

# Rafter/Truss/Plate Fastening

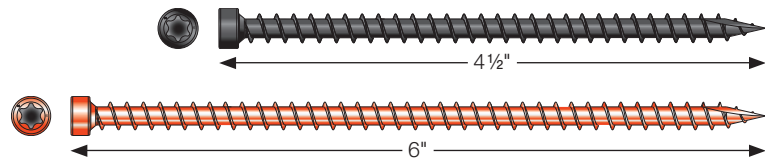
## Strong-Drive® SDWC TRUSS Screw

### Rafter/Truss-to-Plate and Stud-to-Plate Connections

The SDWC screw 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. 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 more information, see p. 103, C-F-2023 Fastening Systems catalog



### SDWC Truss Screw — Allowable Shear Loads

Length (in.)	Model No.	Thread Length (in.)	Nominal Member Thickness (in.)		Reference Allowable Shear Loads (lb.)					
					$Z_{para}^4$			$Z_{perp}^5$		
			Side Member	Main Member	SP	DFL	SPF	SP	DFL	SPF
4½	SDWC15450	4¼	2x (Face)	2x (End grain)	—	—	—	225	205	190
6	SDWC15600	5¾	(2)2x (Face)	2x (Edge)	245	240	180	240	240	240
			2x (Face)	2x (End grain)	—	—	—	225	205	190
			(2)2x (Face)	2x (End grain)	—	—	—	225	225	190

1. Allowable loads are shown at the wood load duration factor of  $C_D = 1.0$ . Loads may be increased for load duration up to a  $C_D = 1.6$ .
2. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
3. The main and side members shall be sawn lumber or structural composite lumber with a specific gravity or equivalent specific gravity 0.42 to 0.55.
4.  $Z_{para}$  — Parallel-to-grain loading in the side member and perpendicular-to-grain loading in the main member.
5.  $Z_{perp}$  — Perpendicular-to-grain loading in the side member and perpendicular-to-grain loading in the main member, except for 2x (edge) where main member is loaded parallel to grain.
6. The connection conditions of this table are for specific intended applications. Reference lateral design values for all other shear connections are calculated following the NDS.

### SDWC Truss Screw — Allowable Withdrawal and Pull-Through Loads

Length (in.)	Model No.	Thread Length (in.)	Nominal Main Member Thickness (in.)	Reference Allowable Withdrawal Loads (lb./in.)			Reference Allowable Pull-Through Loads (lb./in.)		
				SP	DFL	SPF	SP	DFL	SPF
4½	SDWC15450	4¼	2x (Edge)	250	230	150	—	—	—
			2x (End Grain)	200	140	100	210	180	175
6	SDWC15600	5¾	2x (Face)	210	180	120	255	195	160
			(2) 2x (Face)	220	200	160	240	225	190

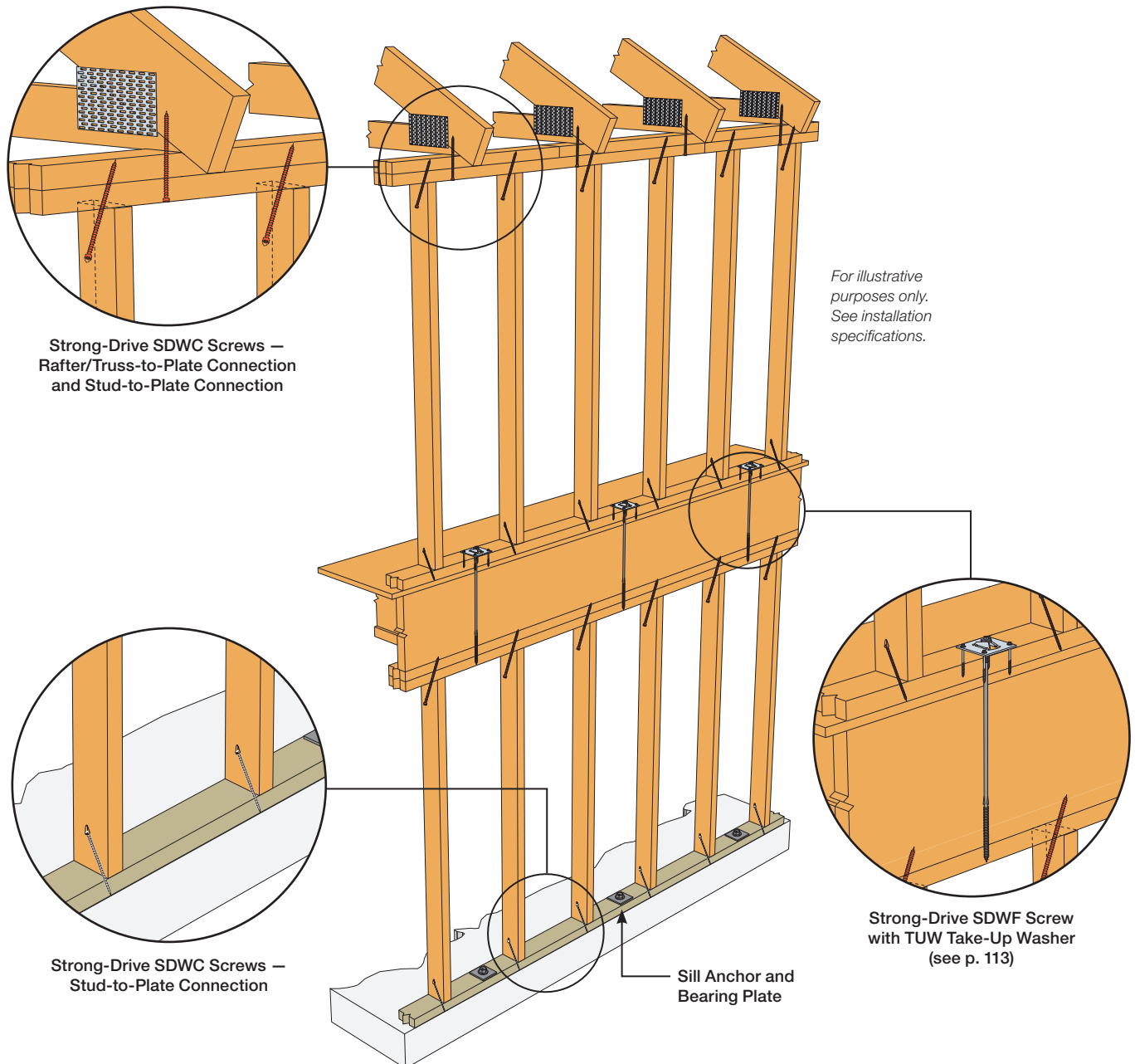
1. Allowable loads are shown at the wood load duration factor of  $C_D = 1.0$ . Loads may be increased for load duration up to a  $C_D = 1.6$ .
2. The tabulated values including end-grain withdrawal,  $C_{eg}=0.75$  must be multiplied by all applicable adjustment factors per the NDS.
3. The reference withdrawal and pull-through values are in pounds per inch of the thread penetration into the main member and a minimum 1½" thick side member, respectively.
4. The end-grain withdrawal factor of 0.65 shall be applied to the minimum embedment depth of 2.82".

## Rafter/Truss/Plate Fastening

### **Strong-Drive®** SDWC TRUSS Screw (cont.)

#### Continuous Load Path Considerations with the SDWC

Building codes require that structures are designed to create a continuous load path. Forces must be transferred from their point of application to the building elements that are designed to resist them. For example, when uplift forces act on a roof, the roof must be tied to the wall, and the wall must be tied to the foundation or the wall below. The SDWC Truss screws can be used to make all of the connections in the load path from the rafter/truss to top plate, top plate to stud, and stud to bottom plate. As an alternate, structural sheathing designed for uplift can be used for the load path from the wall top plate to the wall bottom plate. If Simpson Strong-Tie metal connectors are used to connect the top plate to the wall framing, they should be on the same side as the SDWC Truss screw that makes the rafter/truss-to-top plate connection. The sheathing and connector fasteners must not interfere with the SDWC Truss screw.



# Rafter/Truss/Plate Fastening

## Strong-Drive® SDWC TRUSS Screw for Rafter/Truss-to-Top Plate Connections

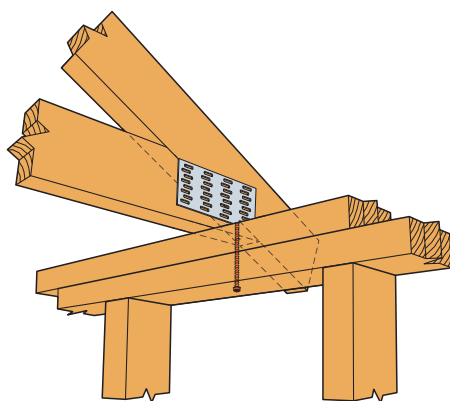
### Load Table

Length (in.)	Model No.	Thread Length (in.)	Installation	Allowable Loads (lb.)								
				SP			DFL			SPF		
				Uplift	F <sub>1</sub>	F <sub>2</sub>	Uplift	F <sub>1</sub>	F <sub>2</sub>	Uplift	F <sub>1</sub>	F <sub>2</sub>
6	SDWC15600	5¾	1	900	505	225	835	405	225	595	305	190
			2	805	380		715	270		635	425	
			3									
			4									
			5			645						
			6	980	625	445	860	620		375	635	

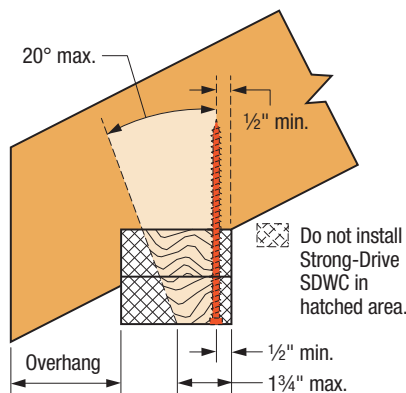
1. Loads have been increased for wind and earthquake ( $C_D = 1.6$ ); no further increases allowed. Reduce when other loads govern.
2. For installations 1–6, the SDWC is to be installed through a double 2x top plate into a minimum 2x4 truss or rafter. In addition, for installation 2, where the 2x truss or rafter is supported by a multi-ply beam, the SDWC is to be installed as shown for the installation 2.
3. The SDWC screws shall be driven such that the shank is fully embedded in the connection members, the head is in contact with or embedded in the side member, and the point does not protrude from the lateral surface of the main member. When embedded, the top surface of the head shall be no more than 1/8" beyond flush.
4. An SDWC screw may be used in each ply of two- or three-ply rafters or trusses. The allowable uplift load for each screw shall be multiplied by 0.90, but may be limited by the capacity of the plate or the connection between the top plate to the framing below. SDWC screws in multi-ply assemblies must be spaced a minimum of 1½" o.c.
5. Screws are shown installed on the interior side of the wall. Installations on the exterior side of the wall are acceptable when the rafter/truss overhangs the top plates a minimum of 3½".
6. For Uplift Connection Load Path, the designer shall verify complete continuity of the uplift load path.
7. F<sub>1</sub> and F<sub>2</sub> are the directions parallel and perpendicular to the wall, respectively.
8. When a screw is loaded simultaneously in more than one direction, the allowable load must be evaluated using the unity equation:  
 $(\text{Design Uplift} \div \text{Allowable Uplift}) + (\text{Design } F_1 \div \text{Allowable } F_1) + (\text{Design } F_2 \div \text{Allowable } F_2) \leq 1.0$   
 The three terms in the unity equation represent the possible generated force directions. The number of terms that must be considered for simultaneous loading is the sole discretion of the designer and depends on the method of calculating wind forces and the utilization of the screws within the structural system.
9. Table loads do not apply to trusses with end-grain bearing.
10. Top plate-to-stud and top-plate splice connections shall be fastened per applicable Building Code.
11. Top plate rotation does not occur at allowable loads.
12. Directions: F<sub>1</sub> is a force parallel to the top plate; F<sub>2</sub> is a force perpendicular to the top plate; Uplift is a force in the upward vertical direction.

### Typical Roof-to-Wall Connection

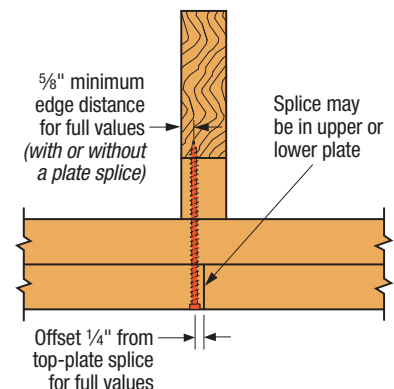
Installation 1 — Rafter/Truss Offset from Stud — Fasten from Underside of Top Plate



Optional SDWC Installation —  
Truss Offset from Stud



Allowable Installation Range  
(truss offset from stud only)



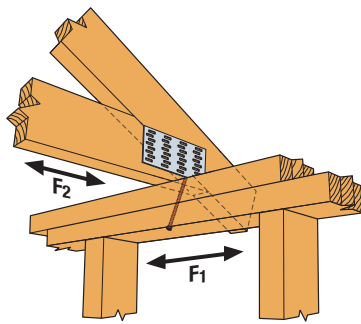
Min. Edge Distance  
for Top-Plate Splice

# Rafter/Truss/Plate Fastening

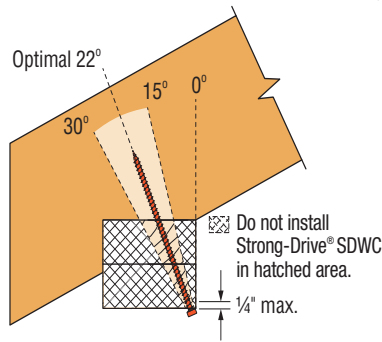
## **Strong-Drive®** SDWC TRUSS Screw for Rafter/Truss-to-Top Plate Connections (cont.)

### Optional Roof-to-Wall Connections

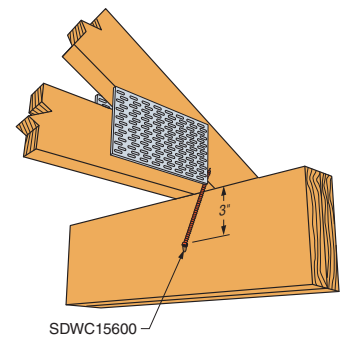
Installation 2 — Rafter/Truss Offset from Stud: Fasten from Front Bottom Corner of Double Top Plate



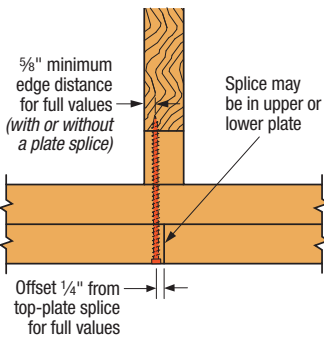
**Optional SDWC Installation —  
Truss Offset from Stud**



**Allowable Installation Range**

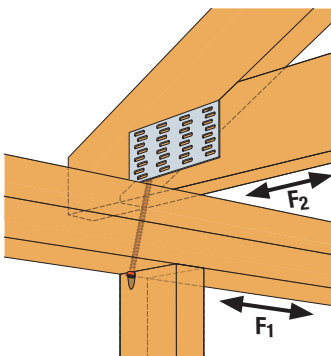


**Optional SDWC Configuration —  
Truss to Multi-Ply Beam**

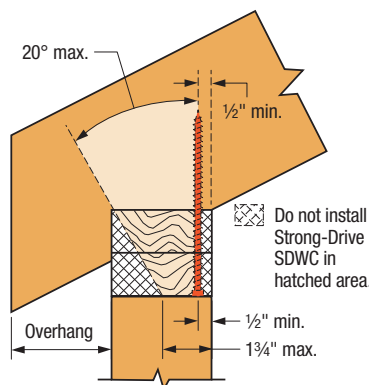


**Minimum Edge Distance for  
Top-Plate Splice**

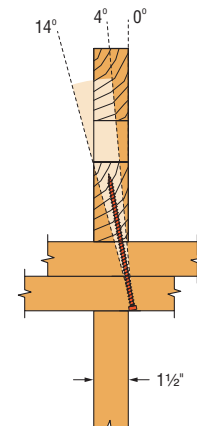
Installation 3 — Rafter/Truss Aligned with Stud: Fasten From Wide Face of Stud



**Optional SDWC Installation —  
Truss Aligned with Stud**



**Allowable Installation Range  
(rafter/truss offset from stud only)**

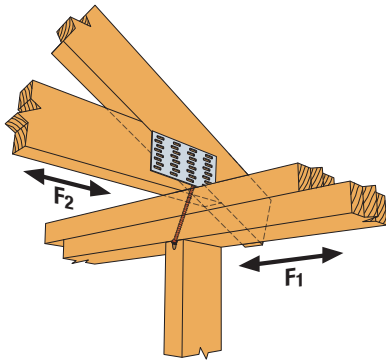


**Allowable Installation Range  
(front view)**

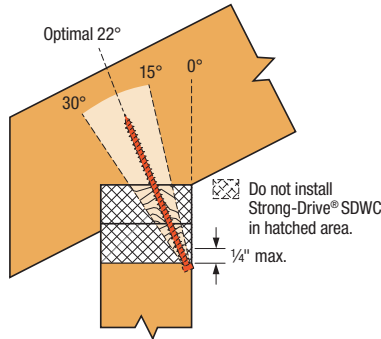
# Rafter/Truss/Plate Fastening

## Strong-Drive® SDWC TRUSS Screw for Rafter/Truss-to-Top Plate Connections (cont.)

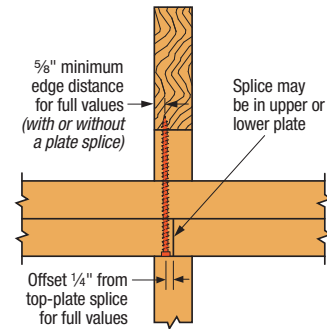
Installation 4 — Rafter/Truss Aligned with Stud: Fasten from Narrow Face of Stud



**SDWC Installation — Truss Aligned with Stud or Over Header**  
*(offset truss similar)*

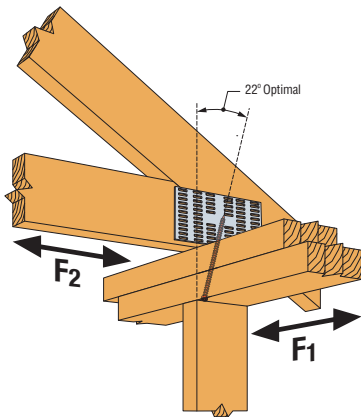


**Allowable Installation Range**

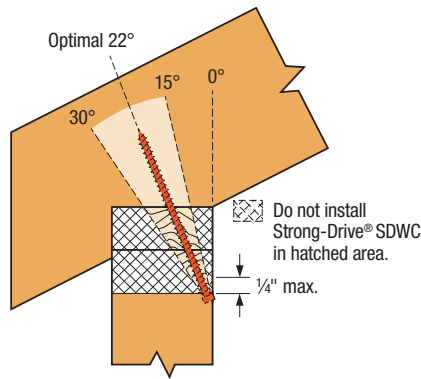


**Min. Edge Distance for Top-Plate Splice**

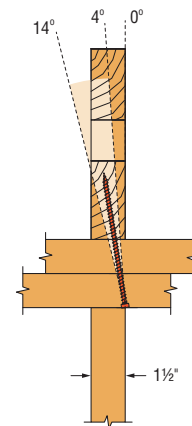
Installation 5 — Rafter/Truss Aligned with Stud: Fasten from Corner of Stud



**Optional SDWC Truss Screw Installation — Truss Aligned with Stud**  
*(rafter aligned with stud similar)*

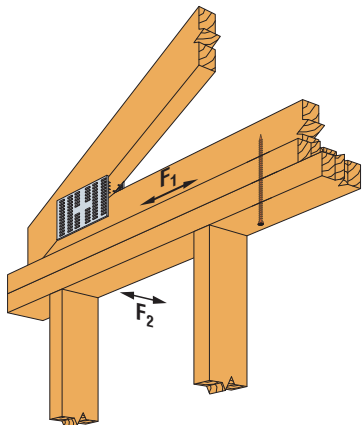


**Allowable Installation Range**  
*(side view)*

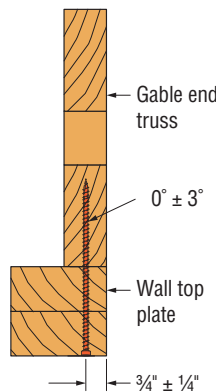


**Installation Angle Range**  
*(front view)*

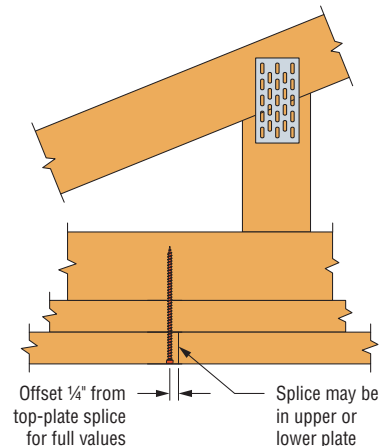
Installation 6 — Gable End Truss Offset from Stud — Fasten Top Plate to Gable End Truss



**Optional SDWC Installation — Gable End Truss Offset from Stud**



**Allowable Installation Range**



**Minimum Edge for Top-Plate Splice**

## Rafter/Truss/Plate Fastening

# Strong-Drive® SDWC TRUSS Screw for Rafter/Truss-to-Top Plate Connections (cont.)

## SDWC Rafter/Truss-to-Top Plate Connections Utilizing Two-Screw Configurations

Allowable loads for the SDWC Truss screws when installed from the underside of the top plate and from the face of the rafter/truss using a two-screw configuration per the detail configurations shown on the next page.

### SDWC Truss Screw — Allowable Loads for Rafter/Truss-to-Top Plate Two-Screw Connections

Configuration	Length (in.)	Model No.	Thread Length (in.)	Quantity Required	Allowable Loads (lb.)					
					DFL/SP			SPF/HF		
					Uplift	F <sub>1</sub>	F <sub>2</sub>	Uplift	F <sub>1</sub>	F <sub>2</sub>
A	6	SDWC15600	5¾	2	1,200	685	995	1,045	495	670
B					1,195	680	925	1,195	405	680
C					905	535	790	850	330	595
D					1,115	645	920	960	385	610

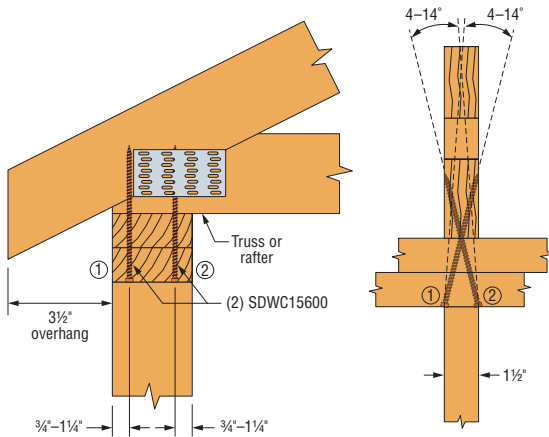
1. Loads have been increased for wind and earthquake loading ( $C_D = 1.6$ ) with no further increase allowed; reduce where other loads govern.
2. For Uplift Connection Load Path, the designer shall verify complete continuity of the uplift load path.
3. When cross-grain tension cannot be avoided, supplemental reinforcement shall be considered by the designer.
4. The SDWC screws shall not interfere with other fasteners or truss plates. Where truss plates must be penetrated for Configuration D, a truss designer approval is required in accordance with ANSI/TPI 1-2007/2014, Section 7.5.3.4 and 8.9.2. To predrill through truss plate, use a ⅜" drill bit.
5. The metal installation guide provided with the screw is angled at 22.5° and can be used for Configurations C and D; proper installation angles for all configurations are the responsibility of the installer.
6. SDWC screws must be offset min. ¼" from top-plate splices for full values.
7. Loads assume minimum overhang of 3½".
8. When a screw is loaded simultaneously in more than one direction, the allowable load must be evaluated using the unity equation:  $(\text{Design Uplift} \div \text{Allowable Uplift}) + (\text{Design } F_1 \div \text{Allowable } F_1) + (\text{Design } F_2 \div \text{Allowable } F_2) \leq 1.0$ . The three terms in the unity equation represent the possible generated force directions. The number of terms that must be considered for simultaneous loading is the sole discretion of the designer and depends on the method of calculating wind forces and the utilization of the screws within the structural system.
9. An SDWC screw may be used in each ply of two- or three-ply rafters or trusses. The allowable uplift load for each screw shall be multiplied by 0.90, but may be limited by the capacity of the plate or the connection between the top plate to the framing below. SDWC screws in multi-ply assemblies must be spaced a minimum of 1½" o.c.
10. Directions: F<sub>1</sub> is a force parallel to the top plate; F<sub>2</sub> is a force perpendicular to the top plate; Uplift is a vertical upward force.

# Rafter/Truss/Plate Fastening

## **Strong-Drive®** SDWC TRUSS Screw for Rafter/Truss-to-Top Plate Connections (cont.)

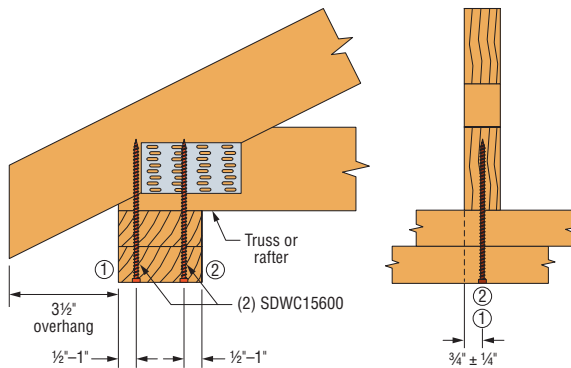
### SDWC Rafter/Truss-to-Top Plate Two-Screw Connections

Wood and Engineered Wood Fastening



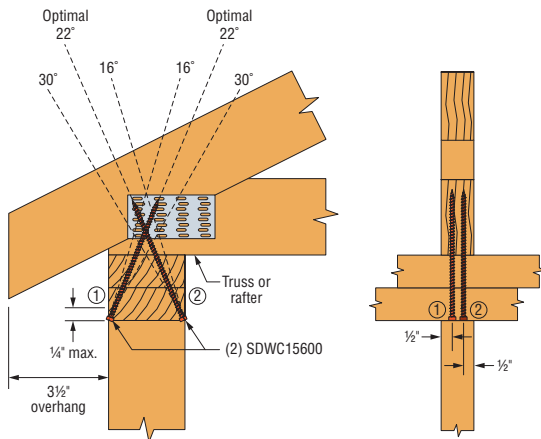
**Configuration A:**  
**Truss Aligned with Stud**  
Install Through Top Plate into Rafter/Truss

Both screws installed at a 4° – 14° angle, offset 3/4" – 1 1/4" from opposite edges of the top plate.



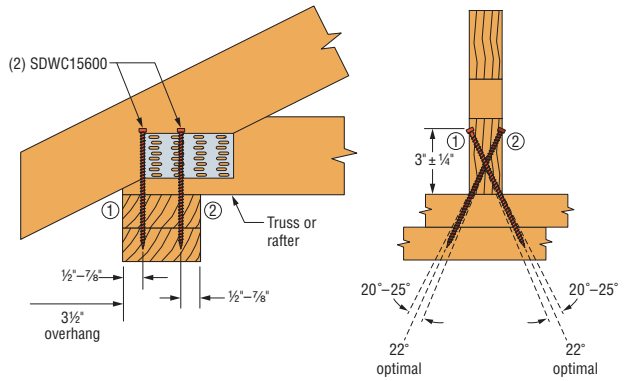
**Configuration B:**  
**Truss Offset from Stud**  
Install Through Top Plate into Rafter/Truss

Both screws installed vertically ±5° into the center of the rafter/truss from the underside of the top plate, 1/2" – 1" from opposite edges of the top plate.



**Configuration C:**  
**Install Through Top Plate into Rafter/Truss**

Both screws installed at a 16° – 30° angle, offset 1/2" from the opposite edges of rafter/truss. Use metal installation guide included in screw kits for optimal 22° installation.



**Configuration D:**  
**Install Rafter/Truss to Top Plate**

Both screws installed at a 20° – 25° angle with a 1/2" – 7/8" offset from the opposite edges of top plate 3" ± 1/4" above top plate. Use metal installation guide included in screw kits for optimal 22° installation. To predrill through truss plates, use a 1/8" drill bit.

## Rafter/Truss/Plate Fastening

# Strong-Drive® SDWC TRUSS Screw for Pre-Engineered Top-of-Wall Assemblies

### SDWC Pre-Engineered Top-of-Wall Assemblies for Continuous Uplift Load Path for SPF or Better Wood Framing

The Strong-Drive SDWC TRUSS Screw is designed to fasten roof rafters/trusses to wall plates and wall plates to studs. When used to connect rafters/trusses to top plates, a second connection from top plates to the studs below is necessary in order to maintain a continuous load path as would be required for any connection method. This table provides allowable uplift loads for the five pre-engineered top-of-wall assemblies shown on the next page. These assemblies have been designed and tested to provide a continuous load path from the rafter/truss to the studs in the wall below and account for any reductions that may result from top plate rotation due to eccentric loading. The continuous load path from the bottom of the stud to the supporting structure is by others.

### SDWC Truss Screw — Allowable Uplift Loads for Pre-Engineered Top-of-Wall Assemblies

Wall Assembly	Rafter/Truss Connection to Top Plates	Top Plate Connection to Studs at 16" On Center <sup>4</sup>	Allowable Rafter/Truss Uplift Loads (lb.)					
			2x4 SPF Framing			2x6 SPF Framing		
			Rafter/Truss Spacing			Rafter/Truss Spacing		
			12	16	24	12	16	24
A	1 – SDWC15600	1 – SDWC15600	385	485	485	385	485	485
B		2 – SDWC15600	485	485	485	485	485	485
C		1 – SDWC15600	305	410	485	305	410	485
D		1 – SDWC15600	120	160	240	120	160	240
E		WSP per designer <sup>3</sup>	145	195	290	105	140	210

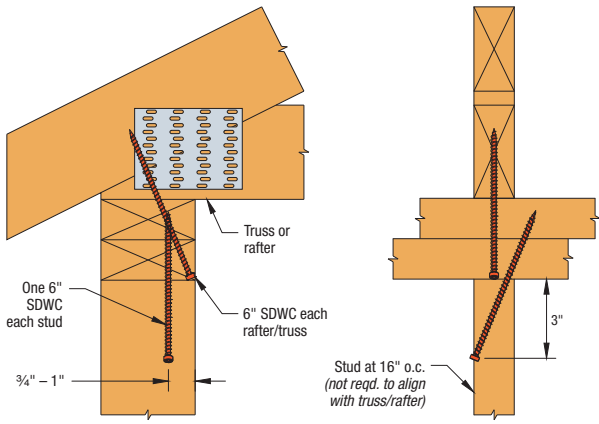
- Allowable loads apply to wood members with an assigned specific gravity of at least 0.42.
- Uplift loads have been increased for wind loading ( $C_D = 1.6$ ) with no further increases allowed; reduce where other loads govern.
- Wood structural panel (WSP) sheathing used in Wall Type E must be designed and constructed to resist uplift in accordance with the American Wood Council's 2021 or 2015 Special Design Provisions for Wind and Seismic standard.
- As indicated in table header, studs spaced at 16" o.c. for all assemblies.



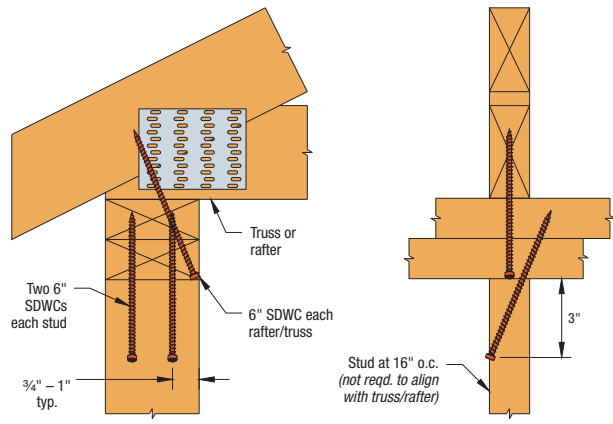
# Rafter/Truss/Plate Fastening

## Strong-Drive® SDWC TRUSS Screw for Pre-Engineered Top-of-Wall Assemblies (cont.)

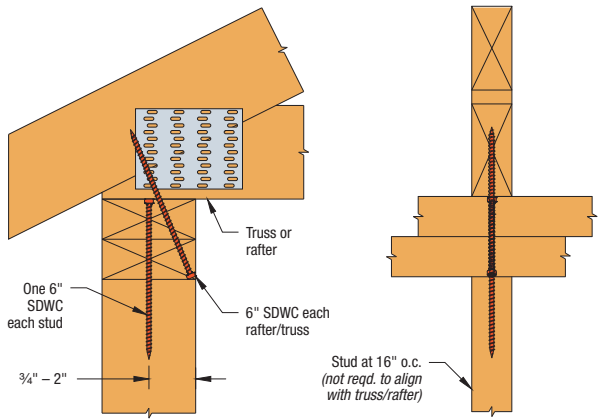
Wood and Engineered Wood Fastening



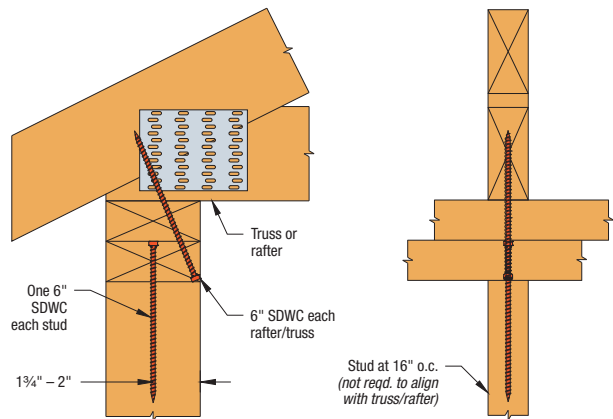
**Wall Assembly A**  
One SDWC as Angled Stud Screw



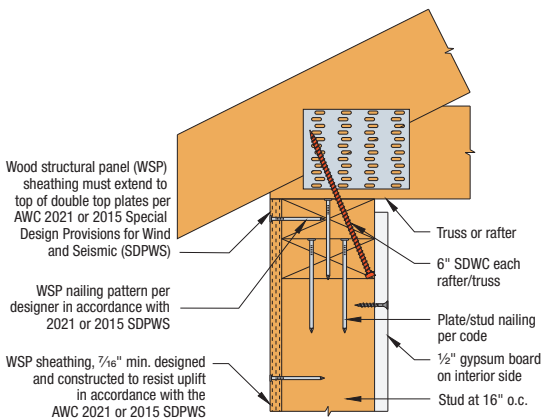
**Wall Assembly B**  
Two SDWC as Angled Stud Screw



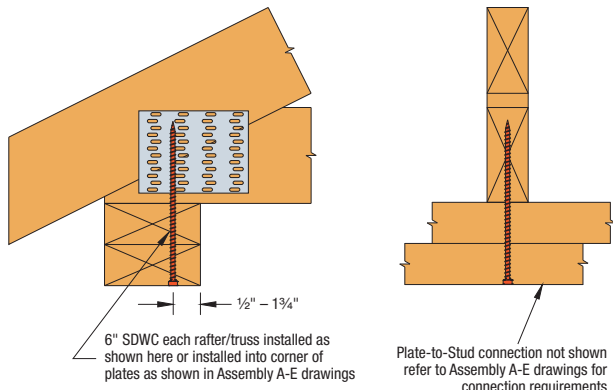
**Wall Assembly C**  
One SDWC as Vertical Stud Screw  
Through Both Plates



**Wall Assembly D**  
One SDWC as Vertical Stud Screw  
Through Lower Plates



**Wall Assembly E**  
WSP Designed for Uplift



**Rafter/Truss Offset from Stud**

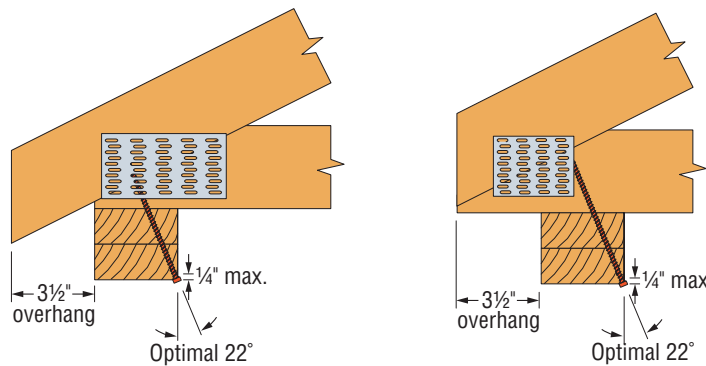
# Rafter/Truss/Plate Fastening

## **Strong-Drive®** **SDWC TRUSS** Screw for Energy Heel Truss-to-Top Plate Connections

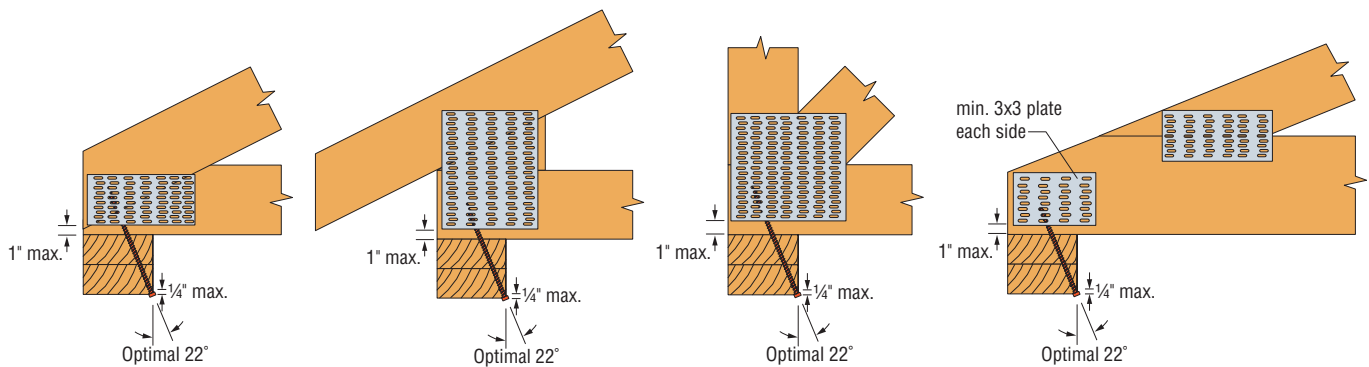
### *Allowable Roof-to-Wall Single-Screw Connection Loads for Raised-Heel/Energy-Heel Trusses and Trusses with No Overhangs*

Allowable roof-to-wall connection loads published for the Simpson Strong-Tie SDWC Truss screw (SDWC15600) are based on a minimum 3½" overhang as shown in the figures below. The following allowable roof-to-wall single-screw connection loads for truss heel configurations that do not meet the minimum overhang requirement, such as a standard heel with no overhang, or a raised-heel condition where the screw only penetrates into the truss bottom chord and the bottom chord does not extend past the top plate.

Testing was performed in accordance with ICC-ES AC233 Sub-Annex CA, Section CA3.0 (*Acceptance Criteria for Alternate Dowel-Type Threaded Fasteners, Approved 2020*) to evaluate the effects of no overhang, with and without truss plates in the region of the SDWC Truss screw. The resulting allowable loads for these conditions are provided in the following table. To achieve the allowable load for the "No Overhang — Reinforced" condition, truss plates must be located as shown in the figures below; otherwise, the allowable load for "No Overhang — Unreinforced" shall be used. Except as noted, all other installation information regarding the SDWC screws for rafter/truss-to-top plate connections as specified in the current *Fastening Systems* catalog shall apply.



**Standard Installation**  
(with minimum 3½" overhang)



**Installation with No Overhang — Reinforced**

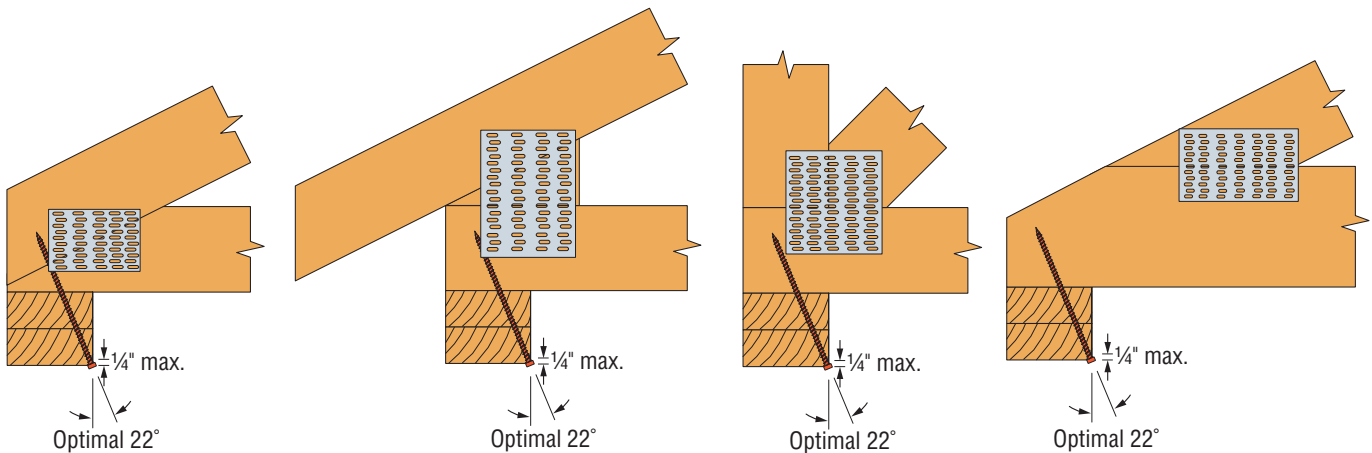
**Note:** Truss plates must be located no greater than ¼" or 2" from end of chord on 2x4 or 2x6 or larger walls, respectively.

## Rafter/Truss/Plate Fastening

### Strong-Drive®

### SDWC TRUSS Screw

### for Energy Heel Truss-to-Top Plate Connections (cont.)



Installation with No Overhang — Unreinforced

### SDWC Truss Screw — Allowable Loads

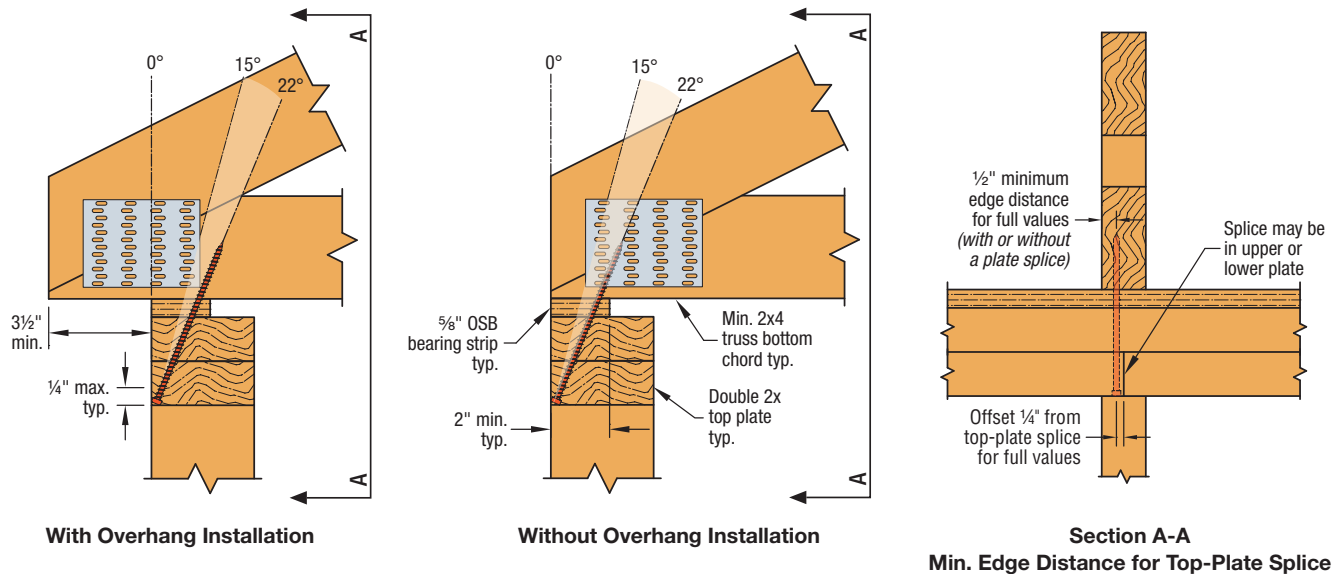
Model No.	Condition	Allowable Loads SPF/HF/DFL/SP (lb.)		
		Uplift	F <sub>1</sub>	F <sub>2</sub>
SDWC15600	Standard Installation	485	115	190
	No Overhang — Reinforced	450		
	No Overhang — Unreinforced	280		

1. Allowable loads apply to wood members with an assigned specific gravity of at least 0.42.
2. Loads have been increased for wind and earthquake loading ( $C_D = 1.6$ ) with no further increase allowed; reduce where other loads govern.
3. For Uplift Connection Load Path, the designer shall verify complete continuity of the uplift load path.
4. When cross-grain tension cannot be avoided, supplemental reinforcement shall be considered by the designer.
5. SDWC screws are shown installed at the optimal 22° angle, installation angles from 15° to 30° are acceptable. Tabulated loads also apply to any of the five approved truss-to-plate installations using the Quik Stik™ Fastening Tool as specified in filer F-F-QUIKSTIK at [strongtie.com](http://strongtie.com).
6. SDWC screws must be offset minimum 1/4" from top-plate splices and must have minimum edge distances per pp. 84–86 or filer F-F-QUIKSTIK at [strongtie.com](http://strongtie.com).
7. Directions: F<sub>1</sub> is a force parallel to the top plate; F<sub>2</sub> is a force perpendicular to the top plate; Uplift is a vertical upward force.

# Rafter/Truss/Plate Fastening

## **Strong-Drive®** **SDWC TRUSS Screw** for Factory-Built Structures Truss-to-Top Plate Connections

The allowable uplift loads are provided for the Simpson Strong-Tie SDWC15600 wood screw installed with a 5/8" OSB bearing strip between the truss and top plate.



### SDWC Truss Screw — Allowable Uplift Loads for Factory-Built Structures

Length (in.)	Model No.	Thread Length (in.)	Allowable Uplift Loads SPF/DFL/SP (lb.)	
			With Overhang	Without Overhang
6	SDWC15600	5 3/4	415	370

1. Loads have been increased for wind or earthquake ( $C_D = 1.6$ ); no further increase allowed; reduce where other loads govern.
2. Allowable loads apply to spruce-pine-fir, hem-fir, Douglas fir-larch, and southern pine.
3. Allowable loads are for an SDWC installed per the "With Overhang" or "Without Overhang" installation details.
4. SDWC must be installed on the exterior side of the wall.
5. SDWC must be installed at an angle between 10° and 22½°. Guide provided with screws is at 22½°.
6. For Uplift Continuous Load Path, top-plate-to-stud connections must be located on the exterior side of the wall.
7. Table loads do not apply to trusses with end-grain bearing.
8. Top plate, stud, and top-plate splice fastened per applicable building code.

# Rafter/Truss/Plate Fastening

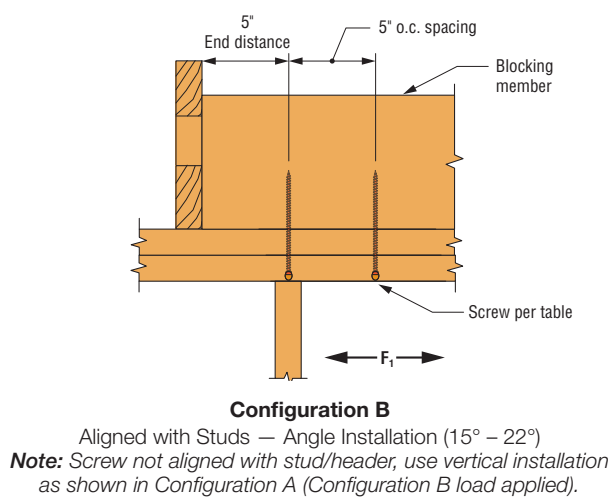
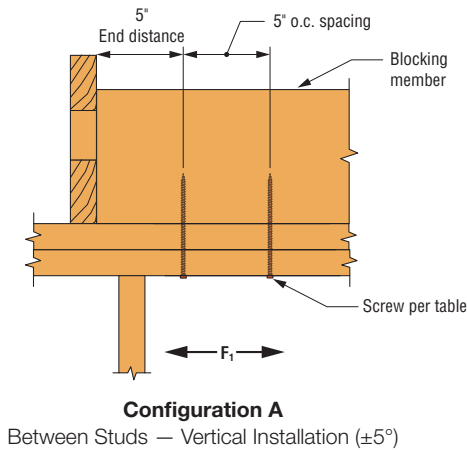
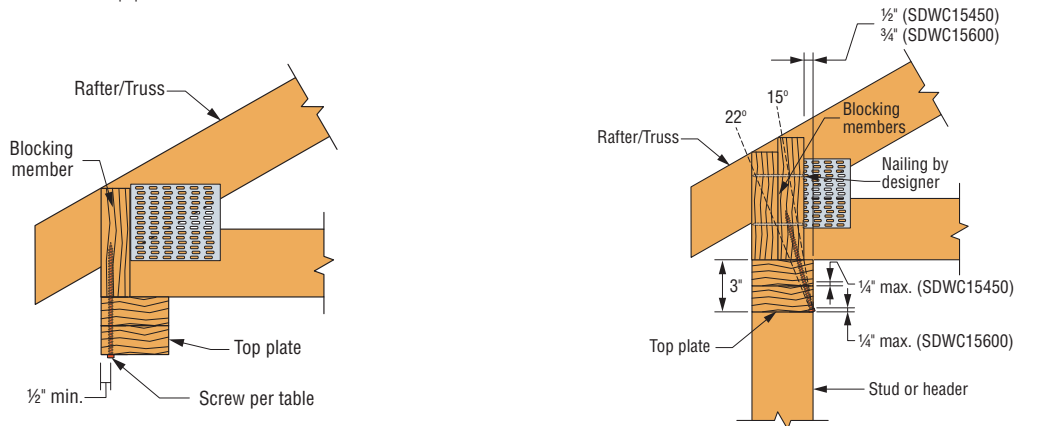
## **Strong-Drive®** **SDWC TRUSS Screw** for Boundary Blocking-to-Top Plate Connections

The SDWC was tested and evaluated to establish allowable lateral loads between wall plates and boundary members in a roof diaphragm.

### SDWC Truss Screw — Allowable Shear Loads ( $F_1$ ) for Boundary Member/Blocking-to-Wall Connections — DFL, SP, SPF, HF

Configuration	Length (in.)	Model No.	Nominal Top Plate Thickness (in.)	Thread Length (in.)	Allowable Loads per Screw (lb.) 2x Boundary Member/Blocking	
					DFL/SP	SPF/HF
					$F_1$	$F_1$
A	4½	SDWC15450	(2) 2x	4¼	295	270
B					175	160
A	6	SDWC15600		5¾	540	495
B					440	405

1. Allowable loads are based on testing per ICC-ES AC233 and are limited to parallel-to-grain loading.
2. Allowable loads are shown at the wood load duration factor of  $C_D = 1.60$ .
3. Minimum spacing of the SDWC is 5" o.c., minimum end distance is 5", and minimum edge distance or installation angle as shown in configurations A and B.
4. Double top plate is required to be independently fastened per the code.
5. Minimum of (2) SDWC fasteners required per individual boundary member/blocking.
6. For species and grades of framing other than DFL/SP, reduced allowable loads shall be determined by the specific gravity adjustment factor of  $1 - (0.5 - G)$ ; where G is the specific gravity referenced from the NDS.
7. SDWC is driven flush to top plate surface.



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# Rafter/Truss/Plate Fastening

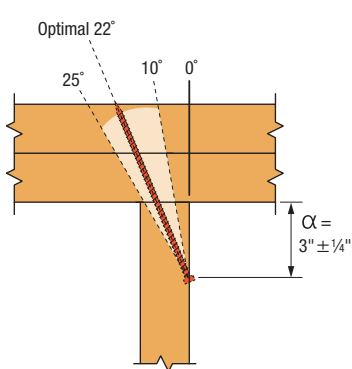
## Strong-Drive® SDWC TRUSS Screw for Wide Face of Stud-to-Plate Connections

### SDWC Truss Screw — Allowable Loads for Wide Face of Stud-to-Plate Connections

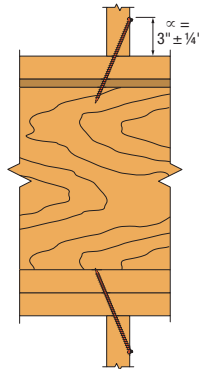
Length (in.)	Model No.	No. of Screws Installed	Thread Length (in.)	Nominal Plate Thickness (in.)	Allowable Loads (lb.)			
					DFL/SP		SPF/HF	
					Uplift	F <sub>2</sub>	Uplift	F <sub>2</sub>
4½	SDWC15450	1	4¼	2x	360	215	310	153
		2			690	390	595	280
		3			1,035	585	895	420
6	SDWC15600	1	5¾	2x	450	189	310	153
		2			865	345	595	280
		3			1,295	515	895	420
6	SDWC15600	1	5¾	(2) 2x	590	177	510	152
		2			1,135	320	980	275
		3			1,700	485	1,470	415

1. Loads have been increased for wind and earthquake loading ( $C_D = 1.6$ ) with no further increases allowed; reduce where other loads govern.
2. Allowable loads are for SDWC installed per the installation instructions.
3. The SDWC15450 is to be installed through the face of 2x stud into a single 2x bottom plate over a concrete/masonry foundation.
4. The SDWC15600 is to be installed through the face of 2x stud into a single 2x bottom plate over a wood floor system.
5. The SDWC15600 is to be installed through the face of 2x stud into a double 2x top or bottom plate.
6. Double-top plates shall be fastened together as required by applicable code.
7. When a screw is loaded simultaneously in more than one direction, the allowable load must be evaluated using the unity equation:  $(\text{Design Uplift} \div \text{Allowable Uplift}) + (\text{Design } F_1 \div \text{Allowable } F_1) + (\text{Design } F_2 \div \text{Allowable } F_2) \leq 1.0$ . The three terms in the unity equation represent the possible generated force directions. The number of terms that must be considered for simultaneous loading is the sole discretion of the designer and depends on the method of calculating wind forces and the utilization of the screws within the structural system.

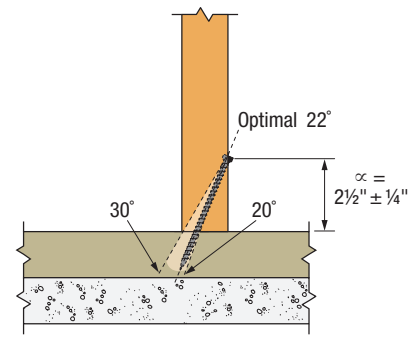
### Stud-to-Plate Connections



**Stud-to-Top Plate Connection**  
(this application requires SDWC15600)

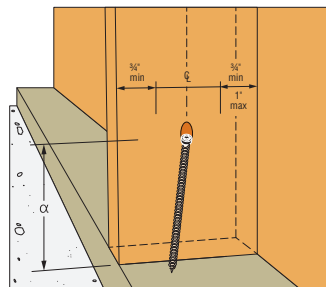


**Stud-to-Bottom Plate Connection Over Wood Floor**  
(this application requires SDWC15600)

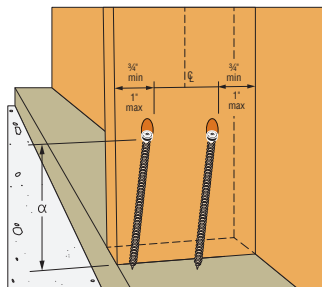


**Stud-to-Bottom Plate Connection Over Concrete/Masonry Foundation**  
(this application requires SDWC15450)

### Spacing Requirements

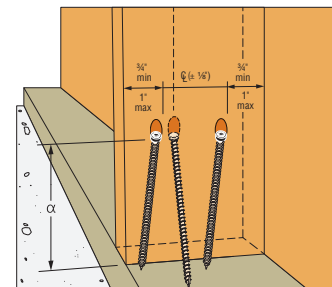


**One Screw**  
One fastener driven in wide face of 2x4, 2x6 or 2x8; maintain minimum edge distance of ¾".  
**Note:** Same installation spacing applies to Stud-to-Top Plate connection.



**Two Screws**  
Two fasteners driven into same wide face of 2x4, 2x6 or 2x8. Maintain minimum edge distance of ¾" and maximum edge distance of 1" for proper spacing between fasteners.

**Note:** Same installation spacing applies to Stud-to-Top Plate connection.



**Three Screws**  
Two fasteners driven into same wide face of 2x4, 2x6 or 2x8. Maintain minimum edge distance of ¾" and maximum edge distance of 1" for proper spacing between fasteners.

One fastener driven within 1/8" of centerline of 2x4, 2x6 or 2x8 on OPPOSITE wide face.

**Note:** Same installation spacing applies to Stud-to-Top Plate connection.

# Rafter/Truss/Plate Fastening

## Strong-Drive® SDWC TRUSS Screw for Narrow Face of Stud-to-Plate Connections

The Strong-Drive SDWC Truss screw provides an easy-to-install, high-capacity solution for stud-to-bottom plate or stud-to-top plate(s) connections. This table provides additional allowable load information for the SDWC screws when installed through the narrow face of the stud. The allowable loads are for SDWC screws installed per the details shown on the next page.

### SDWC Truss Screw — Allowable Loads for Narrow Face of Stud-to-Plate Connections

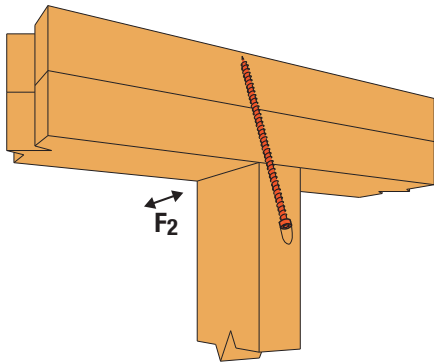
Type of Connection	Length (in.)	Model No.	Quantity Required	Thread Length (in.)	Nominal Plate Thickness (in.)	Allowable Loads (lb.)			
						DFL/SP		SPF/HF	
						Uplift	F2	Uplift	F2
1	6	SDWC15600	1	5¾	(2) 2x	590	170	510	145
2	6	SDWC15600	1	5¾	2x	450	155	310	135
3	4½	SDWC15450	1	4¼	2x	295	150	255	130

1. Loads have been increased for wind and earthquake ( $C_D = 1.6$ ). No further increase is allowed; reduce when other loads govern.
2. The SDWC15600 is to be installed through the narrow face of 2x stud into a single 2x bottom plate over a wood floor system.
3. The SDWC15450 is to be installed through the narrow face of 2x stud into a single 2x bottom plate over a concrete/masonry foundation.
4. Double-top plates shall be fastened together as required by applicable Code.
5. When a screw is loaded simultaneously in more than one direction, the allowable load must be evaluated using the unity equation:  $(\text{Design Uplift} \div \text{Allowable Uplift}) + (\text{Design } F_1 \div \text{Allowable } F_1) + (\text{Design } F_2 \div \text{Allowable } F_2) \leq 1.0$ . The three terms in the unity equation represent the possible generated force directions. The number of terms that must be considered for simultaneous loading is the sole discretion of the designer and depends on the method of calculating wind forces and the utilization of the screws within the structural system.
6. One SDWC screw per stud maximum when installed in the narrow face of the stud. Where the SDWC screws are installed on multiple adjacent studs, the minimum spacing between screws must be 1½". The allowable uplift load for each screw shall be multiplied by 0.90, but may be limited by the capacity of the plate.
7. For Uplift Continuous 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.

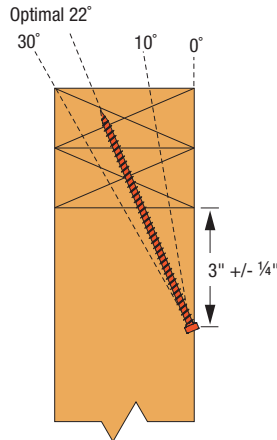
# Rafter/Truss/Plate Fastening

## **Strong-Drive®** SDWC TRUSS Screw for Narrow Face of Stud-to-Plate Connections (cont.)

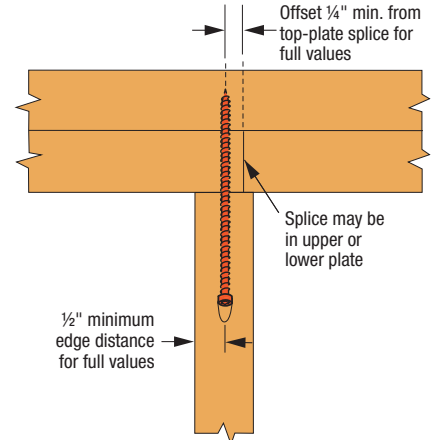
Wood and Engineered Wood Fastening



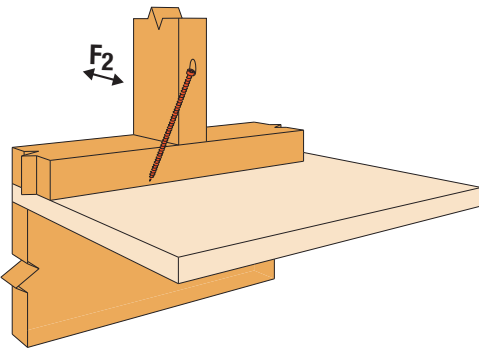
**1** Narrow Face of Stud-to-Top Plate Connection  
(this application requires SDWC15600)



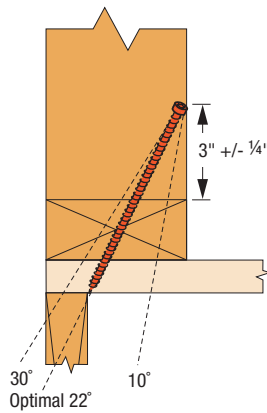
Installation Angle Range



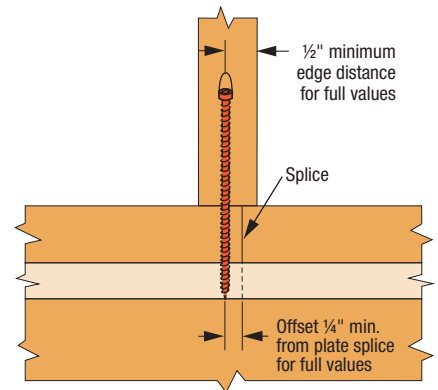
Min. Edge Distance and Splice Offset Requirements



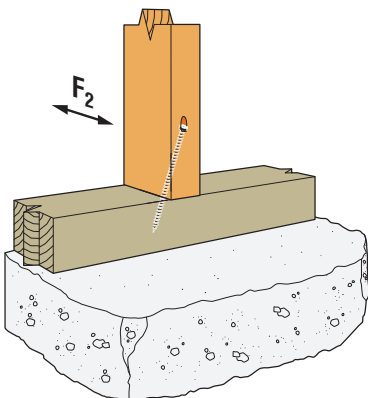
**2** Narrow Face of Stud-to-Bottom Plate Connection Over Wood Floor  
(SDWC15600 shown)



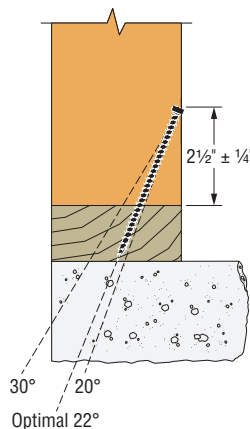
Installation Angle Range



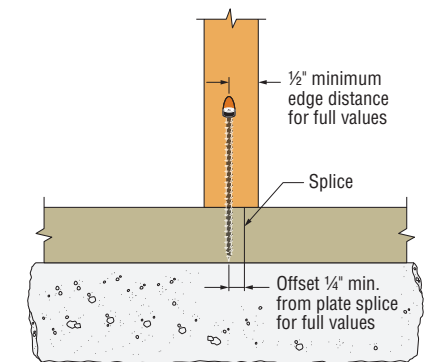
Min. Edge Distance and Splice Offset Requirements



**3** Narrow Face of Stud-to-Bottom Plate Connection Over Masonry/Concrete Foundation  
(the application requires SDWC15450)



Installation Angle Range



Min. Edge Distance and Splice Offset Requirements



# Rafter/Truss/Plate Fastening

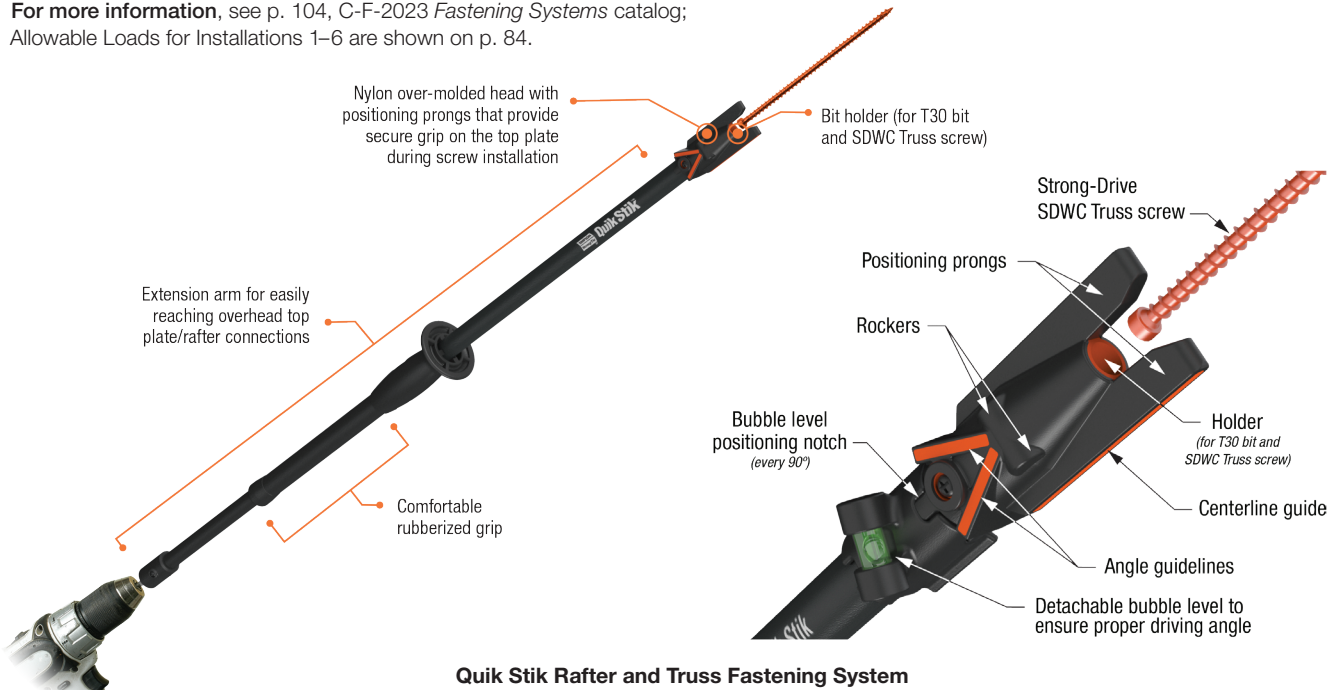
## Quik Stik™

### Rafter/Truss-to-Top Plate Installation Instructions

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 p. 104, C-F-2023 Fastening Systems catalog; Allowable Loads for Installations 1–6 are shown on p. 84.



Quik Stik Rafter and Truss Fastening System

#### Installation Instructions 1 — Rafter/Truss Offset from Stud: Fasten Straight up Through Double Top Plate

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

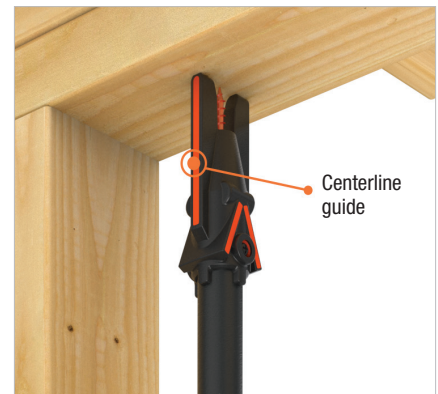
These instructions apply only if the rafter/truss is offset from the stud below.

**Note:** SDWC 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.

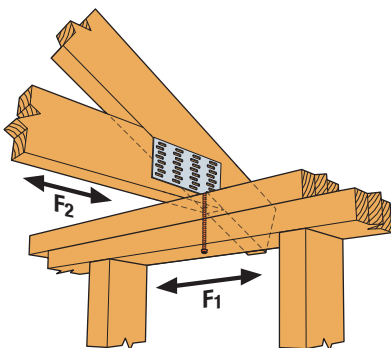
**Installation Steps:** Position the Quik Stik head directly under the top plate so that the screw is pointing toward the centerline of the rafter/truss.

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

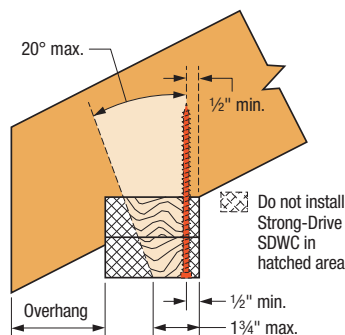
Drive the SDWC Truss screw straight up through the top plates and into the rafter/truss until the head is flush with the board's surface.



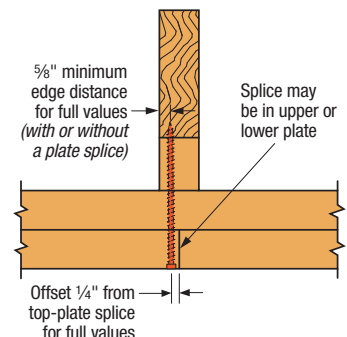
Centerline guide



Optional SDWC Installation — Truss Offset from Stud (rafter offset from stud similar)



Allowable Installation Range (rafter/truss offset from stud only)



Minimum Edge Distance for Top-Plate Splice

# Rafter/Truss/Plate Fastening

## Quik Stik™ Installation Instructions (cont.)

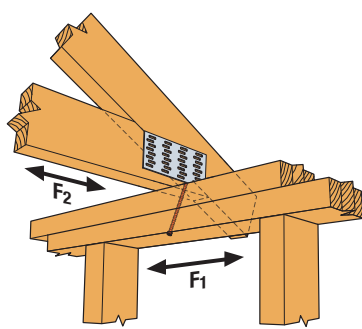
### Installation Instructions 2 — Rafter/Truss Offset from Stud: Fasten from Front Bottom Corner of Double Top Plate

These instructions apply only if the rafter/truss is offset from the stud below and the installation of the screw is from the corner of the top plate.

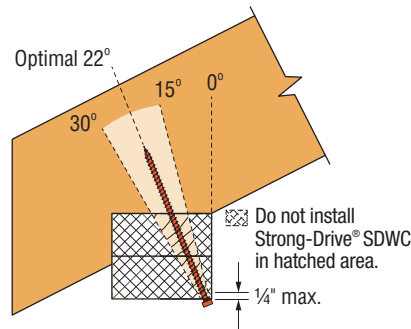
**Installation Steps:** Position the Quik Stik so that the positioning prongs straddle the bottom edge of the double top plate and with the SDWC screw set to enter the bottom member along its edge.

Ensure the Quik Stik centerline guide points to the center of the rafter/truss and that the orange angle guide is perpendicular to the top plate (alternatively, check to ensure that the bubble is visible in the level window).

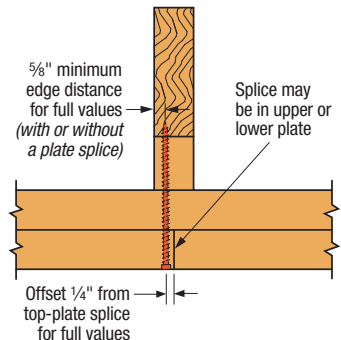
Drive SDWC screw through the top plates and into the rafter/truss.



**Optional SDWC Installation —  
Truss Offset from Stud**



**Installation Angle Limit**



**Minimum Edge Distance  
for Top-Plate Splice**

### Installation Instructions 3 — Rafter/Truss Aligned with Stud: Fasten from Wide Face of Stud

These instructions apply to rafter/truss-to-top-plate connections utilizing one or two screws when installed from the underside of the top plate and from the wide face of the rafter/truss.

**Installation Steps:** Position the Quik Stik head so that its positioning prongs are in contact with the framing where the top plate meets the wide face of the stud.

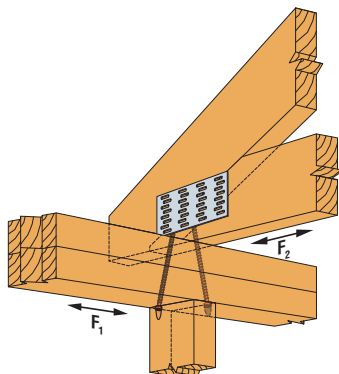
Sight along the Quik Stik centerline guide to align the tool with the centerline of the rafter/truss. If the rafter/truss is offset from the stud, be sure to install the screw on the overhanging side.

Adjust the installation angle of the head to align with the rafter/truss centerline.

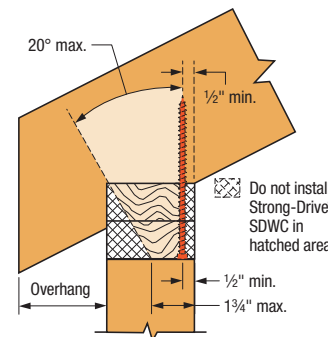
For a one screw installation: position the screw in the central one third of the wide face.

For a two-screw installation: see Configuration A on p. 88 for screw locations and edge distances.

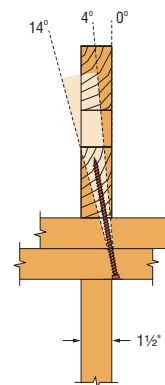
Drive the SDWC Truss screw through the top plates and into the rafter/truss.



**Optional SDWC Installation —  
Two-Screw Wide-Face Installation Shown**



**Allowable Installation Range  
(rafter/truss offset from stud only)**



**Allowable Installation Range  
(front view)**

# Rafter/Truss/Plate Fastening

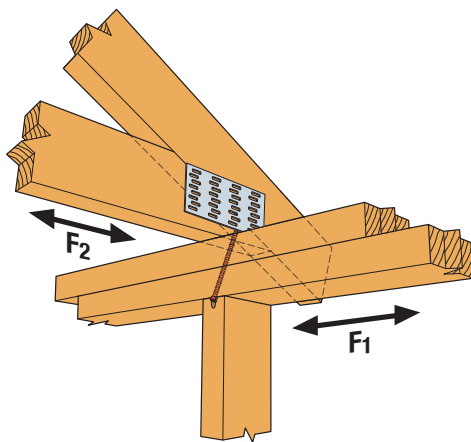
## Quik Stik® Installation Instructions (cont.)

### Installation Instructions 4 — Rafter/Truss Aligned with Stud: Fasten from Narrow Face of Stud

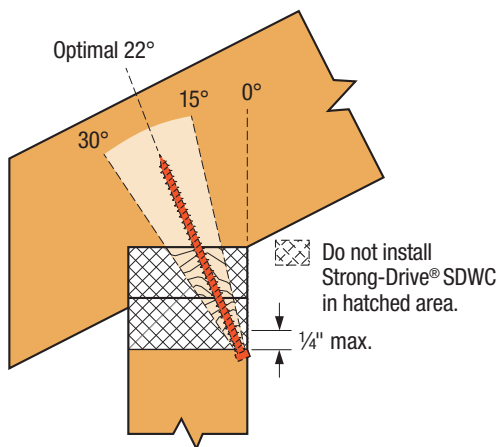
These instructions apply if the rafter/truss is aligned with the stud below or if there is blocking directly below the top plate.

**Installation Steps:** Put the point of the screw in the seam between the top plate and stud — or on the desired spot for installation — and pivot the whole tool up past 45°:

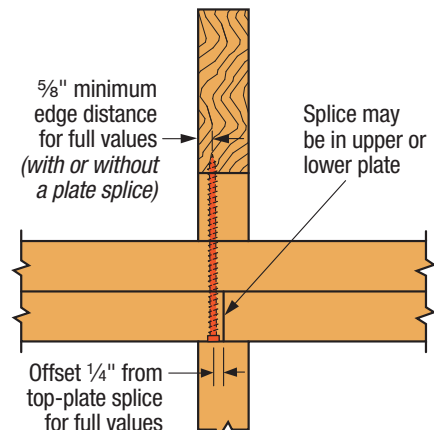
Drive the SDWC Truss screw point into the wood surface so that the first two screw threads embed into the wood. Pivot the tool downward until the bubble appears in the level window, and continue to drive the SDWC Truss screw through the top plates and into the rafter/truss.



**Optional SDWC Truss Screw Installation —  
Truss Aligned with Stud**  
*(rafter aligned with stud similar)*



**Installation Angle Limit**



**Minimum Edge Distance  
for Top-Plate Splice**

# Rafter/Truss/Plate Fastening

## Quik Stik™ Installation Instructions (cont.)

### Installation Instructions 5 — Rafter/Truss Aligned with Stud: Fasten from Corner of Stud

These instructions apply if the rafter/truss is aligned with the stud below, and the installation of the screw is from the corner where the stud meets the top plate below the rafter/truss. The configuration would be similar to that of Installations 2 and 3.

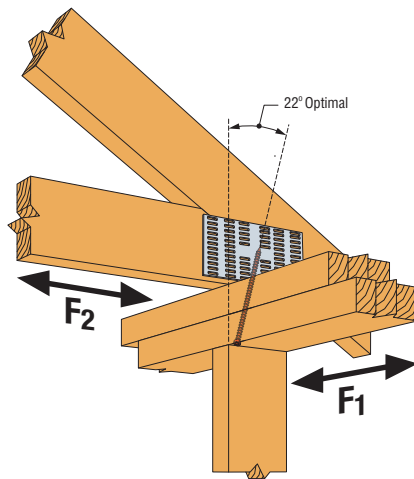
**Installation Steps:** Position Quik Stik so the positioning prongs straddle the front corner where the stud meets the top plate. Ensure the centerline guide is pointed at the center of the rafter/truss.

Align the angle guide with the vertical edge of the stud (or if using the bubble level, the bubble should appear in the level's window).

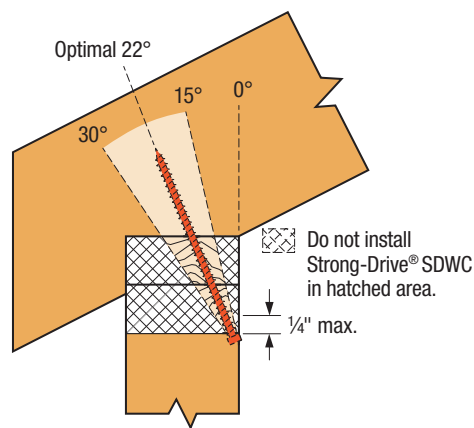
Drive the SDWC Truss screw through the top plates and into the rafter/truss until the screw head is flush with the bottom of the top plate.



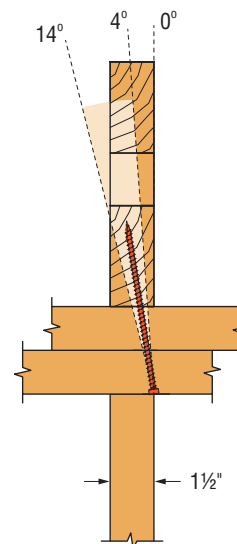
Wood and Engineered Wood Fastening



**Optional SDWC Truss Screw  
Installation — Truss Aligned with Stud**  
*(rafter aligned with stud similar)*



**Installation Angle Limit**  
(side view)



**Installation Angle Limit**  
(front view)

# Rafter/Truss/Plate Fastening

## Quik Stik™ Installation Instructions (cont.)

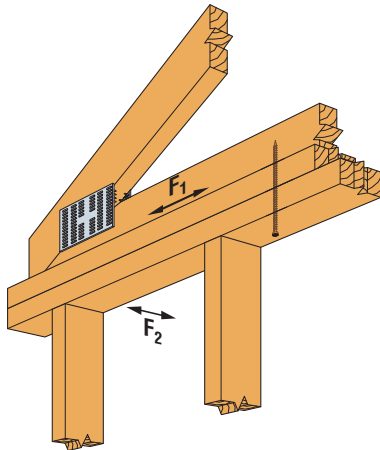
### Installation Instructions 6 — Rafter/Truss Gable End Installation

These instructions apply to gable end-to-top-plate connections.

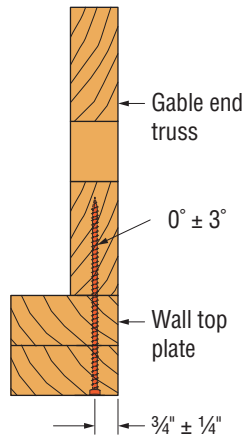
**Installation Steps:** Position the Quik Stik head directly under the top plate so that the screw is pointing toward the centerline of the gable end.

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

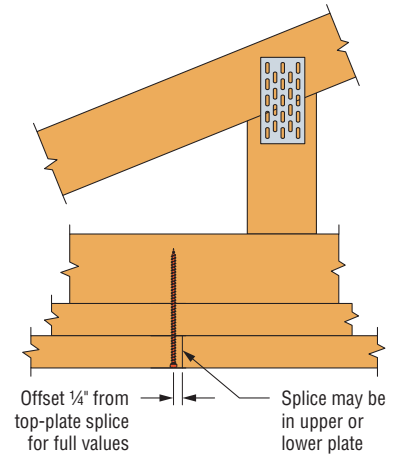
Drive the SDWC Truss screw straight up through the top plates and into the gable end until the head is flush with the board's face.



**Optional SDWC Installation —  
Gable End Truss Offset from Stud**



**Allowable Installation Range**



**Minimum Edge for Top-Plate Splice**