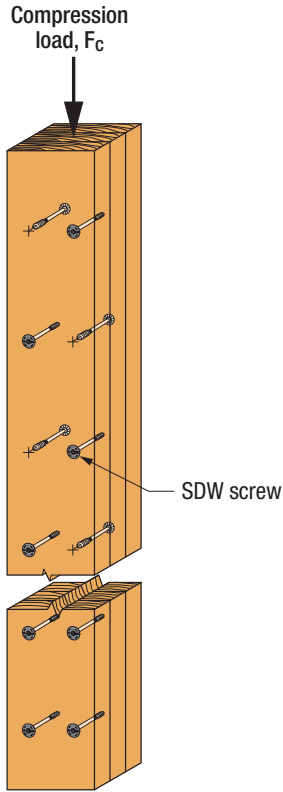
**Strong-Drive SDW TRUSS-PLY and EWP-PLY Screws**

Size range:  
SDW Truss-Ply — 0.220" x 2¼", 4¾", 4¾", 6", 6¾"  
SDW EWP-Ply — 0.220" x 3¾", 5", 6¾"



# Fastener Application Guide

## Built-Up Columns



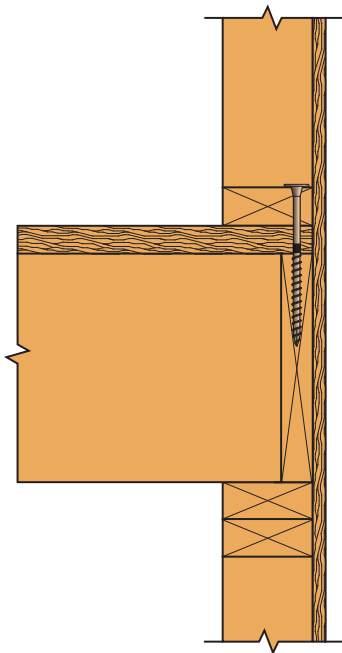
**Strong-Drive SDW TRUSS-PLY and EWP-PLY Screws**

Size range:

SDW Truss-Ply — 0.220" x 2 15/16", 4 3/8", 4 5/8", 6", 6 3/8"

SDW EWP-Ply — 0.220" x 3 3/8", 5", 6 3/4"

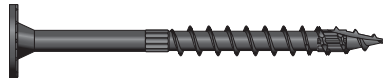
## Sole-to-Rim



**Strong-Drive SDS HEAVY-DUTY CONNECTOR Screw**

Size range: Stainless steel — 1/4" x 1 1/2" – 3 1/2"

Double barrier — 1/4" x 1" – 8"



**Strong-Drive SDWS TIMBER Screw (Interior Grade)**

Size range: 0.195" x 6", 7 1/2"; 0.220 x 4" – 15"



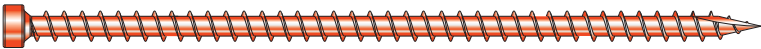
**Strong-Drive SDWV SOLE-TO-RIM Screw**

Size: #10 x 4"



**Strong-Drive SDWC TRUSS Screw (SDWC15450)**

Size: 0.152" x 4 1/2"



**Strong-Drive SDWC TRUSS Screw (SDWC15600)**

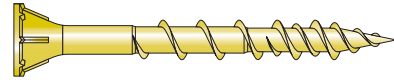
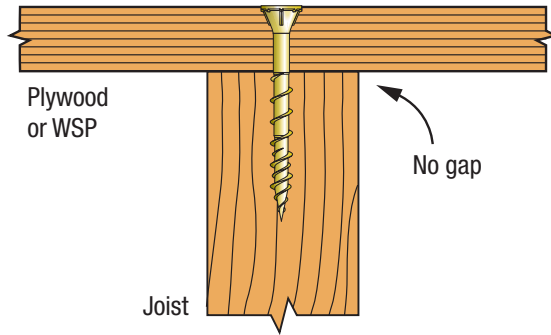
Size: 0.152" x 6"





# Fastener Application Guide

## Subfloor

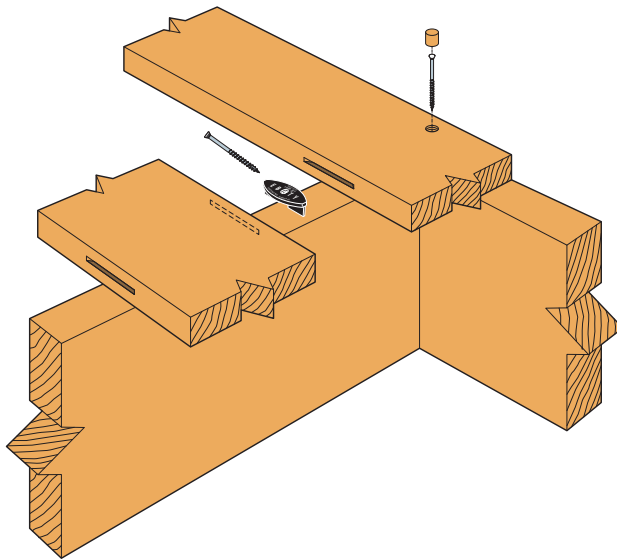


**Strong-Drive® WSV SUBFLOOR Screw**  
Size range: #9 x 1¾", 2", 2½", 3"

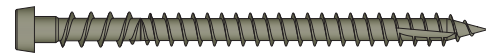


**Quik Drive® PRO250G2 System**

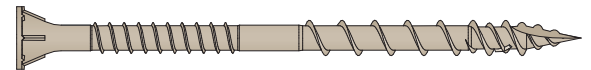
## Decking



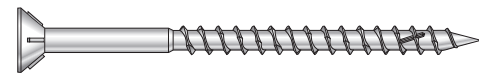
**EB-TY® Premium Hidden Deck-Fastening™ System**



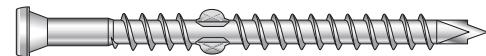
**Deck-Drive™ DCU COMPOSITE Screw**  
Size: #10 x 2¾"



**Deck-Drive DSV WOOD Screw**  
Size range: #8 x 1¼", 1⅝"; #10 x 2" – 4"



**Deck-Drive DWP WOOD SS Screw**  
Size range: #8 x 1¼" – 3"; #10 x 2" – 4½"

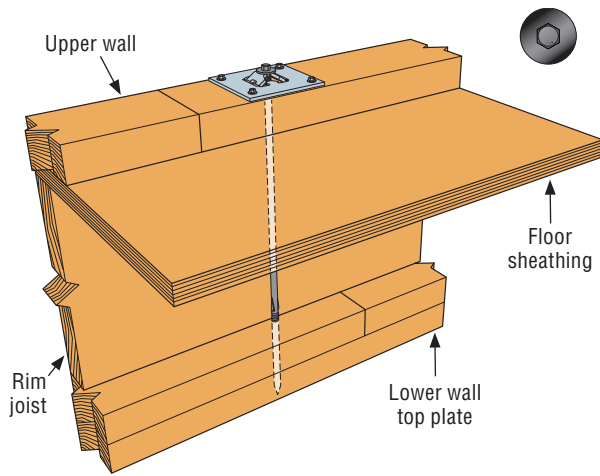


**Deck-Drive DHPD HARDWOOD Screw**  
Size: #10 x 2½"

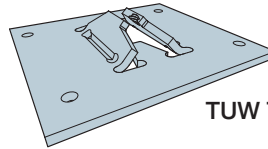


# Fastener Application Guide

## Floor-to-Floor



**Strong-Drive® SDWF FLOOR-TO-FLOOR Screw**  
Size range: 0.270" x 16" – 30"



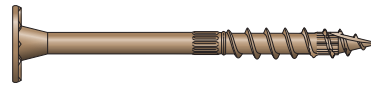
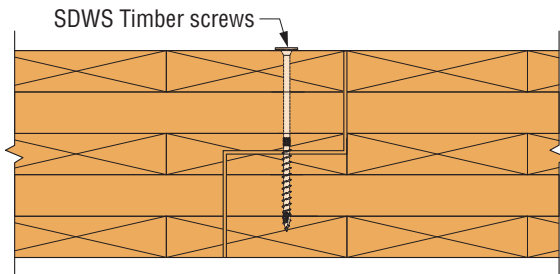
**TUW Take-Up Washer**



**Strong-Drive SDWS TIMBER Screw (Interior Grade)**  
Size range: 0.195" x 6", 7½"; 0.220 x 4" – 15"

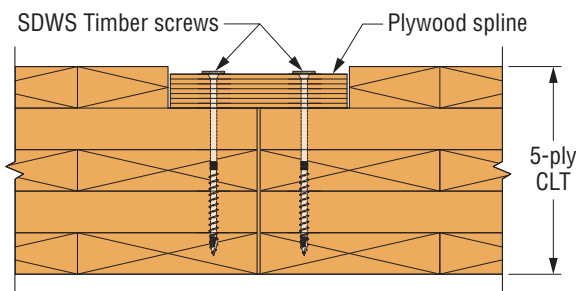
## CLT Floor Connection

### CLT Half-Lap Connection



**Strong-Drive SDWS TIMBER Screw (Exterior Grade)**  
Size range: 0.220" x 3" – 10"

### CLT Spline Connection

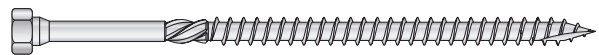
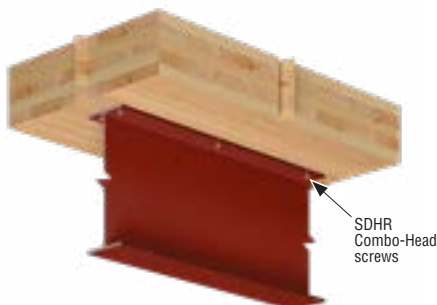


**Strong-Drive SDWS TIMBER Screw (Interior Grade)**  
Size range: 0.195" x 6", 7½"; 0.220" x 4" – 15"



**Strong-Drive SDCP TIMBER-CP Screw**  
Size range: 0.220" x 3½" – 11¼"; 0.275" x 14"

### CLT to Steel Beam Connection



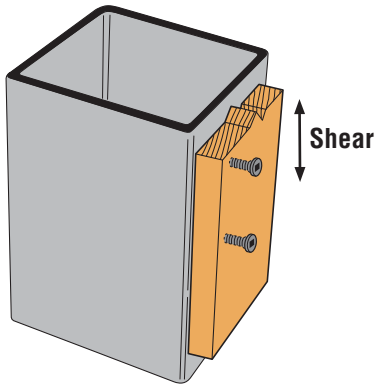
**Strong-Drive SDHR COMBO-HEAD Screw**  
Size range: 0.275" x 4", 6¼"; 0.315" x 4", 6¼"

For more information and capacities, refer to [strongtie.com/masstimber](http://strongtie.com/masstimber).



# Fastener Application Guide

## Wood-to-Steel



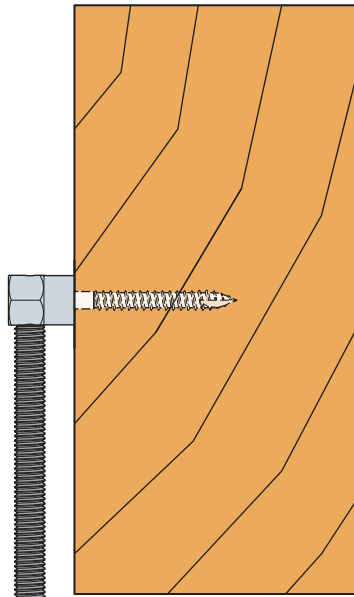
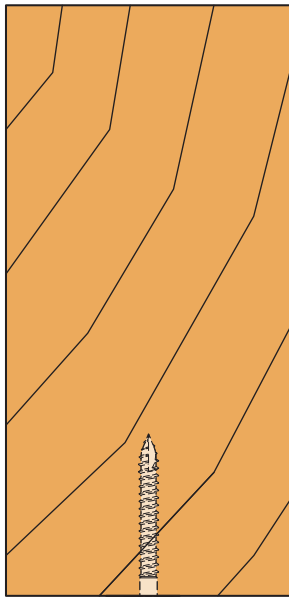
**Strong-Drive® TB WOOD-TO-STEEL Screw**  
Size range: #12 x 1¼", 2¾"; #14 x 2¾", 3"



**Strong-Drive® TF WOOD-TO-STEEL Screw**  
Size range: #14 x 3"

(Also available collated for Quik Drive® systems)

## Suspended Utilities



**RWV**  
Vertical Wood  
Rod Hanger



**RWH**  
Horizontal Wood  
Rod Hanger



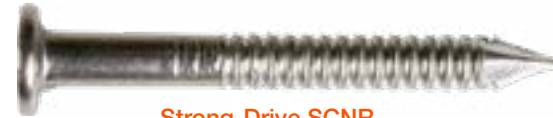
# Bulk Strong-Drive® Connector Nails

Simpson Strong-Tie nails and structural fasteners have been developed as the optimum fasteners for connector products. Special lengths afford economy of purchase and installation, and depth compatibility with framing members.

**Material:** Carbon steel, stainless steel

For power-driven nails, see note "L" in General Instructions for the Installer, p. 15 and visit [strongtie.com](http://strongtie.com) for technical bulletins.

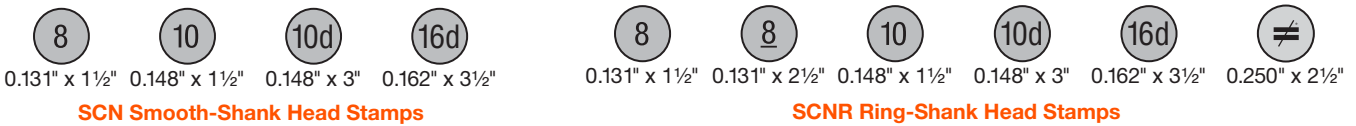
**Finish:** Hot-dip galvanized, bright (no coating), 316 stainless steel



Strong-Drive SCNR  
RING-SHANK CONNECTOR Nail



Strong-Drive SCN  
SMOOTH-SHANK CONNECTOR Nail



## Strong-Drive SCN SMOOTH-SHANK CONNECTOR Nail — Hot-Dip Galvanized

Diameter x Length (in.)	Head Diameter (in.)	Approx. Count per lb.	1 lb. Model No. (Sold by the pound)	Retail Pack Count	Retail Pack Model No.	Mini-Bulk Count	Mini-Bulk Model No.
0.131 x 1½	0.28	150	N8	150	N8DHDG-R	750	N8D5HDG-R
0.148 x 1½	0.31	120	N10	120	N10DHDG-R	600	N10D5HDG-R
0.148 x 3	0.31	—	—	50	10DHDG-R	250	10D5HDG-R
0.162 x 3½	0.34	—	—	40	16DHDG-R	200	16D5HDG-R

## Strong-Drive SCNR RING-SHANK CONNECTOR Nail — Hot-Dip Galvanized

Diameter x Length (in.)	Head Diameter (in.)	Approx. Count per lb.	1 lb. Model No. (Sold by the pound)
0.250 x 2½	0.50	27	N54HDG

## Strong-Drive SCNR RING-SHANK CONNECTOR Nail — Bright

Diameter x Length (in.)	Head Diameter (in.)	Approx. Count per lb.	1 lb. Model No. (Sold by the pound)
0.250 x 2½	0.50	27	N54A

## Strong-Drive SCNR RING-SHANK CONNECTOR Nail — 316 Stainless Steel

Diameter x Length (in.)	Head Diameter (in.)	Approx. Count per lb.	1 lb. Model No. (Sold by the pound)	Retail Pack Count	Retail Pack Model No.	Mini-Bulk Count	Mini-Bulk Model No.	Bulk Bucket Count	Bulk Bucket Model No.
0.131 x 1½	0.28	155	SSNA8	150	SSNA8D	750	SSNA8D5	3,750	SSNA8DB
0.131 x 2½	0.28	94	SSA8D	90	SSA8DD	450	SSA8D5	2,250	SSA8DB
0.148 x 1½	0.31	123	SSNA10	120	SSNA10D	600	SSNA10D5	3,000	SSNA10DB
0.148 x 3	0.31	63	SSA10D	50	SSA10DD	250	SSA10D5	1,250	SSA10DB
0.162 x 3½	0.34	44	SSA16D	40	SSA16DD	200	SSA16D5	1,000	SSA16DB

1. Use HDG nails with ZMAX® and HDG products. Use stainless-steel nails with stainless-steel products.
2. HDG nails sold by Simpson Strong-Tie meet the specifications of ASTM A153 Class D. Stainless-steel nails are Type 316 stainless steel.



# Collated Strong-Drive® Connector Nails

Simpson Strong-Tie carbon-steel Strong-Drive 33° SCN Smooth-Shank Connector nails and stainless-steel Strong-Drive 33° SCNR Ring-Shank Connector nails are designed to provide installers with a power-driven alternative to hand-driven nails. The paper-tape collated SCN and SCNR nails are approved for use in Simpson Strong-Tie connector products as alternates to hand-driven nails of the same size and type.

**Material:** Carbon steel, hot-dip galvanized, bright (no coating), stainless-steel, ring shank

**Finish:** Hot-dip galvanized, bright (no coating), 316 stainless steel

**Installation:**

- Use all specified fasteners; see General Notes.
- For power-driven nails, see note “n” in General Instructions for the Installer, p. 15 and visit [strongtie.com](http://strongtie.com) for technical bulletins.
- Follow the tool manufacturer’s instructions and use the appropriate safety equipment.
- Tools with nail hole-locating mechanisms should be used.
- Paper-tape collated nails are compatible with a variety of popular power nailers. For more information, access our Fastener Finder software or download the Simpson Strong-Tie *Fastening Systems* catalogue at [strongtie.com](http://strongtie.com).
- For applications involving alternate nails, refer to pp. 22–24.



Strong-Drive 33°  
SCN SMOOTH-SHANK  
CONNECTOR Nail



0.131" x 1 1/2" 0.131" x 2 1/2" 0.148" x 1 1/2" 0.148" x 2 1/2"

**SCNR Ring-Shank Head Stamps**



0.131" x 1 1/2" 0.131" x 2 1/2" 0.148" x 1 1/2" 0.148" x 2 1/2" 0.162" x 2 1/2"

**SCN Smooth-Shank Head Stamps**

## Strong-Drive Connector Nails — Collated 33°

Dimension (in.)	SCN Hot-Dip Galvanized				SCN Bright		SCNR Type 316 Stainless Steel	
	Contractor Pack		Mini-Bulk		Mini-Bulk		Mini-Bulk	
	Fasteners per Pack	Model No.	Fasteners per Pack	Model No.	Fasteners per Pack	Model No.	Fasteners per Pack	Model No.
0.131 x 1 1/2	500	N8HDGPT500	4,000	N8HDGPT4000	4,000	N8BRPT4000	1,500	T10A150MCN
0.131 x 2 1/2	500	8DHDGPT500	2,500	8DHDGPT2500	2,500	8DBRPT2500	1,000	T10A250MCN
0.148 x 1 1/2	500	N10HDGPT500	3,000	N10HDGPT3000	3,000	N10BRPT3000	1,500	T9A150MCN
0.148 x 2 1/2	500	N10DHDGPT500	2,500	N10DHDGPT2500	2,500	N10DBRPT2500	1,000	T9A250MCN
0.162 x 2 1/2	500	N16HDGPT500	2,000	N16HDGPT2000	—	—	—	—

1. Use HDG nails with ZMAX® and HDG products.
2. HDG nails sold by Simpson Strong-Tie meet the specifications of ASTM A153 Class D. Stainless-steel nails are Type 316 stainless steel.

**Strong-Drive® SD CONNECTOR and SD CONNECTOR SS Screws**

## Structural Fastener

Simpson Strong-Tie offers the Strong-Drive SD Connector (SD) and **SD Connector SS (SD SS)** screws for use with our connectors. Designed to replace nails in certain products, the load-rated SD and **SD SS** screws have been tested and approved for use in many popular Simpson Strong-Tie® connectors. In certain applications screws are easier and more convenient to install than nails, and the single-fastener load values achieved by the SD9 and SD10 exceed those of typical 10d or 16d common nails, respectively.

When selecting fasteners for connectors, match both the base metal and corrosion resistance to maximize connection durability. Stainless steel connector screws should be used with stainless steel connectors. Galvanized screws should be used with galvanized connectors. When galvanized and stainless steel parts are used together, galvanic corrosion can occur because the two metals (zinc and stainless steel) are electrochemically dissimilar. If the screw is galvanized and the connector is stainless steel, corrosion of the screw would begin with sacrifice of the zinc in the galvanized coating and then proceed with corrosion of the steel screw. Whether due to a galvanic or oxidative electrochemical process, corrosion can lead to the need for premature repair or failure of the connection.

The SD and **SD SS** screws feature an optimized shank, specifically designed for compatibility with the fastener holes in Simpson Strong-Tie connectors. The hex head allows for a secure drive and helps avoid stripping of the head during installation. The sharp point of the screw enables fast starts.

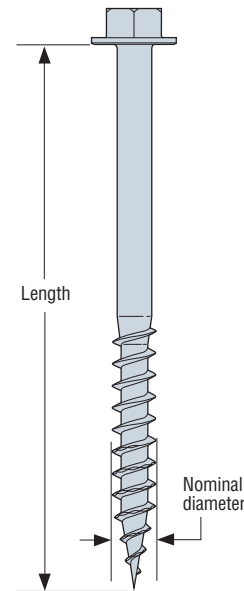
**Features:**

- Tested and approved for use in many of our best-selling connectors for interior and most exterior applications.
- The single-fastener steel-side-plate lateral resistance of the SD9 exceeds the capacity of a 10d common nail, while the single-fastener lateral resistance of the SD10 exceeds that of the 16d common nail.
- Ideal for use in tight spaces where using a hammer is inconvenient.
- Optimized heat-treating for ductility and strength.
- Mechanically galvanized coating meets ASTM B695 Class 55, is recommended for use with certain preservative-treated woods (see p. 21).
- ¼" hex-drive bit included.
- Head identification.

**Material:** SD Screw — Heat-treated carbon steel, mechanically galvanized (ASTM B695 Class 55); SD SS Screw — Type 316 stainless steel



**Identification on SD screw heads**  
(#10 x 2½" SD10212 shown)



**Strong-Drive SD CONNECTOR Screw — SD10**  
(SD9 similar)

These products are available with additional corrosion protection. For more information, see p. 20.

**SS** For stainless-steel fasteners, see p. 21.

	Size	Coating Material	Retail Pack		Contractor Pack		Mini Bulk	
			Fasteners per Pack	Model No.	Fasteners per Pack	Model No.	Fasteners per Pack	Model No.
<b>SS</b>	#9 x 1½"	316 stainless steel	100	SD9112SS-R100	500	SD9112SS-R500	3000	SD9112SSMB
<b>SS</b>	#9 x 2½"	316 stainless steel	100	SD9212SS-R100	500	SD9212SS-R500	2000	SD9212SSMB
	#9 x 1½"	Mechanically galvanized	100	SD9112R100	500	SD9112R500	3000	SD9112MB
	#9 x 2½"	Mechanically galvanized	100	SD9212R100-R	500	SD9212R500	2000	SD9212MB
	#10 x 1½"	Mechanically galvanized	100	SD10112R100	500	SD10112R500	3000	SD10112MB
	#10 x 2½"	Mechanically galvanized	100	SD10212R100-R	500	SD10212R500	2000	SD10212MB

1. Mechanically-galvanized SD screws to be used with galvanized connectors.  
2. Stainless-steel SD screws to be used with stainless-steel connectors.



## Strong-Drive® SD CONNECTOR and SD CONNECTOR SS Screws

## Structural Fastener (cont.)

## Factored Withdrawal and Head Pull-through Resistances

Model No.	Nominal Diameter (in.)	Thread Length (in.)	Factored Resistance ( $K_D = 1.15$ )					
			Withdrawal		Head Pull-Through			
			D.Fir-L	S-P-F	Wood			Steel
					$1\frac{5}{32}$ "	$2\frac{3}{32}$ "	$1\frac{1}{2}$ "	
			lb.	lb.	lb.	lb.	lb.	lb.
kN	kN	kN	kN	kN	kN			
SD9xxxSS	0.169	$1\frac{3}{16}$	255	195	70	105	225	350
			1.13	0.87	0.31	0.47	1.00	1.56
SD9xxx	0.177	$1\frac{3}{16}$	265	205	70	105	225	360
			1.18	0.91	0.31	0.47	1.00	1.60
SD10xxx	0.200	$1\frac{3}{16}$	295	225	70	105	225	360
			1.31	1.00	0.31	0.47	1.00	1.60

- Factored withdrawal and head pull-through resistances for wood members have been increased 15% for short-term load duration. Reduce where other durations govern.
- Factored withdrawal resistances shown are for full penetration into the main member assuming dry service conditions. See 12.11.4 CSA O86:19 where other conditions apply.
- Head pull-through values shown are applicable to solid sawn or structural panel (OSB, DFP or CSP) side members per 12.11.4.2 CSA O86:19.

## Factored Lateral Resistances

Model No.	Size (in.)	Factored Lateral Resistance ( $K_D = 1.00$ )							
		D.Fir-L				S-P-F			
		Side Plate				Side Plate			
		Wood		Steel		Wood		Steel	
		$\frac{1}{2}$ "	$1\frac{1}{2}$ "	20 ga	12 ga	$\frac{1}{2}$ "	$1\frac{1}{2}$ "	20 ga	12 ga
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.		
kN	kN	kN	kN	kN	kN	kN	kN		
SD9112SS	#9 x $1\frac{1}{2}$	145	—	175	280	120	—	170	275
		0.65	—	0.78	1.25	0.53	—	0.76	1.22
SD9112	#9 x $1\frac{1}{2}$	150	—	185	295	125	—	180	290
		0.67	—	0.82	1.31	0.56	—	0.80	1.29
SD9212SS	#9 x $2\frac{1}{2}$	225	230	260	365	190	200	250	355
		1.00	1.02	1.16	1.62	0.85	0.89	1.11	1.58
SD9212	#9 x $2\frac{1}{2}$	250	245	270	380	205	210	260	370
		1.11	1.09	1.20	1.69	0.91	0.93	1.16	1.65
SD10112	#10 x $1\frac{1}{2}$	160	—	205	330	140	—	200	325
		0.71	—	0.91	1.47	0.62	—	0.89	1.45
SD10212	#10 x $2\frac{1}{2}$	270	275	305	430	230	235	295	415
		1.20	1.22	1.36	1.91	1.02	1.05	1.31	1.85

- Factored resistances shown have been developed in accordance with 12.11 CSA O86:19. Apply the adjustment factors  $K_D$ ,  $K_{SF}$  and  $K_T$  as per 12.11.4.1 CSA O86:19 to the tabulated values shown when applicable. Resistances assume full penetration into the main member.
- Factored resistances shown assume steel side plates with  $F_u = 45000$  psi (310 MPa).
- Factored resistances shown for  $\frac{1}{2}$ " wood side plates is applicable to structural panel side members (OSB, DFP and CSP) as per 12.11.4.2 CSA O86:19.
- Minimum spacing, edge and end distances shall be in accordance with 12.9.2.1 CSA O86:19.

**Strong-Drive® SD CONNECTOR and SD CONNECTOR SS Screws**

## Structural Fastener (cont.)

## Connectors Approved for Use with the Strong-Drive SD Connector Screw

Model No.	SD9 Qty.		SD10 Qty.	
	1½"	2½"	1½"	2½"
A21	(4)	—	—	—
A23	(8)	—	—	—
A33	(8)	—	—	—
A34	(8)	—	—	—
A35	(12)	—	—	—
A44	(8)	—	—	—
ABA44Z	(6)	—	—	—
ABA44RZ	(6)	—	—	—
ABA46Z	—	—	(8)	—
ABA66Z	—	—	(8)	—
ABA66RZ	—	—	(8)	—
ABU44Z	—	—	(12)	—
ABW44Z	(8)	—	—	—
ABW44RZ	(8)	—	—	—
ABW46Z	(10)	—	—	—
ABW46RZ	(10)	—	—	—
ABW66Z	(12)	—	—	—
ABW66RZ	(12)	—	—	—
AC4	—	—	(28)	—
AC6	—	—	(28)	—
BC4	—	—	(12)	—
BC40	—	—	(10)	—
BC60	—	—	(10)	—
BCS2-2/4	—	(14)	—	—
CTS218	(24)	—	—	—
DJT14Z	—	—	—	(8)
DPT5Z	(5)	—	—	—
DPT7Z	(5)	—	—	—
EPB44	—	—	(8)	—
EPB44PHDG	—	—	(8)	—
EPC4Z	(18)	—	—	—
EPC6Z	(18)	—	—	—
EPC8Z	(18)	—	—	—
FB24Z	(5)	—	—	—
FB24R	(5)	—	—	—
FB26	(6)	—	—	—
FBFZ	(4)	—	—	—
FBR24Z	(5)	—	—	—
FPBM44	(8)	—	—	—
FWH2	(16)	—	—	—
GA1	(4)	—	—	—
GA2	(6)	—	—	—
H1	(10)	—	—	—
H2.5	(10)	—	—	—
H2.5A	(10)	—	—	—
H4	(8)	—	—	—
H8	(10)	—	—	—
H10A	(18)	—	—	—
H10A-2	(18)	—	—	—
HGUS26	—	—	—	(28)
HGUS28	—	—	—	(48)
HGUS26-2	—	—	—	(28)
HGUS28-2	—	—	—	(48)
HGUS210-2	—	—	—	(62)
HGUS26-3	—	—	—	(28)
HGUS28-3	—	—	—	(48)
HGUS210-3	—	—	—	(62)
HGUS212-3	—	—	—	(76)
HGUS214-3	—	—	—	(88)
HGUS26-4	—	—	—	(28)
HGUS28-4	—	—	—	(48)

Model No.	SD9 Qty.		SD10 Qty.	
	1½"	2½"	1½"	2½"
HGUS210-4	—	—	—	(62)
HGUS212-4	—	—	—	(76)
HGUS214-4	—	—	—	(88)
HGUS46	—	—	—	(28)
HGUS48	—	—	—	(48)
HGUS410	—	—	—	(62)
HGUS412	—	—	—	(76)
HGUS414	—	—	—	(88)
HGUS2.75/10	—	—	—	(62)
HGUS2.75/12	—	—	—	(76)
HGUS2.75/14	—	—	—	(88)
HGUS3.25/10	—	—	—	(62)
HGUS3.25/12	—	—	—	(76)
HGUS5.25/10	—	—	—	(62)
HGUS5.25/12	—	—	—	(76)
HGUS5.50/8	—	—	—	(48)
HGUS5.50/10	—	—	—	(62)
HGUS5.50/12	—	—	—	(76)
HGUS5.50/14	—	—	—	(88)
HGUS5.62/10	—	—	—	(62)
HGUS5.62/12	—	—	—	(76)
HGUS5.62/14	—	—	—	(88)
HGUS6.88/10	—	—	—	(62)
HGUS6.88/12	—	—	—	(76)
HGUS6.88/14	—	—	—	(88)
HGUS7.25/8	—	—	—	(48)
HGUS7.25/10	—	—	—	(62)
HGUS7.25/12	—	—	—	(76)
HGUS7.25/14	—	—	—	(88)
HHUS26-2	—	—	—	(20)
HHUS28-2	—	—	—	(30)
HHUS210-2	—	—	—	(40)
HHUS210-3	—	—	—	(40)
HHUS210-4	—	—	—	(40)
HHUS46	—	—	—	(20)
HHUS48	—	—	—	(30)
HHUS410	—	—	—	(40)
HHUS5.50/10	—	—	—	(40)
HHUS7.25/10	—	—	—	(40)
HHRC2-2	—	—	—	(62)
HHRC42-2	—	—	—	(62)
HHRC4/1.81	—	—	—	(62)
HHRC44	—	—	—	(62)
HHRC5.25/3.25	—	—	—	(62)
HHRC5.37/3.12	—	—	—	(62)
HHRC5.37/3.56	—	—	—	(62)
HHRC5.25/3.62	—	—	—	(62)
HHRC64	—	—	—	(67)
HHRC66	—	—	—	(67)
HPTZ	—	—	(8)	—
HRS6	(6)	—	—	—
HRS8	(10)	—	—	—
HRS12	(14)	—	—	—
HTP37Z	(20)	—	—	—
HSUR/L26-2	—	(16)	—	—
HSUR/L210-2	—	(26)	—	—
HSUR/L214-2	—	(34)	—	—
HSUR/L46	—	(16)	—	—
HSUR/L410	—	(26)	—	—
HSUR/L414	—	(34)	—	—
HSUR/L4.12/9	(12)	(2)	—	—

1. Strong-Drive SD Connector screw substitutions may have load reductions.  
For additional information refer to [strongtie.com/sd](http://strongtie.com/sd).





## Strong-Drive® SD CONNECTOR and SD CONNECTOR SS Screws

## Structural Fastener (cont.)

## Connectors Approved for Use with the Strong-Drive SD Connector Screw

Model No.	SD9 Qty.		SD10 Qty.	
	1½"	2½"	1½"	2½"
HSUR/L4.12/11	(16)	(2)	—	—
HSUR/L4.12/14	(20)	(2)	—	—
HSUR/L4.12/16	(24)	(2)	—	—
HSUR/L4.28/9	(12)	(2)	—	—
HSUR/L4.28/11	(16)	(2)	—	—
HSUR/L4.28/11	(16)	(2)	—	—
HSUR/L4.75/9	(12)	(2)	—	—
HSUR/L4.75/11	(16)	(2)	—	—
HSUR/L4.75/14	(20)	(2)	—	—
HSUR/L4.75/16	(24)	(2)	—	—
HSUR/L5.12/9	(12)	(2)	—	—
HSUR/L5.12/11	(16)	(2)	—	—
HSUR/L5.12/14	(20)	(2)	—	—
HSUR/L5.12/16	(24)	(2)	—	—
HTT4	—	—	(18)	—
HTT5	—	—	(26)	—
HTU26	(31)	—	—	—
HTU26 (Min.)	(34)	—	—	—
HTU26 (Max.)	(40)	—	—	—
HTU28 (Min.)	(40)	—	—	—
HTU28 (Max.)	(52)	—	—	—
HTU210 (Min.)	(46)	—	—	—
HTU210 (Max.)	(64)	—	—	—
HTU26-2 (Min.)	(34)	—	—	—
HTU26-2 (Max.)	(40)	—	—	—
HTU28-2 (Min.)	(40)	—	—	—
HTU28-2 (Max.)	(52)	—	—	—
HTU210-2 (Min.)	(46)	—	—	—
HTU210-2 (Max.)	(64)	—	—	—
HUS26	—	—	—	(20)
HUS28	—	—	—	(30)
HUS210	—	—	—	(40)
HUS26-2	—	—	—	(8)
HUS28-2	—	—	—	(12)
HUS210-2	—	—	—	(16)
HUS212-2	—	—	—	(20)
HUS46	—	—	—	(8)
HUS48	—	—	—	(12)
HUS410	—	—	—	(16)
HUS412	—	—	—	(20)
HUS1.81/10	—	—	—	(40)
KBS1Z	(12)	—	—	—
L30	(4)	—	—	—
L50	(6)	—	—	—
L70	(8)	—	—	—
L90	(10)	—	—	—
LCE4	—	—	(24)	—
LPC4Z	(16)	—	—	—
LRU26Z	—	—	—	(9)
LRU28Z	—	—	—	(10)
LRU210Z	—	—	—	(12)
LRU212Z	—	—	—	(13)
LSCZ	(17)	—	—	—
LSTA9	(8)	—	—	—
LSTA12	(10)	—	—	—
LSTA15	(12)	—	—	—
LSTA18	(14)	—	—	—
LSTA21	(14)	—	—	—
LSTA24	(14)	—	—	—
ST292	—	—	(12)	—
ST2122	—	—	(12)	—

Model No.	SD9 Qty.		SD10 Qty.	
	1½"	2½"	1½"	2½"
ST2115	—	—	(6)	—
ST2215	—	—	(14)	—
LSTA30	(14)	—	—	—
LSTA36	(14)	—	—	—
LSTI49	(16)	—	—	—
LSTI73	(16)	—	—	—
LTP4	(12)	—	—	—
LU24 (10d)	(6)	—	—	—
LU26 (10d)	(10)	—	—	—
LU28 (10d)	(14)	—	—	—
LU210 (10d)	—	—	(10)	—
LUC26Z (10d)	(10)	—	—	—
LUC210Z (10d)	(16)	—	—	—
LUS24	(4)	(2)	—	—
LUS26	(4)	(4)	—	—
LUS28	(6)	(4)	—	—
LUS210	(8)	(4)	—	—
LUS36	(4)	(4)	—	—
LUS310	(6)	(4)	—	—
LUS24-2	(4)	(2)	—	—
LUS26-2	(4)	(4)	—	—
LUS28-2	(6)	(4)	—	—
LU210-2	(8)	(6)	—	—
LUS214-2	(10)	(6)	—	—
LUS26-3	(4)	(4)	—	—
LUS28-3	(6)	(4)	—	—
LUS210-3	(8)	(6)	—	—
LUS44	(4)	(2)	—	—
LUS46	(4)	(4)	—	—
LUS48	(6)	(4)	—	—
LUS410	(8)	(6)	—	—
LUS414	(10)	(6)	—	—
LSU26	(11)	—	—	—
LSSU28	(15)	—	—	—
LSSU210	(7)	(10)	—	—
LSSUI25	(7)	(10)	—	—
LSSUI2.06	(7)	(10)	—	—
LSSU2.1	(7)	(10)	—	—
LSSUI35	(7)	(10)	—	—
LSSUH310	—	(30)	—	—
LSSU210-2	—	(30)	—	—
LSSU410	—	(30)	—	—
LSU4.12	—	(40)	—	—
LSU4.28	—	(40)	—	—
LSU3510-2	—	(40)	—	—
LSU5.12	—	(40)	—	—
LSU26	(11)	—	—	—
LSSU28	(15)	—	—	—
LSSU210	(7)	(10)	—	—
LSSUI25	(7)	(10)	—	—
LSSUI2.06	(7)	(10)	—	—
LSSU2.1	(7)	(10)	—	—
LSSUI35	(7)	(10)	—	—
LSSUH310	—	(30)	—	—
LSSU210-2	—	(30)	—	—
LSSU410	—	(30)	—	—
LSU4.12	—	(40)	—	—
LSU4.28	—	(40)	—	—
LSU3510-2	—	(40)	—	—
LSU5.12	—	(40)	—	—
MST27	—	—	(30)	—

1. Strong-Drive SD Connector screw substitutions may have load reductions.  
For additional information refer to [strongtie.com/sd](http://strongtie.com/sd).

**Strong-Drive® SD CONNECTOR and SD CONNECTOR SS Screws**

## Structural Fastener (cont.)

## Connectors Approved for Use with the Strong-Drive SD Connector Screw

Model No.	SD9 Qty.		SD10 Qty.	
	1½"	2½"	1½"	2½"
MST37	—	—	(40)	—
MST48	—	—	(52)	—
MST60	—	—	(68)	—
MST72	—	—	(70)	—
MSTA12	(12)	—	—	—
MSTA15	(10)	—	—	—
MSTA18	(14)	—	—	—
MSTA21	(14)	—	—	—
MSTA24	(14)	—	—	—
MSTA30	(16)	—	—	—
MSTA36	(16)	—	—	—
MSTA49	(16)	—	—	—
MSTA9	(8)	—	—	—
MSTC28	(36)	—	—	—
MSTC40	(46)	—	—	—
MSTC52	(42)	—	—	—
MSTC66	(44)	—	—	—
MSTC78	(44)	—	—	—
MSTI26	(26)	—	—	—
MSTI36	(36)	—	—	—
MSTI48	(38)	—	—	—
MSTI60	(38)	—	—	—
MSTI72	(60)	—	—	—
MTS12	(14)	—	—	—
MTS16	(14)	—	—	—
MTS20	(14)	—	—	—
NS1	(2)	—	—	—
NS2	(2)	—	—	—
PA51	(10)	—	—	—
PA68	(10)	—	—	—
PBS44A	—	—	(14)	—
PC4Z	(18)	—	—	—
PC6Z	(18)	—	—	—
PC8Z	(18)	—	—	—
PBS44A	—	—	(14)	—
PF24	—	(6)	—	—
PF26	—	(4)	—	—
PSPN58Z	—	—	(4)	—
RR	(8)	—	—	—
RSP4	(8)	—	—	—
RTA12	(16)	—	—	—
RTA2Z	(8)	—	—	—
RTA4	(12)	—	—	—
RTB22	(8)	—	—	—
RTC22Z	(11)	—	—	—
RTC2Z	(12)	—	—	—
RTC42	—	—	(22)	—
RTC44	—	—	(29)	—
RTF2Z	(12)	—	—	—
RTT22Z	(10)	—	—	—
ST9	—	—	(8)	—
ST12	—	—	(10)	—
ST18	—	—	(12)	—
ST22	—	—	(12)	—
ST292	—	—	(12)	—
ST2115	—	—	(6)	—
ST2122	—	—	(12)	—
ST2215	—	—	(14)	—
ST6215	—	—	(16)	—
ST6224	—	—	(20)	—
ST6236	—	—	(28)	—

Model No.	SD9 Qty.		SD10 Qty.	
	1½"	2½"	1½"	2½"
SUR/L24	(8)	—	—	—
SUR/L26	(12)	—	—	—
SUR/L210	(20)	—	—	—
SUR/L214	(24)	—	—	—
SUR/L1.81/9	(14)	—	—	—
SUR/L1.81/11	(18)	—	—	—
SUR/L1.81/14	(22)	—	—	—
SUR/L2.06/9	(16)	—	—	—
SUR/L2.06/11	(18)	—	—	—
SUR/L2.06/14	(20)	—	—	—
SUR/L2.1/9	(16)	—	—	—
SUR/L2.1/11	(18)	—	—	—
SUR/L2.1/14	(20)	—	—	—
SUR/L2.1/14	(20)	—	—	—
SUR/L2.37/9	(16)	—	—	—
SUR/L2.37/11	(18)	—	—	—
SUR/L2.37/14	(20)	—	—	—
SUR/L2.37/14	(20)	—	—	—
SUR/L2.56/9	(16)	—	—	—
SUR/L2.56/11	(18)	—	—	—
SUR/L2.56/14	(20)	—	—	—
SUR/L2.56/14	(20)	—	—	—
SUR/L26-2	(12)	—	—	—
SUR/L210-2	(20)	—	—	—
SUR/L214-2	(26)	—	—	—
SUR/L46	(12)	—	—	—
SUR/L410	(20)	—	—	—
SUR/L414	(26)	—	—	—
THASR/L29	(7)	(12)	—	—
THASR/L29-2	—	(20)	—	—
THASR/L422	—	(20)	—	—
TJC57	(24)	—	—	—
TP15	Varies	—	—	—
TP311	Varies	—	—	—
TP35	Varies	—	—	—
TP37	Varies	—	—	—
TP39	Varies	—	—	—
TP411	Varies	—	—	—
TP45	Varies	—	—	—
TP47	Varies	—	—	—
TP57	Varies	—	—	—
TP49	Varies	—	—	—
TPA37	Varies	—	—	—
TPA39	Varies	—	—	—
TPA57	Varies	—	—	—
VTOR	(7)	—	—	—

1. Strong-Drive SD Connector screw substitutions may have load reductions.  
For additional information refer to [strongtie.com/sd](http://strongtie.com/sd).



# Strong-Drive® SDS HEAVY-DUTY CONNECTOR Screw

## Structural Fastener

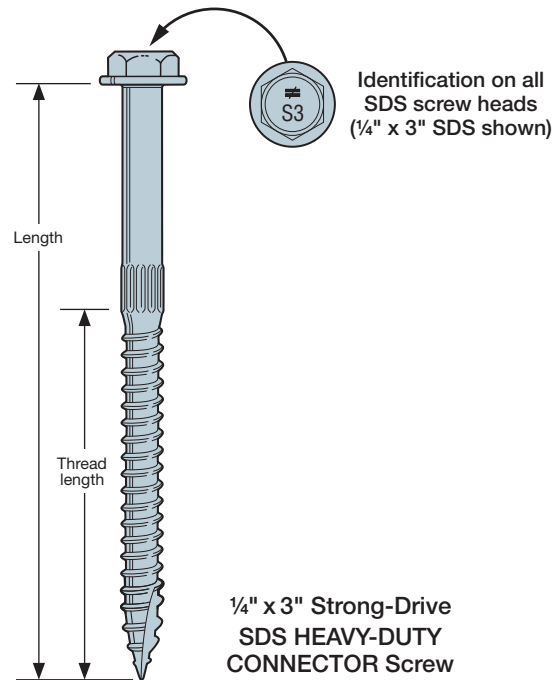
The Simpson Strong-Tie® Strong-Drive SDS Heavy-Duty Connector screw is a 1/4"-diameter structural wood screw ideal for various connector installations as well as wood-to-wood applications. It installs with no predrilling and has been extensively tested in various applications. The Strong-Drive SDS Heavy-Duty Connector screw is improved with an easy-driving point and a corrosion resistant double-barrier coating.

### Features:

- The point is designed to reduce installation torque and make driving easier with no predrilling and minimal wood splitting.
- The double-barrier coating provides corrosion resistance equivalent to hot-dip galvanized for many interior and exterior exposure conditions including pressure-treated wood (see Corrosion Information on pp. 16–21 for more information).
- 3/8" hex-washer head is stamped with the No-Equal® sign and fastener length for easy identification after installation.

**Material:** Heat-treated carbon steel, Type-316 stainless steel

**Finish:** Double-barrier coating (carbon steel screws)



1/4" x 3" Strong-Drive  
SDS HEAVY-DUTY  
CONNECTOR Screw

These products are available with additional corrosion protection. For more information, see p. 20.

Model No.	Size (in.)	Thread Length (in.)	Fasteners per Carton	D.Fir-L						S-P-F						
				Factored Lateral Resistance ( $K_D = 1.00$ )					Factored Withdrawal Resistance ( $K_D = 1.15$ )	Factored Lateral Resistance ( $K_D = 1.00$ )					Factored Withdrawal Resistance ( $K_D = 1.15$ )	
				Side Plate						Side Plate						
				Wood		Steel				Wood		Steel				
1 1/2"	1 3/4" SCL	14 ga.	10 ga.	3 ga.	1 1/2"	1 3/4" SCL	14 ga.	10 ga.	3 ga.							
lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.					
kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN					
SS	SDS25112	1/4 x 1 1/2	1	1,500	—	—	340	465	545	280	—	—	315	435	435	215
					—	—	1.51	2.07	2.42	1.25	—	—	1.40	1.94	1.94	0.96
SS	SDS25200	1/4 x 2	1 1/4	1,300	—	—	400	530	655	355	—	—	370	455	455	270
					—	—	1.78	2.36	2.91	1.58	—	—	1.65	2.02	2.02	1.20
SS	SDS25212	1/4 x 2 1/2	1 1/2	1,100	—	—	465	590	825	425	—	—	420	550	590	320
					—	—	2.07	2.62	3.67	1.89	—	—	1.87	2.45	2.62	1.42
SS	SDS25300	1/4 x 3	2	950	370	—	525	655	840	565	320	—	475	590	590	430
					1.65	—	2.34	2.91	3.74	2.51	1.42	—	2.11	2.62	2.62	1.91
SS	SDS25312	1/4 x 3 1/2	2 1/4	900	435	435	585	715	840	635	370	370	525	590	590	485
					1.94	1.94	2.60	3.18	3.74	2.82	1.65	1.65	2.34	2.62	2.62	2.16
SS	SDS25412	1/4 x 4 1/2	2 3/4	800	475	510	585	720	840	775	420	450	530	590	590	590
					2.11	2.27	2.60	3.20	3.74	3.45	1.87	2.00	2.36	2.62	2.62	2.62
SS	SDS25500	1/4 x 5	2 3/4	500	475	510	585	720	840	775	420	450	530	590	590	590
					2.11	2.27	2.60	3.20	3.74	3.45	1.87	2.00	2.36	2.62	2.62	2.62
SS	SDS25600	1/4 x 6	3 1/4	600	475	510	585	720	840	915	420	450	530	590	590	700
					2.11	2.27	2.60	3.20	3.74	4.07	1.87	2.00	2.36	2.62	2.62	3.11
SS	SDS25800	1/4 x 8	3 1/4	400	475	510	585	720	840	915	420	450	530	590	590	700
					2.11	2.27	2.60	3.20	3.74	4.07	1.87	2.00	2.36	2.62	2.62	3.11

1. Factored resistances shown have been developed in accordance with 12.11 CSA O86-14. Apply the adjustment factors  $K_D$ ,  $K_{SF}$  and  $K_T$  as per 12.11.4.1 CSA O86-14 when applicable.
2. Factored lateral resistances shown assume steel side plates with a minimum  $F_u = 45000$  psi (310 MPa).
3. Factored lateral resistances shown assume full penetration into the main member.
4. Factored withdrawal resistances shown are applicable to short-term loads, reduce for other load durations where applicable.
5. Factored withdrawal resistances shown assume the entire threaded portion of the screw is installed into the main member. Where the penetration into the main member is less than the length of the thread, the factored resistance may be calculated by multiplying the length of penetration of the threads x 280 lb./in. (49 N/mm) for D.Fir-L and 215 lb./in. (38 N/mm) for S-P-F.
6. Factored withdrawal resistances shown are for penetration into the main member. Head pull through resistance may govern and must be calculated in accordance with 12.11.5.3 CSA O86-14 using a washer diameter  $d_w = 0.480$ ".
7. LSL wood-to-wood applications that require 4 1/2", 5", 6" or 8" Strong-Drive SDS Heavy-Duty Connector screws are limited to interior-dry use only.
8. Minimum spacing, edge and end distances shall be in accordance with 12.9.2.1 CSA O86-14 using a fastener diameter of 0.250" (6.4 mm).
9. Screws may be provided with the 4CUT™ or Type 17 point.
10. Strong-Drive SDS Heavy-Duty Connector screws install best with a low speed 1/2" drill with a 3/8" hex head driver.
11. Where predrilling is required for SDS, use a 5/32" bit.



# Strong-Drive® SDW TRUSS-PLY and EWP-PLY Screws

## Structural Fastener

The Strong-Drive SDW Truss-Ply and EWP-Ply screws are a 0.22"-diameter, high-strength structural wood screws specifically designed for fastening multi-ply wood members such as plated trusses, engineered-lumber products and solid sawn lumber. The Strong-Drive SDW Truss-Ply and EWP-Ply screws install with no predrilling and are available in optimized lengths for fastening two-, three- and four-ply trusses or 1¾" structural composite lumber (SCL). The Strong-Drive SDW Truss-Ply and EWP-Ply screws enable single-side fastening, while still allowing concurrent loading on both sides of the assembly to the full allowable head or point-side load of the fastener.

- Low-profile head for reduced interference during handling or installation of hardware on the assembly
- High shear values enable wider screw spacing
- Bold thread design firmly cinches plies together to close gaps in multi-ply assemblies
- Optimal screw lengths provide maximum penetration

**Material:** Heat-treated carbon steel

**Finish:** Black E-coat™

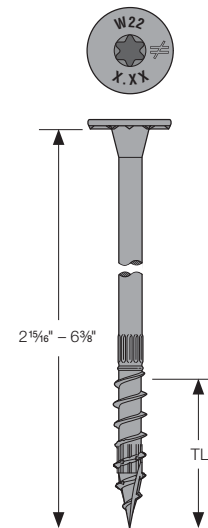
**Warning:** Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, the Strong-Drive SDW Truss-Ply and EWP-Ply screws should only be used in dry, interior and non-corrosive environments.

### Installation:

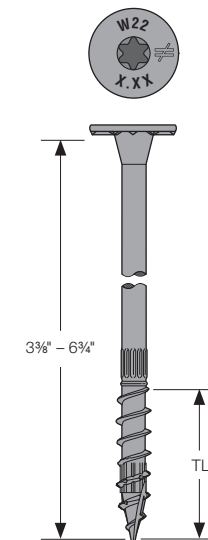
- Use all specified fasteners; see General Notes.
- Strong-Drive SDW Truss-Ply and EWP-Ply screws install best with a low-speed ½" drill motor and a T-40 6-lobe bit. The matched bit included with the screws is recommended for best results.
- Predrilling is typically not required. Strong-Drive SDW Truss-Ply and EWP-Ply screws may be installed through metal truss plates as approved by the Truss Designer (predrilling required through the plate using a maximum of ⅜" bit).
- Screw heads that are countersunk flush to the wood surface are acceptable if the screw has not spun out.

### Notes to the Designer:

1. Factored lateral and withdrawal resistances are based on testing per ICC-ES AC233 and Clause 12.11 of CSA O86-14.
2. Factored lateral resistances may be increased 15% for short-term load duration ( $K_D = 1.15$ ). For load durations other than standard or short term, see 5.3.2 of CSA O86-14 for reduction values.
3. Fastener spacing, end and edge distances shall conform to Table 12.9.2.1 CSA O86-14 using a diameter value of 0.30" (see Table 9 on p. 393).
4. Maximum fastener spacing is recommended not to exceed 24" on-centre except as approved by a qualified designer.
5. Structural composite lumber (SCL) is laminated veneer lumber (LVL), parallel strand lumber (PSL) or laminated strand lumber (LSL). Verify the effective specific gravity (SG) with structural composite lumber manufacturer for selection of tabulated values.
6. Factored resistances are based on the capacity of the Simpson Strong-Tie® Strong-Drive SDW22 fasteners. The capacity of the multi-ply assembly must be checked by a qualified designer using the reduced cross-sectional area per Clause 12.2.2.5 CSA O86-14.
7. For a top-loaded, solid sawn 2x, multi-ply assembly that is evenly loaded across the entire assembly width, the recommended fastener detail is two rows of SDW screws where the spacing between fasteners in a row is 32". For a top-loaded, SCL (1¾") multi-ply assembly that is evenly loaded across the entire assembly width, the recommended spacing between SDW screws in a row is 24" o.c.; use two rows for up to 18" deep members and three rows for members deeper than 18".



**Strong-Drive  
SDW TRUSS-PLY Screw**  
US Patent: 9,523,383



**Strong-Drive  
SDW EWP-PLY Screw**  
US Patent: 9,523,383



**T-40 Driver Bit**  
(Included)  
BIT40-R1



## Strong-Drive® SDW TRUSS-PLY and EWP-PLY Screws

## Structural Fastener (cont.)

## Product Information

Model No. <sup>2,3</sup>	Head Stamp Length	Nominal Screw Length (L) (in.)	Typical Application <sup>1</sup>	Thread Length (TL) (in.)	Retail Box <sup>3</sup> Quantity (1 Bit)	Retail Boxes/ Carton	Mini-Bulk Bucket Quantity <sup>2</sup> (1 Bit)	Bulk Bucket Quantity (2 Bits)
SDW22300	3.00	2 <sup>1</sup> / <sub>16</sub>	2x/Truss	1 <sup>7</sup> / <sub>16</sub>	50	6	250	950
SDW22338	3.37	3 <sup>3</sup> / <sub>16</sub>	SCL	1 <sup>1</sup> / <sub>16</sub>	50	6	250	900
SDW22458	4.62	4 <sup>5</sup> / <sub>16</sub>	2x/Truss	1 <sup>7</sup> / <sub>16</sub>	50	4	200	600
SDW22500	5.00	5	SCL/3x2PCT	1 <sup>1</sup> / <sub>16</sub>	50	4	200	600
SDW22600 <sup>4</sup>	6.00	6	2x/Truss	1 <sup>7</sup> / <sub>16</sub>	50	4	200	500
SDW22638 <sup>4</sup>	6.37	6 <sup>3</sup> / <sub>16</sub>	2x/Truss	1 <sup>7</sup> / <sub>16</sub>	50	4	200	500
SDW22634	6.75	6 <sup>3</sup> / <sub>4</sub>	SCL/4x2PCT	1 <sup>1</sup> / <sub>16</sub>	50	4	200	500

1. Typical screw application key:

2x/Truss = Solid sawn dimensional lumber and plated wood trusses.

SCL = 1<sup>3</sup>/<sub>4</sub>" plies of structural-composite lumber.

SCL/3x2PCT = 1<sup>3</sup>/<sub>4</sub>" plies of structural-composite lumber or double 3x2 parallel-chord trusses.

SCL/4x2PCT = 1<sup>3</sup>/<sub>4</sub>" or 3<sup>1</sup>/<sub>2</sub>" plies of structural-composite lumber or double 4x2 parallel-chord trusses.

2. To order mini-bulk buckets add the letters MB to the model number, e.g. SDW22458MB.

3. To order retail pack boxes add "-R50" to the model number, e.g. SDW22458-R50.

4. If assembly is less than or equal to 6<sup>3</sup>/<sub>16</sub>" thick, use the SDW22600.

Table 1 — Strong-Drive SDW Truss-Ply Screws Factored Lateral Resistances — Solid-Sawn Lumber and 2x Truss Loaded on Head Side

Assembly	Model No.	Nominal Length (in.)	Thread Length (in.)	Side Member Thickness (in.)	Factored Lateral Resistance (K <sub>D</sub> = 1.00)	
					D.Fir-L	S-P-F
					lb.	lb.
Two-ply 2x/Truss	SDW22300	3	1 <sup>7</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>	335	290
					1.49	1.29
Three-ply 2x/Truss	SDW22458	4 <sup>5</sup> / <sub>16</sub>	1 <sup>7</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>	455	405
					2.02	1.80
Four-ply 2x/Truss	SDW22600	6	1 <sup>7</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>	455	405
					2.02	1.80
Four-ply 2x/Truss	SDW22638	6 <sup>3</sup> / <sub>16</sub>	1 <sup>7</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>	455	405
					2.02	1.80

1. Factored resistances shown assume full penetration into the main member.

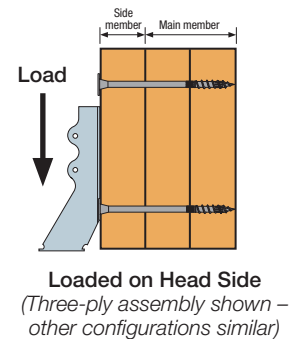
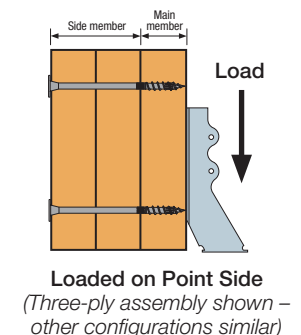


Table 2 — Strong-Drive SDW Truss-Ply Screws Factored Lateral Resistances — Solid-Sawn Lumber and 2x Truss Loaded on Point Side

Assembly	Model No.	Nominal Length (in.)	Thread Length (in.)	Side Member Thickness (in.)	Factored Lateral Resistance (K <sub>D</sub> = 1.00)	
					D.Fir-L	S-P-F
					lb.	lb.
Two-ply 2x/Truss	SDW22300	3	1 <sup>7</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>	305	260
					1.36	1.16
Three-ply 2x/Truss	SDW22458	4 <sup>5</sup> / <sub>16</sub>	1 <sup>7</sup> / <sub>16</sub>	3	410	365
					1.82	1.62
Four-ply 2x/Truss	SDW22600	6	1 <sup>7</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>2</sub>	410	365
					1.82	1.62
Four-ply 2x/Truss	SDW22638	6 <sup>3</sup> / <sub>16</sub>	1 <sup>7</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>2</sub>	410	365
					1.82	1.62

1. Factored resistances shown assume full penetration into the main member.



**Strong-Drive® SDW TRUSS-PLY and EWP-PLY Screws**

## Structural Fastener (cont.)

Table 3 — Strong-Drive SDW EWP-Ply Screws Factored Lateral Resistances — Structural Composite Lumber Loaded on Head Side

Assembly	Model No.	Nominal Length (in.)	Thread Length (in.)	Side Member Thickness (in.)	Factored Lateral Resistance ( $K_D = 1.00$ )	
					Equivalent Specific Gravity	
					SG = 0.50	SG = 0.42
					lb.	lb.
					kN	kN
Two-ply 1¼" SCL	SDW22338	3¾	1⅞	1¼	390	325
					1.73	1.45
Three-ply 1¼" SCL	SDW22500	5	1⅞	1¼	495	430
					2.20	1.91
Four-ply 1¼" SCL	SDW22634	6¾	1⅞	1¼	495	430
					2.20	1.91
Two-ply 3½" SCL	SDW22634	6¾	1⅞	3½	570	505
					2.54	2.25

1. Factored resistances shown assume full penetration into the main member.

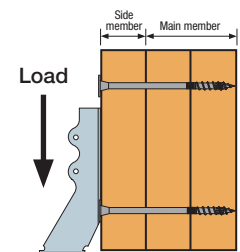
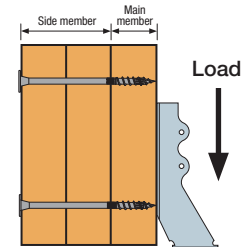
Loaded on Head Side  
(Three-ply assembly shown – other configurations similar)

Table 4 — Strong-Drive SDW EWP-Ply Screws Factored Lateral Resistances — Structural Composite Lumber Loaded on Point Side

Assembly	Model No.	Nominal Length (in.)	Thread Length (in.)	Side Member Thickness (in.)	Factored Lateral Resistance ( $K_D = 1.00$ )	
					Equivalent Specific Gravity	
					SG = 0.50	SG = 0.42
					lb.	lb.
					kN	kN
Two-ply 1¼" SCL	SDW22338	3¾	1⅞	1¼	340	285
					1.51	1.27
Three-ply 1¼" SCL	SDW22500	5	1⅞	3½	415	365
					1.85	1.62
Four-ply 1¼" SCL	SDW22634	6¾	1⅞	5¼	415	365
					1.85	1.62
Two-ply 3½" SCL	SDW22634	6¾	1⅞	3½	570	490
					2.54	2.18

1. Factored resistances shown assume full penetration into the main member.

Loaded on Point Side  
(Three-ply assembly shown – other configurations similar)



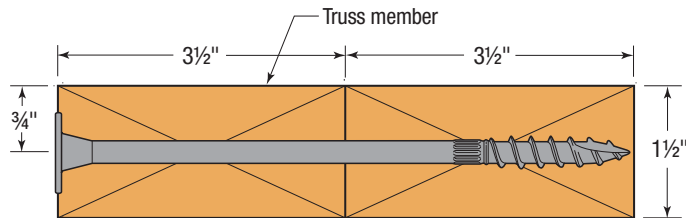
## Strong-Drive® SDW TRUSS-PLY and EWP-PLY Screws

## Structural Fastener (cont.)

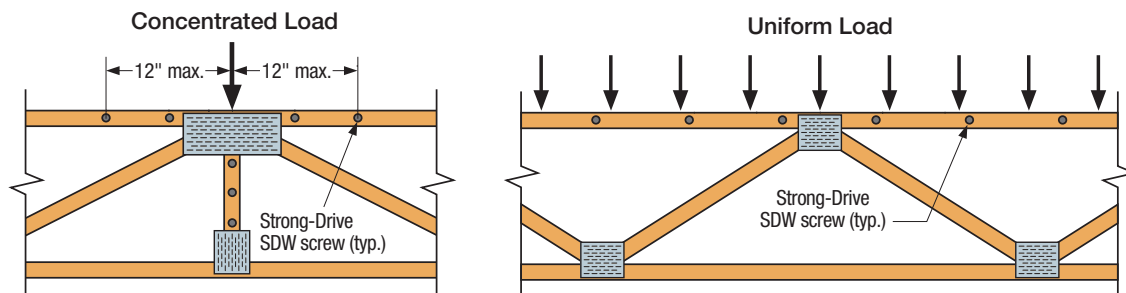
Table 5 — Strong-Drive SDW Truss-Ply Screws Factored Lateral Resistances — Two-Ply 3x2/4x2 Parallel-Chord Trusses Loaded on Either Side

Assembly	Model No.	Nominal Length (in.)	Thread Length (in.)	Side Member Thickness (in.)	Factored Lateral Resistance ( $K_D = 1.00$ )			
					D.Fir-L	S-P-F		
					lb.	lb.		
						kN	kN	
Two-ply 3x2 PCT	SDW22500	5	1 $\frac{1}{16}$	2 $\frac{1}{2}$	405	290		
					1.80	1.29		
Two-ply 4x2 PCT	SDW22634	6 $\frac{3}{4}$	1 $\frac{1}{16}$	3 $\frac{1}{2}$	405	290		
					1.80	1.29		

- To transfer uniform or concentrated loads applied to simply supported spans on assembly top chord:
  - Space screws as required to transfer half the load into the supporting truss.
  - Minimum screw spacing shall be 4" o.c.
- To transfer concentrated loads applied to simply supported spans on an assembly top chord or vertical web:
  - Concentrated loads must be applied at a panel point.
  - Screws to be installed within 12" of the concentrated load on top-chord assembly
- Gap between the trusses shall not exceed  $\frac{1}{8}$ ".
- Floor sheathing shall be screwed or nailed to each top-chord ply.  
(Fastener spacing per the applicable Code requirements, or 12" o.c.)
- Strong-Drive SDW screws shall not be installed in areas where lumber wane exceeds  $\frac{1}{4}$ ".
- Truss members must be evaluated using a reduced cross sectional area due to the 0.22"-diameter SDW screw.
- Other configurations acceptable as long as approved by truss designer.



Strong-Drive SDW Screw Position  
in Two-Ply 4x2 Truss  
(two-ply 3x2 similar)





## Strong-Drive® SDW TRUSS-PLY and EWP-PLY Screws

## Structural Fastener (cont.)

Table 6 — Strong-Drive SDW Truss-Ply Screws Maximum Factored Uniform Load Applied to Either Outside Member — Side-Loaded Multi-Ply Assemblies

Multiple Members		Nominal Length (in.)	Loaded Side	Maximum Factored Uniform Load Applied to Either Outside Member ( $K_D = 1.00$ )											
				D.Fir-L						S-P-F					
Assembly	Component			12" o.c.		16" o.c.		24" o.c.		12" o.c.		16" o.c.		24" o.c.	
				2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows
				lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.
				kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	
A-W	Two-ply 2x Truss	3	Head	1340	2010	1005	1508	670	1005	1160	1740	870	1305	580	870
				19.60	29.30	14.70	22.00	9.80	14.70	16.90	25.40	12.70	19.00	8.50	12.70
			Point	1220	1830	915	1373	610	915	1040	1560	780	1170	520	780
B-W	Three-ply 2x Truss	4%	Head	1364	2046	1023	1535	682	1023	1214	1822	911	1366	607	911
				19.90	29.90	14.90	22.40	10.00	14.90	17.70	26.60	13.30	19.90	8.90	13.30
			Point	1229	1844	922	1383	615	922	1094	1642	821	1231	547	821
C-W	Four-ply 2x Truss	6	Head	1213	1820	910	1365	607	910	1080	1620	810	1215	540	810
				17.70	26.60	13.30	19.90	8.90	13.30	15.80	23.60	11.80	17.70	7.90	11.80
			Point	1093	1640	820	1230	547	820	973	1460	730	1095	487	730
		6%	Head	1213	1820	910	1365	607	910	1080	1620	810	1215	540	810
				17.70	26.60	13.30	19.90	8.90	13.30	15.80	23.60	11.80	17.70	7.90	11.80
			Point	1093	1640	820	1230	547	820	973	1460	730	1095	487	730
				16.00	23.90	12.00	17.90	8.00	12.00	14.20	21.30	10.70	16.00	7.10	10.70

- Each ply is assumed to carry same proportion of load.
- Loads may be applied to the head side and point side concurrently provided neither published factored load is exceeded.  
(Example: a four-ply D.Fir-L assembly with a head side load of 1300 lb./ft. and a point side load of 1200 lb./ft. may be fastened together with three rows of 6" SDW at 16" o.c. between fasteners in a row.)
- When hangers are installed on point side, hanger face fasteners must be a minimum of 3" long.
- Tables are based on Main Member Penetration as noted in Tables 1 and 2.
- Hanger load spacing on the multi-ply assembly should not exceed 24" o.c.

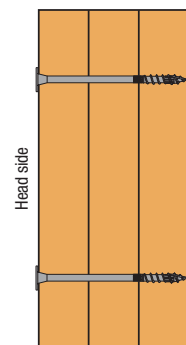
Table 7 — Factored Withdrawal Resistance

Model No.	Nominal Length (in.)	Thread Length (in.)	Factored Lateral Resistance	
			D.Fir-L	S-P-F
			lb.	lb.
			kN	kN
SDW22300	3	1 $\frac{1}{16}$	485	370
			2.16	1.65
SDW22338	3%	1 $\frac{1}{16}$	530	405
			2.36	1.80
SDW22458	4%	1 $\frac{1}{16}$	485	370
			2.16	1.65
SDW22500	5	1 $\frac{1}{16}$	530	405
			2.36	1.80
SDW22600	6	1 $\frac{1}{16}$	485	370
			2.16	1.65
SDW22638	6%	1 $\frac{1}{16}$	485	370
			2.16	1.65
SDW22634	6 $\frac{3}{4}$	1 $\frac{1}{16}$	530	405
			2.36	1.80

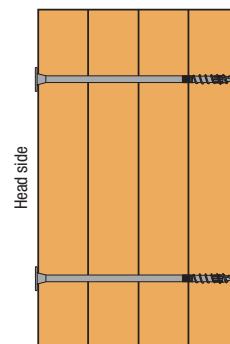
- Factored withdrawal resistances are for short term load duration ( $K_D = 1.15$ ). Reduce where other load durations govern.



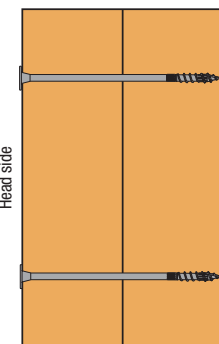
Assembly A-W



Assembly B-W



Assembly C-W



Assembly F-W





## Strong-Drive® SDW TRUSS-PLY and EWP-PLY Screws

## Structural Fastener (cont.)

Table 8 — Strong-Drive SDW EWP-Ply Screws Maximum Factored Uniform Load Applied to Either Outside Member — Side-Loaded Multi-Ply Structural Composite Lumber Assemblies

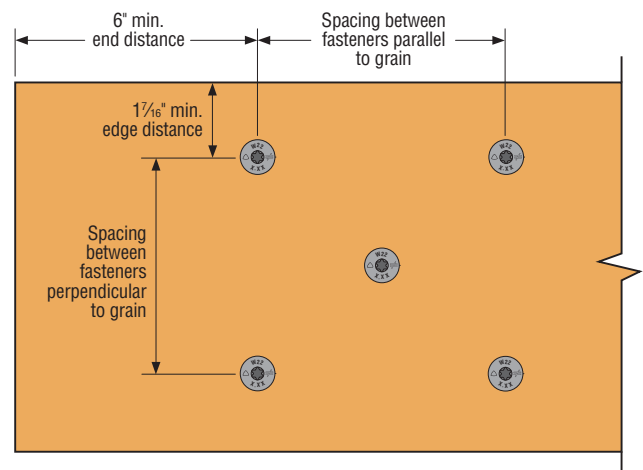
Multiple Members		Nominal Length (in.)	Loaded Side	Maximum Factored Uniform Load Applied to Either Outside Member ( $K_D = 1.00$ )											
				Equivalent Specific Gravity											
Assembly	Component			SG = 0.50						SG = 0.42					
				12" o.c.		16" o.c.		24" o.c.		12" o.c.		16" o.c.		24" o.c.	
				2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows
				lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.	lb./ft.
				kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m	kN/m
A-W	Two-ply 1 1/4" SCL	3 3/4	Head	1560	2340	1170	1755	780	1170	1300	1950	975	1463	650	975
				22.80	34.10	17.10	25.60	11.40	17.10	19.00	28.50	14.20	21.30	9.50	14.20
			Point	1360	2040	1020	1530	680	1020	1140	1710	855	1283	570	855
				19.80	29.80	14.90	22.30	9.90	14.90	16.60	25.00	12.50	18.70	8.30	12.50
B-W	Three-ply 1 1/4" SCL	5	Head	1484	2226	1113	1670	742	1113	1289	1934	967	1451	645	967
				21.70	32.50	16.20	24.40	10.80	16.20	18.80	28.20	14.10	21.20	9.40	14.10
			Point	1244	1867	933	1400	622	933	1094	1642	821	1231	547	821
				18.20	27.20	13.60	20.40	9.10	13.60	16.00	24.00	12.00	18.00	8.00	12.00
C-W	Four-ply 1 1/4" SCL	6 3/4	Head	1320	1980	990	1485	660	990	1147	1720	860	1290	573	860
				19.30	28.90	14.40	21.70	9.60	14.40	16.70	25.10	12.50	18.80	8.40	12.50
			Point	1107	1660	830	1245	553	830	973	1460	730	1095	487	730
				16.10	24.20	12.10	18.20	8.10	12.10	14.20	21.30	10.70	16.00	7.10	10.70
F-W	Two-ply 3 1/2" SCL	6 3/4	Head	2280	3420	1710	2565	1140	1710	2020	3030	1515	2273	1010	1515
				33.30	49.90	25.00	37.40	16.60	25.00	29.50	44.20	22.10	33.20	14.70	22.10
			Point	2280	3420	1710	2565	1140	1710	1960	2940	1470	2205	980	1470
				33.30	49.90	25.00	37.40	16.60	25.00	28.60	42.90	21.40	32.20	14.30	21.40

1. Each ply is assumed to carry same proportion of load.
2. Loads may be applied to the head side and point side concurrently provided neither published factored load is exceeded.  
(Example: a three-ply assembly (equivalent SG = 0.50) with a head side load of 1600 lb./ft. and a point side load of 1300 lb./ft. may be fastened together with three rows of SDW @ 16" o.c. between fasteners in a row.)
3. When hangers are installed on point side, hanger face fasteners must be a minimum of 3" long.
4. Tables are based on Main Member Penetration as noted in single-fastener load tables 3 and 4.

Table 9 — Spacing Requirements

Geometry	Minimum Dimensions (in.)	
	D.Fir-L	S-P-F
Spacing parallel to grain	6	5
End distance parallel to grain	6	6
Spacing perpendicular to grain	3	2 1/2
Edge distance perpendicular to grain	1 1/16	1 1/16

1. Additional screws may be staggered diagonally between rows.



Spacing Requirements



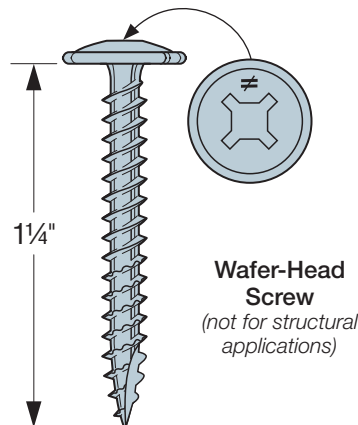
# SD Wafer Head Screw

The #8 x 1¼" SD Wafer-Head screw is ideal for miscellaneous fastening applications. The needle point ensures fast starts, and a deep #2 Phillips drive provides secure driver bit engagement.

**Material:** Heat-treated carbon steel

**Finish:** Electro-galvanized

**Warning:** Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, use the #8 x 1¼" SD Wafer-Head screw in dry, interior and non-corrosive environments only.



Model No.	Size	Dimensions (in.)			Length (in.)	Drive Type	Package Quantity
		Nominal	Shank	Head			
SD8 x 1.25-R	#8 x 1¼"	0.164	0.156	0.418	1.25	#2 Phillips	100

1. The Wafer-Head SD8x1.25 wood screw requires ¾" minimum penetration.  
Do not use SD8x1.25 screws with structural connectors unless specified and stated in this catalogue.



# Simpson Strong-Tie Limited Warranty

## Effective Date: March 18, 2021

This Limited Warranty applies to all Simpson Strong-Tie products ("Products") purchased after the Effective Date while this Limited Warranty remains in effect, other than those Simpson Strong-Tie products that have a separate Limited Warranty applicable to such products. For purchases after the Effective Date, please consult [strongtie.com/limited-warranties](http://strongtie.com/limited-warranties), as this Limited Warranty may be updated by Simpson from time to time. All future purchases of Products are subject to the terms of the Limited Warranty in effect as of the purchase date.

This Limited Warranty must be read in conjunction with all applicable General Notes, General Instructions for the Installer, General Instructions for the Designer, Building Codes, Corrosion Information, and Terms & Conditions of Sale, along with any other information or specifications published by Simpson Strong-Tie Company Inc. ("Simpson") or available on the [strongtie.com](http://strongtie.com) website ("Website") or on the product package, label or product manual. All of this information is referred to collectively as the "Simpson Strong-Tie Documentation." All applicable Simpson Documentation must be carefully reviewed each time any Product is used.

Simpson Strong-Tie warrants, to the original purchaser only, that each Product will be free from substantial defects in materials, manufacturing and design if properly specified, installed, and maintained, and when used in accordance with the design limits and the structural, technical, and environmental specifications in the Simpson Strong-Tie Documentation. This Limited Warranty is void and does not apply to any (a) Product purchased from an unauthorized dealer, retailer or distributor, (b) Product deterioration or damage due to environmental conditions or inadequate or improper handling, transportation, storage or maintenance, (c) cosmetic defects, including discoloration, (d) failure or damage caused by improper installation, application, mixing or preparation, (e) use of a Product in temperatures or environmental conditions outside the ranges specified for such Product in the Simpson Strong-Tie Documentation, (f) use of a Product outside of its shelf-life specifications, (g) normal wear and tear, (h) failure or damage caused by the use of a Product with any fasteners, pins, screwstrips, products or accessories other than authentic Simpson Strong-Tie products, (i) Product that was subjected to negligence or excessive or improper use, including any use not in accordance with the Simpson Strong-Tie Documentation, (j) failure or damage caused by the building site, foundation, or any third-party products, building materials or components, (k) failure or damage caused by use of a Product in a structure that has a design or other defect or that does not comply with all applicable building codes, laws, rules and regulations, (l) modified Product, or any nonstandard use or application of a Product, (m) failure or damage caused by corrosion, termites or other wood destroying organisms, animal or insect activity, wood fungal decay, rot, mold, mildew, exposure to chemicals or other hazardous substances, a corrosive environment or materials, inadequate moisture protection, or premature deterioration of building materials, (n) failure or damage caused by an act of God, including any hurricane, earthquake, tornado, lightning, ice, snow, high wind, flood or other severe weather or natural phenomena, (o) installation services or workmanship, including any failure or damage caused by installation of any Product, whether or not in accordance with the Simpson Strong-Tie Documentation, or (p) failure or damage caused by the gross negligence, willful misconduct, or other acts or omissions of the builder, general contractor, installer or any third party, including the building owner. Notwithstanding the foregoing, Simpson Strong-Tie disclaims and does not provide any warranty related to the design of any custom-order or non-catalog Product.

Although Products are designed for a wide variety of uses, Simpson Strong-Tie assumes no liability for confirming that any Product is appropriate for an intended use, and each intended use of a Product must be reviewed and approved by qualified professionals. Each Product is designed for the load capacities and uses listed in the Simpson Strong-Tie Documentation, subject to the limitations and other information set forth in the Simpson Strong-Tie Documentation.

Due to the particular characteristics of potential impact events such as earthquakes and high velocity winds, the specific design and location of the structure, the building materials used, the quality of construction, or the condition of the soils or substrates involved, damage may nonetheless result to a structure and its contents even if the loads resulting from the impact event do not exceed Simpson Strong-Tie's specifications and the Products are properly installed in accordance with applicable building codes, laws, rules and regulations.

Product demonstrations, training, operator examinations, technical and customer support and other services provided by Simpson Strong-Tie are based on Simpson Strong-Tie's present knowledge and experience, are

conducted for illustrative or instructive purposes only, do not constitute a warranty of Product capabilities, specifications or installation and do not modify the applicable Limited Warranty for Products set forth herein. Any services provided by Simpson Strong-Tie are provided without any representation or warranty of any kind, and Simpson Strong-Tie assumes no liability for any representations or statements made as part of such Product demonstrations, training, operator examinations or other services. In the event of any inconsistency between any information provided during any such demonstration or service, and the information in any applicable Simpson Strong-Tie Documentation, the information in the Simpson Strong-Tie Documentation shall govern. In the event of any inconsistency between any information provided on the Website, and the information in any other Simpson Strong-Tie Documentation, the information on the Website shall govern.

**ALL WARRANTY OBLIGATIONS OF SIMPSON STRONG-TIE SHALL BE LIMITED, AT SIMPSON STRONG-TIE'S ABSOLUTE DISCRETION, TO EITHER REPAIRING THE DEFECTIVE PRODUCT OR PROVIDING A REPLACEMENT FOR THE DEFECTIVE PRODUCT. THIS REMEDY CONSTITUTES SIMPSON STRONG-TIE'S SOLE OBLIGATION AND LIABILITY AND THE SOLE AND EXCLUSIVE REMEDY OF PURCHASER AND, WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, EXCLUDES ANY LABOR OR OTHER COSTS INCURRED IN CONNECTION WITH A WARRANTY CLAIM. PURCHASER ASSUMES ALL RISK AND LIABILITY ASSOCIATED WITH ANY USE OF THE PRODUCT, INCLUDING BUT NOT LIMITED TO SUITABILITY FOR ITS INTENDED USE.**

**THE LIMITED WARRANTY HEREIN IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, AND, WHERE LAWFUL, SIMPSON STRONG-TIE DISCLAIMS ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND WARRANTIES ARISING FROM COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE. IN NO EVENT WILL SIMPSON STRONG-TIE BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR SPECIAL DAMAGES OR DIRECT OR INDIRECT LOSS OF ANY KIND, INCLUDING BUT NOT LIMITED TO PROPERTY DAMAGE, DEATH AND PERSONAL INJURY. SIMPSON STRONG-TIE'S ENTIRE LIABILITY IS LIMITED TO THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.**

To obtain warranty service, you must contact Simpson Strong-Tie promptly at (800) 999-5099 or at Simpson Strong-Tie Company Inc., 5956 West Las Positas Boulevard, Pleasanton, CA 94588, regarding any potential claim, no later than sixty (60) days after you discover the potential claim. Upon request by Simpson Strong-Tie, you must provide Simpson Strong-Tie with: (a) proof of purchase and written records evidencing, in reasonable detail, the date and manner of installation, application, mixing and preparation of the Products, as applicable, (b) a reasonable opportunity to inspect the site where the Product was installed, and (c) samples of the Products from the actual installation in sufficient quantities in order for Simpson Strong-Tie to perform testing to determine whether or not the Product failed as set forth herein. Simpson Strong-Tie may, in its absolute discretion, request that you return the allegedly defective Products to Simpson Strong-Tie, in which case Simpson Strong-Tie will issue a Return Materials Authorization (RMA), which must be completed and returned to Simpson Strong-Tie with the Product. Simpson Strong-Tie is not responsible for any costs or expenses incurred in connection with any inspection (other than by Simpson Strong-Tie employees) or in connection with the return of Products to Simpson Strong-Tie, but Simpson Strong-Tie shall bear all costs and expenses incurred in connection with the shipment of replacement Products in the event that Simpson Strong-Tie determines that the Product should be replaced in accordance with this Limited Warranty. If Simpson Strong-Tie elects to repair or replace the Product, Simpson Strong-Tie shall have a reasonable time to do so.

No one is authorized to change or add to this Limited Warranty. If at any time Simpson Strong-Tie does not enforce any of the terms, conditions or limitations stated in this Limited Warranty, Simpson Strong-Tie shall not have waived the benefit of said term, condition or limitation and can enforce it at any time. This Limited Warranty is extended only to the original purchaser and is not transferrable. It is not intended nor shall it be construed to create rights in any third party.

# Web applications to help you work faster and more efficiently.



## ACE Adhesive Cartridge Estimator

### CRF Code Report Finder

### FD Fastener Designer

### SBSD Site-Built Shearwall Designer

## DF Drawing Finder

### SWSS Strong-Wall® Shearwall Selector

### PBS Post-to-Beam Selector

### FF Fastener Finder

### RDLC Rebar Development Length Calculator

### CSC Coiled Strap Calculator

### CS Connector Selector™

### PFD Post-to-Foundation Designer

### CSC Coiled Strap Calculator

### ART Anchor Reference Tool

### PSC Product Submittal Designer

### REC Rebar Embedment Calculator

### CFS CFS Designer™

### SWBS Strong-Wall® Bracing Selector

### AD Anchor Designer™

## HS Hanger Selector

## WBLC Wall-Bracing Length Calculator

Simplify and streamline any project, with our broad range of complimentary software and web application technology solutions. Whether you're designing a concrete, cold-formed steel, structural steel or wood structure, our tools offer innovative, cost-effective product and design recommendations to meet your job needs.

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