

BOARD OF
BUILDING AND SAFETY
COMMISSIONERS

MARSHA L. BROWN
PRESIDENT

PEDRO BIRBA
VICE-PRESIDENT

VAN AMBATIELOS
HELENA JUBANY
ELENORE A. WILLIAMS

CITY OF LOS ANGELES
CALIFORNIA



ANTONIO R. VILLARAIGOSA
MAYOR

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

ANDREW A. ADELMAN, P.E.
GENERAL MANAGER

RAYMOND CHAN
EXECUTIVE OFFICER

Simpson Strong Tie Co., Inc.
260 North Palm Street
Brea, CA 92821

RESEARCH REPORT: RR 25293
(CSI # 06090)

Attn: Annie Tran Kao, P.E.
(714) 738-2108

Expires: March 1, 2010

GENERAL APPROVAL - Renewal/Clerical Modification - Simpson Strong-Tie Connectors;
FAP Foundation Anchor Plate, FA6 Foundation Anchor, HTT22 Tension Tie, CMST12, 14
Coiled Straps, BP $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1 Bearing Plates, LTP4 Lateral Tie Plate.

DETAILS

FAP Foundation Anchor Plate

The FAP Foundation Anchor Plates connect existing sill plates to the vertical side of the existing foundation wall. The connector consists of a No. 7 gauge galvanized rectangular steel plate which uses $\frac{1}{2}$ -inch diameter anchor bolts to secure the plate to the concrete foundation wall and $\frac{1}{4}$ -inch diameter by minimum $2\frac{1}{2}$ -inch long lag screws to the side of the above mudsill. The No. 7 gauge galvanized steel conforms to ASTM A 653 having a minimum yield strength of 33,000 psi and a minimum tensile strength of 45,000 psi and galvanized to G60 per ASTM A 924.

FA6 Foundation Anchor

The FA6 Foundation Anchor attaches existing sill plates to existing concrete stem walls. It is die-formed from No. 12 gauge galvanized steel conforming to ASTM A 653 having a minimum yield strength of 28,000 psi and a minimum tensile strength of 38,000 psi and galvanized to G60 per ASTM A 924. Slots at the bendline allow adjustment of the anchor for attachment to sloped stem walls.

HTT22 Tension Tie

The HTT22 Tension Tie is a galvanized No. 11 gauge die-formed strap with a four ply folded seat which does not require a washer. It is designed to resist tension between vertical or horizontal wood members to concrete. The HTT22 is secured to the concrete with a $\frac{5}{8}$ -inch

RR 25293
Page 1 of 5

Simpson Strong-Tie Co., Inc.
RE: Simpson Strong-Tie Connectors

diameter anchor bolt and with 16d sinker nails to the wood member. The steel complies with ASTM A 653 structural Grade 33 specifications and has a minimum yield strength of 33,000 psi and a minimum tensile strength of 45,000 psi and galvanized to G60 per ASTM A 924.

CMST12, 14 Coiled Straps

The CMST 12, 14 Coiled Straps are 12 and 14 gauge galvanized steel respectively. Both straps are 3-inches wide punches with round 0.171-inch and triangle 0.171 holes. The steel meets ASTM A 653 Structural Grade 40 Special specifications with a minimum yield strength of 42,000 psi and a minimum tensile strength of 52,000 psi and galvanized to G60 per ASTM A 924.

BP Bearing Plates

The BP $\frac{1}{2}$ Bearing Plated is No. 7 gauge 2-inch by 2-inch square plate with center hole designed to fit a $\frac{1}{2}$ diameter bolt. The BP $\frac{5}{8}$ Bearing Plate is a No. 3 gauge 2 $\frac{1}{2}$ -inch by 2 $\frac{1}{2}$ -inch square plate with a center hold for a $\frac{5}{8}$ diameter bolt. The BP $\frac{3}{4}$, $\frac{7}{8}$ Bearing plates are both 5/16-inch thick plates with 2 $\frac{3}{4}$ -inch by 2 $\frac{3}{4}$ and 3-inch by 3-inch dimension respectively that fit $\frac{3}{4}$ and $\frac{7}{8}$ diameter bolts respectively. The BP1 Bearing Plate is a $\frac{3}{8}$ -inch thick 3 $\frac{1}{2}$ -inch by 3 $\frac{1}{2}$ -inch square plate with a center hold to fit a 1-inch diameter bolt. The steel for BP $\frac{1}{2}$ and BP $\frac{5}{8}$ is hot rolled and complies with ASTM A 570 Grade 33 specifications with a minimum yield strength of 33,000 psi and a minimum tensile strength of 52,000 psi. The steel for BP $\frac{3}{4}$, $\frac{7}{8}$, 1 plates are hot rolled and conforms to ASTM A 36 specifications with a minimum yield strength of 36,000 psi and a minimum tensile strength of 58,000 psi.

LTP4 Lateral Tie Plate

The LTP4 Lateral Tie Plate is a 3-inch by 4 $\frac{1}{4}$ -inch 20 gauge flat steel plate and is galvanized to G60 per ASTM A 924. The steel meets ASTM A 653 specifications with a minimum yield strength of 33,000 psi and a minimum tensile strength of 45,000.

The approval is subject to the following conditions:

1. Each of the connectors described in this report shall be stamped with the words "Simpson Strong-Tie" and the model number for field identification.
2. Allowable loads shall be per Tables 1 through 5 included in this report.
3. A reduction of the tabulated values for all connectors shall be made where wood species is other than Douglas Fir Larch (specific gravity of 0.50).
4. The values shown in this report shall not be used in repair, retrofit and new construction of tilt-up wall anchorage (in tension) for the connection with the horizontal wood diaphragm.

Simpson Strong-Tie Co., Inc.

RE: Simpson Strong-Tie Connectors

5. A 25% reduction in all allowable loads specified in the research report shall be taken in hold-down devices as required by Section 2306.5 of the 2008 Los Angeles City Building Code.
6. Epoxy and mechanical anchor bolts installed in conjunction with the FA6 and FAP foundation anchors shall be approved by a separate City of Los Angeles Research Report. The engineer of record shall verify the adequacy of the anchor bolts.
7. The required spacing of the framing anchors shall be determined by a licensed civil or structural engineer or architect registered in the State of California. The spacing and location of the anchors shall be detailed on the approved set of plans.
8. Test data prepared by mill or by an approved testing agency to verify the physical properties of the steel shall be kept on file with the manufacturer for each shipment of connectors and shall be submitted to the Department upon request.

**Table 1
FA/FAP Foundation Anchors**

Model No.	Fasteners			Allowable Load (lbs.)
	Anchor Bolt		Plate	F1 (133)
	Qty.	Dia. (in.)		
FAP	2	½	(3) ¼ x 2½ lag	950
FA6	2	½	(7) 10d x 1½	400

1. Allowable loads have been increased 33% for wind or earthquake loading with no further increase allowed; reduce where other load duration's govern.

**Table 2
HTT22 Tension Tie**

Model No.	Material	Dimensions		Fasteners		Allowable Uplift (lbs.) (133)
	Strap	W	L	Anchor Bolts	Nails	
HTT22	11 ga	2½	21-9/16	⅝" dia.	32-16d Sinkers	4790

1. Allowable loads for HTT are based on the lower of the 1991 NDS fastener values or the ultimate load on a steel test jig divided by 3.
2. The designer must specify anchor bolt type, length and embedment.
3. Allowable loads have been increased 33% for wind or earthquake loading with further increase allowed.

Table 3
CMST Coiled Straps

Model No.	Mat'l.	Total L	End L	Cut Length	Fasteners (Total)	Allowable Loads (lbs.)		Nail Spacing
						(100) ¹	(133) ²	
CMST 12	12 ga	40'	45"	clear span + 90"	100-16d	7230	9400	1¾"
			105"	clear span + 210"	118-10d	7230	9400	3½"
			208"	clear span + 416"	118-10d	7230	9400	7"
CMST 14	14 ga	52½'	34"	clear span + 68"	74-16d	5095	6040	1¾"
			78"	clear span + 156"	88-10d	5095	6040	3½"
			155"	clear span + 310"	88-10d	5095	6040	7"

1. Allowable 100% value is the maximum steel capacity and may not be increased for other load durations except as otherwise indicated.
2. 133% value may be used for wind or earthquake loading.

Table 4
BP Bearing Plates

Model No.	Gauge	Dimensions (in.)		Bolt Diameter (in.)
		W	L	
BP½	7	2	2	½
BP⅝	3	2½	2½	⅝
BP¾	5/16	2¾	2¾	¾
BP⅞	5/16	3	3	⅞
BP1	⅜	3½	3½	1

Simpson Strong-Tie Co., Inc.
RE: Simpson Strong-Tie Connectors

Table 5
LTP4 Lateral Tie Plate

Model No.	Fasteners		Direction of Load	Allowable Loads (lbs.)	
	Plates	Joist		(100)	(133) ¹
LTP4	6-8d x 1½	6-8d x 1½	G	515	685
	6-8d x 1½	6-8d x 1½	J	515	685
	6-8d x 1½	6-8d x 1½	H	515	685

1.133% value may be used for wind or earthquake loading.

DISCUSSION

The clerical modification is to change name and phone number of contact person.

This approval is based on tests and analyses.

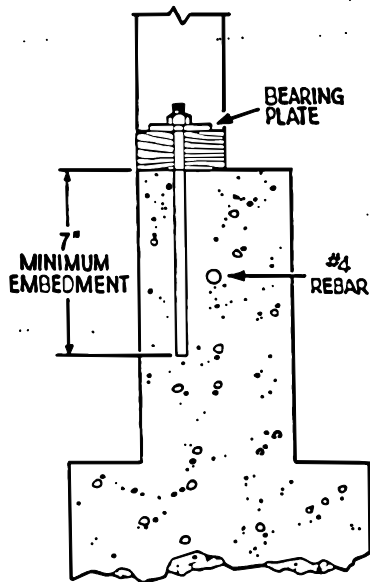
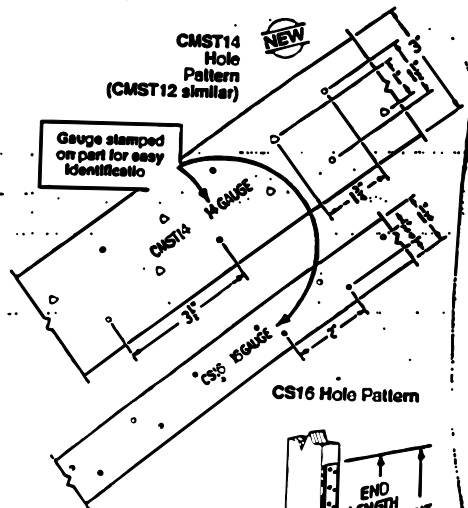
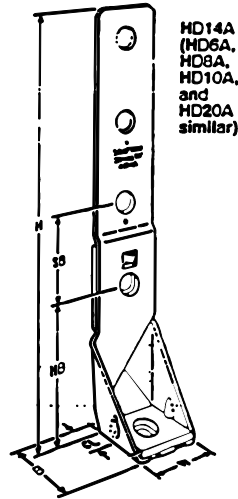
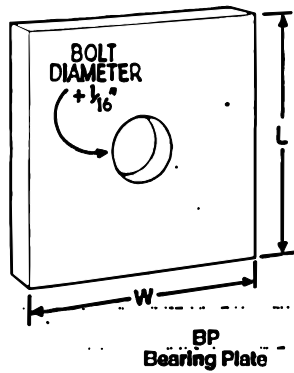
This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this approval have been met in the project in which it is to be used.

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.

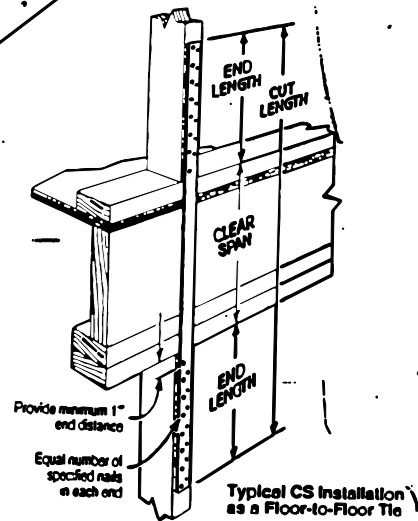
YEUAN CHOU, Chief
Engineering Research Section
2319 Dorris Place
Los Angeles, CA 90031
Phone (213) 485-2376
Fax (213) 847-0985

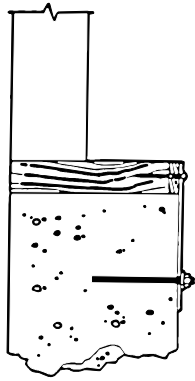
YC:elcm
RR25293/D20/wp8.0
R02/19/08
5D2/2304.9

Attached: 2 Pages of Details.

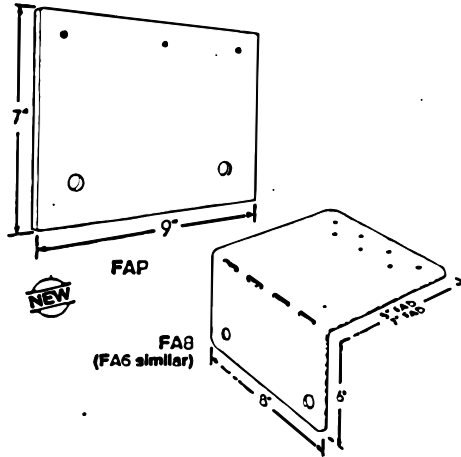


Typical Bearing
Plate Installation
with a Mudell
Anchor Bolt





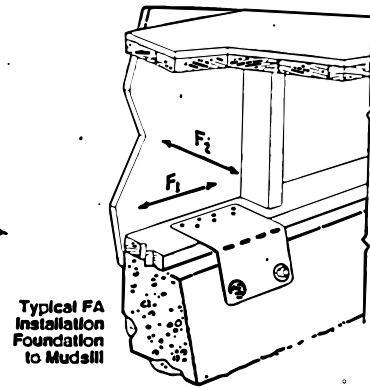
Typical FAP Installation
Foundation to Mud sill



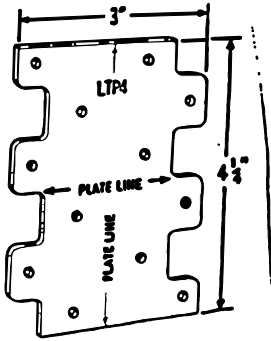
NEW

FAP

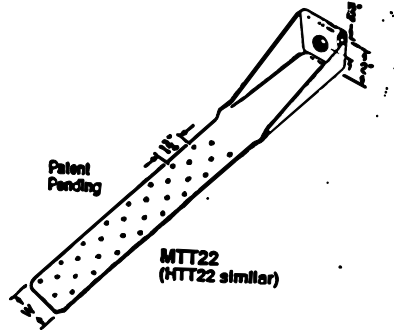
FAB
(FA6 similar)



Typical FA
Installation
Foundation
to Mud sill

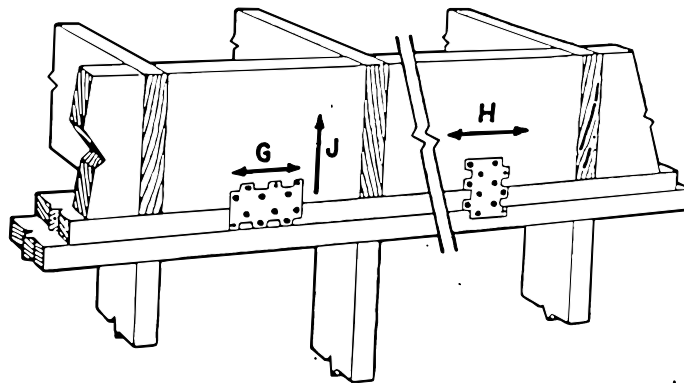


LTP4
Lateral Tie Plate



Patent
Pending

MTT22
(HTT22 similar)



Typical LTP4 Installations to Transfer Shear Forces