Connectors, Fasteners and Anchors for
Modular Building

C-C-MODULAR22 | (800) 999-5099 | strongtie.com

SIMPSON Strong-Tie

Smart Solutions for Modular Building

Simpson Strong-Tie® connectors, fasteners and anchors offer improved speed, strength and versatility for modular building. These products save time in manufacturing and provide ease of installation on the jobsite.

This catalog is designed to help you easily locate the right connector or fastener to meet your modular building construction needs. Our products come with the quality, value, service and on-time delivery that we have built our reputation on for the past 65 years.

If you need help finding the right product for your job, give us a call at (800) 999-5099.

SIMPSON Strong-Tie®

Table of Contents

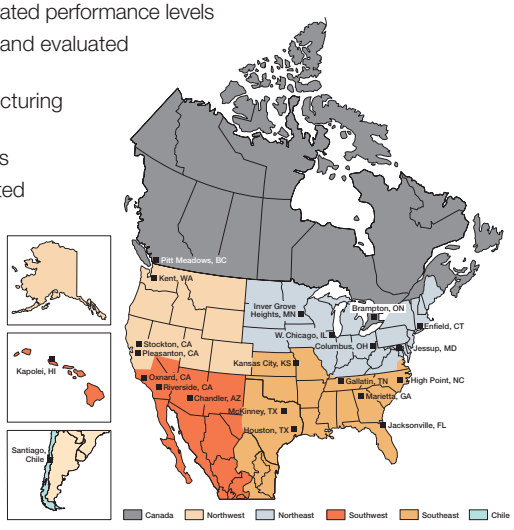
Introduction

For more than 65 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**.

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
- Support of industry groups including AISI, AITC, ASTM, ASCE, AWC, AWPA, ACI, AISC, CSI, CFSEI, ICFA, NBMDA, NLBMDA, SDI, SETMA, SFA, SFIA, STAFDA, SREA, NFBA, TPI, WDSC, WIJMA, WTCA and local engineering groups



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® catalog are you using? *(See the front cover for the catalog 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.

bsi ISO 9001 Quality Management Systems CERTIFIED

FM 767499

(800) 999-5099 | strongtie.com

Code Reports

Product evaluation agencies play an important role in the building industry providing an independent third-party review of architectural and structural products. Evaluations use publicly developed criteria to determine if the product meets the intent of the building code. Building officials can use product evaluation reports, often referred to as "code reports," to review and approve product use on a project.

The most prominent architectural and structural building product certification companies are ICC Evaluation Service (ICC-ES) and IAPMO Uniform Evaluation Service (IAPMO UES), which are both ANSI-accredited to ISO Guide 65 "General Requirements for Bodies Operating Product Certification Systems" as product certification entities. Simpson Strong-Tie currently maintains more than 60 ICC-ES ESR and IAPMO UES ER reports evaluated to the 2009, 2012, 2015, 2018 and 2021 International Building Code® (IBC) and International Residential Code® (IRC). We continue to submit product information to evaluation agencies in order to update reports or receive additional reports for products in compliance with the latest codes. Simpson Strong-Tie also has reports for the City of Los Angeles, California and the State of Florida.

We have simplified our code references to make this catalog easier to use. You can quickly determine whether a product has a code report by looking in the Code Reference column of the product load tables. A summary of the code references used is in the table below.

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

Code Reference	Evaluation Agency	Building Code Coverage
IBC	ICC-ES IAPMO UES	International Building Code (IBC) International Residential Code (IRC)
FL	Florida Statewide Product Approval	Florida Building Code Visit **strongtie.com/codes** or **floridabuilding.org** for accurate and up-to-date product approval and evaluation reports.
LA	City of Los Angeles Department of Building Safety	Los Angeles Building Code and Los Angeles Residential Code These products may have a City of LA supplement to their ICC-ES or IAPMO UES evaluation reports.
PR	Prescriptive	Products that meet prescriptive or conventional construction requirements.
—	None	No evaluation report listing.

How to Use This Catalog

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

- **Changes in Orange**
  Significant changes from the previous catalog are indicated in orange.

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 pp. 7–10 for information on corrosion, and visit our website **strongtie.com/info** for more technical information on this topic.

Strong-Drive® SD Connector Screw Compatible
This icon identifies products approved for installation with Simpson Strong-Tie® Strong-Drive® SD Connector screw. See p. 41 for more information.

How We Determine Allowable Loads

Allowable loads in this catalog are determined by calculations and test criteria established by industry, such as ICC-ES Acceptance Criteria, IAPMO UES Evaluation Criteria and ASTM test standards.

Connectors are typically evaluated in accordance with ICC-ES AC13 – Acceptance Criteria for Joist Hangers and Similar Devices. Evaluation is based on a minimum of three static load tests in wood assemblies. The published allowable load is the lower of the tested ultimate with a safety factor of 3, load at ⅛" deflection or the NDS fastener calculation limits.

Holdowns and tension ties are tested in accordance with ICC-ES AC155 – Acceptance Criteria for Hold-Downs (Tie-Downs) Attached to Wood Members. Allowable loads are based on the lower of three static load tests with a safety factor, deflection limits or NDS fastener calculation limits. Static load tests include holdown testing on steel jigs and wood assembly tests.

Acceptance criteria such as these are used to for testing and engineering analysis: 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 evaluated 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. Testing to determine allowable loads in this catalog is not done on connection systems in buildings. Testing is conducted at ISO 17025 accredited laboratories.

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

Load Table Explanation

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

No. of Nail Grids: If applicable, some modular products have nailing grids that accommodate power-driven nails.

No. of Nails per Grid: Indicates the number of nails required in each nailing grid.

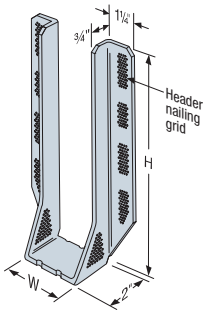
Allowable Design Loads: The maximum load that a connection is designed to provide. There may be multiple design loads acting in different directions (up, down, lateral, perpendicular, etc.) imposed on a connection.

Code Ref.: See p. 5 for the Code Reference Key Chart, to determine which code reports include this product.

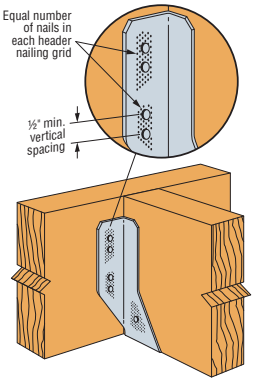
Model No.	Dimensions (in.)		Header Nailing Grids 0.131" x 1½" or 0.148" x 1½"		Nail Quantity 0.131" x 1½" or 0.148" x 1½"		Allowable Loads (lb.)		Code Ref.
	W	H	No. of Grids	Nails in Each Grid	Header	Joist	Uplift (160)	Download (100)	
MMLU26	1⅜	4¾	4	1	4	2	95	330	IBC, FL, LA
				2	8			655	
				3	12			955	
MMLU26-2	3⅛	5⅜	4	1	4	2	95	240	
				2	8			555	
				3	12			870	
MMLU28	1⅜	6⅜	6	1	6	2	95	500	
				2	12			955	
MMLU28-2	3⅛	7⅛	6	1	6	2	95	395	
				2	12			870	
				3	18			1,340	
MMLU210	1⅜	7 13⁄16	8	1	8	2	95	510	
				2	16			1,215	
MMLUI211	1⅜	11⅝	10	1	10	2[4]	95[4]	705	
				2	20			1,215	
MMLUI39	2⅜	9⅛	8	1	8	2[4]	95[4]	510	
				2	16			1,295	
MMLUI311	2⅜	11⅝	10	1	10	2[4]	95[4]	705	
				2	20			1,295	

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

Nail Quantity: Total number of nails required at each member.



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



Installation Drawing: Provides a graphic presentation of the product installation.

Corrosion Information

Understanding the Corrosion Issue

Metal connectors, fasteners and anchors can corrode and lose 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**). The Simpson Strong-Tie website should always be consulted for the latest 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 the American Wood Protection Association (AWPA), the International Building Code (IBC), International Residential Code (IRC), 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 AWPA, IBC, IRC, or local building codes.

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 AWPA Use Category Designation, wood species group, wood treatment chemical, and chemical retention. See building code requirements and appropriate evaluation reports for corrosion effects of wood treatment chemicals and for fastener corrosion resistance recommendations.

With Fire-Retardant (FRT) Wood, the 2015 and 2018 IBC Section 2304.10.5, 2021 IBC Section 2304.10.6, and 2015, 2018 and 2021 IRC Section R317.3.4 refer to the manufacturers for fastener corrosion reqirements. In the absence of recommendations from the FRT manufacturer, the building codes require fasteners to 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 shear and withdrawal allowable loads 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), Hasteloy 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** 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 AWPA Use Categories (See AWPA U1-16) 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 AWPA 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 AWPA 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 AWPA UC4A. The AWPA U1 standard classifies exterior above-ground treatments as Use Categories UC3 (A and B) depending on moisture run-off; and for exterior ground-contact levels of protection, it has Use Categories UC4 (A-C). 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 AWPA Use Categories UC1 (interior/dry) and UC2 (interior/damp), while Exposure Condition 3 is a surrogate to UC3A, 3B, and 4A (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 (AWPA UC4B and UC4C), 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.

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 ≤ AWPA, UC4A	Chemical Retention > AWPA, UC4A	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 AWPA UC4A; 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 UC4B 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 AWPA UC3A (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**), 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.

Guidelines for Selecting Materials and Coatings (cont.)

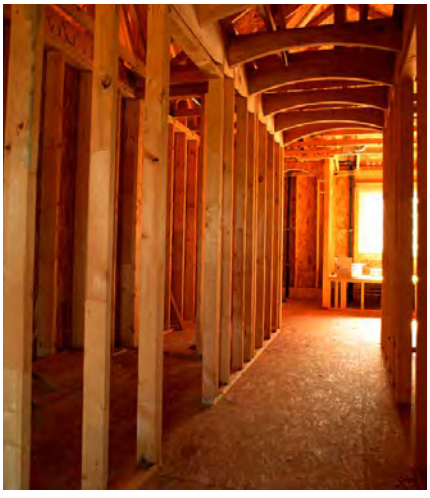
Step 3 — Match Your Corrosion Resistance Classification to the Coatings and Materials Available

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

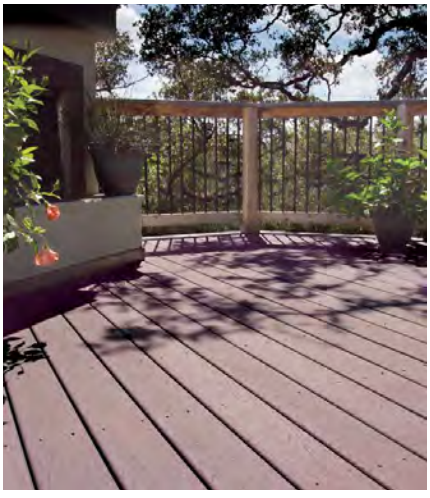
Coatings and Materials Available for Connectors

Level of Corrosion Resistance	Coating or Material	Description	
		Connectors	**Fastener Material or Finish**
Low	**Gray or Black Paint**	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
	Powder Coating	Baked-on finish that is more durable than standard paint.	
	Galvanized	Standard (G90) zinc-galvanized coating containing 0.90 oz. of zinc per square foot of surface area (total both sides).	
Medium	ZMAX G185	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 ** Bright fasteners may be used with ZMAX or HDG connectors where low corrosion resistance is allowed.*
	HOT DIP HDG GALVANIZED®	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.^{2} (per ASTM A123) total for both sides. Anchor bolts are hot-dip galvanized per ASTM F2329.	
High/Severe	316 Stainless Steel **Type 316 Stainless Steel**	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

Guidelines for Selecting Materials and Coatings (cont.)

Step 3 — Match Your Corrosion Resistance Classification to the Coatings and Materials Available (cont.)

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® SDW TRUSS-PLY Screw Strong-Drive SDW EWP-PLY Screw Strong-Drive SDWF FLOOR-TO-FLOOR Screw Strong-Drive SDWS TIMBER Screw (Interior Grade) Strong-Drive SDWV SOLE-TO-RIM Screw
	Zinc Plating, ASTM F1941	Zinc coatings applied by electrogalvanizing processes to fasteners that are used in dry service and with no environmental or material corrosion hazard.	Strong-Drive SDCF TIMBER-CF Screw Strong-Drive SDCP TIMBER-CP Screw Strong-Drive SDHR COMBO-HEAD Screw Titen HD® MG Heavy-Duty Screw Anchor SD8 Wafer Head Screw
	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
Medium	HOT DIP HDG GALVANIZED® **ASTM A153, Class D**	Hot-dip galvanized fasteners ⅜" and smaller in diameter in accordance with ASTM A153, Class D. Hot-dip galvanized fasteners are compliant with the 2015, 2018 and 2021 IRC and IBC.	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 **strongtie.com**.	Strong-Drive SD CONNECTOR Screw
	Double-Barrier Coating **Quik Guard® Coating**	Simpson Strong-Tie Strong-Drive SDS Heavy-Duty Connector screws and other structural wood screws are manufactured with double-barrier coating or Quik Guard 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 **strongtie.com**.	**Double-Barrier Coating:** Strong-Drive SDS HEAVY-DUTY CONNECTOR Screw Strong-Drive SDWS TIMBER (Exterior Grade) Screw Strong-Drive SDWH TIMBER-HEX Screw **Quik Guard Coating:** Strong-Drive SDWS FRAMING Screw Deck-Drive™ DSV WOOD Screw Deck-Drive DCU COMPOSITE Screw
High/Severe	HOT DIP HDG GALVANIZED® **ASTM A153, Class C**	Some Simpson Strong-Tie fasteners 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.^{2} of zinc coating and are compliant with the 2015, 2018 and 2021 IRC (R317.3) and IBC.	—
	316 Stainless Steel **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. Type 316 stainless-steel fasteners are compliant with the 2015, 2018 and 2021 IRC and IBC.	Strong-Drive SCNR CONNECTOR Nail Strong-Drive SDS HEAVY-DUTY CONNECTOR Screw Strong-Drive SD CONNECTOR SS Screw Strong-Drive SDWS TIMBER SS Screw Titen HD® SS Heavy-Duty Screw Anchor

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 catalog 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 catalog, 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 ⅛" 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 catalog 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 catalog 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 catalog, installers, designers, engineers and consumers must consult the Simpson Strong-Tie website at **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**. See p. 74 for the Limited Warranty in effect when this catalog was first published. To obtain a copy of the current Limited Warranty, contact us at **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 catalog 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-catalog 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-Catalog 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 catalog product, or for connectors for use in hostile environments, with excessive wood shrinkage, or with abnormal loading or erection requirements.

Non-catalog 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-catalog 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.

General Notes

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

a. Simpson Strong-Tie Company Inc. reserves the right to change specifications, designs and models without notice or liability for such changes.

b. 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.

c. Unless otherwise noted, dimensions are in inches, loads are in pounds.

d. Unless otherwise noted, welds, screws, bolts and nails may not be combined to achieve highest load value. 0.131" x 2½", 0.148" x 3" and 0.162" x 3½" specify common nails that meet the requirements of ASTM F1667. When a shorter nail is specifed, it will be noted (for example, 0.131" x 1½"). Refer to Simpson Strong-Tie Nailing Guide, NDS (National Design Specification) and ASTM F1667 (American Society of Testing and Materials) for more nail information.

e. Do not overload. Do not exceed catalog allowable loads, which would jeopardize the connection.

f. Unless otherwise noted, allowable loads are for Douglas Fir–Larch under continuously dry conditions. Allowable loads for other species or conditions must be adjusted according to the code. The section from the AC13 criteria indicating the range of specific gravity reads as follows: 3.2.3 The species of lumber used shall have a specific gravity not greater than 0.55 as determined in accordance with the NDS. This chart shows specific gravity and perpendicular-to-grain compression capacities for the different wood species:

Species	$Fc_{\perp}$	Specific Gravity
Douglas fir–larch (DFL)	625 psi	0.50
Southern pine (SP)	565 psi	0.55
Spruce-pine-fir (SPF)	425 psi	0.42
Spruce-pine-fir south (SPF-S)	335 psi	0.36
Hem-fir (HF)	405 psi	0.43
Glulam	650 psi	0.50
LVL (DF/SP)	750 psi	0.50
LSL ($E = 1.3 \times 10^6$)	680 psi	0.50
LSL ($E \geq 1.5 \times 10^6$)	880 psi	0.50
Parallam® PSL	635 psi	0.50
Western Cedar	425 psi	0.36

g. When using connectors in this catalog with SPF (South) species lumber, apply a 0.87 factor to the allowable loads listed for SPF.

h. Simpson Strong-Tie Company Inc. will manufacture non-catalog products provided prior approval is obtained and an engineering drawing is included with the order. Steel specified on the drawings as ⅛", 3⁄16" and ¼" will be 11 ga. (0.120"), 7 ga. (0.179") and 3 ga. (0.239"), respectively. The minimum yield and tensile strengths are 33 ksi and 52 ksi, respectively.

i. All references to bolts or machine bolts (MBs) are for structural quality through bolts (not lag screws or carriage bolts) equal to or better than ASTM Standard A307, Grade A. Nuts shall be ASTM A563, Grade A or better, unless noted otherwise.

j. 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.

k. A fastener that splits the wood will not take the design 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 (2015 NDS 12.1.5.3). Use a 5⁄32" bit for Strong-Drive® SDS Heavy-Duty Connector screws and a 3⁄32" bit for Strong-Drive SD9/SD10 Connector screws.

l. 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 catalog, 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. (Contact Simpson Strong-Tie for information on Takeup Devices.)

m. Top-flange hangers may cause unevenness. Possible remedies should be evaluated by a professional and include using a face-mount hanger, and routering the beam or cutting the subfloor to accommodate the top flange thickness.

n. Built-up lumber (multiple members) must be fastened together to act as one unit to resist the applied load (excluding the connector fasteners). Except for the built-up columns listed in this catalog, all other sections must be determined by the designer.

o. Some model configurations may differ from those shown in this catalog. Contact Simpson Strong-Tie for details.

p. Truss plates shown are the responsibility of the truss designer.

q. Do not weld products listed in this catalog 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. See the Simpson Strong-Tie *Wood Construction Connectors* catalog at **strongtie.com** for hangers that may be welded.

r. 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 in accordance with 2015/2018 NDS Appendix L. Some products require SAE narrow washers (N) to fit in a tight space and are noted accordingly.

s. 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.

t. Some applications require multiple connectors to achieve the tabulated load. When multiple connectors are required, they must be installed so fastener locations do not overlap.

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 specifed fasteners must be installed according to the instructions in this catalog. Incorrect fastener quantity, size, placement, type, material, or finish may cause the connection to fail. Prior to using a particular fastener, please consult Connector Fastener types.
   - Larger diameter fasteners may be substituted for 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 our connectors. They are designed to replace nails in certain products. See p. 41 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. See the current *Wood Construction Connectors* catalog at **strongtie.com** for requirements of the various shapes of fastener holes.

c. Do not overdrive nails. Overdriven nails reduce shear capacity. See the current *Wood Construction Connectors* catalog at **strongtie.com** for additional information.

d. Products shall be installed for the use specified. Use the materials specified in the installation instructions. Substitution of or failure to use specified materials may cause the connection to fail. Do not alter installation procedures from those set forth in this catalog. See Terms and Conditions of Sale.

e. Unless a connector is specifically designed for power-driven fasteners that don't have prepunched holes, 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.

f. Install products in the position specified in the catalog.

g. Do not alter installation procedures from those set forth in this catalog.

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 1/32" and no more than a maximum of 1/16" larger than the bolt diameter (per the 2018 NDS, Section 12.1.3.2 and AISI S100-07, Table E3a if applicable).

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 A.W.S. (American Welding Society) standards. 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. Connectors with tool embossments or 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** for additional information. Follow the manufacturer's instructions and use the appropriate safety equipment. Overdriving nails may reduce allowable loads. Contact Simpson Strong-Tie. Powder-actuated fasteners should not be used to install connectors, unless noted otherwise. Reference the Simpson Strong-Tie *Wood Construction Connectors* catalog at **strongtie.com** for 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 1/8" per ICC-ES AC261 and ASTM D7147 test standards (unless specifically noted otherwise).

p. Fasteners are permitted to be installed through metal truss plates when approved by the truss designer in accordance with ANSI/TPI 1-2014, Section 7.5.3.4 and 8.9.2. Installation of Simpson Strong-Tie Strong-Drive SDS Heavy-Duty Connector screws through metal connector plates requires the plates to be predrilled using a maximum of a 5/32" bit. Do not drive nails through the truss plate on the opposite side of single-ply trusses, which could force the plate off the truss.

q. Nuts shall be installed such that the end of the threaded rod or bolt is at least flush with the top of the nut.

r. 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.

s. Unless otherwise noted, connectors shown in this catalog 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 catalog.

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. The term "designer" used throughout this catalog is intended to mean a licensed/certified building design professional, a licensed professional engineer, or a licensed architect.

b. All connected members and related elements shall be designed by the designer.

c. All installations should be designed only in accordance with the allowable load values set forth in this catalog.

d. When a connector is loaded simultaneously in more than one direction, the allowable load must be evaluated as given in option 1 or option 2.

Option 1:

Design Uplift/Allowable Uplift + Design Lateral Parallel to Plate / Allowable Lateral Parallel to Plate + Design Lateral Perpendicular to Plate / Allowable Lateral Perpendicular to Plate < 1.0.

The three terms in the unity equation are due to the possible directions that exist to generate force on a connector. The number of terms that must be considered for simultaneous loading is at the sole discretion of the designer and is dependent on their method of calculating wind forces and the utilization of the connector within the structural system.

Option 2:

As an alternative, Seismic and Hurricane Ties on pp. 18–19 can be evaluated using the following: The design load in each direction shall not exceed the published allowable load in that direction multiplied by 0.75. For connections involving members with different specific gravities, use the allowable load corresponding to the lowest specific gravity in the connection, unless noted otherwise.

e. Loads are based on the 2015/2018 National Design Specifications (NDS) and AISI S100 if applicable, unless otherwise specified. Other code agencies may use different allowable loads.

f. Unless otherwise noted, loads include Load Duration, Group Action and Toe-Nail factors from the NDS as applicable. The application of additional adjustment factors shall be by the designer. Duration of load adjustments as specified by the code are as follows:
"PERMANENT" — 90% of the design load.
"FLOOR" and "DOWN" (100) — no increase for duration of load.
"SNOW" (115) — 115% of design load for two-month duration of load.
"ROOF LOAD" (125) — 125% of design load for seven-day duration of load.
"EARTHQUAKE / WIND" (160) — 160% of design load for earthquake/wind loading.

g. Unless otherwise noted, wood shear is not considered in the loads given; reduce allowable loads when wood shear is limiting.

h. 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 load capacity based on reliable published testing data or calculations. The Engineer of Record or designer should evaluate and give written approval for substitution prior to installation."

i. Verify that the dimensions of the supporting member are sufficient to receive the specified fasteners, and develop the top flange bearing length.

j. Some catalog illustrations show connections that could cause cross-grain tension or bending of the wood during loading if not sufficiently reinforced. In this case, mechanical reinforcement should be considered.

k. Simpson Strong-Tie will provide upon request code testing data on all products that have been code tested.

l. The allowable loads published in this catalog are for use when utilizing the traditional Allowable Stress Design methodology. A method for using Load and Resistance Factor Design (LRFD) for wood has been published in ASTM D5457. When designing with LRFD, reference lateral resistances must be used. Contact Simpson Strong-Tie for reference lateral resistances of products listed in this catalog. For more information, refer to the 2018 NDS Appendix N, which contains a conversion procedure that can be used to derive LRFD capacities.

m. For joist hangers, Simpson Strong-Tie recommends the hanger height shall be at least 60% of joist height for stability against rotation while under construction prior to sheathing install.

n. Local and/or regional building codes may require meeting special conditions. Building codes often require special inspection of anchors installed in concrete and masonry. For compliance with these requirements, it is necessary to contact the local and/or regional building authority. Except where mandated by code, Simpson Strong-Tie products do not require special inspection.

o. Throughout the catalog 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.

p. Top flange hanger allowable loads are typically based on testing with solid headers. Load reductions may apply when using headers comprised of multiple plies of dimensioned lumber or SCL. See technical bulletin T-C-MPLYHEADR at **strongtie.com** for more information.

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
⅜	9.5
½	12.7
⅝	15.9
¾	19.1
⅞	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°

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.

US Standard Steel Gauge Equivalents in Nominal Dimensions

Ga.	Minimum Thickness (mil)	Approximate Dimensions		Thickness of Steel Sheets (in.)		
		in.	mm	Uncoated Steel	Galvanized Steel (G90)	ZMAX® (G185)
3	229	¼	6	0.239	—	—
7	171	3⁄16	4.5	0.179	0.186	—
8	155	11⁄64	4.3	0.164	0.168	0.170
10	118	9⁄64	3.5	0.134	0.138	0.140
11	111	⅛	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. Steel thickness may vary according to industry mill standards.

Connectors

MMLU

Face-Mount Hangers for Factory-Built Structures

The MMLU series provides installation versatility for factory-built structures. Nailing grids in the MMLU hangers replace traditional nail holes, allowing for faster installation of power-driven nails. Each hanger provides multiple nailing pattern options to enable value engineering for different loads.

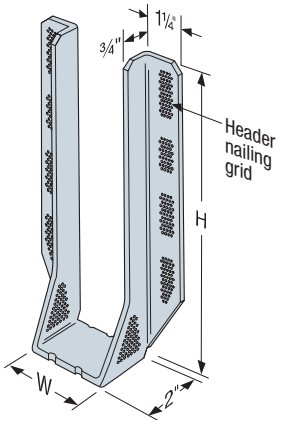
Material: MMLU26-2, MMLU28-2 —18 gauge, all others — 20 gauge

Finish: Galvanized

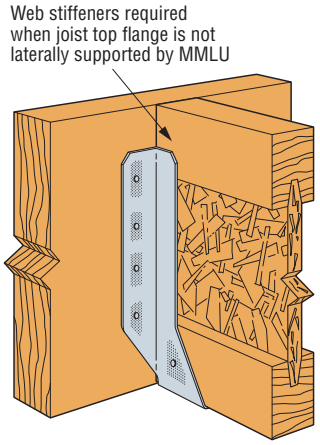
Installation:

- Nails must be installed with a powered nail tool. Face protection is required. To reduce ricochet, install nails straight through the nailing grid. Follow all safety instructions for the nail tool.
- Adjust the nail tool pressure so nail heads are flush with the hanger and are not overdriven causing the MMLU steel to dimple.
- Install at least one 0.131" x 1½" or 0.148" x 1½" nail into each nailing grid.
- Install additional nails in accordance with the MMLU Installation and Load Table for increased capacity. Each header nailing grid must contain the same quantity of nails.
- The minimum vertical center-to-center spacing of nails in the same nailing grid is ½" and must not split the wood header.
- The MMLU height (H) must equal or exceed 60% of the joist height to provide joist rotation resistance. If H is less than 60% of the joist height, provide lateral restraint to the top of the joist by other means, such as blocking, end nailing or Simpson Strong-Tie® A34 framing angles above the hanger.
- I-joist web stiffeners or floor truss end vertical webs must be installed in the carried member when the hanger side flanges do not support the I-joist top flange or floor truss top chord.

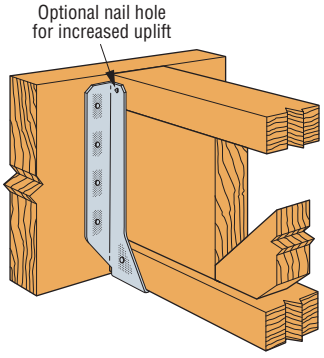
Codes: See p. 5 for Code Reference Key Chart



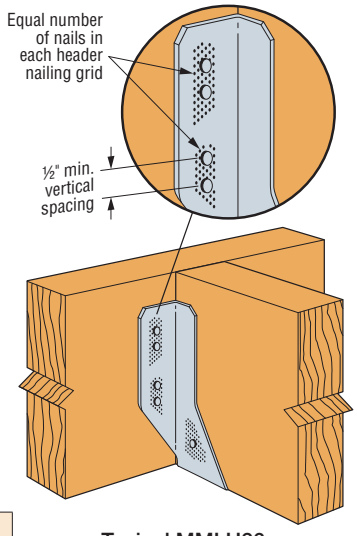
MMLU210
(others similar)



MMLU210 Installation with an I-Joist



MMLUI39 Installation with an Open Web Joist



Typical MMLU26 Installation

MMLU Installation and Load Table

Model No.	Dimensions (in.)		Header Nailing Grids	Nail Quantity			Allowable Loads (lb.)		Code Ref.
			0.131" x 1½" or 0.148" x 1½"						
	W	H	No. of Grids	Nails in Each Grid	Header	Joist	Uplift (160)	Download (100)	
MMLU26	1⅜	4¾	4	1	4	2	95	330	IBC, FL, LA
				2	8			655	
				3	12			955	
MMLU26-2	3⅛	5⅜	4	1	4	2	95	240	
				2	8			555	
				3	12			870	
MMLU28	1⅜	6⅜	6	1	6	2	95	500	
				2	12			955	
MMLU28-2	3⅛	7⅛	6	1	6	2	95	395	
				2	12			870	
				3	18			1,340	
MMLU210	1⅜	7¹³⁄₁₆	8	1	8	2	95	510	
				2	16			1,215	
MMLUI211	1⅜	11⅝	10	1	10	2[4]	95[4]	705	
				2	20			1,215	
MMLUI39	2⅜	9⅛	8	1	8	2[4]	95[4]	510	
				2	16			1,295	
MMLUI311	2⅜	11⅝	10	1	10	2[4]	95[4]	705	
				2	20			1,295	

1. Connectors must be installed with 0.131" x 1½" or 0.148" x 1½" nails.
2. Loads apply to DF, SP, HF and SPF lumber species.
3. Tabulated values are based on a load duration factor (C_D) of 1.0 with no further increase allowed.
4. Install two nails in the optional triangle holes for an increased allowable uplift load of 330 lb. (C_D = 1.0) or 445 lb. (C_D = 1.6) for the MMLUI211, MMLUI39 and MMLUI311.

H2.5A/H2.5T/H10A/MMH8/RST-3

Roof Tiedowns

The versatile line of hurricane tie connectors provides uplift resistance for roof trusses and rafters for factory-built structures. The nailing grids in the MMH8 replace traditional nail holes allowing for faster installation of power-driven nails. The MMH8 nailing grids also permit multiple nailing pattern options to enable value engineering for different load levels. Connectors have been evaluated with and without ⅝" bearing strips.

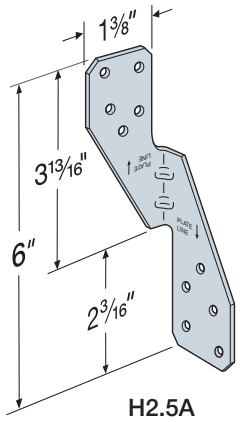
Material: 18 gauge

Finish: Galvanized

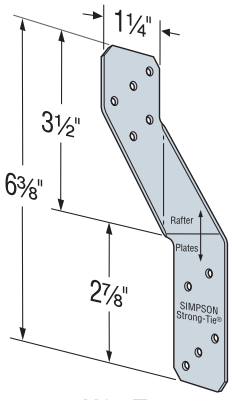
Installation: • Use all specified fasteners; see General Notes.

- H2.5T ties are shipped in equal quantities of right and left versions.
- For connections to the wide face of the stud, RST-3 ties can be bent at the perforated strap portion of the connector. Bend only once.
- 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.
- MMH8 nails must be installed with a power nailer. Full face and eye protection is required. Extreme caution is required when driving nails through the MMH8. To prevent ricochet, drive nails straight through the nailing grid. Follow all safety instructions for the nail tool. Adjust the nail drive by setting the depth-of-drive on the nailer tool so that nail heads are driven into contact with the hanger. Do not over-drive nails, which are indicated by the tops of the nail heads driven below the top surface of the metal connector.
- MMH8 nails must have a minimum ½" center-to-center spacing in the same nailing grid and not split the wood. The square nailing grid must contain a minimum of three nails, and a maximum of five nails. In order for the ½" spacing requirement to be met with five nails in the square nailing grid, nails shall be positioned at the four corners of the grid, with the fifth nail positioned in the center of the grid.

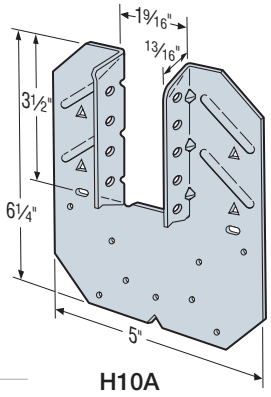
Codes: Testing performed in accordance with ICC-ES AC-13.
See p. 5 for Code Reference Key Chart



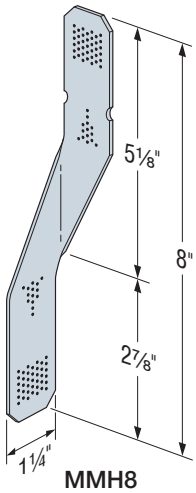
H2.5A



H2.5T



H10A



MMH8

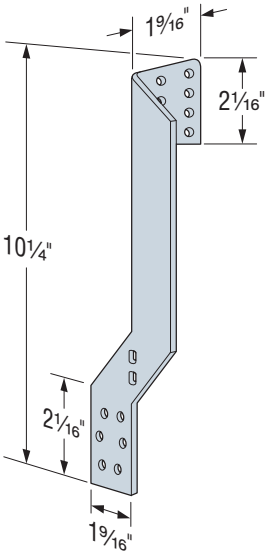
These products are available with additional corrosion protection. For more information, see pp. 7–10.

SD Many of these products are approved for installation with the Strong-Drive® SD Connector screw. See **strongtie.com/sd** for more information.

SPF/HF Roof Uplift Connector Installation and Allowable Load Table

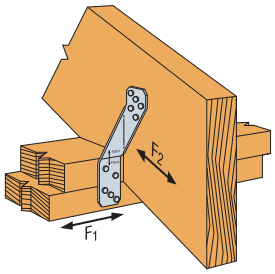
Model No.	Fasteners (in.)			SPF/HF Allowable Loads (lb.)						Code Ref.
				No Bearing Strip			⅝" Bearing Strip			
	To Rafter	To Plates	To Studs	Uplift (160)	Lateral (160) F_1	Lateral (160) F_2	Uplift (160)	Lateral (160) F_1	Lateral (160) F_2	
H2.5A	(3) 0.131 x 1½	(3) 0.131 x 1½	—	165	50	—	165	50	—	IBC, FL, LA
	(5) 0.131 x 1½	(5) 0.131 x 1½	—	540	110	110	275	110	95	
	(5) SD #9 x 1½	(5) SD #9 x 1½	—	540	385	95	520	135	95	
H2.5T	(3) 0.131 x 1½	(3) 0.131 x 1½	—	210	90	—	190	90	—	
	(5) 0.131 x 1½	(5) 0.131 x 1½	—	475	90	70	315	90	70	
	(5) SD #9 x 1½	(5) SD #9 x 1½	—	515	90	80	350	90	80	
H10A	(9) 0.131 x 1½	(9) 0.131 x 1½	—	715	390	285	—	—	—	
MMH8	(3) 0.131 x 1½	(3) 0.131 x 1½	—	170	—	—	170	—	—	
	(5) 0.131 x 1½	(5) 0.131 x 1½	—	285	55	—	285	55	—	
	(6) 0.131 x 1½	(6) 0.131 x 1½	—	410	65	—	410	65	—	
RST-3 into wide face of stud	(7) 0.131 x 1½	—	(6) 0.131 x 1½	345	—	65	345	—	65	—
	(7) SD #9 x 1½	—	(6) SD #9 x 1½	520	—	75	340	—	75	
RST-3 into narrow face of stud	(7) 0.131 x 1½	—	(6) 0.131 x 1½	325	—	65	305	—	65	
	(7) SD #9 x 1½	—	(6) SD #9 x 1½	400	—	70	400	—	70	

1. Loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Allowable loads are for one connector. A minimum rafter thickness of 2½" must be used when connectors are used on each side of the rafter and on the same side of the plate *(exception: connectors installed such that fasteners on opposite side do not interfere)*.
3. Allowable loads in the F_1 direction are not intended to replace diaphragm boundary members and do not account for possible cross-grain bending of the truss or rafter members.
4. When cross-grain bending or cross-grain tension cannot be avoided in the members, mechanical reinforcement to resist such forces shall be considered by the designer.
5. Connector installation on the outside of the wall is acceptable, provided a minimum 3½" overhang. For a Continuous Uplift Load Path, connections in the same area (i.e., truss-to-plate connector and plate-to-stud connector) must be on the same side of the wall.
6. **Fasteners:** Nail dimensions are listed diameter by length. 0.148" x 1½" nails may be substituted for nails show at table loads.
7. **Screws:** Strong-Drive SD Connector Screw #9 x 1½" (model SD9112) = 0.131" dia. x 1½" long.

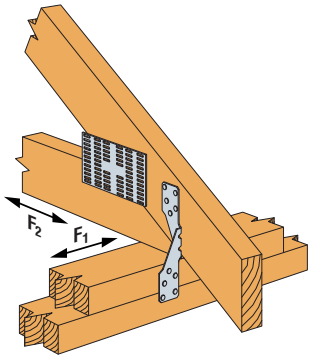


RST-3

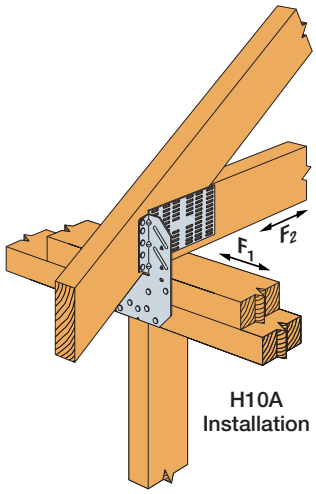
Roof Tiedowns (cont.)



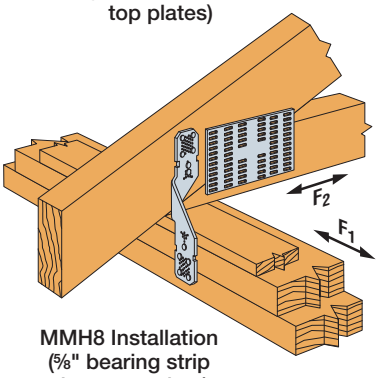
H2.5T Installation
(nails into both
top plates)



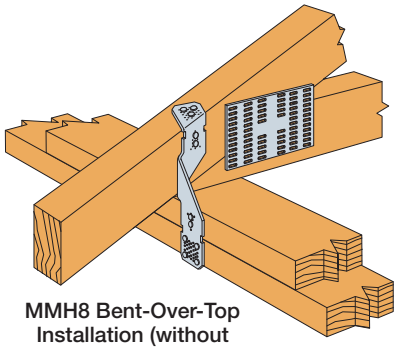
H2.5A Installation
(no bearing strip
above top plates)



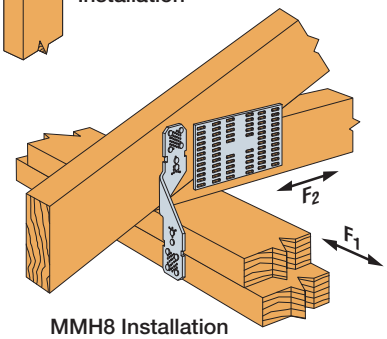
H10A
Installation



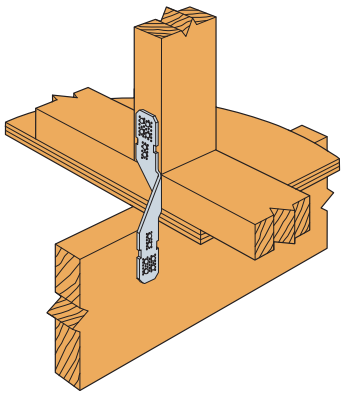
MMH8 Installation
(⅝" bearing strip
above top plate)



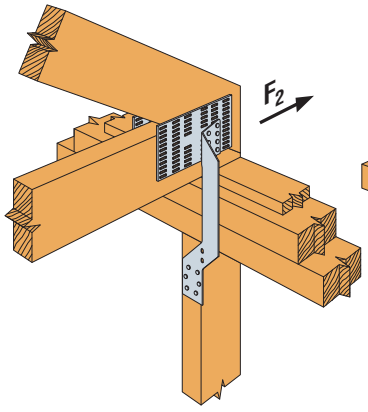
MMH8 Bent-Over-Top
Installation (without
⅝" bearing strip)



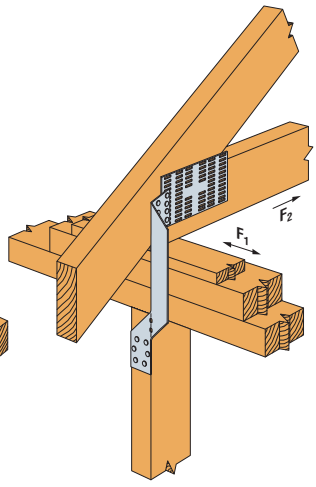
MMH8 Installation
(without ⅝"
bearing strip)



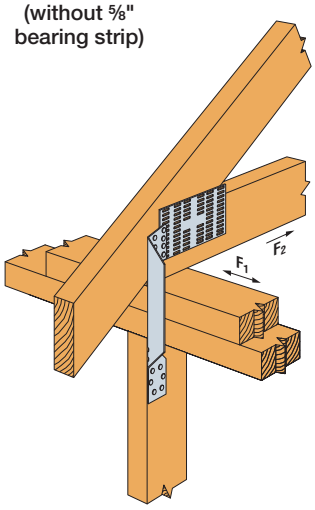
MMH8 Kneewall
Installation



RST-3 Installation
(⅝" bearing strip
above top plate)



RST-3 Installation
to Narrow Face of Stud
(⅝" bearing strip above top plate)



RST-3 Installation
to Wide Face of Stud
(without ⅝" bearing strip)

When a connector is loaded simultaneously in more than one direction, the allowable load must be evaluated as option 1 or 2.

Option 1: Unity Equation

For all connectors use the following equation:

Design Uplift/Allowable Uplift + Design Lateral Parallel to Plate / Allowable Lateral Parallel to Plate + Design Lateral Perpendicular to Plate / Allowable Lateral Perpendicular to Plate < 1.0.

The three terms in the unity equation are due to the possible directions that exist to generate force on a connector. The number of terms that must be considered for simultaneous loading is at the sole discretion of the designer and is dependent on their method of calculating wind forces and the utilization of the connector within the structural system.

Option 2: 75% Rule

As an alternative, roof-to-wall connectors on pp. 18–19 can be evaluated using the following:
The design load in each direction shall not exceed the published allowable load in that direction multiplied by 0.75.

Twist Strap

Twist straps provide a tension connection between two wood members. They resist uplift at the heel of a truss economically. LTS straps have a 2" bend section that eliminates interference at the transition points between the two members.

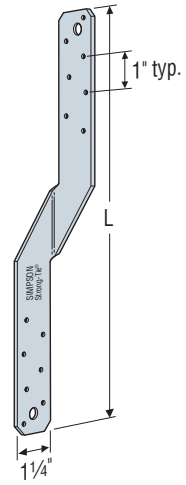
Material: 18 gauge

Finish: Galvanized. Some products available in stainless steel; see Corrosion Information, pp. 7–10.

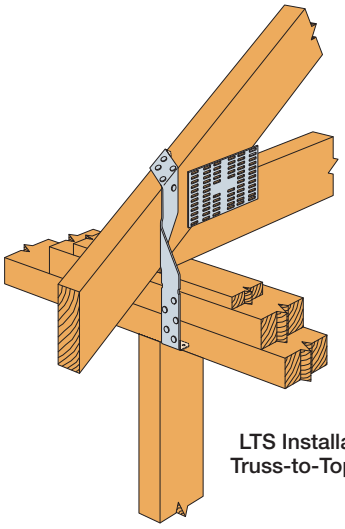
Installation:

- Use all specified fasteners; see General Notes.
- LTS straps are available with the bend reversed. Specify "-REV" after the model number, such as LTS16-REV.

Codes: See p. 5 for Code Reference Key Chart



LTS12



LTS Installation As a Truss-to-Top Plate Tie

These products are available with additional corrosion protection. For more information, see pp. 7–10.

	Model No.	Strap Length (in.)	Total Quantity of Fasteners[1]		Allowable Uplift Loads (160)[2,3] (lb.)				Code Ref.
					DF/SP		SPF/HF		
			When Installed with 0.148" x 3" Nails	When Installed with 0.148" x 1½" Nails	When Installed with 0.148" x 3" Nails	When Installed with 0.148" x 1½" Nails	When Installed with 0.148" x 3" Nails	When Installed with 0.148" x 1½" Nails	
					C_D = 1.6	C_D = 1.6	C_D = 1.6	C_D = 1.6	
SS	LTS12	12	12	12	660	645	570	515	IBC, FL, LA
	LTS16	16							
	LTS18	18							
	LTS20	20							

1. Loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. LTS12 thru LTS20 have additional nail holes.
3. Install half of the fasteners on each end of strap to achieve full loads.
4. All straps have the twist in the center of the strap.
5. Twist straps do not have to be wrapped over the truss to achieve the load.
6. May be installed on the inside face of the stud.
7. Allowable lateral loads are F_1 = 75 lb. and F_2 = 125 lb. when the following installation requirements are met. The first seven nail holes each side of the bend must be filled with 10d x 1½" minimum nails. All additional fasteners may be installed in any remaining strap holes.
8. For simultaneous loads in more than one direction, the connector must be evaluated using either the Unity Equation or the 75% Rule, as described in General Notes p. 14 and on p. 19.
9. **Fasteners:** Nail dimensions are listed diameter by length.

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.)

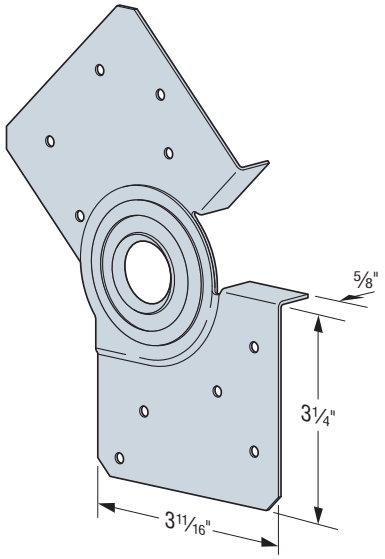
Material: 18 gauge

Finish: G90

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

Codes: Testing performed in accordance with ICC-ES AC-13.
See p. 5 for Code Reference Key Chart

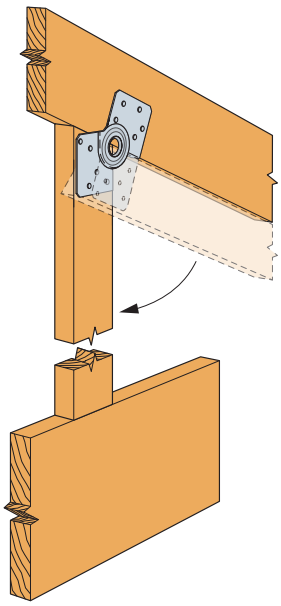


MMHC

Please go to **strongtie.com/patents** for the most current list of Simpson Strong-Tie patents.

Allowable Loads for Kneewall Application

Model No.	Roof Pitch	Connector Quantity	Fasteners per Member	Allowable Loads (lb.)				Code Ref.
				DF		SPF/HF		
			0.148" x 1½" Nails	Download (115/125/160)	Uplift (160)	Download (115/125/160)	Uplift (160)	
MMHC	3:12 – 12:12	1	5	1,145	385	1,010	330	IBC, FL, LA



After shipping, leg rotates to the upright position.

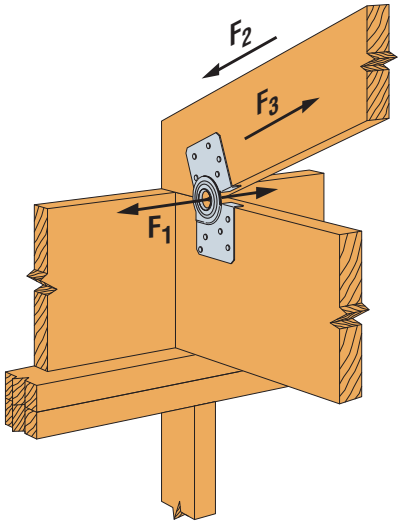
MMHC Installed at Kneewall

Hinged Roof Connector (cont.)

Allowable Loads for Single-Ply Rafter to Ceiling Joist

Model No.	Roof Pitch	Connector Quantity	Fasteners per Member	Allowable Loads (lb.)								Code Ref.
				DF				SPF/HF				
			0.148" x 1½" Nails	F_1 (160)	F_2 (115/125/160)	F_3 (115/125/160)	Uplift (160)	F_1 (160)	F_2 (115/125/160)	F_3 (115/125/160)	Uplift (160)	
MMHC	3:12	1	5	95	485	485	480	95	415	415	470	IBC, FL, LA
		2	10	215	955	955	870	215	825	825	770	
	12:12	1	5	65	560	455	525	65	530	400	480	
		2	10	140	1,215	845	940	140	1,150	725	855	

1. All installations assume at minimum a single-ply 2x member.
2. Double-ply applications with two-sided installation will achieve twice the published load for the one-sided installation.
3. Linear interpolation of the loads is allowed for roof pitches between 3:12 and 12:12.
4. **Fasteners:** Nail dimensions are listed diameter by length.

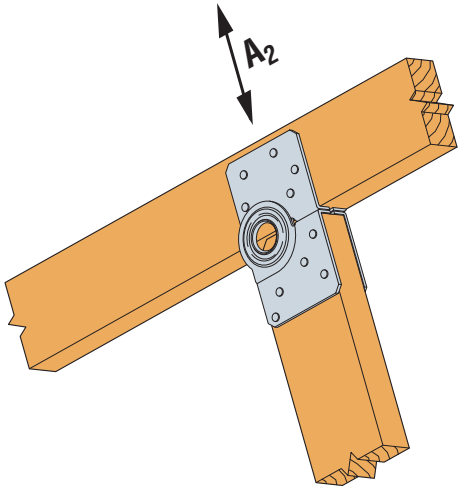


MMHC Installed at Heel

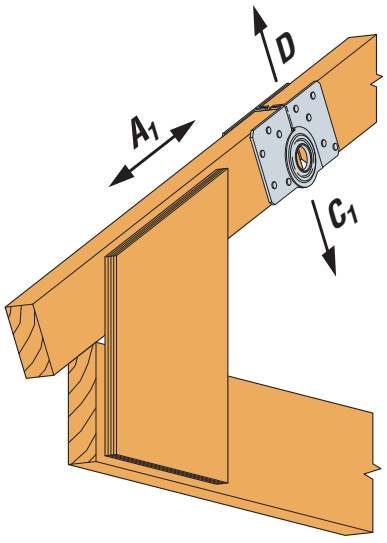
Allowable Loads for Alternate Installations

Model No.	Type of Connection	Direction of Load	Connector Quantity	Rafter/ Knee-Brace	Fasteners per Connector	SPF/HF Allowable Loads (lb.)
						(100/115/125/160)
MMHC	1	A_2	2	Single-ply 2x	(10) 0.131" x 1½"	600
	2	A_1				505
		C_1				325
		D				365

1. All applications assume a double-sided MMHC application that uses two connectors per connection.
2. All installations assume at minimum a single-ply 2x member.
3. **Fasteners:** Nail dimensions are listed diameter by length.



1 MMHC Knee-Brace Connection



2 MMHC Rafter Connection

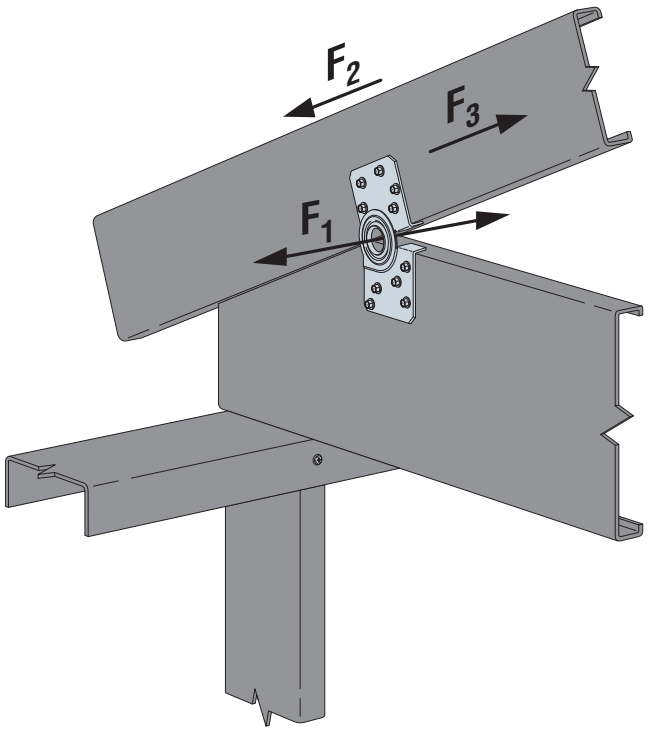
MMHC

Hinged Roof Connector (cont.)

Allowable Loads for Single CFS Rafter to Ceiling Joist

Model No.	Roof Pitch	Rafter: Self-Drilling Screws	Ceiling Joist: Self-Drilling Screws	Allowable Loads (lb.)			
				F_1 (160)	F_2 (115/125/160)	F_3 (115/125/160)	Uplift (160)
MMHC	3:12	(5) #10	(5) #10	95	565	475	480
	12:12	(5) #10	(5) #10	65	505	455	525

1. Linear interpolation of loads allowed for roof pitches between 3:12 and 12:12.
2. #10 screws shall comply with ASTM C1513 and shall have a minimum allowable shear of 265 lb. and a minimum allowable pull-out of 110 lb. as calculated per AISI S-100.
3. Minimum rafter thickness = 54 mil (16 gauge).
4. Minimum ceiling joist thickness = 68 mil (14 gauge).
5. Loads are based on cold-formed steel members having a minimum yield strength, F_y, of 50 ksi and tensile strength, F_u, of 65 ksi.
6. Designer to check web crippling for download.
7. Steel-to-steel connector screws must comply with ASTM C1513.



Typical MMHC Installation on CFS Framing

Post Base

The BC series offers dual-purpose post cap/base for light cap or base connectors.

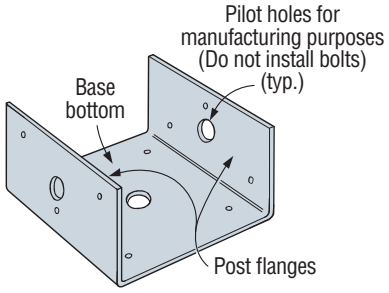
Material: 18 gauge

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

Installation:

- Use all specified fasteners
- Do not install bolts into pilot holes
- 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)
- To tie multiple 2x members together, the designer must determine the fasteners required to join members to act as one unit without splitting the wood

Codes: Testing performed in accordance with ICC-ES AC-13.
See p. 5 for Code Reference Key Chart



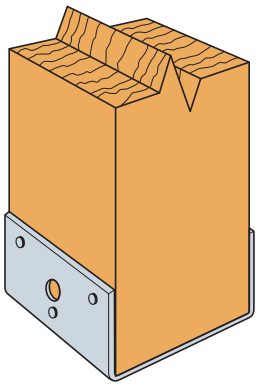
BC60 Half Base
(others similar)

These products are available with additional corrosion protection. For more information, see pp. 7–10.

SD Many of these products are approved for installation with the Strong-Drive® SD Connector screw. See **strongtie.com/sd** for more information.

	Model No.	Dimensions (in.)			Fasteners (in.)		DF/SP Allowable Loads (lb.)		Code Ref.
		W	L	H	Post Flange	Base Bottom	Uplift (160)	Lateral (160)	
SS	BC40	3⁹⁄₁₆	3¼	2¼	(6) 0.148 x 1½	(4) 0.148 x 1½	510	735	
	BC40R	4	4	3	(6) 0.148 x 1½	(4) 0.148 x 1½	510	735	
	BC460	5½	3⅜	3	(6) 0.148 x 1½	(4) 0.148 x 1½	450	735	
	BC60	5½	5½	3	(6) 0.148 x 1½	(4) 0.148 x 1½	450	735	—
	BC60R	6	6	3	(6) 0.148 x 1½	(4) 0.148 x 1½	450	735	
	BC80	7½	7½	4	(6) 0.148 x 1½	(4) 0.148 x 1½	450	735	
	BC80R	8	8	4	(6) 0.148 x 1½	(4) 0.148 x 1½	450	735	

1. Allowable loads have been increased for wind or earthquake 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. See technical bulletin T-C-SCLCLM at **strongtie.com** for values on the narrow face (edge).
3. Base allowable loads assumes nails have full penetration into supporting member. Loads do not apply to end grain post installations.
4. 0.131" x 1½" nails may be used instead of the specified 0.148" x 1½" nails at 0.83 of the table load.
5. **Fasteners:** Nail dimensions are listed diameter by length.



Typical BC60 Installation

LSTA/MSTA

Strap Ties

LSTA and MSTA straps are designed to transfer tension loads in a wide variety of applications on the edge of 2x members, and have a nailing pattern that reduces the potential for splitting.

Finish: Galvanized. Some products are available in stainless steel or ZMAX® coating; see Corrosion Information, pp. 7–10.

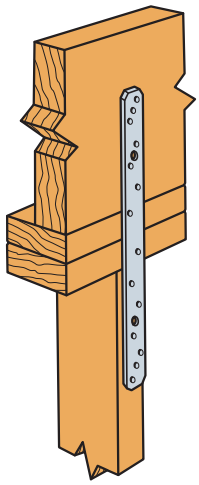
Installation:

- Use all specified fasteners; see General Notes

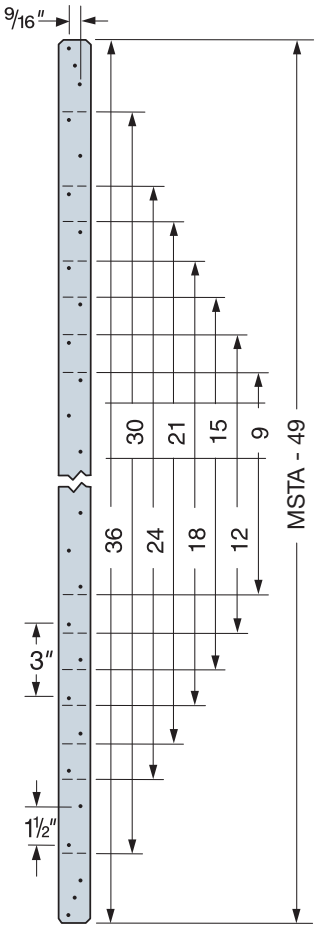
Codes: See p. 5 for Code Reference Key Chart

These products are available with additional corrosion protection. For more information, see pp. 7–10.

SD Many of these products are approved for installation with the Strong-Drive® SD Connector screw. See **strongtie.com/sd** for more information.



Typical LSTA18 Installation



LSTA and MSTA
(pilot holes not shown)

	Model No.	Ga.	Dimensions (in.)		Fasteners (Total)	Allowable Tension Loads (lb.)		Code Ref.
			W	L		DF/SP (160)	SPF/HF (160)	
	LSTA9	20	1¼	9	(8) 0.148" x 2½"	740	635	IBC, FL, LA
	LSTA12		1¼	12	(10) 0.148" x 2½"	925	795	
	LSTA15		1¼	15	(12) 0.148" x 2½"	1,110	955	
	LSTA18		1¼	18	(14) 0.148" x 2½"	1,235	1,110	
	LSTA21		1¼	21	(16) 0.148" x 2½"	1,235	1,235	
	LSTA24		1¼	24	(18) 0.148" x 2½"	1,235	1,235	
	LSTA30	18	1¼	30	(22) 0.148" x 2½"	1,640	1,640	
	LSTA36		1¼	36	(24) 0.148" x 2½"	1,640	1,640	
	MSTA9		1¼	9	(8) 0.148" x 2½"	750	650	
SS	MSTA12		1¼	12	(10) 0.148" x 2½"	940	810	
	MSTA15		1¼	15	(12) 0.148" x 2½"	1,130	970	
SS	MSTA18		1¼	18	(14) 0.148" x 2½"	1,315	1,135	
	MSTA21		1¼	21	(16) 0.148" x 2½"	1,505	1,295	
SS	MSTA24		1¼	24	(18) 0.148" x 2½"	1,640	1,460	
	MSTA30	16	1¼	30	(22) 0.148" x 2½"	2,050	1,825	
SS	MSTA36		1¼	36	(26) 0.148" x 2½"	2,050	2,050	
	MSTA49		1¼	49	(26) 0.148" x 2½"	2,020	2,020	

1. Allowable loads have been increased for wind or seismic loading with no further increase allowed; reduce where other loads govern.
2. 0.148" x 1½" fasteners achieve full loads when installed directly to framing. When nailing strap over wood structural panels, use 2½"-long fastener minimum.
3. Use half of the nails in each member being connected to achieve the listed loads.
4. Tension loads apply for uplift when installed vertically.
5. **Fasteners:** Nail dimensions are listed diameter by length.

Coiled Straps

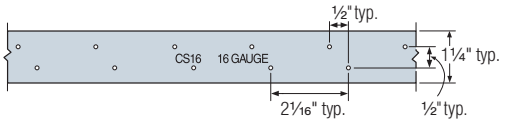
CMSTC provides countersunk nail slots for lower profile when installed with 0.148" x 3¼" sinkers; it can be cut to length. CS are continuous utility straps which can be cut to length on the jobsite. Packaged in lightweight (about 40 lb.) cartons.

Finish: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, pp. 7–10.

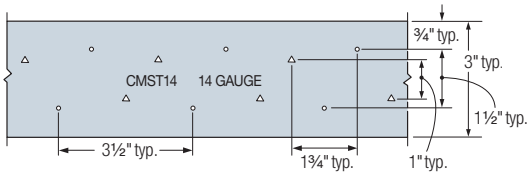
Installation:

- 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 allowable loads and the nails required to obtain them. Fewer nails may be used; reduce the allowable load as shown in footnote #3.
- The cut length of the strap shall be equal to twice the "End Length" noted in the table plus the clear span dimension.
- CMST — Fill round and triangle holes for loads shown. If wood tends to split, fill only round holes and double the end length listed for full load.
- For lap slice and alternate nailing information, refer to technical bulletin T-CMST at **strongtie.com**.
- CS straps are available in 25' lengths; order CS14-R, CS16-R, or CS20-R.

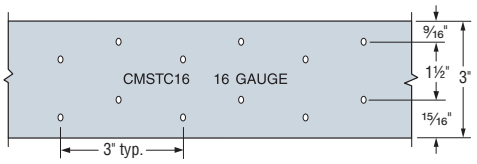
Codes: See p. 5 for Code Reference Key Chart



CS16 Hole Pattern
(All other CS straps similar)



CMST14 Hole Pattern
(CMST12 similar)



CMSTC16 Hole Pattern

Gauge stamped on part for easy identification

These products are available with additional corrosion protection. For more information, see pp. 7–10.

SD Many of these products are approved for installation with the Strong-Drive® SD Connector screw. See **strongtie.com/sd** for more information.

Model No.	Total Length	Ga.	DF/SP		SPF/HF		Allowable Tension Loads (160) (lb.)	Code Ref.
			Fasteners (in.)	End Length (in.)	Fasteners (in.)	End Length (in.)		
CMST12	40'	12	(74) 0.162 x 2½	33	(84) 0.162 x 2½	38	9,215	IBC, FL, LA
			(86) 0.148 x 2½	39	(98) 0.148 x 2½	44	9,215	
CMST14	52½'	14	(56) 0.162 x 2½	26	(66) 0.162 x 2½	30	6,475	
			(66) 0.148 x 2½	30	(76) 0.148 x 2½	34	6,475	
CMSTC16	54'	16	(50) 0.148 x 3¼	20	(58) 0.148 x 3¼	25	4,690	
CS14	100'	14	(26) 0.148 x 2½	15	(30) 0.148 x 2½	16	2,490	
			(30) 0.131 x 2½	16	(36) 0.131 x 2½	19	2,490	
SS CS16	150'	16	(20) 0.148 x 2½	11	(22) 0.148 x 2½	13	1,705	
			(22) 0.131 x 2½	13	(26) 0.131 x 2½	15	1,705	
CS20	250'	20	(12) 0.148 x 2½	7	(14) 0.148 x 2½	9	1,030	
			(14) 0.131 x 2½	9	(16) 0.131 x 2½	9	1,030	

1. Fastener quantities and end lengths are calculated using an increase for wind or seismic loading.
2. Use half of the required nails in each member being connected to achieve the listed loads.
3. Calculate the connector value for a reduced number of nails as follows:

$$\text{Allowable Load} = \frac{\text{No. of Nails Used}}{\text{No. of Nails in Table}} \times \text{Table Load}$$

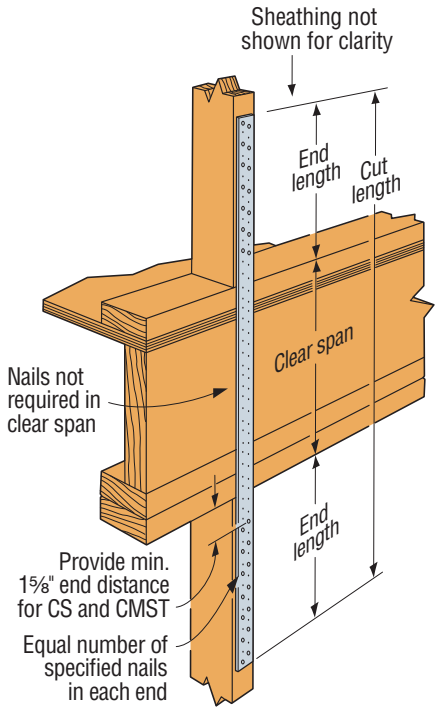
Example: CMSTC16 in DF/SP with 40 nails total.
(Half of the nails in each member being connected)

$$\text{Allowable Load} = \frac{40 \text{ Nails (Used)}}{50 \text{ Nails (Table)}} \times 4{,}585 \text{ lb.} = 3{,}668 \text{ lb.}$$

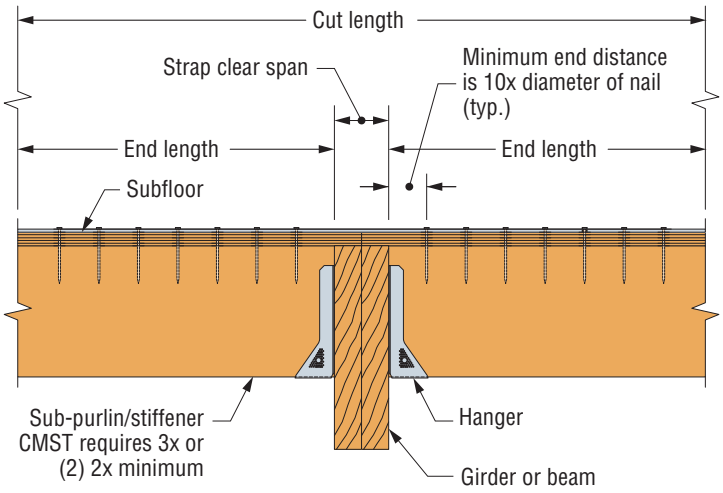
4. Tension loads apply for uplift when installed vertically.
5. 0.148" x 2½" may be used for 0.148" x 3¼" sinkers at full table load.
6. 0.131" x 1½" may be used for 0.131" x 2½" and 0.148" x 1½" may be used for 0.148" x 3¼" sinker or 0.148" x 2½" with no load reduction when installed directly over framing (use 0.92 load adjustment factor when substituting 0.148" x 1½" nails for CMST12 in SPF lumber). For installations over wood structural panel sheathing, use 2½"-long fasteners minimum.
7. **Fasteners:** Nail dimensions are listed diameter by length.

CS/CMST

Coiled Straps (cont.)



Typical CS Installation
As a Floor-to-Floor Tie
(CMST requires minimum (2) 2x studs)



Typical Horizontal
CS/CMST Installation

Not Sure How Much Coil Strap You Need?

Simpson Strong-Tie has a web-based app, the Coil Strap Length Calculator, which can help you quickly determine the cut length of each strap and the total amount of coil strap needed for each application on a project.

For more information or to access, go to **strongtie.com/software**.

High-Performance Coiled Strap

Coiled straps are continuous utility straps which can be cut to length at the jobsite. The 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 loads with fewer nails and shorter straps
- Easy identification for proper installation for building inspectors

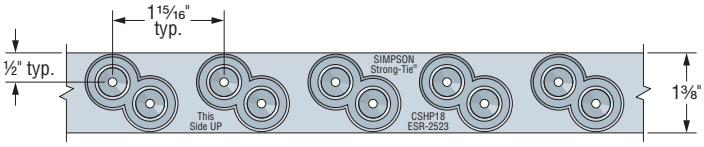
Finish: Galvanized

Material: See table

Installation:

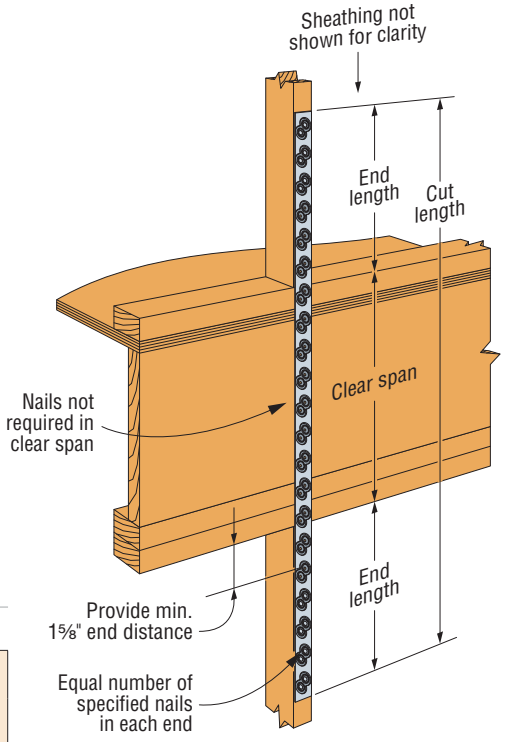
- Use all specified fasteners; see General Notes.
- "This Side Up" stamp must be installed facing out.
- Wood shrinkage after strap installation across horizontal wood members may cause strap to buckle outward.
- Refer to the applicable code for minimum nail penetration and minimum wood edge and end distances.
- The table shows the maximum allowable loads and the nails required to obtain them. Fewer nails may be used; reduce the allowable load as shown in the table notes.
- CSHP straps are available in 25' lengths; order CSHP18-R and CSHP20-R.

Codes: See p. 5 for Code Reference Key Chart



CSHP

Please go to **strongtie.com/patents** for the most current list of Simpson Strong-Tie patents.



Typical CSHP Installation as a Floor-to-Floor Tie

Model No.	Total Length	Ga.	DF/SP		SPF/HF		Allowable Tension Loads (160) (lb.)	Code Ref.
			Fasteners (in.)	End Length (in.)	Fasteners (in.)	End Length (in.)		
CSHP18	75'	18	(14) 0.148 x 2½	9	(16) 0.148 x 2½	10	1,540	IBC, FL, LA
			(16) 0.131 x 2½	10	(18) 0.131 x 2½	11	1,540	
CSHP20	75'	20	(12) 0.148 x 2½	8	(12) 0.148 x 2½	8	1,160	
			(12) 0.131 x 2½	8	(14) 0.131 x 2½	9	1,160	

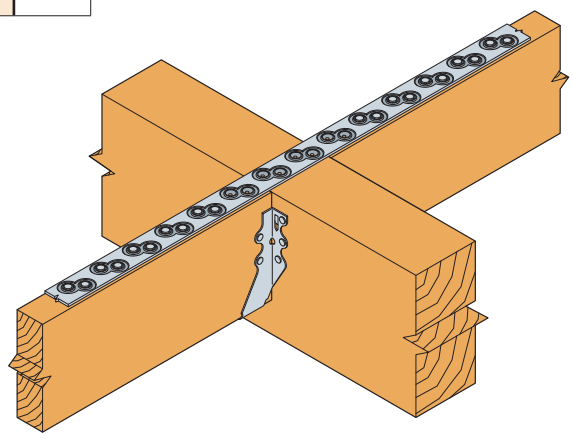
1. Fasteners listed show the minimum required length.
2. Fasteners can be installed with standard framing nailer.
3. Calculate the connector value for a reduced number of nails as follows:

$$\text{Allowable Load} = \frac{\text{No. of Nails Used}}{\text{No. of Nails in Table}} \times \text{Table Load}$$

Example: CSHP18 in DF/SP with (12) 0.148" x 2½" nails total. (Half of the nails in each member being connected)

$$\text{Allowable Load} = \frac{\text{12 Nails (Used)}}{\text{14 Nails (Table)}} \times 1{,}540 \text{ lb.} = 1{,}320 \text{ lb.}$$

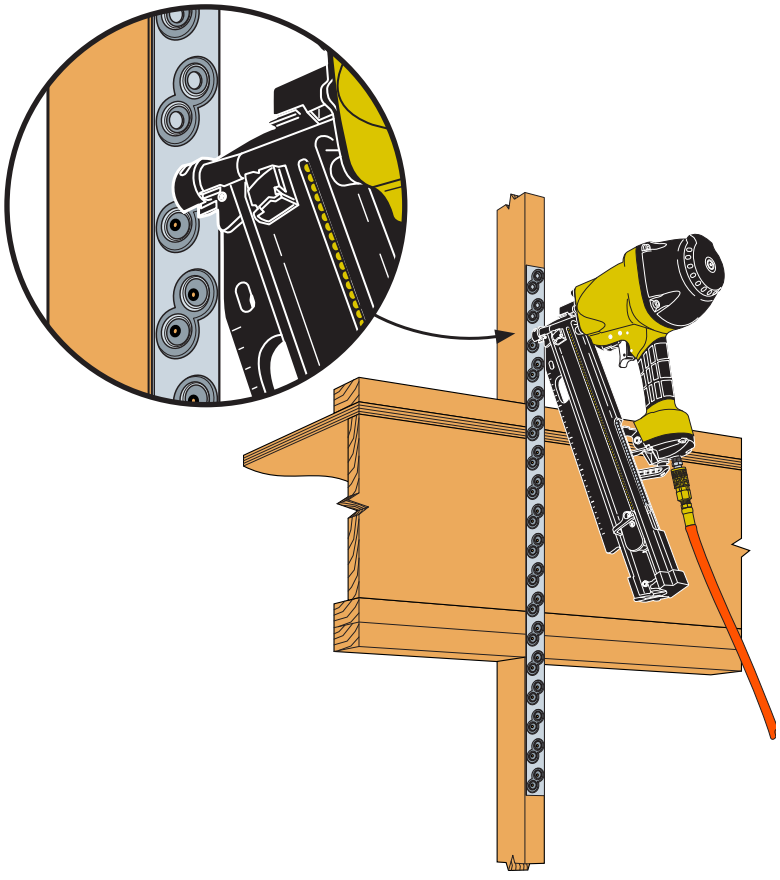
4. Tension loads apply for uplift when installed vertically.
5. **Fasteners:** Nail dimensions are listed diameter by length.



Typical CSHP Installation

CSHP

High-Performance Coiled Strap (cont.)



Typical CSHP Installation

CSHP installs with most power framing nailers.
Visit **strongtie.com/cshp** for use and warnings.

Fasteners

Strong-Drive® SDWC **TRUSS** Screw

The Strong-Drive SDWC Truss screw provides a stud-to-bottom plate or stud-to-top plate connection as well as fastening trusses and rafters to top plates. The full-threaded shank engages the entire length of the fastener, providing a secure connection. The SDWC is tested in accordance with ICC-ES AC233 (screw) and AC13 (wall assembly and roof-to-wall assembly) for uplift and lateral loads between wall plates and vertical wall framing and between the top plate and the roof rafters or trusses. It is code listed in IAPMO UES ER-262 and meets 2018 and 2021 IRC® and IBC® code requirements for most common wood framing applications.

For safe and easy installation, use the Quik Stik™ rafter and truss fastening system.

Features:

- Fully-threaded shank engages the entire length of the fastener, providing a secure connection between the roof and wall framing members
- Cap-style head countersinks fully into the double top plate to avoid interference with drywall or finish trades
- Wide tolerance on installation angle makes it easy to install the SDWC correctly
- Can be installed from inside the structure, eliminating exterior work on the upper stories and enhancing job safety
- 6-lobe, T30 driver bit provides positive engagement that makes the screw easy to drive and improves bit life (replacement driver bit — BIT30T-2-R2)
- Fastening can be performed before or after exterior sheathing is applied for added flexibility
- Metal installation guide tool (included) to help ensure proper installation
- Orange color for easy inspection
- Type-17 point for faster starts and easier driving
- SDWC15450 is recognized for use in chemically treated wood as described in the evaluation report

Codes/Standards: IAPMO UES ER-262 (including City of LA Supplement), State of Florida FL13975

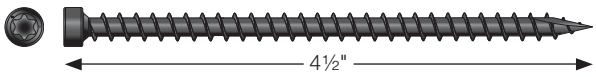
For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.

SDWC15450-KT and SDWC15600-KT contains:

- (50) Strong-Drive SDWC screws
- (1) Matched-tolerance driver bit (Part no. BIT30T-2-R2; also sold separately)
- (1) Metal installation guide tool
  - SDWC-GUIDE (for SDWC15600 only; also sold separately)

SDWC15450B-KT and SDWC15600B-KT contains:

- (500) Strong-Drive SDWC screws
- (2) Matched-tolerance driver bits (Part no. BIT30T-2-R2; also sold separately)
- (2) Metal installation guide tools
  - SDWC-GUIDE (for SDWC15600 only; also sold separately)

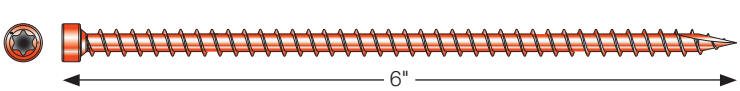


E-Coat® Coating

Model No.	Dimensions								Retail Pack		Bucket	
	Inches				Millimeters				Packaging SKU	Fast. per Pack	Packaging SKU	Fast. per Bucket
	O.D. x Length	Minor Dia.	Thread Length	Head Dia.	O.D. x Length	Minor Dia.	Thread Length	Head Dia.				
SDWC15450	0.235 x 4½	0.155	4¼	0.335	6 x 114	3.9	108	8.5	SDWC15450-KT	50	SDWC15450B-KT	500

1. O.D. denotes thread outer diameter.

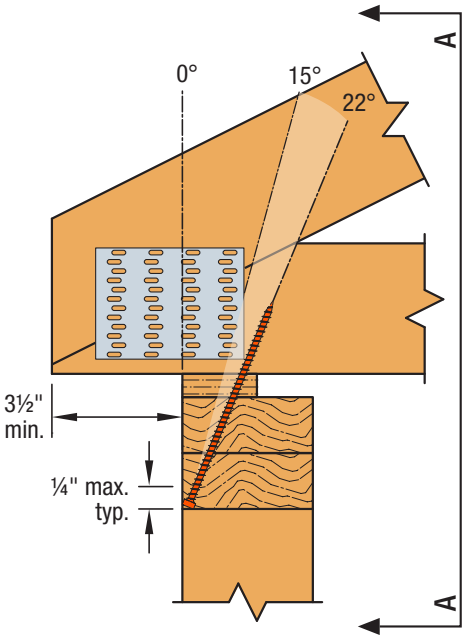
Clear Zinc Coating (with Orange Topcoat)



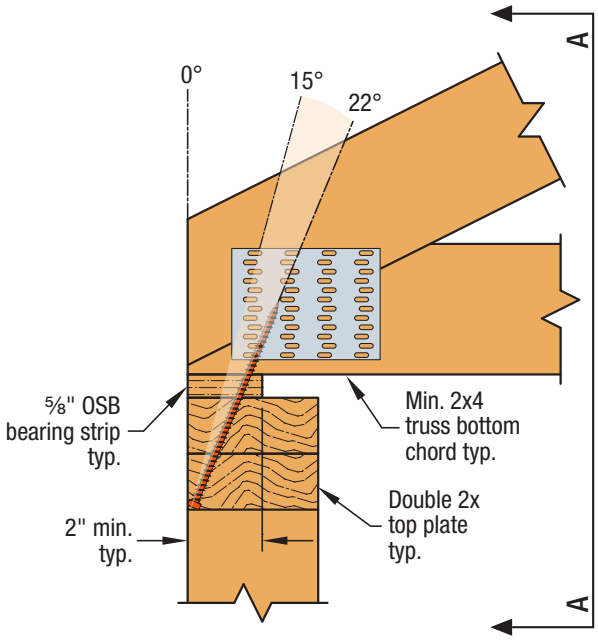
Model No.	Dimensions								Retail Pack		Bucket	
	Inches				Millimeters				Packaging SKU	Fast. per Pack	Packaging SKU	Fast. per Bucket
	O.D. x Length	Minor Dia.	Thread Length	Head Dia.	O.D. x Length	Minor Dia.	Thread Length	Head Dia.				
SDWC15600	0.235 x 6	0.155	5¾	0.335	6 x 152	3.9	146	8.5	SDWC15600-KT	50	SDWC15600B-KT	500

1. O.D. denotes thread outer diameter.

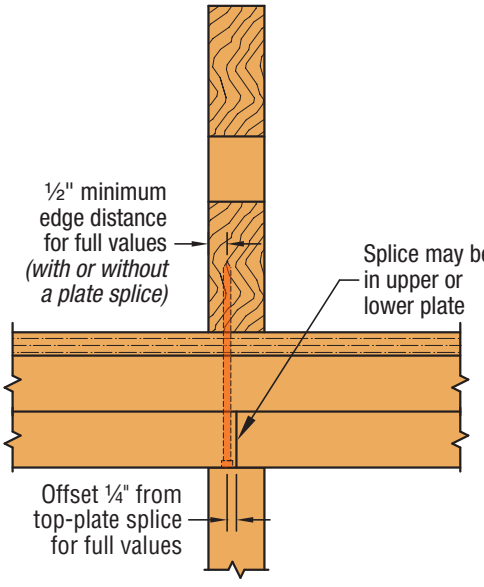
Strong-Drive® SDWC TRUSS Screw



SDWC Installation with Overhang



SDWC Installation Without Overhang



Section A-A
Minimum Edge Distance for Top Plate Splice

Note: For Strong-Drive® SDWC Truss screw load information, please refer to the current *Fastening Systems Technical Guide* or SDWC Truss screw product page available at **strongtie.com**.

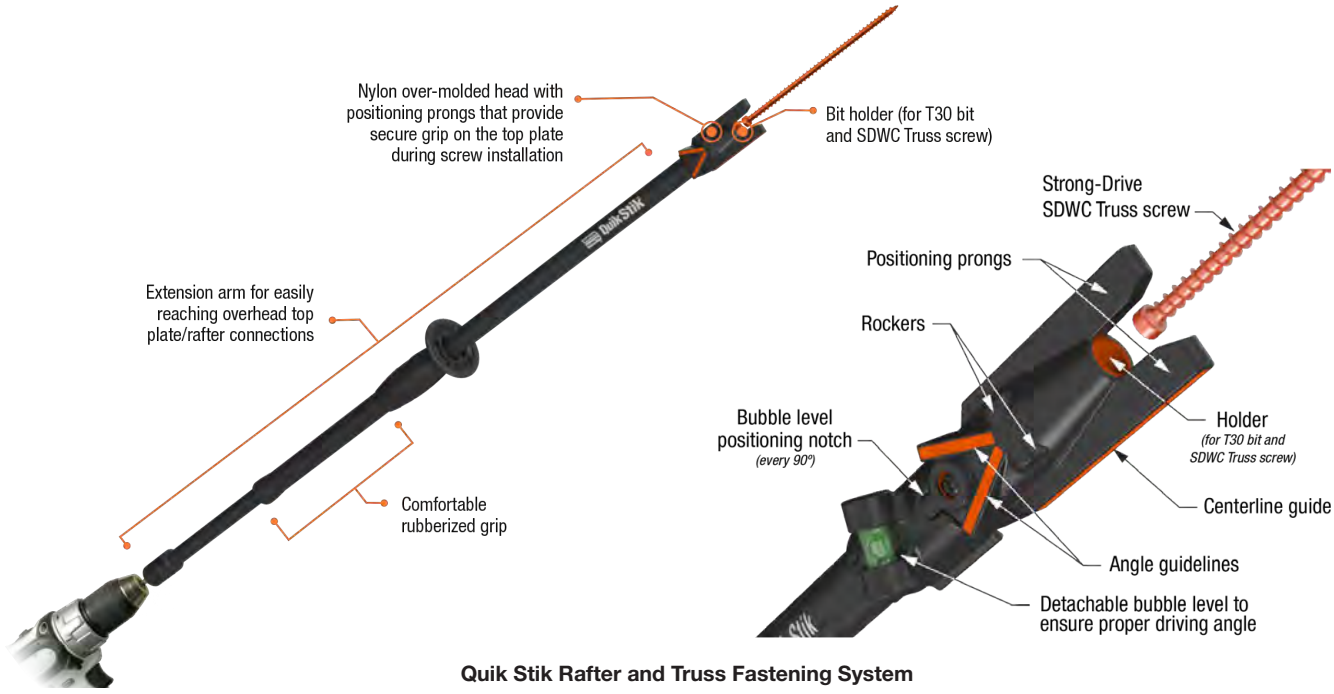
Quik Stik™
Rafter/Truss-to-Top Plate Installation

For the Quik Stik Rafter and Truss Fastening System

Quik Stik and Strong-Drive SDWC Truss screws are designed to work together for a safe, reliable solution from the leader in structural fastening.

For more information, see the current Simpson Strong-Tie *Fastening Systems* catalog at **strongtie.com**.

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.



Quik Stik Rafter and Truss Fastening System

Rafter/Truss Offset from Stud: Fasten Straight Up Through Double Top Plate

These instructions apply to rafter/truss-to-top-plate connections.

These instructions apply only if the rafter/truss is offset from the stud below.

Note: SDWC Truss screws install best with a minimum 18V (if cordless) drill using the matched-tolerance bit included in the SDWC15600KT or Quik Stik system using the included bit.

Installation Steps:

Position the Quik Stik head directly under the top plate so that the screw is pointing toward the centerline of the rafter/truss.

Ensure the Quik Stik centerline guide is vertically perpendicular to the top plate.

Drive the SDWC Truss screw straight up through the top plates and into the rafter/truss until the head is flush with the board's surface.

Strong-Drive® SDWV **SOLE-TO-RIM** Screw

The Simpson Strong-Tie SDWV Sole-to-Rim structural wood screws may be used to attach a sole plate to a rim board. The SDWV Sole-to-Rim screw coating is intended for dry service, low corrosion applications and is suitable for use with FRT in dry-service conditions.

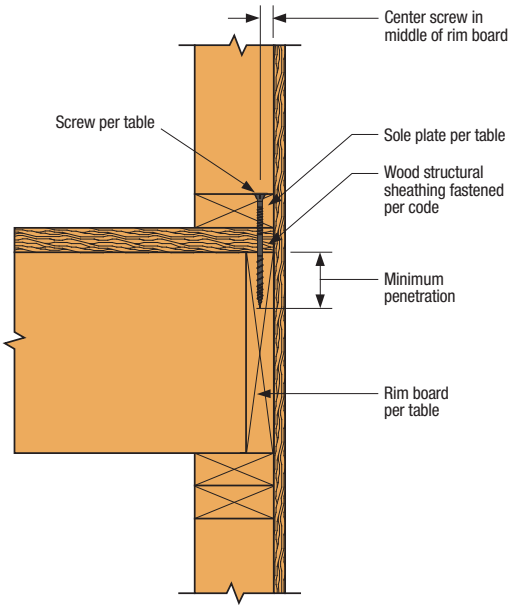
Features:

- Large 0.400"-diameter head for increased holding power
- Fast start point with helical ridge for fast, easy, low-torque installation
- Variable thread design, optimized for 2x nominal dimension lumber

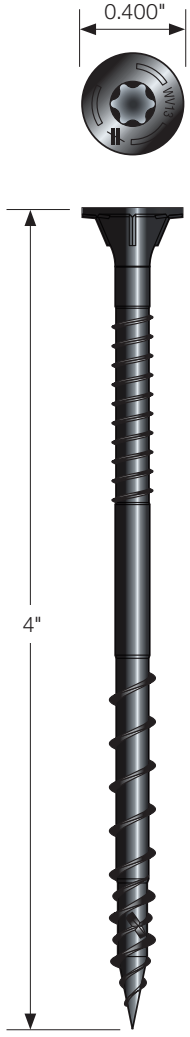
Material: E-coat® Electrocoating

Codes: IAPMO UES ER-192

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.



Sole-to-Rim Board Assembly
(other fasteners not shown for clarity)



Strong-Drive SDWV SOLE-TO-RIM Screw
Please go to **strongtie.com/patents** for the most current list of Simpson Strong-Tie patents.

Product Information

O.D. x Length (in.)	Head Diameter (in.)	Shank Diameter (in.)	Coating	Quantity	Model No.
0.185 x 4	0.400	0.135	E-coat	1,000	SDWV13400

1. O.D. denotes thread outer diameter.
2. Replacement driver bit: BIT25T-2.

Allowable Shear Loads for Sole-to-Rim Connection

O.D. x Length (in.)	Model No.	Nominal Sole Plate Thickness (in.)	Minimum Penetration into Rim Board (in.)	Reference Allowable Loads (lb.) per Screw							
				2x Min. DFL/SP Rim Board		2x Min. SPF/HF Rim Board		1¼" Min. LVL Rim Board		1¼" Min. LSL Rim Board	
				DFL/SP Sole Plate	SPF/HF Sole Plate	DFL/SP Sole Plate	SPF/HF Sole Plate	DFL/SP Sole Plate	SPF/HF Sole Plate	DFL/SP Sole Plate	SPF/HF Sole Plate
0.185 x 4	SDWV13400	2x	1.75	220	175	165	160	185	165	185	175

1. O.D. denotes thread outer diameter.
2. Allowable loads are based on testing per ICC-ES AC233 and are limited to parallel-to-grain loading. The equivalent specific gravity for the LVL and LSL having a minimum 0.8E designation for edge fastening is 0.50.
3. Allowable loads are shown at the wood load duration factor of C_D = 1.00. Loads may be increased for load duration as permitted by the building code up to a C_D = 1.60.
4. Minimum spacing of the SDWV is 6" o.c., minimum end distance is 6", and minimum edge distance is ⅝".
5. Wood structural panel up to 23/32" thick is permitted between the sole plate and rim board provided it is fastened to the rim board per code and the minimum penetration of the screw into the rim board is met.
6. Minimum rim board height shall be 9¼" when fastening a sole plate and a single top plate to the rim board with SDWV screws.
7. Sole-to-rim loads can be achieved without a wall below.

Strong-Drive® SDW **TRUSS-PLY** and **EWP-PLY** Screws

The Strong-Drive SDW Truss-Ply and EWP-Ply screws are a 0.220"-shank-diameter, high-strength structural screws specifically designed for fastening multi-ply members such as plated trusses, engineered-lumber products and solid sawn lumber. The Strong-Drive SDW Truss-Ply and EWP-Ply screws installs with no predrilling and are available in optimized lengths for fastening 2-, 3- and 4-ply trusses or 1¾"-engineered lumber such as 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.

Features:

- Low-profile head for reduced interference during handling or installation of hardware on the assembly
- Patented Sawtooth® point ensures fast starts, reduces installation torque and eliminates the need for predrilling in most applications
- 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®

Codes: IAPMO UES ESR-192 (including City of LA Supplement), State of Florida FL 13975

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.

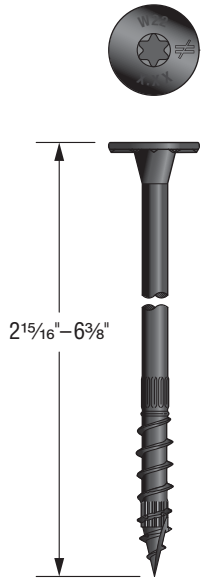
Warning: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, the Strong-Drive SDW Truss-Ply and EWP-Ply screws should only be used in dry, interior and non-corrosive environments.

Installation:

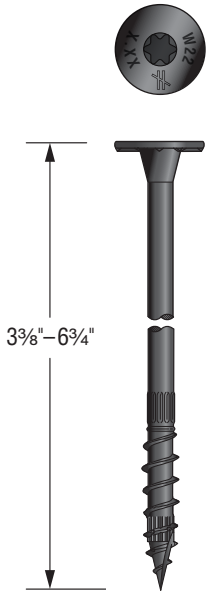
- Use all specified fasteners; see General Notes.
- Strong-Drive SDW Truss-Ply and EWP-Ply screws install best with a low-speed ½" drill motor and a T40 6-lobe bit. The matched bit included with the screws is recommended for best results.
- Predrilling is typically not required. Strong-Drive SDW Truss-Ply and EWP-Ply screws may be installed through metal truss plates as approved by the truss designer, provided the requirements of ANSI/TPI 1-2014 Section 8.9.2 are met (predrilling required through the plate using a maximum of 5⁄32" bit).
- Screw heads that are countersunk flush to the wood surface are acceptable if the screw has not spun out.
- Individual screw locations may be adjusted up to 3" to avoid conflicts with other hardware or to avoid lumber defects.

Notes to the Designer:

1. Single-fastener shear loads and withdrawal loads in this section, are based on testing per ICC-ES AC233. Allowable withdrawal load for DF/SP/SCL is 200 lb./in. and for SPF/HF withdrawal is 150 lb./in. of thread length penetration into the main member. Total allowable withdrawal load is based on actual thread penetration into the main member.
2. Allowable loads can be found in the *Fastening Systems Technical Guide* at **strongtie.com** and are shown with a load duration factor of C_D = 1.00 and shall be multiplied by all applicable adjustment factors per the NDS. Loads may be increased for load duration per the building code up to a C_D of 1.6.
3. Minimum fastener spacing requirements: 6" end distance, 1 7⁄16" edge distance, 5⁄8" between staggered rows of fasteners, 4" between non-staggered rows of fasteners and 6" between fasteners in a row.
4. Maximum fastener spacing is recommended not to exceed 24" on-center except as approved by a qualified designer.
5. Structural composite lumber (SCL = LVL, PSL or LSL) loads assume an equivalent Specific Gravity of 0.50 or higher for fastener shear in the wide face (unless otherwise noted).
6. Tabular loads can be found in the *Fastening Systems Technical Guide* at **strongtie.com** and are based on the capacity of the Simpson Strong-Tie Strong-Drive SDW Truss-Ply and EWP-Ply screws. The capacity of the multi-ply assembly must be checked by a qualified designer.
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
Please go to **strongtie.com/patents** for the most current list of Simpson Strong-Tie patents.

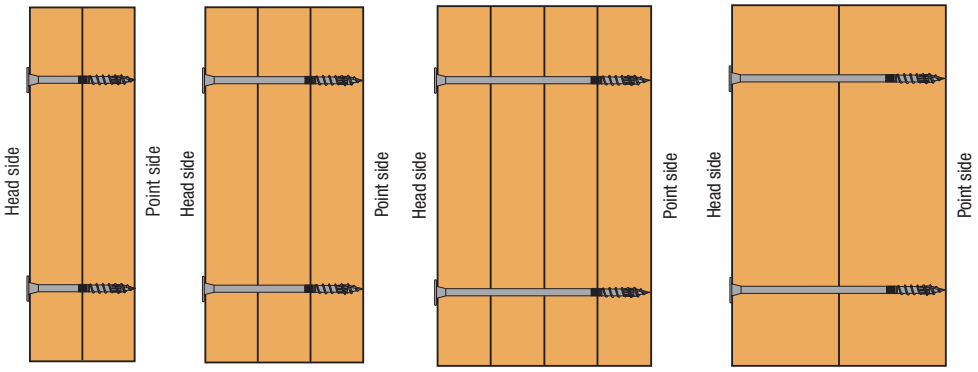


Strong-Drive
SDW EWP-PLY Screw
Please go to **strongtie.com/patents** for the most current list of Simpson Strong-Tie patents.

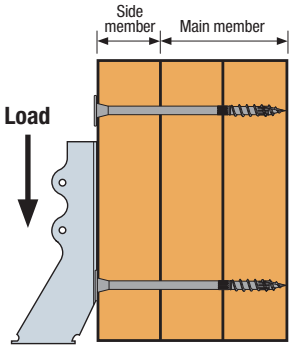
T40 Driver Bit
(included)
BIT40-134-R2

Strong-Drive® SDW **TRUSS-PLY** and **EWP-PLY** Screws

SDW Multi-Ply Assemblies

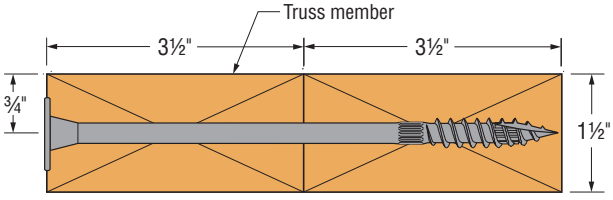


Assembly A-W **Assembly B-W** **Assembly C-W** **Assembly F-W**

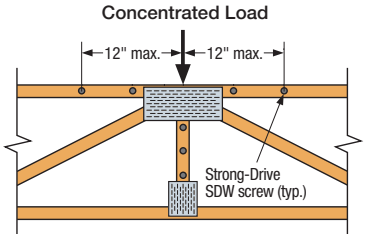


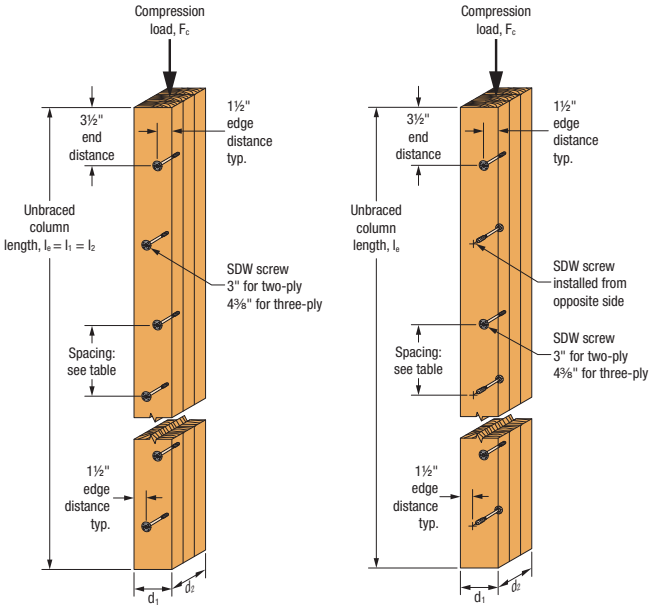
Loaded on Head Side
(three-ply assembly shown – other configurations similar)

SDW Multi-Ply Truss and Column Assemblies



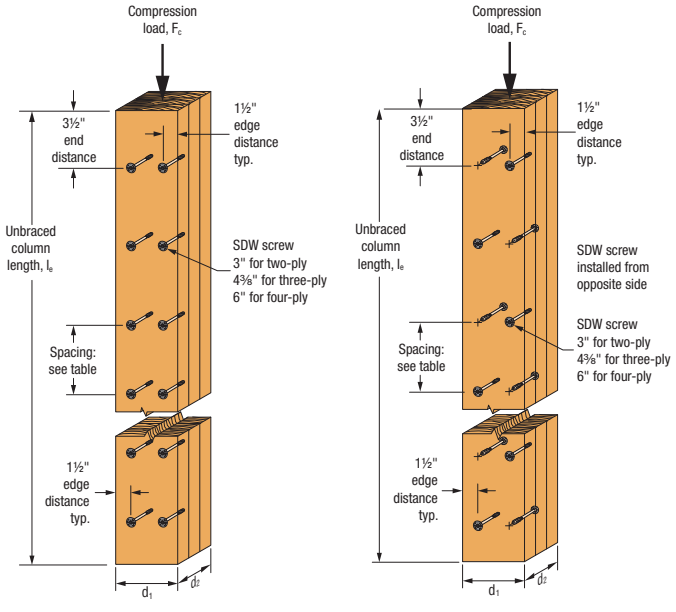
SDW Screw Position in Two-Ply 4x2 Truss
(two-ply 3x2 similar)





One Side **Both Sides**

2x4 Built-Up Column



One Side **Both Sides**

2x6 Built-Up Column

Strong-Drive® SDWH **TIMBER-HEX** Screw

Ideal for structural and general-purpose fastening applications where a hex-head drive is preferred. The Strong-Drive SDWH Timber-Hex screw is ideal for the contractor and do-it-yourselfer alike. It is code listed in IAPMO UES ER-192 and meets 2018 and 2021 IRC® and IBC® code requirements for most common wood framing applications.

Features:

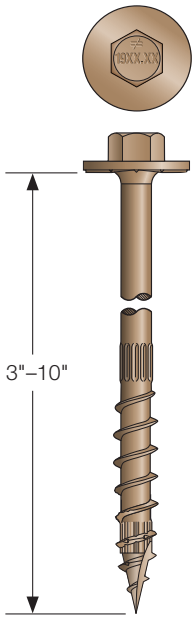
- Bold thread design provides superior holding power
- Patented Sawtooth® point ensures fast starts, reduces installation torque and eliminates the need for predrilling in most applications
- Underhead nibs offer greater control when seating the head
- Large washer head provides maximum bearing area (0.650" washer head diameter)
- Size identification on all SDWH screw heads
- 5⁄16" hex drive (replacement driver bit: BITHEXR516-R1)

Material: Heat-treated carbon steel

Finish: Double-barrier coating provides corrosion resistance equivalent to hot-dip galvanization, making it suitable for certain exterior and preservative-treated wood applications, as described in the evaluation report.

Codes: IAPMO UES ER-192, State of Florida FL13975

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.

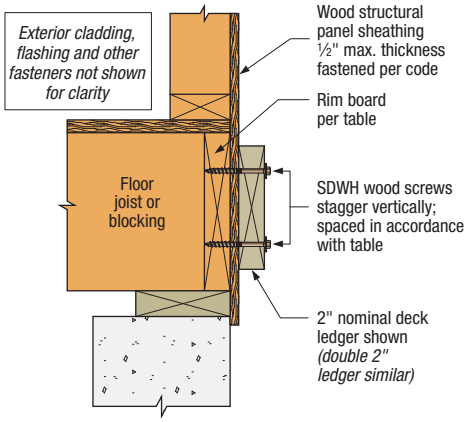


Strong-Drive
SDWH TIMBER-HEX Screw
Please go to **strongtie.com/patents** for the most current list of Simpson Strong-Tie patents.

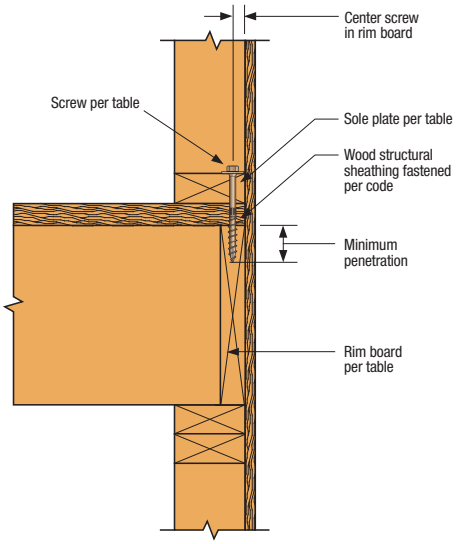
Product Information

O.D. x Length (in.)	Thread Length (in.)	Flagged Fasteners		Retail Clamshell		Retail Pack		Mini-Bulk Pack		Bulk Pack	
		Fast. per Pack	Model No.	Fast. per Pack	Model No.	Fast. per Pack	Model No.	Fast. per Pack	Model No.	Fast. per Pack	Model No.
0.275 x 3	1 ½	1	SDWH19300DB-RP1	12	SDWH19300DB-R12	50	SDWH19300DB-R50	250	SDWH19300DBMB	1,000	SDWH19300DB
0.275 x 4	2⅜	1	SDWH19400DB-RP1	12	SDWH19400DB-R12	50	SDWH19400DB-R50	250	SDWH19400DBMB	800	SDWH19400DB
0.275 x 6	2¾	1	SDWH19600DB-RP1	12	SDWH19600DB-R12	50	SDWH19600DB-R50	250	SDWH19600DBMB	600	SDWH19600DB
0.275 x 8	2¾	1	SDWH19800DB-RP1	12	SDWH19800DB-R12	50	SDWH19800DB-R50	250	SDWH19800DBMB	500	SDWH19800DB
0.275 x 10	2¾	1	SDWH191000DB-RP1	12	SDWH191000DB-R12	50	SDWH191000DB-R50	250	—	250	SDWH191000DB

1. O.D. denotes thread outer diameter.
2. Retail and mini-bulk packs include one 5⁄16" hex driver bit; bulk packs include two driver bits.
3. Flagged fasteners per master carton: 40; retail clamshell packs per master carton: 10; retail pack packs per master carton: 6.



Ledger-to-Rim Board Assembly
(wood-framed lower floor acceptable, concrete wall shown for illustration purposes; other fasteners not shown for clarity)



Sole-to-Rim Board Assembly
(other fasteners not shown for clarity)

Strong-Drive® SDWS **TIMBER** (Exterior Grade) Screw

The Strong-Drive SDWS Timber (Exterior Grade) screw is designed to provide an easy-to-install, high-strength alternative to through-bolting and traditional lag screws.

Features:

- Bold thread design provides superior holding power
- Patented Sawtooth® point ensures fast starts, reduces installation torque and eliminates the need for predrilling in most applications
- Underhead nibs offer greater control when seating the head
- Large low-profile washer head provides maximum bearing area

Material: Heat-treated carbon steel

Finish: Double-barrier coating

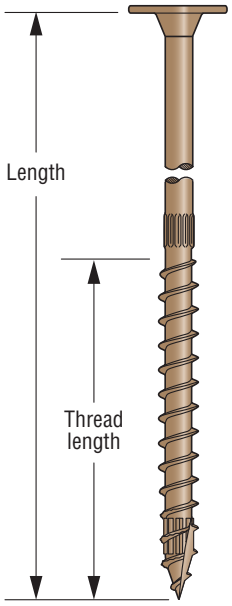
Installation:

- See General Notes.
- Strong-Drive SDWS Timber (Exterior Grade) screws install best with a low-speed ½" drill and a T40 6-lobe bit. The matched bit included with the screws is recommended for best results (replacement driver bit: BIT40T-134-R2).
- Predrilling is typically not required. Where predrilling is necessary, use a 5⁄32" drill bit.
- SDWS Timber (Exterior Grade) screws are driven such that screw heads that are countersunk flush to the wood surface are acceptable if the screw has not spun out.
- For additional information, visit **strongtie.com/fasteners**.

Codes: IAPMO UES ER-192, State of Florida FL13975

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.

Identification on all Strong-Drive SDWS Timber (Exterior Grade) screw heads



Strong-Drive SDWS TIMBER (Exterior Grade) Screw

Please go to **strongtie.com/patents** for the most current list of Simpson Strong-Tie patents.

Product Information

O.D. x Length (in.)	Thread Length (in.)	Retail Clamshell[2]			Retail Pack[2]			Mini-Bulk Pack[2]		Bulk Pack[2]	
		Fast. per Pack	Packs per Master Carton	Model No.	Fast. per Pack	Packs per Master Carton	Model No.	Fast. per Pack	Model No.	Fast. per Pack	Model No.
0.315 x 3	1½	12	5	SDWS22300DB-R12	50	6	SDWS22300DB-R50	250	SDWS22300DBMB	950	SDWS22300DB
0.315 x 4	2⅜	12	5	SDWS22400DB-R12	50	6	SDWS22400DB-R50	250	SDWS22400DBMB	600	SDWS22400DB
0.315 x 5	3	12	5	SDWS22500DB-R12	50	6	SDWS22500DB-R50	250	SDWS22500DBMB	600	SDWS22500DB
0.315 x 6	3	12	5	SDWS22600DB-R12	50	6	SDWS22600DB-R50	250	SDWS22600DBMB	500	SDWS22600DB
0.315 x 8	3	12	5	SDWS22800DB-R12	50	6	SDWS22800DB-R50	250	SDWS22800DBMB	400	SDWS22800DB
0.315 x 10	3	12	5	SDWS221000DB-R12	50	6	SDWS221000DB-R50	—	—	250	SDWS221000DB

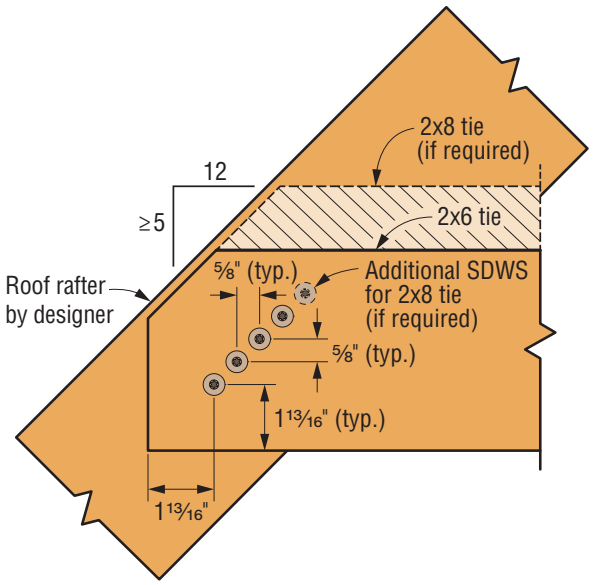
1. O.D. denotes thread outer diameter.
2. Retail clamshell, retail and mini-bulk packs include one deep, 6-lobe, T40 driver bit; bulk packs include two driver bits.

Strong-Drive® SDWS **TIMBER** (Exterior Grade) Screw

Equivalent SDWS Screws to Replace Bolts for Collar Tie Connections

Rafter Slope	Rafter Spacing	Bolt Quantity and Diameter	Minimum Collar Tie Size	Equivalent SDWS Screws			
				Quantity	Model	O.D. x Length	Thread Length
≥ 5:12	≤ 16" o.c.	(2) ½"	2x6	4	SDWS22300DB	0.220" x 3"	1½"
		(2) ⅝"	2x8	5			

1. O.D. denotes thread outer diameter.
2. Bolted connections are assumed to meet the minimum spacing, edge and end distance requirements established in *ANSI/AWC National Design Specification for Wood Construction (NDS)*.
3. Calculated capacity of bolted connections are based on 2x Southern Pine framing members ($t_m = t_s = 1½"$).
4. SDWS screws shall maintain minimum spacing, edge and end distances shown in Figure 2. Collar tie size is the minimum required for the SDWS connection only; the design of the collar tie itself is the responsibility of the designer.
5. Capacities for tabulated SDWS screw quantities meet or exceed the required heel joint capacities for 20 psf roof live load at a maximum roof span of 36 ft. from WFCM Table 3.9, including an adjustment factor of 1.50 for HC/HR = ⅓ per footnote 5.



SDWS Spacing and Edge Distance for Collar Ties

Strong-Drive® SDWS **TIMBER** (Interior Grade) Screw

The Strong-Drive SDWS Timber (Interior Grade) screw is a structural wood screw available in a variety of lengths and is designed for cross-laminated timber construction, mass timber construction and general interior applications. These 0.195"- and 0.220"-shank-diameter structural fasteners have a low installation torque demand. The large washer head works with the aggressive threads to pull members together, eliminating the need to use extra washers. It is code listed in IAPMO UES ER-192 and meets 2018 and 2021 IRC® and IBC® code requirements for most common wood framing applications.

Special Features:

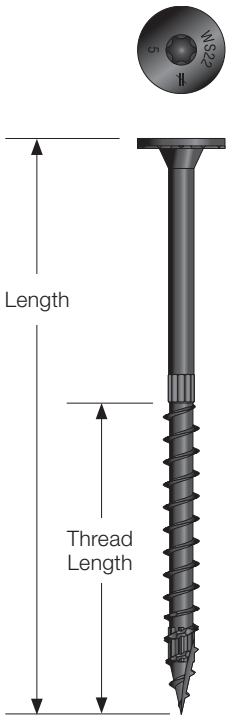
- SawTooth® point ensures fast starts, reduces installation torque and eliminates the need for predrilling in most applications
- Low-profile head design makes countersinking easy
- Serrated thread reduces splitting and damage
- Large washer head with underhead nibs provides maximum bearing area
- 6-lobe, T40 drive provides positive engagement that makes the screw easy to drive (replacement driver bit: BIT40T-134-R2)
- Size identification on all Simpson Strong-Tie screws

Codes: IAPMO UES ER-192

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.

Warning: Industry studies show that hardened fasteners can experience performance problems in wet and corrosive environments. Accordingly, use this product in dry, interior and noncorrosive environments only.

Testing in a variety of mass timber applications is underway. For the most up-to-date product information, please visit **strongtie.com**.



Please go to **strongtie.com/patents** for the most current list of Simpson Strong-Tie patents.

Strong-Drive SDWS TIMBER (Interior Grade) Screw

E-Coat® Coating

Model No.	Dimensions								Retail Pack		Mini-Bulk Pack	
	Inches				Millimeters				Packaging SKU	Fasteners per Pack	Packaging SKU	Fasteners per Pack
	O.D. x Length	Shank Dia.	Thread Length	Head Dia.	O.D. x Length	Shank Dia.	Thread Length	Head Dia.				
SDWS19600	0.275 x 6	0.195	3	0.650	7.0 x 152	5.0	76	16.5	SDWS19600-R50	50	SDWS19600	250
SDWS19712	0.275 x 7½	0.195	3	0.650	7.0 x 191	5.0	76	16.5	SDWS19712-R50	50	SDWS19712	250
SDWS22400	0.315 x 4	0.220	2⅜	0.760	8.0 x 101	5.6	60	19.3	SDWS22400-50	50	SDWS22400	250
SDWS22500	0.315 x 5	0.220	3	0.760	8.0 x 127	5.6	76	19.3	SDWS22500-50	50	SDWS22500	250
SDWS22512	0.315 x 5½	0.220	3	0.760	8.0 x 140	5.6	76	19.3	SDWS22512-50	50	SDWS22512	250
SDWS22600	0.315 x 6	0.220	3	0.760	8.0 x 152	5.6	76	19.3	SDWS22600-50	50	SDWS22600	250
SDWS22800	0.315 x 8	0.220	3	0.760	8.0 x 203	5.6	76	19.3	SDWS22800-R50	50	SDWS22800	250
SDWS22900	0.315 x 9	0.220	3	0.760	8.0 x 229	5.6	76	19.3	SDWS22900-R50	50	SDWS22900	250
SDWS221000	0.315 x 10	0.220	3	0.760	8.0 x 254	5.6	76	19.3	SDWS221000-R50	50	SDWS221000	250
SDWS221100	0.315 x 11	0.220	3	0.760	8.0 x 279	5.6	76	19.3	SDWS221100-R50	50	SDWS221100	250
SDWS221200	0.315 x 12	0.220	3	0.760	8.0 x 305	5.6	76	19.3	SDWS221200-R50	50	SDWS221200	250
SDWS221500	0.315 x 15	0.220	3	0.760	8.0 x 381	5.6	76	19.3	SDWS221500-R50	50	SDWS221500	200

1. O.D. denotes thread outer diameter.
2. Driver bit size: T40; replacement driver bit: BIT40T-134-R2.
3. E-coat is a registered trademark of PPG Industries.

Strong-Drive® SD **CONNECTOR** Screw

The Strong-Drive SD Connector screw is specifically designed to replace nails in certain Simpson Strong-Tie connectors, and is the only screw approved for that application. The load-rated SD screw has been tested and approved for use in many popular Simpson Strong-Tie products. In certain applications screws are easier and more convenient to install than nails, and the single-fastener load values achieved by the SD screw exceed those of typical 10d common or 16d common nails. In addition, the galvanized coating makes the SD screw ideal for both interior and most exterior conditions.

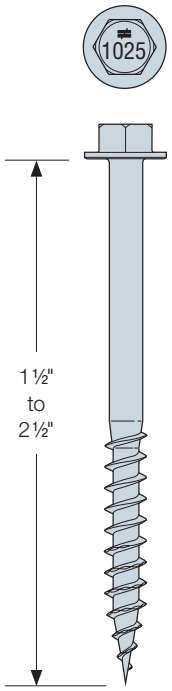
Features:

- Specifically designed to replace nails in certain Simpson Strong-Tie connectors, and is the only screw approved for that application. The #9 and #10 SD screws replace 10d and 16d nails, respectively.
- Tested and approved for use in many of our most popular connectors for both interior and exterior applications.
- Ideal for use in connector applications where more control is desired or using a hammer is inconvenient.
- ¼" hex head with 0.370"-diameter integrated washer is stamped with the Simpson Strong-Tie "≠" sign and the fastener size for easy identification after installation.
- Shank is specifically designed to match the fastener holes in Simpson Strong-Tie connectors.
- Optimized heat treating for ductility and strength.
- The single-fastener load capacity of the SD9 exceeds the capacity of a 10d common nail, while the single-fastener load capacity of the SD10 exceeds that of the 16d common nail.
- Hex driver bit included (replacement driver bit: BITHEXR14-R1)

Mechanically-galvanized coating meets ASTM B695 Class 55, is recommended for use with certain preservative-treated woods and recognized as an alternate to hot-dip galvanized in ESR-3046; it is compliant with the 2015 and 2018 International Residential Code®.

Codes ICC-ES ESR-3046, State of Florida FL9589

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.



Strong-Drive SD CONNECTOR Screw

Mechanically-Galvanized Coating — Class 55

O.D. x Length (in.)	Thread Length (in.)	Retail Pack			Mini-Bulk Pack			Bulk Pack	
		Fasteners per Pack	Packs per Master Carton	Model No.	Fasteners per Pack	Packs per Master Carton	Model No.	Fasteners per Pack	Model No.
#9 x 1½	1⅛	100	10	SD9112R100	500	3	SD9112R500	3,000	SD9112MB
#9 x 2½	1⅛	100	6	SD9212R100-R	500	2	SD9212R500	2,000	SD9212MB
#10 x 1½	1⅛	100	10	SD10112R100	500	3	SD10112R500	3,000	SD10112MB
#10 x 2½	1⅛	100	6	SD10212R100-R	500	2	SD10212R500	2,000	SD10212MB

1. O.D. denotes thread outer diameter.

Strong-Drive® SDS **HEAVY-DUTY CONNECTOR** Screw

The Simpson Strong-Tie Strong-Drive SDS Heavy-Duty Connector screw is a 0.250"-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 SDS Heavy-Duty Connector screw is improved with an easy-driving Type-17 point and a corrosion resistant double-barrier coating.

Features:

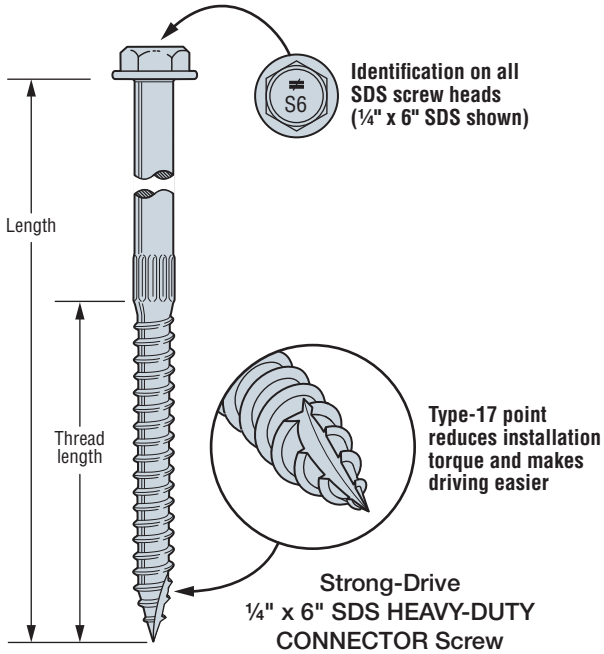
- The Type-17 point reduces installation torque and makes driving easy with no predrilling and minimal wood splitting.
- Available with a double-barrier coating or in Type 316 stainless steel. Carbon steel loads apply to corresponding stainless-steel models.
- ⅜" hex washer head is stamped with the No-Equal sign and fastener length for easy identification after installation.
- For the ⅜" hex-head driver bit, order model no. BITHEXR38-R1.

Material: Heat-treated carbon steel, Type 316 stainless steel

Finish: Double barrier (all lengths); Type 316 stainless steel (1½" through 3½" lengths)

Codes: ICC-ES ESR-2236, State of Florida FL9589

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.



Strong-Drive ¼" x 6" SDS HEAVY-DUTY CONNECTOR Screw

Please go to **strongtie.com/patents** for the most current list of Simpson Strong-Tie patents.

Double-Barrier Coating or Type-316 Stainless Steel

Model No.	Dimensions				Retail Pack		Mini-Bulk		Bulk		Coating/ Material
	Inches		Millimeters		Fasteners per Pack	Model No.	Fasteners per Pack	Model No.	Fasteners per Pack	Model No.	
	O.D. x Length	Thread Length	O.D. x Length	Thread Length							
SDS25112	0.250 x 1½	1	6.35 x 38	25	25	SDS25112-R25	300	SDS25112MB	1,500	SDS25112	Double Barrier
SDS25200	0.250 x 2	1¼	6.35 x 51	31	25	SDS25200-R25	250	SDS25200MB	1,300	SDS25200	Double Barrier
SDS25212	0.250 x 2½	1½	6.35 x 64	38	25	SDS25212-R25	200	SDS25212MB	1,100	SDS25212	Double Barrier
SDS25300	0.250 x 3	2	6.35 x 76	51	25	SDS25300-R25	150	SDS25300MB	950	SDS25300	Double Barrier
SDS25312	0.250 x 3½	2¼	6.35 x 89	57	10	SDS25312-R10	125	SDS25312MB	900	SDS25312	Double Barrier
—					25	SDS25312-R25L*	—	—	—	—	Double Barrier
SDS25412	0.250 x 4½	2¾	6.35 x 114	70	10	SDS25412-R10	100	SDS25412MB	800	SDS25412	Double Barrier
SDS25500	0.250 x 5	2¾	6.35 x 127	70	10	SDS25500-R10	100	SDS25500MB	500	SDS25500	Double Barrier
—					25	SDS25500-R25L*	—	—	—	—	Double Barrier
SDS25600	0.250 x 6	3¼	6.35 x 152	82	10	SDS25600-R10	100	SDS25600MB	600	SDS25600	Double Barrier
—	0.250 x 8	3¼	6.35 x 203	82	10	SDS25800-R10	—	—	—	—	Double Barrier
SDS25800					50	SDS25800-R50	—	—	400	SDS25800	Double Barrier
SDS25112SS	0.250 x 1½	1	6.35 x 38	25	25	SDS25112SS-R25	—	—	1500	SDS25112SS	Type 316 SS
SDS25200SS	0.250 x 2	1¼	6.35 x 51	31	25	SDS25200SS-R25	—	—	1300	SDS25200SS	Type 316 SS
SDS25212SS	0.250 x 2½	1½	6.35 x 64	38	25	SDS25212SS-R25	—	—	1100	SDS25212SS	Type 316 SS
SDS25300SS	0.250 x 3	2	6.35 x 76	51	25	SDS25300SS-R25	—	—	950	SDS25300SS	Type 316 SS
SDS25312SS	0.250 x 3½	2¼	6.35 x 89	57	25	SDS25312SS-R25	—	—	900	SDS25312SS	Type 316 SS
—					25	SDS25312SS-R25L*	—	—	—	—	Type 316 SS

1. O.D. denotes thread outer diameter.
***** Packaged in a ledger-specific box with ⅜" hex-driver bit.

Strong-Drive® SDWS **FRAMING** Screw

The SDWS Framing screw is designed and load-rated for replacing 16d, 10d and 8d nails in framing applications. The SDWS Framing screw is 0.215" in diameter and superior to nails in holding power and pull-out resistance. It is code listed in IAPMO UES ER-192 and meets 2018 and 2021 IRC® and IBC® code requirements for most common wood framing applications.

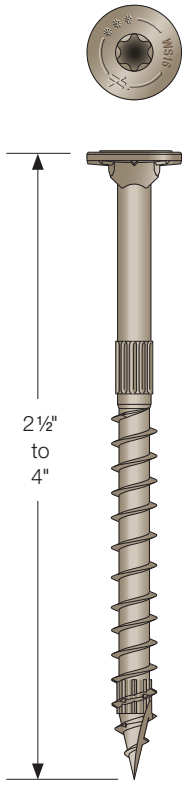
The screw has a SawTooth® point that makes for fast installations without predrilling, and its specially-designed head countersinks easily to provide a clean, flush finish. The T25 bit holds the 6-lobe recess tightly, reducing cam-out and head stripping.

Features:

- Large washer head with underhead box-nibs provides increased bearing in structural applications and provides clean and easy countersinking (0.440" head diameter)
- SawTooth point ensures fast starts, reduces installation torque and eliminates the need for predrilling in most applications
- The 6-lobe drive provides positive bit engagement resulting in easier installations and longer bit life
- Quik Guard® coating provides protection in indoor and outdoor applications
- Driver bit model no.: BIT25T-2-R2

Codes: IAPMO UES ER-192, State of Florida FL13975

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.



Strong-Drive
SDWS FRAMING Screw
Please go to **strongtie.com/patents** for the most current list of Simpson Strong-Tie patents.

Quik Guard Coating

Dimensions				Retail Pack			Mini-Bulk			Bulk	
Inches		Millimeters		Fasteners per Pack	Packs per Master Carton	Model No.	Fasteners per Pack	Packs per Master Carton	Model No.	Fasteners per Pack	Model No.
O.D. x Length	Thread Length	O.D. x Length	Thread Length								
0.215 x 2.5	1⅛	4 x 63	28	50	10	SDWS16212QR50	150	3	SDWS16212QR150	1,000	SDWS16212Q
0.215 x 3	1⅝	4 x 76	41	50	10	SDWS16300QR50	150	3	SDWS16300QR150	1,000	SDWS16300Q
0.215 x 3.5	2	4 x 89	50	50	10	SDWS16312QR50	150	3	SDWS16312QR150	750	SDWS16312Q
0.215 x 4	2½	4 x 100	63	50	6	SDWS16400QR50	150	3	SDWS16400QR150	750	SDWS16400Q

1. O.D. denotes thread outer diameter.
2. Replacement driver bit: BIT25T-2-R2.

Strong-Drive® SDHR **COMBO-HEAD** Screw

The Strong-Drive SDHR Combo-Head screw is a structural fastener designed for cross-laminated timber construction, mass timber construction and general interior applications. These partially-threaded, sturdy 0.390"- and 0.470"-diameter structural fasteners are designed to pull structural members together while providing excellent connection strength. The unique "combination" head allows for effortless driving using either a hex driver bit or T40 6-lobe driver bit (BIT40T-134-R2). The SDHR Combo-Head has an interior-grade, zinc coating, a robust knurled shank and Type-17 point for fast starts and low-torque driving.

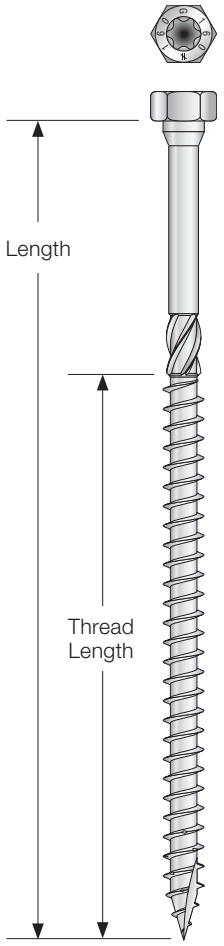
Special Features:

- Designed for use with steel side plates
- Type-17 point ensures fast starts, reduces installation torque and eliminates the need for predrilling in most applications
- Partially threaded with aggressive thread to provide high pullout resistance

Codes/Standards: ICC-ES ESR-3046, State of Florida FL9589

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.

Warning: Industry studies show that hardened fasteners can experience performance problems in wet and corrosive environments. Accordingly, use this product in dry, interior and noncorrosive environments only.



Strong-Drive SDHR COMBO-HEAD Screw

Bright Zinc Coating

Model No.	Dimensions						Mini-Bulk		Box	
	Inches			Millimeters			Packaging SKU	Fasteners per Pack	Packaging SKU	Fasteners per Box
	O.D. x Length	Shank Dia.	Thread Length	O.D. x Length	Shank Dia.	Thread Length				
SDHR27400	0.390 x 4	0.275	2⅛	10 x 100	7.1	55	SDHR27400-R25	25	SDHR27400	100
SDHR27614	0.390 x 6¼	0.275	4⅜	10 x 160	7.1	110	SDHR27614-R25	25	SDHR27614	100
SDHR31400	0.470 x 4	0.315	2⅛	12 x 100	8.1	55	SDHR31400-R25	25	SDHR31400	100
SDHR31614	0.470 x 6¼	0.315	4⅜	12 x 160	8.1	110	SDHR31614-R25	25	SDHR31614	100

1. O.D. denotes thread outer diameter.
2. Driver bit size: SDHR27XXXX — 6-lobe = T40, hex = 15 mm; SDHR31XXXX — 6-lobe = T40, hex = 17 mm.

Strong-Drive® SDCP **TIMBER-CP** Screw

The Strong-Drive SDCP Timber-CP screw is a structural fastener available in a variety of lengths and is designed for cross-laminated timber construction, mass timber construction and general interior applications. These partially-threaded, 0.315"- and 0.390"-diameter structural fasteners are designed to pull structural members together with superb holding power. The large flat head with underhead nibs provides for clean countersinking. The SDCP Timber-CP has a yellow-zinc coating, a robust knurled shaft and Type-17 point for fast starts and low-torque driving.

Special Features:

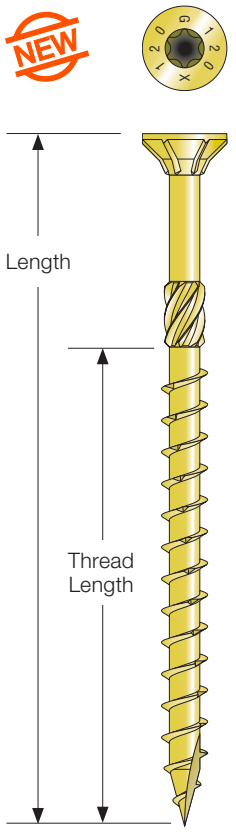
- Designed to be countersunk so that head is flush to wood surface
- No predrill needed in most applications. Type-17 point ensures fast starts, reduces installation torque
- Partially threaded with aggressive thread to provide high pullout resistance
- Driver bit model no.: BIT40T-134-R2

Codes: ICC-ES ESR-3046

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.

Warning: Industry studies show that hardened fasteners can experience performance problems in wet and corrosive environments. Accordingly, use this product in dry, interior and noncorrosive environments only.

Testing in a variety of mass timber applications is underway. For the most up-to-date product information, please visit **strongtie.com**.



Strong-Drive SDCP TIMBER-CP Screw

Yellow Zinc Coating

Model No.	Dimensions								Mini-Bulk		Box	
	Inches				Millimeters				Packaging SKU	Fasteners per Pack	Packaging SKU	Fasteners per Box
	O.D. x Length	Shank Dia.	Thread Length	Head Dia.	O.D. x Length	Shank Dia.	Thread Length	Head Dia.				
SDCP22318	0.315 x 3⅛	0.225	2	0.575	8 x 80	5.8	50	14.6	SDCP22318-R50	50	SDCP22318	250
SDCP22434	0.315 x 4¾	0.225	3⅛	0.575	8 x 120	5.8	80	14.6	SDCP22434-R50	50	SDCP22434	250
SDCP22512	0.315 x 5½	0.225	3⅛	0.575	8 x 140	5.8	80	14.6	SDCP22512-R50	50	SDCP22512	250
SDCP22614	0.315 x 6¼	0.225	3⅛	0.575	8 x 160	5.8	80	14.6	SDCP22614-R50	50	SDCP22614	250
SDCP22700	0.315 x 7	0.225	3⅛	0.575	8 x 180	5.8	80	14.6	SDCP22700-R50	50	SDCP22700	250
SDCP22858	0.315 x 8⅝	0.225	3⅛	0.575	8 x 220	5.8	80	14.6	SDCP22858-R50	50	SDCP22858	250
SDCP22912	0.315 x 9½	0.225	3⅛	0.575	8 x 240	5.8	80	14.6	SDCP22912-R50	50	SDCP22912	250
SDCP221100	0.315 x 11	0.225	3⅛	0.575	8 x 280	5.8	80	14.6	SDCP221100-R50	50	SDCP221100	250
SDCP221134	0.315 x 11¾	0.225	3⅛	0.575	8 x 300	5.8	80	14.6	SDCP221134-R50	50	SDCP221134	250
SDCP27400	0.390 x 4	0.275	2	0.700	10 x 100	7.0	50	17.8	SDCP27400-R30	30	SDCP27400	250
SDCP27614	0.390 x 6¼	0.275	3⅛	0.700	10 x 160	7.0	80	17.8	SDCP27614-R30	30	SDCP27614	250
SDCP27778	0.390 x 8	0.275	3⅛	0.700	10 x 200	7.0	80	17.8	SDCP27778-R30	30	SDCP27778	250
SDCP27912	0.390 x 9½	0.275	3⅛	0.700	10 x 240	7.0	80	17.8	SDCP27912-R30	30	SDCP27912	250
SDCP271100	0.390 x 11	0.275	3⅛	0.700	10 x 280	7.0	80	17.8	SDCP271100-R30	30	SDCP271100	150
SDCP271212	0.390 x 12½	0.275	3⅛	0.700	10 x 320	7.0	80	17.8	SDCP271212-R25	25	SDCP271212	150
SDCP271400	0.390 x 14	0.275	3⅛	0.700	10 x 360	7.0	80	17.8	SDCP271400-R25	25	SDCP271400	150

1. O.D. denotes thread outer diameter.
2. Driver bit size: T40; replacement driver bit: BIT40T-134-R2.

Strong-Drive® SDCF **TIMBER-CF** Screw

The Strong-Drive SDCF Timber-CF screw is a structural fastener available in a variety of lengths and is designed for cross-laminated timber construction, mass timber construction and general interior applications. These 0.315"- and 0.390"-diameter structural fasteners provide uncompromised strength for these demanding applications. The large flat head with underhead nibs provides for clean countersinking. The yellow zinc, fully-threaded screw, with a proprietary "half-point" provides fast starts and excellent holding power.

Special Features:

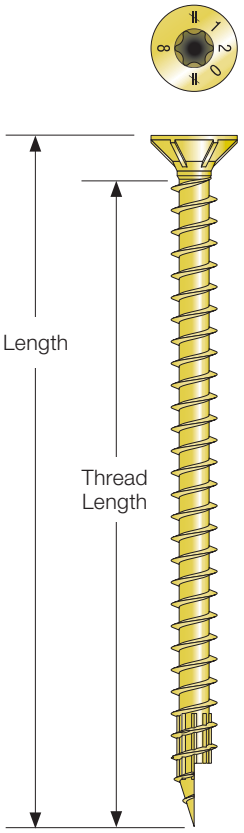
- Designed to be countersunk with head flush to wood surface
- Fully threaded to provide high withdrawal resistance
- Driver bits model no.: BIT40T-134-R2 and BIT50T-2-R1[2]

Codes: ICC-ES ESR-3046

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.

Warning: Industry studies show that hardened fasteners can experience performance problems in wet and corrosive environments. Accordingly, use this product in dry, interior and noncorrosive environments only.

Testing in a variety of mass timber applications is underway. For the most up-to-date product information, please visit **strongtie.com**.



Strong-Drive SDCF TIMBER-CF Screw

Yellow Zinc Coating

Model No.	Dimensions								Mini-Bulk		Box	
	Inches				Millimeters				Packaging SKU	Fasteners per Pack	Packaging SKU	Fasteners per Box
	O.D. x Length	Shank Dia.	Thread Length	Head Dia.	O.D. x Length	Shank Dia.	Thread Length	Head Dia.				
SDCF22434	0.315 x 4¾	0.230	4.29	0.590	8 x 120	5.9	109	15.0	SDCF22434-R50	50	SDCF22434	250
SDCF22512	0.315 x 5½	0.230	5.08	0.590	8 x 140	5.9	129	15.0	SDCF22512-R50	50	SDCF22512	250
SDCF22614	0.315 x 6¼	0.230	5.87	0.590	8 x 160	5.9	149	15.0	SDCF22614-R50	50	SDCF22614	250
SDCF22700	0.315 x 7	0.230	6.65	0.590	8 x 180	5.9	169	15.0	SDCF22700-R50	50	SDCF22700	250
SDCF22858	0.315 x 8⅝	0.230	8.23	0.590	8 x 220	5.9	209	15.0	SDCF22858-R50	50	SDCF22858	250
SDCF221014	0.315 x 10¼	0.230	9.80	0.590	8 x 260	5.9	249	15.0	SDCF221014-R50	50	SDCF221014	250
SDCF221134	0.315 x 11¾	0.230	11.38	0.590	8 x 300	5.9	289	15.0	SDCF221134-R50	50	SDCF221134	250
SDCF221334	0.315 x 13¾	0.230	13.35	0.590	8 x 350	5.9	339	15.0	SDCF221334-R50	50	SDCF221334	250
SDCF27400	0.390 x 4	0.290	3.66	0.725	10 x 100	7.4	93	18.5	SDCF27400-R30	30	SDCF27400	250
SDCF27614	0.390 x 6¼	0.290	6.02	0.725	10 x 160	7.4	153	18.5	SDCF27614-R30	30	SDCF27614	250
SDCF27778	0.390 x 8	0.290	7.60	0.725	10 x 200	7.4	193	18.5	SDCF27778-R30	30	SDCF27778	250
SDCF27912	0.390 x 9½	0.290	9.17	0.725	10 x 240	7.4	233	18.5	SDCF27912-R30	30	SDCF27912	250
SDCF271100	0.390 x 11	0.290	10.75	0.725	10 x 280	7.4	273	18.5	SDCF271100-R30	30	SDCF271100	150
SDCF271958	0.390 x 19⅝	0.290	19.41	0.725	10 x 500	7.4	493	18.5	SDCF271958-R25	25	SDCF271958	100
SDCF272358	0.390 x 23⅜	0.290	23.35	0.725	10 x 600	7.4	593	18.5	SDCF272358-R25	25	SDCF272358	100

1. O.D. denotes thread outer diameter.
2. Driver bit size: SDCF22XXXX = T40, replacement bit BIT40T-134-R2; SDCF27XXXX = T50, replacement bit BIT50T-2-R1.

Strong-Drive® SDCFC **TIMBER-CFC** Screw

The Strong-Drive SDCFC Timber-CFC screw is a structural fastener available in a variety of lengths and is designed for cross-laminated timber construction, mass timber construction and general interior applications. These 0.390"-diameter structural fasteners provide uncompromised strength for these demanding applications. The compact cylinder head provides clean countersinking with a reduced footprint.

Special Features:

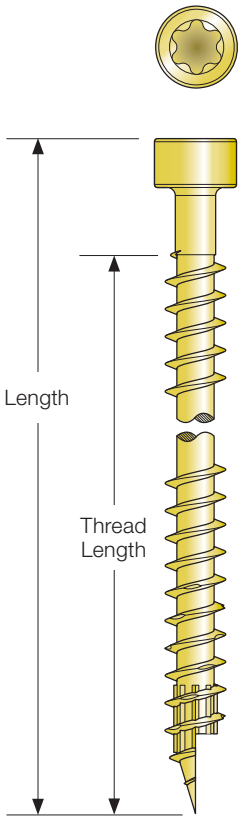
- Designed to be countersunk with head embedded into the wood surface
- Fully threaded to provide high withdrawal resistance
- Deep T50 6-lobe recess for secure driving and longer bit life
- Driver bit model no.: BIT50T-2-R1

Codes: ICC-ES ESR-3046

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.

Warning: Industry studies show that hardened fasteners can experience performance problems in wet and corrosive environments. Accordingly, use this product in dry, interior and noncorrosive environments only.

Testing in a variety of mass timber applications is underway. For the most up-to-date product information, please visit **strongtie.com**.



Strong-Drive SDCFC TIMBER-CFC Screw

Yellow Zinc Coating

Model No.	Dimensions								Box	
	Inches				Millimeters				Packaging SKU	Fasteners per Box
	O.D. x Length	Shank Dia.	Thread Length	Head Dia.	O.D. x Length	Shank Dia.	Thread Length	Head Dia.		
SDCFC271958	0.390 x 19⅝	0.290	18⅜	0.525	10 x 500	7.4	467	13.4	SDCFC271958	50
SDCFC272358	0.390 x 23⅝	0.290	22¼	0.525	10 x 600	7.4	567	13.4	SDCFC272358	50
SDCFC273112	0.390 x 31½	0.290	30⅛	0.525	10 x 800	7.4	767	13.4	SDCFC273112	50
SDCFC273938	0.390 x 39⅜	0.290	38	0.525	10 x 1000	7.4	967	13.4	SDCFC273938	50

1. O.D. denotes thread outer diameter.
2. Driver bit size: T50, replacement bit part number: BIT50T-2-R1.

Deck·Drive™ DSV **WOOD** Screw

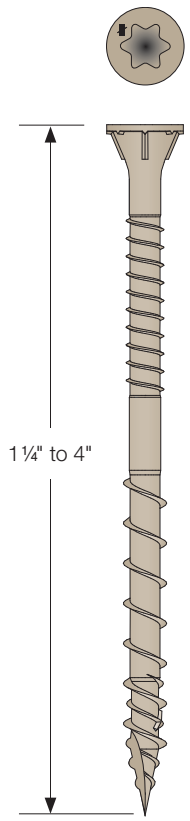
The Deck-Drive DSV Wood screw is a powerful fastening solution for preservative-treated decking applications. With its underhead nibs and fast-start tip, the DSV is ideally suited to be driven and countersunk into today's wood deck boards. The shank is designed to withstand the swelling and shrinkage that is common with wood decking products. Available in hand-drive and in collated strips for use in our Quik Drive® auto-feed screw driving system, DSV screws are also offered in a variety of sizes to fasten fascia and trim.

Special Features:

- No predrill needed in most applications
- #10 DSV Wood screws are load rated for shear, pull-through and withdrawal resistance
- Low-torque threads allow up to 35% more screws to be driven on a battery charge
- Rimmed flat head with nibs design countersinks easily and provides a clean, finished appearance
- High-low tip with Type-17 point provides fast starts
- Optimized threads for dimensional lumber
- Quik Guard® coating provides corrosion resistance for exterior and certain preservative-treated wood applications as described by ICC-ES AC257, exposure conditions 1 and 3
- Color blends with wood decking
- T25 6-lobe driver bit included (replacement driver bit: BIT25T-2-R2)

This screw is also available collated for the Quik Drive system; refer to the current *Fastenings Systems* catalog at **strongtie.com** for details.

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.



Deck-Drive DSV WOOD Screw

Quik Guard Coating — Tan

Size	Length (in.)	Head Dia. (in.)	Approx. Count per Pound	1 lb. Model No.	5 lb. Model No.	350-Count Model No.	Retail Package		Mini-Bulk	
							Model No.	Count	Model No.	Count
#8	1¼	0.330	194	DSVT114R1LB	DSVT114R5LB	DSVT114R350	—	—	DSVT114MB	1,750
#8	1⅝	0.330	159	DSVT158R1LB	DSVT158R5LB	DSVT158R350	DSVT158R160	160	DSVT158MB	1,750
#10	2	0.330	113	DSVT2R1LB	DSVT2R5LB	DSVT2R350	DSVT2R110	110	DSVT2MB	1,750
							DSVT2R330	330		
#10	2½	0.330	91	DSVT212R1LB	DSVT212R5LB	DSVT212R350	DSVT212R80	80	DSVT212MB	1,750
							DSVT212R240	240		
#10	3	0.330	76	DSVT3R1LB	DSVT3R5LB	DSVT3R350	DSVT3R70	70	DSVT3MB	1,750
							DSVT3R210	210		
#10	3½	0.330	66	DSVT312R1LB	DSVT312R5LB	DSVT312R350	DSVT312R60	60	DSVT312MB	1,000
#10	4	0.330	59	DSVT4R1LB	DSVT4R5LB	DSVT4R350	DSVT4R50	50	DSVT4MB	1,000

Quik Guard Coating — Red

Size	Length (in.)	Head Dia. (in.)	Approx. Count per Pound	1 lb. Model No.	5 lb. Model No.	350-Count Model No.	Mini-Bulk	
							Model No.	Count
#8	1¼	0.330	194	DSVR114R1LB	DSVR114R5LB	DSVR114R350	DSVR114MB	1,750
#8	1⅝	0.330	159	DSVR158R1LB	DSVR158R5LB	DSVR158R350	DSVR158MB	1,750
#10	2	0.330	113	DSVR2R1LB	DSVR2R5LB	DSVR2R350	DSVR2MB	1,750
#10	2½	0.330	91	DSVR212R1LB	DSVR212R5LB	DSVR212R350	DSVR212MB	1,750
#10	3	0.330	76	DSVR3R1LB	DSVR3R5LB	DSVR3R350	DSVR3MB	1,750
#10	3½	0.330	66	DSVR312R1LB	DSVR312R5LB	DSVR312R350	DSVR312MB	1,000
#10	4	0.330	59	DSVR4R1LB	DSVR4R5LB	DSVR4R350	DSVR4MB	1,000

Deck·Drive™ DCU **COMPOSITE** Screw

The Deck-Drive DCU composite screw is engineered to provide beautiful fastening results for all types of composite decking while also offering greater ease of installation, a clean finish and superb corrosion resistance. The Deck-Drive DCU is the go-to-screw for all your composite decking applications, eliminating the need to mix and match screws to the decking.

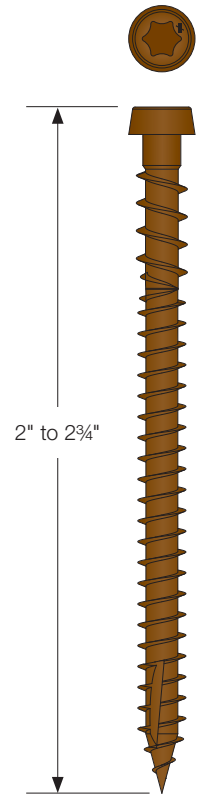
Deck-Drive DCU composite decking screws are available in carbon steel with our Quik Guard® coating. For superior corrosion resistance in marine or high-exposure environments, choose the appropriate stainless-steel DCU screw (Type 305 or Type 316). DCU screws provide a clean finish because of their special head design and are available in 11 colors, matched to blend with most major decking manufacturers. These are bulk screws, also available collated for the Quik Drive® auto-feed screw driving system.

The 2" Deck-Drive DCU Composite screws are designed to be the fastener of choice for PVC and composite decking, trim and cladding, including composite decking and cladding products, wood/plastic composites, encapsulated wood/plastic composites and HDPE (high-density polyethylene). In addition, the DCU SS screw is the ideal solution for PVC decking.

Special Features:

- Available in carbon steel, as well as Type 305 and Type 316 stainless steel for high to severe levels of corrosion resistance
- Tri-lobe thread design reduces damage to the composite board while driving
- Inverted upper threads clear excess material to ensure the screw has a clean finish
- Cap head prevents mushrooming and material from rising up above the deck for a smoother, clean-looking installation
- The 2¾" length is an approved fastener (by Trex®) for Trex composite decking
- The 2¾" length is also available collated for the Quik Drive system; refer to the current *Fastenings Systems* catalog at **strongtie.com** for details.
- Driver bit model no.: BIT20T-2-R2

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.



Deck-Drive DCU COMPOSITE Screw

Carbon Steel, Quik Guard Coating

Size	Length (in.)	Color	Clamshell (70 ct.)	Deck Pack (350 ct.)[1]	Contractor Bucket (1,750 ct.)[2]
#10	2	Gray	DCU2GRR70	DCU2GRR350	DCU2GRRMB
#10	2¾	Tan	DCU234TNR70	DCU234TNR350	DCU234TNMB
#10	2¾	Tan 01	DCU234TN01R70	DCU234TN01R350	DCU234TN01MB
#10	2¾	Tan 02	DCU234TN02R70	DCU234TN02R350	DCU234TN02MB
#10	2¾	Tan 03	DCU234TN03R70	DCU234TN03R350	DCU234TN03MB
#10	2¾	Gray	DCU234GRR70	DCU234GRR350	DCU234GRMB
#10	2¾	Gray 01	DCU234GR01R70	DCU234GR01R350	DCU234GR01MB
#10	2¾	Gray 04	DCU234GR04R70	DCU234GR04R350	DCU234GR04MB
#10	2¾	Brown 01	DCU234BR01R70	DCU234BR01R350	DCU234BR01MB
#10	2¾	Brown 05	DCU234BR05R70	DCU234BR05R350	DCU234BR05MB
#10	2¾	Red	DCU234RDR70	DCU234RDR350	DCU234RDMB
#10	2¾	Red 01	DCU234RD01R70	DCU234RD01R350	DCU234RD01MB

Brown 01 · Brown 05 · Red · Red 01 · Tan · Tan 01 · Tan 02 · Tan 03 · Gray · Gray 01 · Gray 04

1. 350 screws install approx. 100 sq. ft. of decking with framing at 16" on-center spacing.
2. 1,750 screws install approx. 500 sq. ft. of decking with framing at 16" on-center spacing.

Deck·Drive™ DCU **COMPOSITE** Screw

SIMPSON Strong-Tie

Painted head

Type 316 Stainless Steel

Size	Length (in.)	Head Color	Clamshell (70 ct.)	Deck Pack (350 ct.)[1]	Contractor Bucket (1,750 ct.)[2]
#10	2	—	DCU2C316	DCU2P316	DCU2MB316
#10	2¾	—	DCU234C316	DCU234P316	DCU234MB316
#10	2¾	Tan	DCU234C316TN	DCU234P316TN	DCU234MB316TN
#10	2¾	Tan 01	DCU234C316TN01	DCU234P316TN01	DCU234MB316TN01
#10	2¾	Tan 02	DCU234C316TN02	DCU234P316TN02	DCU234MB316TN02
#10	2¾	Tan 03	DCU234C316TN03	DCU234P316TN03	DCU234MB316TN03
#10	2¾	Gray	DCU234C316GR	DCU234P316GR	DCU234MB316GR
#10	2¾	Gray 01	DCU234C316GR01	DCU234P316GR01	DCU234MB316GR01
#10	2¾	Gray 04	DCU234C316GR04	DCU234P316GR04	DCU234MB316GR04
#10	2¾	Brown 01	DCU234C316BR01	DCU234P316BR01	DCU234MB316BR01
#10	2¾	Brown 05	DCU234C316BR05	DCU234P316BR05	DCU234MB316BR05
#10	2¾	Red	DCU234C316RD	DCU234P316RD	DCU234MB316RD
#10	2¾	Red 01	DCU234C316RD01	DCU234P316RD01	DCU234MB316RD01

1. 350 screws install approx. 100 sq. ft. of decking with framing at 16" on-center spacing.
2. 1,750 screws install approx. 500 sq. ft. of decking with framing at 16" on-center spacing.

Type 305 Stainless Steel

Size	Length (in.)	Head Color	Clamshell (70 ct.)	Deck Pack (350 ct.)[1]	Contractor Bucket (1,750 ct.)[2]
#10	2¾	—	DCU234C305	DCU234P305	DCU234MB305
#10	2¾	Tan	—	DCU234P305TN	DCU234MB305TN
#10	2¾	Tan 01	—	DCU234P305TN01	DCU234MB305TN01
#10	2¾	Tan 02	—	DCU234P305TN02	DCU234MB305TN02
#10	2¾	Tan 03	—	DCU234P305TN03	DCU234MB305TN03
#10	2¾	Gray	—	DCU234P305GR	DCU234MB305GR
#10	2¾	Gray 01	—	DCU234P305GR01	DCU234MB305GR01
#10	2¾	Gray 04	—	DCU234P305GR04	DCU234MB305GR04
#10	2¾	Brown 01	—	DCU234P305BR01	DCU234MB305BR01
#10	2¾	Brown 05	—	DCU234P305BR05	DCU234MB305BR05
#10	2¾	Red	—	DCU234P305RD	DCU234MB305RD
#10	2¾	Red 01	—	DCU234P305RD01	DCU234MB305RD01

1. 350 screws install approx. 100 sq. ft. of decking with framing at 16" on-center spacing.
2. 1,750 screws install approx. 500 sq. ft. of decking with framing at 16" on-center spacing.

Strong-Drive® 33° SCN **SMOOTH-SHANK CONNECTOR** Nail

Features:

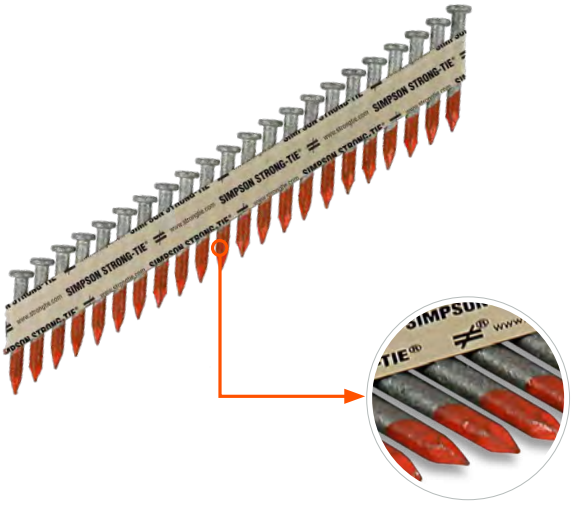
- 33° collation angle
- Full round head
- Head ID stamp

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.

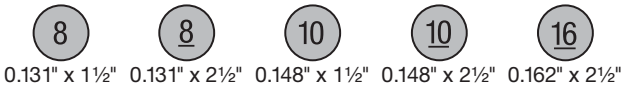
Compatible Pneumatic Tools

If you don't see your particular model in the table below, see **strongtie.com/toolmatrix** or call Simpson Strong-Tie for assistance with fastener selection (800) 999-5099.

Brand	Model
Bostitch®	MCN150 (up to 1½"), MCN250, F33PT
Grip-Rite®	GR150 (up to 1½"), GRSB150-1½ (up to 1½"), GR250, GRSB250-2½
Hitachi®	NR65AK
Paslode®	PF150S-PP (up to 1½"), F250S-PP
Senco®	HN150 (up to 1½"), HN250



Orange Painted Tip for Better Visibility



0.131" x 1½" 0.131" x 2½" 0.148" x 1½" 0.148" x 2½" 0.162" x 2½"

SCN Smooth-Shank Head Stamps

Hot-Dip Galvanized — ASTM A153, Class D

Shank Diameter x Length (in.)	Head Diameter (in.)	Carton Quantity	Model No.	Replacement for
0.131 x 1½	0.285	500	N8HDGPT500	8d x 1½"
		4,000	N8HDGPT4000	
0.131 x 2½	0.285	500	8DHDGPT500	8d common
		2,500	8DHDGPT2500	
0.148 x 1½	0.285	500	N10HDGPT500	10d x 1½"
		3,000	N10HDGPT3000	
0.148 x 2½	0.285	500	N10DHDGPT500	10d x 2½"
		2,500	N10DHDGPT2500	
0.162 x 2½	0.285	500	N16HDGPT500	16d x 2½"
		2,000	N16HDGPT2000	

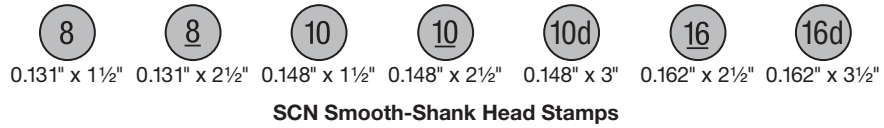
Bright

Shank Diameter x Length (in.)	Head Diameter (in.)	Carton Quantity	Model No.	Replacement for
0.131 x 1½	0.285	4,000	N8BRPT4000	8d x 1½"
0.148 x 1½	0.285	3,000	N10BRPT3000	10d x 1½"
0.148 x 2½	0.285	2,500	N10DBRPT2500	10d x 2½"

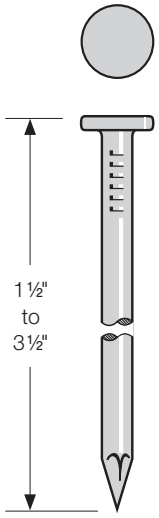
These products are subject to quantities on hand, or may require special-order, minimum order quantities and longer lead times. Call Simpson Strong-Tie for details (800) 999-5099.

Strong-Drive® SCN **SMOOTH-SHANK CONNECTOR** Nail

Simpson Strong-Tie connectors have been designed and tested with specific types of nails, which are generally referred to as Structural Connector Nails (SCN). The specified nail size, type and quantity must be installed in the correct holes of the connector or strap to achieve the published loads for the hardware. The dimensions needed for nails used in Simpson Strong-Tie connectors and hardware are given in the table below. The designer and installer must be sure that the correct fastener is specified and installed. In cases where the installed nail matches the criteria of the nail specified for the hardware, full hardware design values result.



SCN Smooth-Shank Head Stamps



Hot-Dip Galvanized — ASTM A153, Class D

Diameter x Length (in.)	Head Diameter (in.)	Approx. Count per lb.	1 lb. Model No.	Retail Pack		Mini-Bulk	
				Fasteners per Pack	Packaging SKU	Fasteners per Pack	Packaging SKU
0.131 x 1½	0.281	150	N8	150	N8DHDG-R	750	N8D5HDG-R
0.148 x 1½	0.312	120	N10	120	N10DHDG-R	600	N10D5HDG-R
0.148 x 3	0.312	50	—	50	10DHDG-R	250	10D5HDG-R
0.162 x 3½	0.344	40	—	40	16DHDG-R	200	16D5HDG-R

Power-driven SCNs are often used to install Simpson Strong-Tie connectors and straps. Power-driven nails must have the same dimensions and bending yield strength as hand-driven nails. Dedicated power nailers are designed to drive nails of specific lengths that may be less than the length required to achieve full design values for the connector or strap hardware. When connectors and straps are installed with power-driven nails or hand-driven nails that are a different type or size than those called out in the connector and strap specifications, adjustment factors as given on **strongtie.com** must be applied to the allowable loads for the connector or strap.

Overdriven Nails in Connectors and Straps

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

Strong-Drive® 33° SCNR **RING-SHANK CONNECTOR** Nail

Features:

- 33° collation angle
- Full round head
- Head ID stamp

For additional technical information regarding this fastener, refer to the current Simpson Strong-Tie *Fastening Systems Technical Guide* available at **strongtie.com**.

Compatible Pneumatic Tools

If you don't see your particular model in the table below, see **strongtie.com/toolmatrix** or call Simpson Strong-Tie for assistance with fastener selection (800) 999-5099.

Brand	Model
Bostitch®	MCN150 (up to 1½"), MCN250, F33PT
Grip-Rite®	GR150 (up to 1½"), GRSB150-1½ (up to 1½"), GR250, GRSB250-2½
Hitachi®	NR65AK
Paslode®	PF150S-PP (up to 1½"), F250S-PP
Senco®	HN150 (up to 1½"), HN250

8 0.131" x 1½" | 8 0.131" x 2½" | 10 0.148" x 1½" | 10 0.148" x 2½"

SCNR Ring-Shank Head Stamps

Type 316 Stainless Steel

Shank Diameter x Length (in.)	Head Diameter (in.)	Carton Quantity	Model No.	Replacement for
0.131 x 1½	0.285	1,500	T10A150MCN	8d x 1½
0.131 x 2½	0.285	1,000	T10A250MCN	8d common
0.148 x 1½	0.285	1,500	T9A150MCN	10d x 1½
0.148 x 2½	0.285	1,000	T9A250MCN	10d x 2½

These products are subject to quantities on hand, or may require special-order, minimum order quantities and longer lead times. Call Simpson Strong-Tie for details (800) 999-5099.

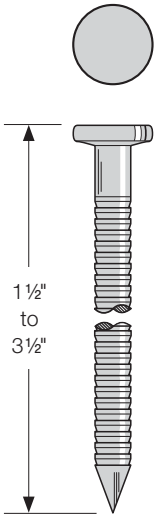
Strong-Drive® SCNR **RING-SHANK CONNECTOR** Nail

Simpson Strong-Tie Connectors

Strong-Drive SCNR Ring-Shank Connector nails are the best choice for achieving maximum load values in stainless-steel connectors.

For more information, see the current Simpson Strong-Tie *Fastening Systems* catalog at **strongtie.com**.

SCNR Ring-Shank Head Stamps



For more information on the Strong-Drive SCNR Ring-Shank Connector nail, please see the current *Fastening Systems* catalog at **strongtie.com**.

When installing galvanized connectors and straps, use an SCN that is zinc galvanized. If the connectors and straps are stainless steel, then stainless-steel SCNRs shall be used.

Stainless-Steel Nails

The USDA Forest Service, Forest Products Laboratory showed that stainless-steel nails with smooth shanks do not have the same withdrawal resistance as smooth-shank carbon steel nails (Withdrawal strength and bending yield strength of stainless-steel nails, 2015, *Journal of Structural Engineering*). In addition, Simpson Strong-Tie conducted an extensive series of withdrawal testing with stainless-steel nails made from Type 304, Type 305 and Type 316 stainless steels to assess the stainless-steel ring-shank nail withdrawal performance over a wide range of nail diameters (0.072 in. to 0.238 in.) and wood specific gravities (0.42 to 0.55). The withdrawal tests were conducted in accordance with ASTM D1761 using wood conditioned to 12-percent moisture content. Further, the reference allowable withdrawal resistance for each of the tested nails was calculated using the withdrawal calculation for post-frame ring-shank nails in NDS-12, equation 11.2-4 (NDS-15, equation 12.2-4), NDS-2015, equation 12.2-4 and NDS-2018, equation 12.4-5,

$$W = 1800\, G^2\, D$$

The allowable withdrawal loads for Simpson Strong-Tie stainless-steel ring-shank nails with a safety factor of 5.0 were at or above the calculated reference withdrawal resistance for deformed-shank nails. As a result, the deformed-shank nails equation for reference withdrawal design values can be safely used for Simpson Strong-Tie stainless-steel ring-shank nails of all diameters across the specific gravity range of 0.42 to 0.55. This finding and recommendation are specific to Simpson Strong-Tie stainless-steel ring-shank nails and shall not be applied to stainless-steel ring-shank nails made by other manufacturers.

The bending yield strength of Simpson Strong-Tie stainless-steel nails (smooth and ring-shank) meet the bending yield strength specifications of ASTM F1667, which are the same as those in the IBC and IRC.

Stainless Steel Nails for Connectors

Simpson Strong-Tie stainless-steel connectors are required to be installed using stainless-steel fasteners. Recent testing at Simpson Strong-Tie indicates that allowable load values for some Simpson Strong-Tie stainless-steel connectors have changed when smooth-shank stainless steel nails are used. Refer to **strongtie.com/products/categories/zmax.html** for a list of connectors available in stainless steel, which includes links to load tables for carbon steel and stainless-steel smooth-shank nail installations as applicable.

In cases where these load tables indicate stainless-steel smooth-shank nail installations have reduced loads, full allowable loads listed for the same carbon steel connector may be achieved if the stainless-steel connector is installed with the correct replacement stainless-steel Simpson Strong-Tie Strong-Drive SCNR Ring-Shank Connector nails as shown in the following Nail Substitution Chart.

Nail Substitution Chart
Replacement Ring-Shank Stainless-Steel Nails, Type 316 Stainless Steel

Catalog-Specified Carbon-Steel Smooth-Shank Nail	Replacement Stainless-Steel Strong-Drive SCNR Ring-Shank Connector Nail	
Diameter x Length (in.)	Hand-Drive	Collated
0.131 x 1.5	SSNA8	T10A150MCN
0.131 x 2.5	SSA8D	T10A250MCN
0.148 x 1.5	SSNA10	T9A150MCN
0.148 x 2.5	—	T9A250MCN
0.148 x 3.0	SSA10D	—
0.162 x 3.5	SSA16D	—

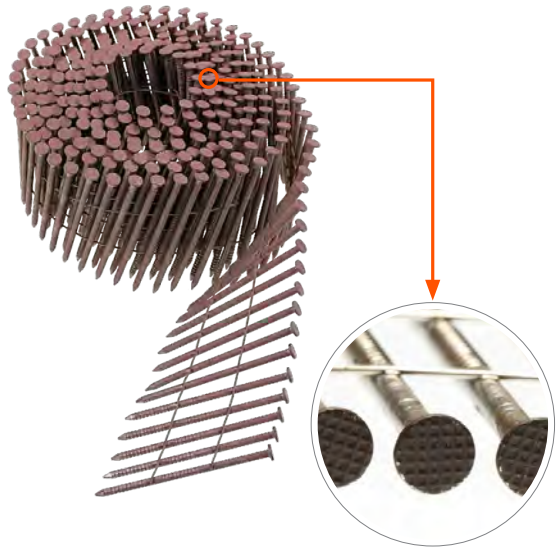
1. Collated nails listed are available in 33° paper tape strips.

Siding/Fencing/Trim Nails

15° Wire Coil, Painted, Full Round Head, Ring-Shank Nail

Features:

- Checker pattern on heads blends with wood grain, reduces glare from sunlight and accepts surface finishes
- Durable painted finish helps heads blend with siding material
- Annular ring shank increases withdrawal resistance to provide a secure attachment
- Slender gauge and diamond point for easier driving



Compatible Pneumatic Tools

If you don't see your particular model in the table below, see **strongtie.com/toolmatrix** or call Simpson Strong-Tie for assistance with fastener selection (800) 999-5099.

Brand	Model
Bostitch®	N64C, N66C, N75C
Duo-Fast®	P275C
Grip-Rite®	GRTCS250
Hitachi®	NV65AH, NV75AG
Max®	CN55, CN665, CN565, CN565S, CN550S (up to 2")
Senco®	SCN60XP, SCN49, SCN 65XP, Pallet Pro57F (up to 2¼")

Type 304 Stainless Steel

Penny Size	Length (in.)	Shank Diameter (in.)	Head Diameter (in.)	Color	Carton Quantity	Model No.
6d	2	0.092	0.221	White	1,200	S13A200WWCBP
6d	2	0.092	0.221	Dark Brown	3,600	S13A200CCB
6d	2	0.092	0.221	Gray	3,600	S13A200CCG
6d	2	0.092	0.221	Redwood	3,600	S13A200CCR
6d	2	0.092	0.221	Tan	3,600	S13A200CCT
6d	2	0.092	0.221	White	3,600	S13A200CWH
7d	2¼	0.092	0.221	Dark Brown	3,600	S13A225CCB
7d	2¼	0.092	0.221	Gray	3,600	S13A225CCG
7d	2¼	0.092	0.221	Redwood	3,600	S13A225CCR
7d	2¼	0.092	0.221	Tan	3,600	S13A225CCT
7d	2¼	0.092	0.221	Sienna	3,600	S13A225CCS
8d	2½	0.092	0.221	White	900	S13A250WWCBP
8d	2½	0.092	0.221	Dark Brown	900	S13A250CCBBP
8d	2½	0.092	0.221	Dark Brown	3,600	S13A250CCB
8d	2½	0.092	0.221	Gray	3,600	S13A250CCG
8d	2½	0.092	0.221	Redwood	3,600	S13A250CCR
8d	2½	0.092	0.221	Tan	900	S13A250CCTBP
8d	2½	0.092	0.221	Tan	3,600	S13A250CCT
8d	2½	0.092	0.221	White	3,600	S13A250CWH
8d	2½	0.092	0.221	Sienna	900	S13A250CCSBP
8d	2½	0.092	0.221	Sienna	3,600	S13A250CCS

Dark Brown, Sienna, Gray, Redwood, Tan, White

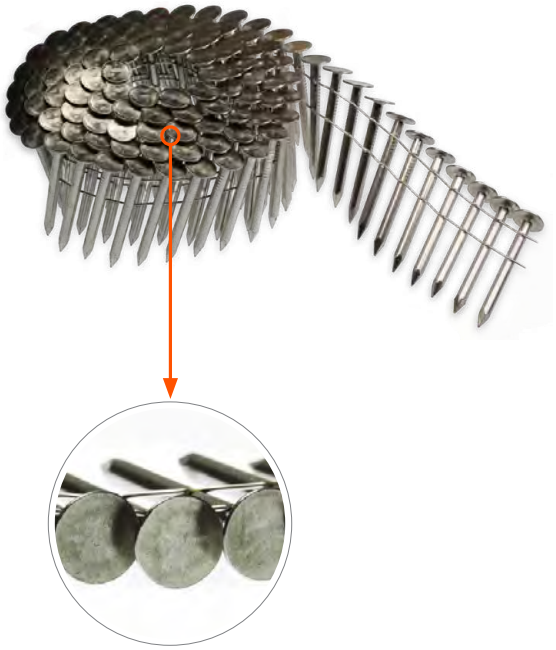
These products are subject to quantities on hand, or may require special-order, minimum order quantities and longer lead times. Call Simpson Strong-Tie for details (800) 999-5099.

Roofing Nails

15° Wire Coil, Full Round Head, Smooth-Shank Roofing Nail

Features:

- Ideal for asphalt and synthetic slate roofing
- Large flat head, diamond point for easier driving
- Annular ring shank increases withdrawal resistance to provide a secure attachment to OSB or plywood roof decks
- Choose Type 316 stainless steel for seaside applications and superior corrosion resistance



Compatible Pneumatic Tools

If you don't see your particular model in the table below, see **strongtie.com/toolmatrix** or call Simpson Strong-Tie for assistance with fastener selection (800) 999-5099.

Brand	Model
Bosch®	RN175
Bostitch®	RN46
DeWalt®	D51321
Grip-Rite®	GRTCR175
Hitachi®	NV45AB2, NV45AE
Makita®	AN453
Max®	CN445R, CN450R
Paslode®	R175-C, CR175C
Porter Cable®	RN175A
Ridgid®	R175RND
Senco®	RoofPro 455XP

Type 316 Stainless Steel

Penny Size	Length (in.)	Shank Diameter (in.)	Head Diameter (in.)	Carton Quantity	Model No.
4d	1½	0.120	0.357	3,600	T11N150RNJ

Type 304 Stainless Steel

Penny Size	Length (in.)	Shank Diameter (in.)	Head Diameter (in.)	Carton Quantity	Model No.
—	¾	0.120	0.357	7,200	S11N075RNB
—	⅞	0.120	0.357	7,200	S11N087RNB
2d	1	0.120	0.357	7,200	S11N100RNB
3d	1¼	0.120	0.357	7,200	S11N125RNB
3d	1¼	0.120	0.357	2,400	S11N125RNJ
4d	1½	0.120	0.357	7,200	S11N150RNB
4d	1½	0.120	0.357	2,400	S11N150RNJ
5d	1¾	0.120	0.357	7,200	S11N175RNB
5d	1¾	0.120	0.357	2,400	S11N175RNJ

These products are subject to quantities on hand, or may require special-order, minimum order quantities and longer lead times. Call Simpson Strong-Tie for details (800) 999-5099.

Trim Nails

Tape Collation, DA-Style Angle, 15-Gauge Finishing Nail

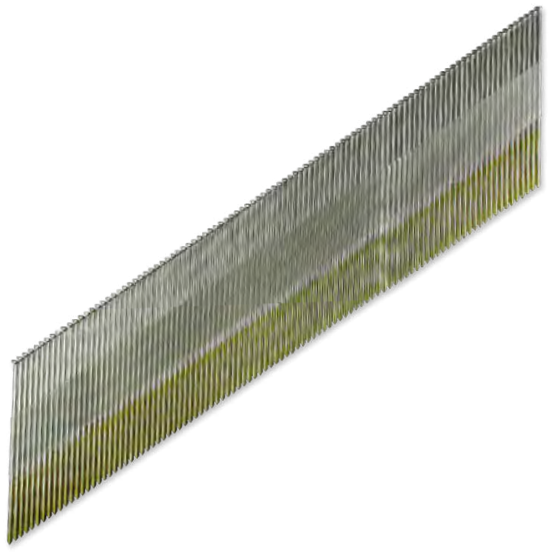
Features:

- D-style head has greater bearing area to draw trim to the substrate
- Choose Type 316 stainless steel for seaside applications and superior corrosion resistance

Compatible Pneumatic Tools

If you don't see your particular model in the table below, see **strongtie.com/toolmatrix** or call Simpson Strong-Tie for assistance with fastener selection (800) 999-5099.

Brand	Model
Bosch®	FNA250-15
DeWalt®	DC628K, D51276K
Grip-Rite®	GRTAN250
Hitachi®	NT65GA, NT65MA4
Makita®	AF633
Max®	NF550/15-65
Porter Cable®	DA250C
Ridgid®	R250AFA, R250AF18
Senco®	Fusion F15, GT65DA, FinishPro42XP



Type 316 Stainless Steel

Penny Size	Length (in.)	500-Count Model No.	4,000-Count Model No.
3d	1¼	—	T15N125SFN
4d	1½	T15N150SFB	T15N150SFN
6d	2	T15N200SFB	T15N200SFN
8d	2½	T15N250SFB	T15N250SFN

Type 304 Stainless Steel

Penny Size	Length (in.)	500-Count Model No.	4,000-Count Model No.
4d	1½	S15N150SFB	S15N150SFN
6d	2	S15N200SFB	S15N200SFN
8d	2½	S15N250SFB	S15N250SFN

These products are subject to quantities on hand, or may require special-order, minimum order quantities and longer lead times. Call Simpson Strong-Tie for details (800) 999-5099.

Collated Staples

½" Crown, 15½-Gauge Staples

(Similar to Bostitch® "BCS" Series)

Ideal for tongue-and-groove decking

Compatible Pneumatic Tools

If you don't see your particular model in the table below, see **strongtie.com/toolmatrix** or call Simpson Strong-Tie for assistance with fastener selection (800) 999-5099.

Brand	Model
Bostitch®	MIIIFS
Grip-Rite®	GR200FS
Hitachi®	N5009AF
PowerNail®	445FS, 445FS with Power Roller
Primatech®	P220, P250S, P260

Type 304 Stainless Steel

Length (in.)	Carton Quantity	Model No.
2	5,000	S15N200BFS

1" Crown, 16-Gauge Staples

(Similar to Senco® "P" Series)

Compatible Pneumatic Tools

If you don't see your particular model in the table below, see **strongtie.com/toolmatrix** or call Simpson Strong-Tie for assistance with fastener selection (800) 999-5099.

Brand	Model
Duo-Fast®	SW1748
Grip-Rite®	GRT1200-2
Hitachi®	N5024A2
Makita®	AT2550A
Senco®	MWXD, WC150XP, WC200XP

Type 316 Stainless Steel

Length (in.)	Carton Quantity	Model No.
1	5,000	T16N100P53

Type 304 Stainless Steel

Length (in.)	Carton Quantity	Model No.
¾	5,000	S16N075P51
1¼	5,000	S16N125P55

Strong-Drive® WSV **SUBFLOOR** Screw

1¾"–3" WSV Fasteners Meet Code Requirements

As listed in ICC-ES ESR-1472, WSV screws meet code requirements for the 2018 and 2021 International Building Code® (IBC) and International Residential Code® (IRC). Evaluation report recognized uses of WSV screws include the following applications:

- Substitute for 8d and 10d common nails in horizontal diaphragms per AWC SDPWS 2015, Tables 4.2A, 4.2C, and 4.2D; IBC 2018 and 2021, Table 2304.10.1, and IRC 2018 and 2021, Table R602.3(1).
- Code prescribed connections per IBC 2018 and 2021, Table 2304.10.1 and IRC 2018 and 2021, Table R602.3(1).
- Single and diagonally-sheathed lumber diaphragms per AWC SDPWS 2015, Table 4.2D.
- Prescriptive sheathing applications in IRC 2018 and 2021, Table R602.3(1) and in structures regulated by the IRC where the engineered design is submitted in accordance with IRC R301.1.3.
- Codes: IBC, IRC, L.A., ICC ESR-1472.

Guidelines for Fastening Diaphragms Without Glue

The design of wood floor systems constructed with wood structural panel (WSP) sheathing fastened to framing considers the diaphragm performance of the system as presented in the codes (as affected by framing, sheathing thickness, sheathing layout and fastening) and may also consider the composite action of the sheathing with the framing system (composite action is the combined stiffness of the joist with the sheathing). The framing systems can be grouped into two classes: (1) sawn lumber and parallel-chord wood trusses, and (2) wood I-joists. WSV screws may be used as alternate fasteners to common nails in each floor class subject to certain constraints.

For Diaphragms with a Framing System That Is Sawn Lumber or Parallel-Chord Wood Trusses

Simpson Strong-Tie WSV screws may be used as one-for-one substitutes for 10d common and smaller nails that are specified for horizontal diaphragm design in accordance with the AWC SDPWS 2015, and IBC and IRC 2018 and 2021.

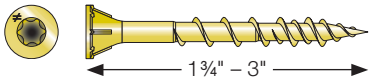
For Diaphragms with Wood I-Joist Framing Systems

I-joist manufacturers use the extra stiffness resulting from composite action when developing allowable floor joist span tables. Therefore, I-joist floor span tables generally assume glued-nailed construction.

1. For floor systems designed or intended to be glued-nailed:
   - WSV screws may be substituted one-for-one for common nails, without glue, provided the maximum allowable I-joist span is reduced by 12" compared to the I-joist manufacturer's glued-nailed spans. The screws shall have at least 1 ¼" penetration into the I-joist flange (or full penetration for flanges less than 1 ¼" thick).
   - Where glue is used with the screws, no reduction in span is required.
   - Check with the I-joist manufacturer for any additional diaphragm requirements.
2. For floor systems designed or intended to be nailed-only:
   - WSV screws may be substituted one-for-one for common nails, with no reduction in span, provided at least 1 ¼" penetration into the I-joist flange is achieved (or full penetration for flanges less than 1 ¼" thick).
   - Check with the I-joist manufacturer for any additional diaphragm requirements.

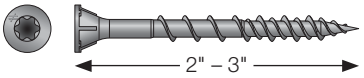
Strong-Drive® WSV **SUBFLOOR** Screw

Yellow Zinc Coating



Size	Length (in.)	Retail Pack		Contractor Pack		PRO200S	PRO250G2	PRO300S
		Fasteners per Pack	Model No.	Fasteners per Pack	Model No.			
#9	1¾	1,000	HCKWSV134S	2,000	WSV134S	✓	✓	
#9	2	1,000	HCKWSV2S	2,000	WSV2S	✓	✓	✓
#9	2½	750	HCKWSV212S	1,500	WSV212S		✓	✓
#9	3	500	HCKWSV3S	1,000	WSV3S			✓

Quik Guard® Coating



Size	Length (in.)	Contractor Pack	Model No.	PRO200S	PRO250G2	PRO300S
#9	2	2,000	WSVF2S	✓	✓	✓
#9	2½	1,500	WSVF212S		✓	✓
#9	3	1,000	WSVF3S			✓

Subfloor/Sheathing Applications

Quik Drive® Auto-Feed Screw Driving Systems

Quik Drive auto-feed screw driving systems turn repetitive fastening into opportunities to increase efficiency and save time. Extensive research goes into the design of each system, resulting in professional, quality auto-feed solutions that truly make work easier.

- Quik Drive auto-feed attachments and collated fasteners eliminate the need to handle (and fumble) individual screws — the result: faster installations and less waste
- Extensions allow stand-up driving for appropriate applications, making work less of a strain on the back, shoulders and knees

One or more of these products are covered by a US patent or are pending. Please go to ***strongtie.com/patents*** *for the most current list of Simpson Strong-Tie patents.*

Quik Drive auto-feed screw driving systems are ideal for subfloor installation, combining the efficiency of stand-up driving with the holding power of screws. Screws are superior to nails in this application because they reduce the gaps that cause floor squeaks.

PRO250G2 Subfloor System

- Expanded depth settings for high-density flooring materials
- Uniform toenailing and countersink on slick surfaces
- Reversible and replaceable non-skid teeth

System Options	Model No.
DeWalt® 2,000 rpm cordless driver motor	PRO250G2DC2K

PROSDD Combo System

- Expanded depth settings for appropriate countersink in a variety of applications
- Includes both PRO300SG2 Attachment and PRO200G2 Attachment for added versatility
- Reversible and replaceable non-skid teeth
- Sure-grip guide tube increases stability for a broad range of screws

System Options	Model No.
DeWalt 2,500 rpm screw driver motor	PROSDDD25K
Makita® 2,500 rpm screw driver motor	PROSDDM25K
Makita 3,500 rpm screw driver motor	PROSDDM35K

Subfloor/Sheathing Applications

PROCCS+ Combo System

- Includes both PRO300SG2 Attachment and PRO200SG2 Attachment for added versatility
- Expanded depth settings for high-density flooring materials
- Reversible and replaceable non-skid teeth
- Sure-grip guide tube increases stability for a broad range of screws

System Options	Model No.
DeWalt® 2,500 rpm screw driver motor	PROCCS+D25K
Makita® 2,500 rpm screw driver motor	PROCCS+M25K

PRO300SG2 Decking System

- Expanded depth settings for high-density flooring materials
- Reversible and replaceable non-skid teeth
- Decking nose clip for accurate and consistent fastening

System Options	Model No.
DeWalt 2,000 rpm cordless driver motor	PRO300SG2DC2K

PROPHG2 Cold-Formed Steel Framing Attachment

Applications: Fasten cold-formed steel framing

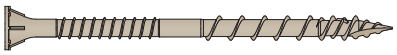
- Compact body for reduced weight and easy handling
- Slim profile allows driving in corners
- Tough reliability for targeted applications

Description	Model No.
Attachment only	QDPROPHG2

Subfloor/Sheathing Applications

Collated Screws for the Quik Drive® System

(For more information regarding collated screws, refer to **strongtie.com/products/fastening-systems**)

Fastener Model	PRO250	PROSDD/CCS+	PRO300S	PROPHG2
Strong-Drive® WSV SUBFLOOR Screw  Wood-to-wood applications, yellow zinc coating, sharp point	1¾", 2", 2½"	1¾", 2", 2½"	1¾", 2", 2½", 3"	—
Strong-Drive PPHD SHEATHING-TO-CFS Screw  Wood-to-steel applications, #5 drill point Quik Guard® and yellow zinc coating	#8 x 1 15/16"	#8 x 1 15/16"	#8 x 1 15/16"	—
Strong-Drive PHSD FRAMING-TO-CFS Screw  Cold-formed steel framing and sheet steel sheathing to cold-formed steel, yellow zinc coating	—	—	—	#8 x ¾"
Strong-Drive FPHSD FRAMING-TO-CFS Screw  Cold-formed steel framing and sheet steel sheathing to cold-formed steel, clear zinc coating	—	—	—	#10 x ¾", #12 x ¾"
Deck-Drive™ DSV WOOD Screw  Wood-to-wood and preservative-treated wood applications, Quik Guard coating, Type-17 point	1¾", 2", 2½"	1¾", 2", 2½"	1¾", 2", 2½", 3"	—
Deck-Drive DCU COMPOSITE Screw  Composite and PVC deck board applications, Quik Guard coating, double-cut point	—	2¾"	2¾"	—
WSHL Subfloor Screw  Wood-to-wood applications, gray phosphate coating	1¾"	1¾"	1¾"	—
WSC Wood Screw  Wood-to-wood applications, yellow zinc coating, coarse thread	1½"	1½"	1½"	—
MTH Wood Underlayment Screw  Wood underlayment-to-wood applications, yellow zinc coating, high-low thread	—	1"	—	—
MTH Wood Underlayment Screw  Wood underlayment-to-wood applications, gray phosphate coating, high-low thread	—	1¼"	—	—
CBSDQ Sheathing-to-CFS Screw  Sheathing to cold-formed steel, winged drill point	1⅝", 2¼"	1⅝", 2¼"	1⅝", 2¼"	—

Drywall Applications

Quik Drive® auto-feed screw driving systems are ideal for fastening drywall. They provide a fast, efficient solution with a precision countersink adjustment that produces consistent dimples.

PRO200G2 Drywall System

- Compact, lightweight body for reduced weight and easy handling
- Smooth nose will not mar drywall surface
- Slim profile allows driving in corners

System Options	Model No.
DeWalt® 2,500 rpm screw driver motor	PRO200G2D25K
Makita® 2,500 rpm screw driver motor	PRO200G2M25K

PRO250DW Attachment

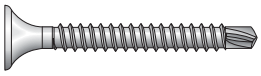
- Compact body for reduced weight and easy handling
- Smooth nose will not mar drywall surface
- Slim profile allows driving in corners

Description	Model No.
Attachment only	QDPRO250DWG2

Drywall Applications

Collated Screws for the Quik Drive® System

(For more information regarding collated screws, refer to **strongtie.com/products/fastening-systems**)

Fastener Model	PRO200	PRO250DW
DWHL Drywall Screw  High-low threads, gray phosphate coating	1⅞"	1⅞"
DWC Drywall Screw  Drywall to wood, gray phosphate and yellow zinc coatings available	1", 1¼", 1⅝", 2"	2", 2½"
DWF Drywall-to-CFS Screw  Drywall to steel, gray phosphate coating (33, 27, 18 mil / 20, 22, 25 ga.)	1¼", 1⅝"	N/A
DWFSD Drywall-to-CFS Screw  Drywall to steel, #2 point, yellow zinc coating (54, 43 mil / 16, 18 ga.)	1¼", 1⅝", 1⅞"	1⅞", 2⅜"
DWFSD Drywall-to-CFS Screw  Drywall to steel, #2 point, Quik Guard® coating (54, 43 mil / 16, 18 ga.)	1¼"	N/A

Titen HD® Heavy-Duty Screw Anchor

A 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 for use in dry, interior, non-corrosive environments or temporary outdoor applications.

Features:

- Qualified for static and seismic loading conditions
- 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
- Hex-washer head requires no separate washer, unless required by code, and provides a clean, installed appearance
- For use as a 1:1 replacement to cast-in-place anchors (per technical bulletin T-A-SILPLANCH21 at **strongtie.com**)
- Post installed anchors eliminate layout conflicts vs. cast in place
- Head stamp includes No-Equal® logo with length indicator for easy identification

Codes: ICC-ES ESR-2713 (concrete);
ICC-ES ESR-1056 (masonry);
City of LA Supplement within ESR-2713 (concrete);
City of LA Supplement within ESR-1056 (masonry);
Florida FL15730 (concrete and masonry);
FM 3017082, 3035761 and 3043442;
Multiple DOT listings

Material: Carbon steel

Coating: Zinc plated or mechanically galvanized.
Not recommended for permanent exterior use or highly corrosive environments.

Titen HD Screw Anchor

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

Installation

Holes in steel fixtures to be mounted should match the diameter specified in the table below.

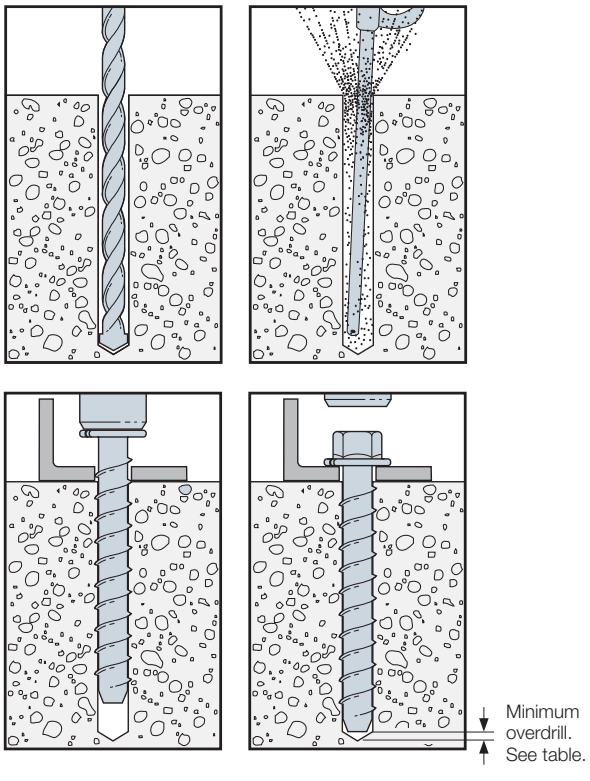
Use a Titen HD screw anchor one time only — installing the anchor multiple times may result in excessive thread wear and reduce load capacity.

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 overdrill (see table below) 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



Additional Installation Information

Titen HD Diameter (in.)	Wrench Size (in.)	Recommended Steel Fixture Hole Size (in.)	Minimum Hole Depth Overdrill (in.)
¼	⅜	⅜ to 7⁄16	⅛
⅜	9⁄16	½ to 9⁄16	¼
½	¾	⅝ to 11⁄16	½
⅝	15⁄16	¾ to 13⁄16	½
¾	1 ⅛	⅞ to 15⁄16	½

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

Titen HD® Heavy-Duty Screw Anchor

Countersunk Head Style

The countersunk head style is for applications that require a flush-mount profile. Countersinking also leaves a cleaner surface appearance for exposed through-set applications. The anchor head's 6-lobe drive eases installation and is less prone to stripping than traditional recessed anchor heads.

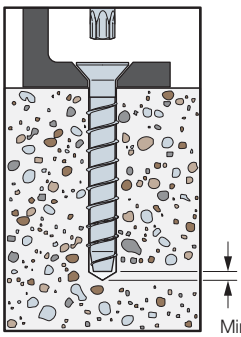
Features:

- Available in many standard lengths in ¼" and ⅜" diameters
- Driver bit included in each box

Codes: ICC-ES ESR-2713 (concrete);
ICC-ES ESR-1056 (masonry);
City of LA Supplement within ESR-2713 (concrete);
City of LA Supplement within ESR-1056 (masonry);
Florida FL15730 (concrete and masonry)

Material: Carbon steel

Coating: Zinc plated



Minimum overdrill.
See table.

Additional Installation Information

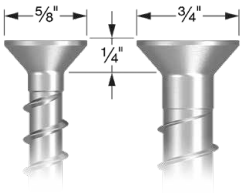
Titen HD Diameter (in.)	Bit Size	Recommended Steel Fixture Hole Size (in.)	Minimum Hole Depth Overdrill (in.)
¼	T30	⅜ to 7⁄16	⅛
⅜	T50	½ to 9⁄16	¼

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

Titen HD Countersunk Head Style

Cracked Concrete CODE LISTED

6-lobe drive



¼" **⅜"**

Washer-Head Head Style

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.

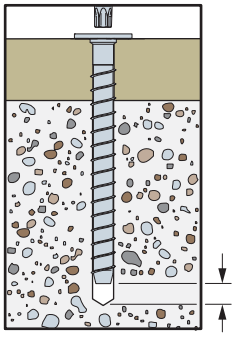
Features:

- Available in many standard lengths in ½" and ⅝" diameters
- Driver bit included in each box

Codes: ICC-ES ESR-2713 (concrete);
City of LA Supplement within ESR-2713 (concrete)
Florida FL15730 (concrete)

Material: Carbon steel

Coating: Zinc plated



Minimum overdrill.
See table.

Additional Installation Information

Titen HD Diameter (in.)	Bit Size	Recommended Steel Fixture Hole Size (in.)	Minimum Hole Depth Overdrill (in.)
½	T50	¾	½
⅝	T60	15⁄16	½

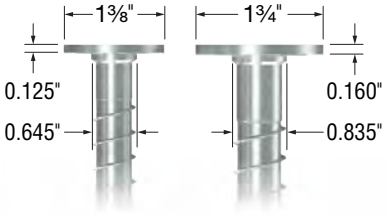
Suggested fixture hole sizes are for structural steel thicker than 12 gauge only. Larger holes are not required for wood or thinner cold-formed steel members.

NEW

Titen HD Washer-Head Head Style

Cracked Concrete CODE LISTED

6-lobe drive



½" **⅝"**

Titen HD® Heavy-Duty Screw Anchor

Titen HD Anchor Product Data — Zinc Plated[1]

Size (in.)	Model No.	Thread Length (in.)	Drill Bit Diameter (in.)	Wrench Size (in.)	Quantity	
					Box	Carton
¼ x 1⅞	THDB25178H	1½	¼	⅜	100	500
¼ x 2¾	THDB25234H	2⅜	¼	⅜	50	250
¼ x 3	THDB25300H	2⅝	¼	⅜	50	250
¼ x 3½	THDB25312H	3⅛	¼	⅜	50	250
¼ x 4	THDB25400H	3⅝	¼	⅜	50	250
⅜ x 1¾	THD37134H[2,3]	1¼	⅜	9⁄16	50	250
⅜ x 2½	THD37212H[2,3]	2	⅜	9⁄16	50	200
⅜ x 3	THD37300H	2½	⅜	9⁄16	50	200
⅜ x 4	THD37400H	3½	⅜	9⁄16	50	200
⅜ x 5	THD37500H	4½	⅜	9⁄16	50	100
⅜ x 6	THD37600H	5½	⅜	9⁄16	50	100
½ x 3	THD50300H[2,4]	2½	½	¾	25	100
½ x 4	THD50400H	3½	½	¾	20	80
½ x 5	THD50500H	4½	½	¾	20	80
½ x 6	THD50600H	5½	½	¾	20	80
½ x 6½	THD50612H	5½	½	¾	20	40
½ x 8	THD50800H	5½	½	¾	20	40
½ x 12	THD501200H	5½	½	¾	5	25
½ x 13	THD501300H	5½	½	¾	5	25
½ x 14	THD501400H	5½	½	¾	5	25
½ x 15	THD501500H	5½	½	¾	5	25
⅝ x 4	THDB62400H[2,4]	3½	⅝	15⁄16	10	40
⅝ x 5	THDB62500H	4½	⅝	15⁄16	10	40
⅝ x 6	THDB62600H	5½	⅝	15⁄16	10	40
⅝ x 6½	THDB62612H	5½	⅝	15⁄16	10	40
⅝ x 8	THDB62800H	5½	⅝	15⁄16	10	20
⅝ x 10	THDB62100H	5½	⅝	15⁄16	10	20
¾ x 4	THD75400H[2,5]	3½	¾	1⅛	10	40
¾ x 5	THD75500H	4½	¾	1⅛	5	20
¾ x 6	THDT75600H	4½	¾	1⅛	5	20
¾ x 7	THD75700H	5½	¾	1⅛	5	10
¾ x 8½	THD75812H	5½	¾	1⅛	5	10
¾ x 10	THD75100H	5½	¾	1⅛	5	10

1. Length of anchor is measured from underside of head to end of anchor.
2. These models do not meet minimum embedment depth requirements for strength design.
3. Installation torque shall not exceed 25 ft.-lb. using a manual torque wrench or maximum torque rating of 100 ft.-lb. when installed with impact wrench.
4. Installation torque shall not exceed 50 ft.-lb. using a manual torque wrench or maximum torque rating of 100 ft.-lb. when installed with impact wrench.
5. Installation torque shall not exceed 50 ft.-lb. using a manual torque wrench or maximum torque rating of 135 ft.-lb. when installed with impact wrench.

Titen HD® Heavy-Duty Screw Anchor

Titen HD Anchor Product Data — Countersunk — Zinc Plated

Size (in.)	Model No.	Thread Length (in.)	Drill Bit Diameter (in.)	Wrench Size (in.)	Quantity	
					Box	Carton
¼ x 1⅞	THDB25178CS	1½	¼	T30	100	500
¼ x 2¾	THDB25234CS	2⅜	¼	T30	50	250
¼ x 3½	THDB25312CS	3⅛	¼	T30	50	250
¼ x 4½	THDB25412CS	4⅛	¼	T30	50	250
⅜ x 2½	THD37212CS†	2	⅜	T50	50	200
⅜ x 3	THD37300CS	2½	⅜	T50	50	200
⅜ x 4	THD37400CS	3½	⅜	T50	50	200
⅜ x 5	THD37500CS	4½	⅜	T50	50	100

† This model does not meet minimum embedment depth requirements for strength design and require maximum installation torque of 25 ft.-lb. using a torque wrench, driver drill or cordless ¼" impact driver with a maximum permitted torque rating of 100 ft.-lb.

1. Length of anchor is measured from top of head to bottom of anchor.

Titen HD Anchor Product Data — Washer Head — Zinc Plated

Size (in.)	Model No.	Thread Length (in.)	Drill Bit Diameter (in.)	Bit Size	Quantity	
					Box	Carton
NEW ½ x 6	THD50600WH	5½	½	T50	15	60
NEW ½ x 8	THD50800WH	5½	½	T50	15	30
NEW ⅝ x 6	THDB62600WH	5½	⅝	T60	10	40
NEW ⅝ x 8	THDB62800WH	5½	⅝	T60	10	20
NEW ⅝ x 10	THDB62100WH	5½	⅝	T60	10	20

1. Length of anchor is measured from top of head to bottom of anchor.

Titen HD® Heavy-Duty Screw Anchor

Titen HD Anchor Product Data — Mechanically Galvanized

Size (in.)	Model No.	Thread Length (in.)	Drill Bit Diameter (in.)	Wrench Size (in.)	Quantity	
					Box	Carton
⅜ x 3	THD37300HMG	2½	⅜	9⁄16	50	200
⅜ x 4	THD37400HMG	3½			50	200
⅜ x 5	THD37500HMG	4½			50	100
⅜ x 6	THD37600HMG	5½			50	100
½ x 4	THD50400HMG	3½	½	¾	20	80
½ x 5	THD50500HMG	4½			20	80
½ x 6	THD50600HMG	5½			20	80
½ x 6½	THD50612HMG	5½			20	40
½ x 8	THD50800HMG	5½			20	40
½ x 12	THD501200HMG	5½			5	20
⅝ x 5	THDB62500HMG	4½	⅝	15⁄16	10	40
⅝ x 6	THDB62600HMG	5½			10	40
⅝ x 6½	THDB62612HMG	5½			10	40
⅝ x 8	THDB62800HMG	5½			10	20
¾ x 5	THD75500HMG	4½	¾	1 ⅛	5	20
¾ x 6	THDT75600HMG	4½			5	20
¾ x 8½	THD75812HMG	5½			5	10
¾ x 10	THD75100HMG	5½			5	10

Mechanical galvanizing meets ASTM B695, Class 65, Type 1. Intended for some pressure-treated wood sill plate applications. Not for use in other corrosive or outdoor environments. See pp. 7–10 or visit **strongtie.com/info** for more corrosion information.

Stainless-Steel Titen HD® Heavy-Duty Screw Anchor

The Next Era of Stainless-Steel Screw Anchor for Concrete and Masonry

Titen HD screw anchors are a trusted anchor solution because they offer the performance that specifiers need and the ease of installation that contractors demand. Until now, however, they were not for use in permanent exterior or corrosive environments. The Titen HD stainless-steel screw anchor for concrete and masonry sets the new standard for when the job calls for installation in multiple types of environments. It is the ultimate choice to provide fast and efficient installation, combined with long-lasting corrosion resistance for an unsurpassed peace-of-mind.

Innovative — The serrated carbon-steel threads on the tip of the stainless-steel Titen HD are vital because they undercut the concrete as the anchor is driven into the hole, making way for the rest of the threads to interlock with the concrete. In order for these threads to be durable enough to cut into the concrete, they are formed from carbon steel that is then hardened and brazed onto the tip of the anchor.

Corrosion Resistant — For dry, interior applications, carbon-steel corrosion is not a risk, but in any kind of exterior, coastal or chemical environment the anchor would be susceptible to corrosion. With the introduction of the THDSS, there is finally a state-of-the-art anchor solution that combines the corrosion resistance of Type 300 Series stainless steel with the undercutting ability of sacrificial heat-treated carbon-steel cutting threads.

Features:

- Ideal for exterior or corrosive environments
- Anchor contains minimal carbon steel resulting in less expansion forces in the concrete due to corrosion
- Approved for use with many ZMAX® post bases

Codes: IAPMO UES ER-493 (concrete);
ICC-ES ESR-1056 (masonry);
City of LA Supplement within ER-493 (concrete);
City of LA Supplement within ESR-1056 (masonry);
Florida FL15730 (masonry); FL16230 (concrete)

Material: Type 316 and Type 304 stainless steel with carbon-steel lead threads

Innovative Carbon-Steel Lead Threads

Stainless-Steel Titen HD Hex-Washer Head Style Screw Anchor

Please go to **strongtie.com/patents** for the most current list of Simpson Strong-Tie patents.

Installation

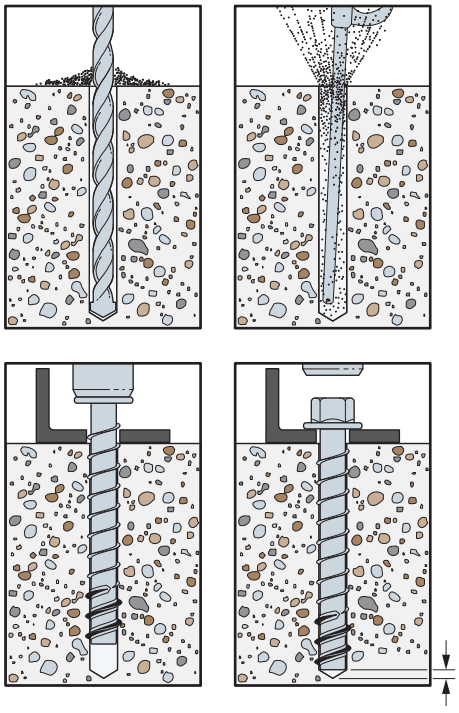
Caution: Holes in steel fixtures to be mounted should match the diameter specified in the table below if steel is thicker than 12 gauge.

Caution: 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 (complying with ANSI B212.15) with the same diameter as the nominal diameter of the anchor to be installed. Drill the hole to the specified minimum hole depth overdrill (see table below) 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 or the countersunk head contacts the fixture.

Installation Sequence



Additional Installation Information

Titen HD® Diameter (in.)	Wrench Size (in.)	Recommended Steel Fixture Hole Size (in.)	Minimum Hole Depth Overdrill (in.)
¼	⅜	⅜ to 7⁄16	⅛
⅜	9⁄16	½ to 9⁄16	¼
½	¾	⅝ to 11⁄16	½
⅝	15⁄16	¾ to 13⁄16	½
¾	1 ⅛	⅞ to 15⁄16	½

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

Stainless-Steel Titen HD® Heavy-Duty Screw Anchor

Stainless-Steel **Countersunk** Head Style

The countersunk head style is for applications that require a flush-mount profile. Countersinking also leaves a cleaner surface appearance for exposed through-set applications. The anchor head's 6-lobe drive eases installation and is less prone to stripping than traditional recessed anchor heads.

Features:

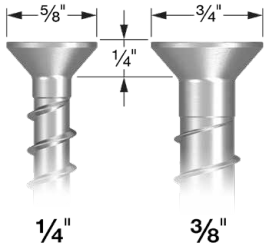
- Available in many standard lengths in ¼" and ⅜" diameters
- Countersunk head allows screw anchor applications incompatible with a hex head
- Countersunk version includes driver bit in each box

Codes: IAPMO UES ER-493 (concrete);
ICC-ES ESR-1056 (masonry);
City of LA Supplement within ER-493 (concrete);
City of LA Supplement within ESR-1056 (masonry);
Florida FL15730 (masonry); FL16230 (concrete)

Material: Type 316 stainless steel with carbon-steel lead threads

Stainless-Steel Titen HD Countersunk Head Style Screw Anchor

6-lobe drive

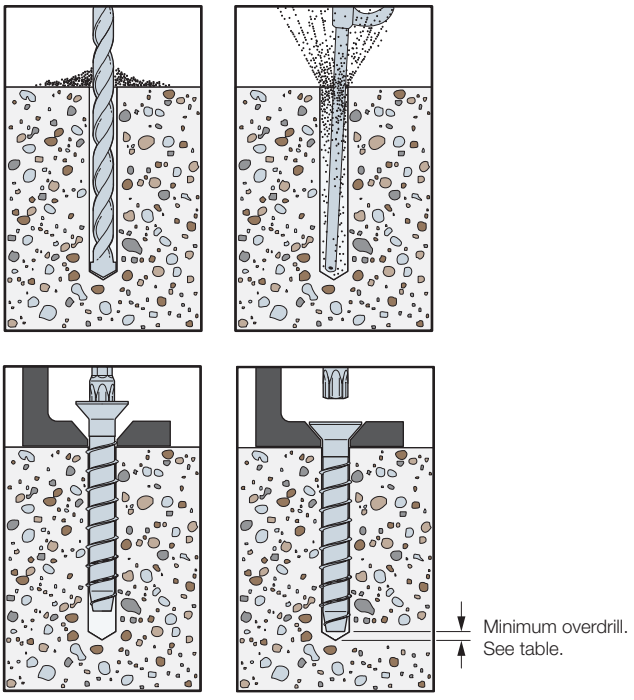


Additional Installation Information

Titen HD Diameter (in.)	Bit Size	Recommended Steel Fixture Hole Size (in.)	Minimum Hole Depth Overdrill (in.)
¼	T30	⅜ to 7⁄16	⅛
⅜	T50	½ to 9⁄16	¼

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

Installation Sequence



Titen HD Countersunk Installation

Stainless-Steel Titen HD® Heavy-Duty Screw Anchor

Stainless-Steel Titen HD Anchor Product Data — Hex Washer Head

Size (in.)	Model No. (Type 316)	Model No. (Type 304)	Thread Length (in.)	Drill Bit Diameter (in.)	Wrench Size (in.)	Quantity	
						Box	Carton
¼ x 2	THDC25200H6SS†	—	1⅞	¼	⅜	50	250
¼ x 2⅜	THDC25238H6SS	—	2¼	¼	⅜	50	250
¼ x 3	THDC25300H6SS	—	2⅞	¼	⅜	50	250
¼ x 4	THDC25400H6SS	—	3⅞	¼	⅜	50	250
⅜ x 3	THD37300H6SS	THD37300H4SS	2½	⅜	9⁄16	50	200
⅜ x 4	THD37400H6SS	THD37400H4SS	3½	⅜	9⁄16	50	200
⅜ x 5	THD37500H6SS	THD37500H4SS	4½	⅜	9⁄16	50	100
⅜ x 6	THD37600H6SS	THD37600H4SS	5½	⅜	9⁄16	50	100
½ x 3	THD50300H6SS	THD50300H4SS	2½	½	¾	25	100
½ x 4	THD50400H6SS	THD50400H4SS	3½	½	¾	20	80
½ x 5	THD50500H6SS	THD50500H4SS	4½	½	¾	20	80
½ x 6	THD50600H6SS	THD50600H4SS	5½	½	¾	20	80
½ x 6½	THD50612H6SS	THD50612H4SS	6	½	¾	20	40
½ x 8	THD50800H6SS	THD50800H4SS	6⅞	½	¾	20	40
⅝ x 4	THDB62400H6SS	THDB62400H4SS	3½	⅝	15⁄16	10	40
⅝ x 5	THDB62500H6SS	THDB62500H4SS	4½	⅝	15⁄16	10	40
⅝ x 6	THDB62600H6SS	THDB62600H4SS	5½	⅝	15⁄16	10	40
⅝ x 6½	THDB62612H6SS	THDB62612H4SS	6	⅝	15⁄16	10	40
⅝ x 8	THDB62800H6SS	THDB62800H4SS	7 1⁄16	⅝	15⁄16	10	20
¾ x 4	THD75400H6SS	THD75400H4SS	3½	¾	1⅛	10	40
¾ x 5	THD75500H6SS	THD75500H4SS	4½	¾	1⅛	5	20
¾ x 6	THD75600H6SS	THD75600H4SS	5½	¾	1⅛	5	20
¾ x 7	THD75700H6SS	THD75700H4SS	6½	¾	1⅛	5	10
¾ x 8½	THD75812H6SS	THD75812H4SS	7 3⁄16	¾	1⅛	5	10

† Does not meet minimum embedment in code report.

1. Anchor length is measured from under head to bottom of anchor.

Stainless-Steel Titen HD Anchor Product Data — Countersunk

Size (in.)	Model No. (Type 316)	Thread Length (in.)	Drill Bit Diameter (in.)	Wrench Size (in.)	Quantity	
					Box	Carton
¼ x 2⅜	THDC25238CS6SS†	2	¼	T30	25	250
¼ x 3	THDC25300CS6SS	2⅝	¼	T30	25	250
¼ x 4	THDC25400CS6SS	3⅝	¼	T30	25	250
⅜ x 2½	THD37212CS6SS†	2	⅜	T50	25	125
⅜ x 3	THD37300CS6SS	2½	⅜	T50	25	125
⅜ x 4	THD37400CS6SS	3½	⅜	T50	25	125

† These models do not meet minimum embedment depth requirements for strength design and require maximum installation torque of 25 ft.-lb. using a torque wrench, driver drill or cordless ¼" impact driver with a maximum permitted torque rating of 100 ft.-lb.

1. Anchor length is measured from top of head to bottom of anchor.

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, 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 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.

Raising the roof on modular building

MMHC

Custom versatility. Off-the-shelf convenience.

The innovative MMHC hinged roof connector makes it easy to build a stick-frame roof in the modular factory that can fold flat during shipping. It's been tested and load rated in multiple directions. The MMHC can be installed on one or both sides of the roof-rafter assembly.

Looking for innovation in modular building? Visit our website at **go.strongtie.com/modularbuilding** or call us at (800) 999-5099.

SIMPSON Strong-Tie®

SIMPSON
Strong-Tie

C-C-MODULAR22 Effective 12/1/2022 Expires 6/30/2025