

PACKARD ENGINEERING

21021 Oak Drive

Belton, MO 64012

Phone: (816) 767-7222

Fax: (816) 767-8105

E-mail: dan@packardstructuralengineering.com

CLIENT B+A Architecture

Page Remedial 1

Date 03/20

JOB Hawthorn Ridge Clubhouse

Job No. B+A19002

Remedial Detail

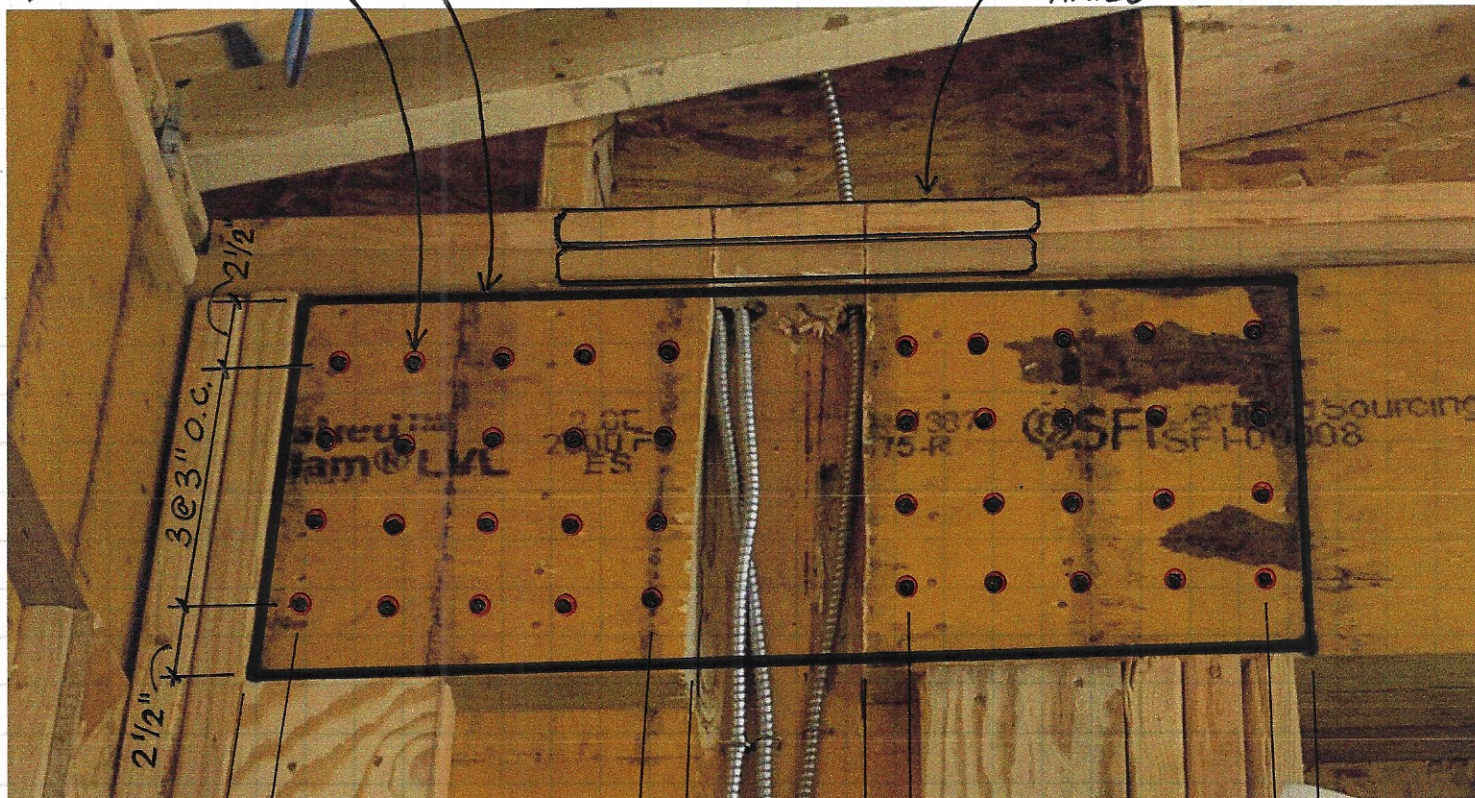
Made By DJP

Near Grids B/3

PLATE $\frac{1}{4}" \times 1'-2" \times 3'-0"$
W/ $\frac{5}{16}" \phi$ HOLES

LEDGERLOK LLO05
@ 3" O.C., E.W.
PREDRILL $\frac{3}{16}" \phi$

SIMPSON CTS218 @ EACH
CUT PLATE $\frac{1}{2} \times 0.148" \times 1.50"$
NAILS



1 1/2" 4 @ 3" o.c. 6" * 1 1/2" 4 @ 3" o.c. 1 1/2"

FILL GAP W/ $1 \frac{3}{4}" \times 1"$ LVL (1.9E)
NOTCHED FOR CONDUIT THROUGH AND
TIGHT-FIT (GLUED) UNDER
PLATE



D.J. Packard

03-23-2020

* - FIELD VERIFY ALL DIMENSIONS
FOR FIT ON REMAINING
MEMBERS

CTS218

Compression and Tension Strap

The CTS218 is designed to repair wood members such as top plates, studs and trusses, and it handles both tension and compression loads. The unique rolled edges of the strap allow it to span gaps as wide as 4½", and its 1½" width enables installation on the narrow face of 2x lumber.

- Tested specifically for top/bottom plate repair with various multi-strap configurations
- Meets the requirements of the IBC and IRC for repairing top plates that have been cut or notched to accommodate plumbing or HVAC ductwork

Material: 14 gauge

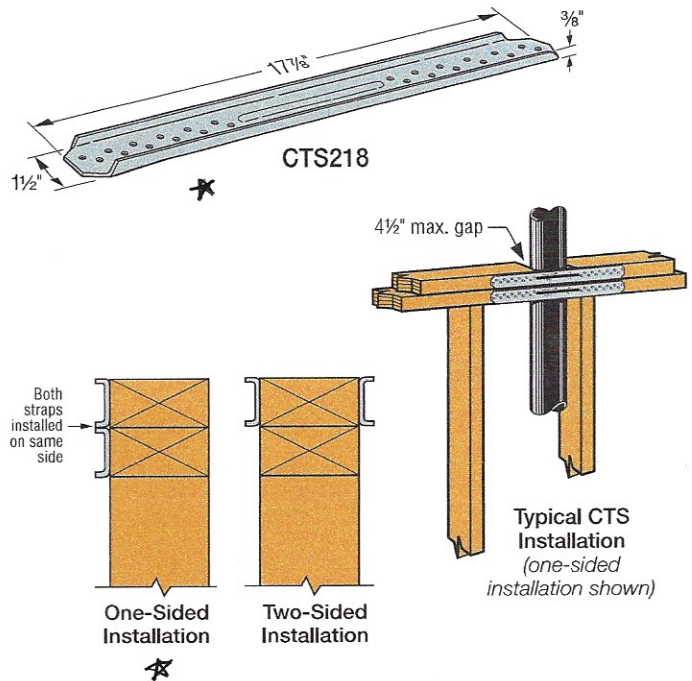
Finish: Galvanized

Installation:

- Use all specified fasteners; see General Notes.
- One-sided installations — install one or two CTS straps on the same side of the member.
- Two-sided installation — install CTS straps on opposite sides of member. For three-part installations, install two parts on one side, one part on opposite side.

Codes: See p. 12 for Code Reference Key Chart

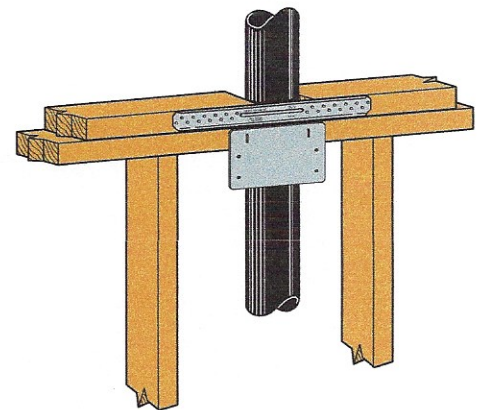
- IBC – 2012/2015/2018 2308.5.8



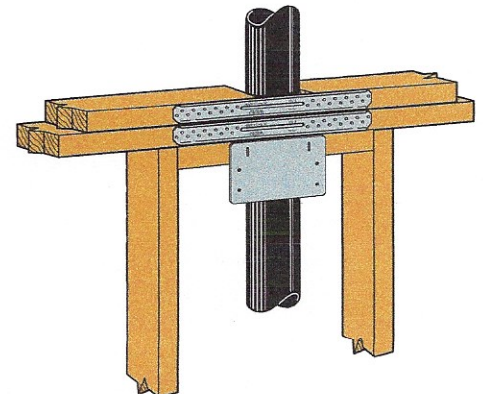
SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 335–337 for more information.

Model No.	Strap Qty.	Installation	Fasteners (Per Strap) (in.)	Allowable Loads DF/SP		Allowable Loads SPF/HF		Code Ref.
				Compression (160)	Tension (160)	Compression (160)	Tension (160)	
CTS218	1	One sided	(24) 0.148 x 1 ½	1,125	2,270	970	1,970	IBC, FL, LA
	2	One sided		2,250	4,535	1,935	3,900	
	2	Two sided		2,515	4,535	2,165	3,900	
	3	Two sided		3,310	6,805	2,845	5,850	
	4	Two sided		5,035	9,070	4,330	7,800	
	1	One sided	(24) SD #9 x 1 ½	1,175	2,510	1,010	2,160	
	2	One sided		2,350	5,020	2,020	4,315	
	2	Two sided		2,735	5,020	2,350	4,315	
	3	Two sided		4,130	7,530	3,550	6,475	
	4	Two sided		5,470	10,040	4,700	8,635	

1. Allowable loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. Fastener quantities are for a single strap.
3. Maximum gap between wood members is 4½".
4. **Fasteners:** Nail dimensions in the table are diameter by length. SD screws are Simpson Strong-Tie® Strong-Drive® screws. See pp. 21–22 for fastener information.



Single CTS218 and PSPN58 Installation



Double CTS218 and PSPN58 Installation

TABLE 1C—FASTENER SPECIFICATIONS: LEDGERLOK AND LOGHOG FASTENERS

★ LEDGERLOK®/ LOGHOG® FASTENER DESIGNATION	HEAD MARKING	OVERALL LENGTH ¹ (inches)	LENGTH OF THREAD ^{2,4} (inches)	UNTHREADED SHANK DIAMETER (inch)	MINOR THREAD (ROOT) DIAMETER (inch)	BENDING YIELD ^{3,5} (F _{yb} , psi)	ALLOWABLE FASTENER STRENGTH	
							Tensile (lbf)	Shear ⁶ (lbf)
LL358	F3.6	3 ⁵ / ₈	2	0.228	0.202	200,700	1,833	1,235
★ LL005	F5.0	5	3					
LHOG009	F9.0	9	3					
LHOG011	F11.0	11	3			183,200	1,335	890
LHOG013	F13.0	13	3					
LHOG015	F15.0	15	3					

For SI: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 psi = 6.895 kPa.

¹For purposes of measuring overall fastener length, fasteners must be measured from the underside of head to bottom of tip.

²Length of thread includes tip. See detailed illustration.

³Bending yield strength determined per methods specified in ASTM F1575 and based on the minor thread diameter.

⁴Fastener installation and design values require complete threaded portion to be embedded in the main member.

⁵Fastener bending yield strength is determined by the 5 percent diameter (0.05D) offset method of analyzing load-displacement curves developed from bending tests.

⁶Allowable shear strength values apply only to shearing in the unthreaded shank portion of the fastener.

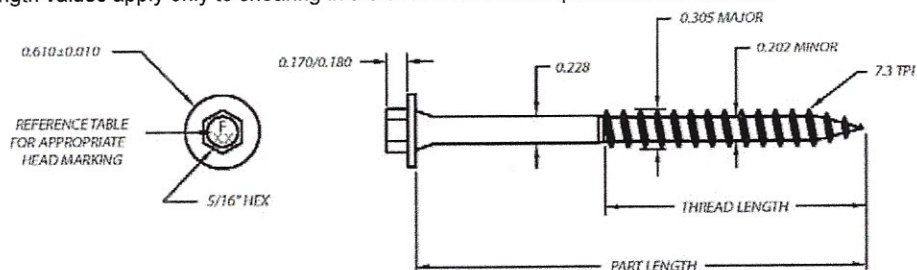


TABLE 1D—FASTENER SPECIFICATIONS: TRUSSLOK FASTENERS

TRUSSLOK® FASTENER DESIGNATION	HEAD MARKING	OVERALL LENGTH ¹ (inches)	LENGTH OF THREAD ^{2,4} (inches)	UNTHREADED SHANK DIAMETER (inch)	MINOR THREAD (ROOT) DIAMETER (inch)	BENDING YIELD ^{3,5} (F _{yb} , psi)	ALLOWABLE FASTENER STRENGTH	
							Tensile (lbf)	Shear ⁶ (lbf)
EWS338	F3.3	3 ³ / ₈	1 ¹ / ₂	0.228	0.215	218,400	1,833	1,235
EWS005	F5.0	5						
EWS670	F6.7	6 ⁷ / ₁₀						

For SI: 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 psi = 6.895 kPa.

¹For purposes of measuring overall fastener length, fasteners must be measured from the underside of head to bottom of tip.

²Length of thread includes tip. See detailed illustration.

³Bending yield strength determined per methods specified in ASTM F1575 and based on the minor thread diameter.

⁴Fastener installation and design values require complete threaded portion to be embedded in the main member.

⁵Fastener bending yield strength is determined by the 5 percent diameter (0.05D) offset method of analyzing load-displacement curves developed from bending tests.

⁶Allowable shear strength values apply only to shearing in the unthreaded shank portion of the fastener.

