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RESEARCH REPORT: RR 25318  
(CSI #06090)

BASED UPON ICBO ES EVALUATION  
REPORT NO. 5313

REEVALUATION DUE DATE:  
September 1, 2006

**GENERAL APPROVAL** - Reevaluation - Simpson Strong-Tie Framing Connectors.

**DETAILS**

The Simpson Connectors are approved when in compliance with the description, identification and conditions of use in Evaluation Report No. 5313, dated October 1, 2000, of the International Conference of Building Officials, Inc. The report, in its entirety, is attached and made a part of this general approval.

The parts of Evaluation Report No. 5313 which are excluded on the attached copy have been removed by the Los Angeles Building Department as not being included in this approval.

**Approval is subject to the following conditions:**

1. Allowable loads shall not be increased for duration of load, except as specifically noted in the tables.
2. Approved products to be used shall be indicated on the approved set of plans.
3. Nails shall be common nails except where otherwise specified. Bolts shall conform to ASTM A307 or better.
4. All products involving welding shall be fabricated in the shop of a Los Angeles City licensed fabricator.

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5. The values shown in this report shall not be used in repair, retrofit and new construction of tilt-up wall or reinforced masonry wall anchorage (in tension) for the connection with the horizontal wood diaphragm.
6. A 25% reduction in all allowable loads specified in this research report shall be taken for all hold down devices as required by 2315.5.6 of the 2002 Los Angeles City Building Code.

## DISCUSSION

The status of the referenced Evaluation Report No. 5313 dated October 1, 2000, which is currently beyond its reexamination date is still valid. The validity of the evaluation report was verified with ICBO.

This approval is based on static load tests and analysis.

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.

This general approval will remain effective provided the Evaluation Report is maintained valid and unrevised with the issuing organization. Any revisions to the report must be submitted to this Department, with appropriate fee, for review in order to continue the approval of the revised report.

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.

YEUAN CHOU, Chief  
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YC:elcm  
RR25318/wp8.0  
R06/29/04  
5D2/2311.5

Attachment: ICBO ES Evaluation Report No. 5313 (3 Pages).



# ICBO Evaluation Service, Inc.

5360 WORKMAN MILL ROAD • WHITTIER, CALIFORNIA 90601-2299

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Accredited by the American National Standards Institute

## EVALUATION REPORT

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ER-5313

Reissued October 1, 2000

Filing Category: FASTENERS—Wood Hangers and Framing Anchors (066)

HTT, ~~LTP4~~, RSP4 and ~~UFP10~~ CONNECTORS  
SIMPSON STRONG-TIE COMPANY, INC.  
4637 CHABOT DRIVE, SUITE 200  
PLEASANTON CALIFORNIA 94588

### 1.0 SUBJECT

HTT, ~~LTP4~~, RSP4 and ~~UFP10~~ Connectors.

### 2.0 DESCRIPTION

#### 2.1 HTT Tension Ties:

The HTT is similar in design to a straight strap, with a 90-degree bend at the end to serve as the seat element for an anchor bolt. The straight-strap portion is 2 1/2 inches (63.5 mm) wide and is prepunched to receive 16d common nails. The seat is 2 1/8 inches (54 mm) wide and 2 inches (51 mm) deep, with an 1 1/16-inch (17.5 mm) hole for a 5/8-inch-diameter (15.9 mm) anchor bolt. The HTT22 is 21 9/16 inches (548 mm) high and the HTT16 is 16 inches (406 mm) high. The tension tie is die-formed from No. 11 gage galvanized steel complying with ASTM A 653 SQ Grade 33, with a minimum yield strength of 33 ksi (228 MPa) and a base metal thickness of 0.120 inch (3.05 mm). See Table 1 for fastener schedule and allowable loads.

#### 2.2 ~~LTP4 Lateral Tie Plate:~~

The lateral tie plate transfers shear force from the top plate to rim joist or blocking connections. The LTP4 may be installed over plywood. The fasteners are formed from No. 20 gage (0.89 mm) galvanized steel conforming to ASTM A 653 LFQ, with minimum yield and ultimate strengths of 33 and 45 ksi (228 and 310 MPa), respectively, and base metal thickness of 0.0358 inch (0.91 mm). The plate is 4 1/4 inches (108 mm) high and 3 inches (7.6 mm) wide, with prepunched holes for twelve 8d by 1 1/2-inch (12.7 mm) nails. See Table 2 for fastener schedule and allowable loads.

#### 2.3 RSP4 Reversible Stud Plate:

The RSP4 ties the stud to the double top plate or to the mudsill. The plate is formed from No. 20 gage galvanized steel complying with ASTM A 653 LFQ, with minimum yield and ultimate strengths of 33 ksi (228 MPa) and 45 ksi (310 MPa), respectively, and base metal thickness of 0.0358 inch (0.91 mm). The T-shaped tie has with a total height of 4 1/2 inches (114 mm). The vertical portion is 1 3/8 inches (35 mm) wide, with four prepunched holes for 8d by 1 1/2-inch (38 mm) common nails. The horizontal portion is 2 1/8 inches (54 mm) wide, with four prepunched holes for 8d by 1 1/2-inch (38 mm) nails. The locating tabs aid in placing the tie on the double top plates or a single bottom plate. See Table 3 for fastener schedule and allowable loads.

#### 2.4 UFP10 Universal Foundation Plate:

The foundation plate attaches the sill plate to concrete foundations and is formed from No. 14 gage galvanized steel complying with ASTM A 653, SQ Grade 33, with a minimum yield strength of 33 ksi (228 MPa) and base metal thickness of 0.075 inch (1.90 mm). The sleigh-shaped design allows adjustment between different-size mudsills and the concrete foundation. Where the foundation plate is attached to the sill plate, five slotted holes are provided to receive Simpson Strong-Tie self-tapping screws, SDS 1/4 by 3 (ICBO ES ER-5268). Where the foundation plate is attached to the stem wall, two slotted holes are provided to receive 1/2-inch diameter (12.7 mm) anchor bolts. See Table 4 for fastener schedule and allowable loads.

#### 2.5 Design:

The connected wood member shall be designed for the design loads. Allowable values for the connectors described in this report are for connectors installed in wood seasoned to a moisture content of 19 percent or less and used under continuously dry conditions. For connections in wood that is unseasoned or partially seasoned, or when connections are exposed to wet-service conditions in use, the allowable loads in this report are multiplied by the moisture content factor, C<sub>M</sub>, specified in the building code.

#### 2.6 Installation:

Connectors are installed in accordance with this report.

#### 2.7 Materials:

**2.7.1 Wood:** Lumber must be nominal-dimension lumber and must be Douglas fir-larch with a minimum specific gravity of 0.50.

**2.7.2 Fasteners:** Steel wire nails must conform to the nominal sizes specified in ASTM F 1667. Nails must have the following properties:

NAIL TYPE	DIAMETER (inch)	LENGTH (inches)	MINIMUM BENDING YIELD STRENGTH, F <sub>YB</sub> (psi)
8d common	0.131	2 1/2	100,000
16d common	0.162	3 1/2	90,000
16d sinker	0.148	3 1/4	90,000
8d x 1 1/2 common	0.131	1 1/2	100,000

For SI: 1 inch = 25.4 mm, 1 psi = 0.00689 N/mm<sup>2</sup>.

#### 2.8 Identification:

Each connector is identified by the model designation and the evaluation report number (ICBO ES ER-5313).

Evaluation reports of ICBO Evaluation Service, Inc., are issued solely to provide information to Class A members of ICBO, utilizing the code upon which the report is based. Evaluation reports are not to be construed as representing aesthetics or any other attributes not specifically addressed nor as an endorsement or recommendation for use of the subject report.

This report is based upon independent tests or other technical data submitted by the applicant. The ICBO Evaluation Service, Inc., technical staff has reviewed the test results and/or other data, but does not possess test facilities to make an independent verification. There is no warranty by ICBO Evaluation Service, Inc., express or implied, as to any "Finding" or other matter in the report or as to any product covered by the report. This disclaimer includes, but is not limited to, merchantability.

**3.0 EVIDENCE SUBMITTED**

Data in accordance with the ICBO ES Acceptance Criteria for Joist Hangers and Similar Devices, dated August 1966 (revised January 1990).

**4.0 FINDINGS**

That the Simpson Strong-Tie connectors specified in this report are alternative connectors to those set forth in the 1997 *Uniform Building Code*™, subject to the following:

- 4.1 Allowable loads are as noted in this report, and the method of application is as required by manufacturer's instructions and this report.
- 4.2 Where applicable, allowable loads must be adjusted in accordance with Chapter 23 of the code.
- 4.3 Fasteners for pressure-preservative-treated and fire-retardant-treated wood are hot-dipped, zinc-coated, galvanized steel, stainless steel, silicon bronze or copper.

This report is subject to re-examination in two years.

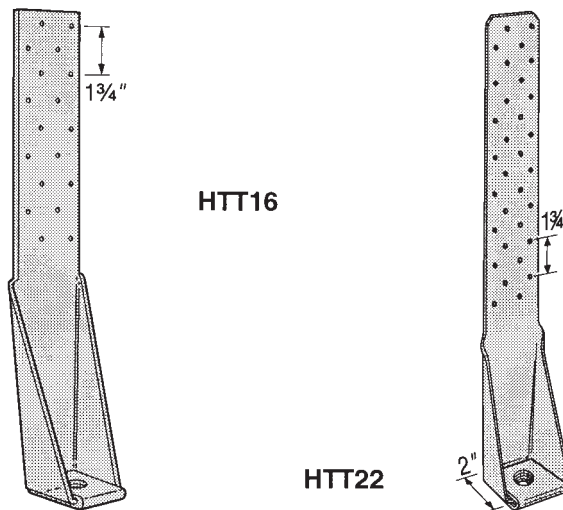
TABLE 1—HTT SERIES<sup>1,2</sup>

MODEL NO.	DIMENSIONS (inches)			FASTENERS		ALLOWABLE TENSION LOADS (133) (pounds)
	W	L	C	Anchor Bolts	Nails	
HTT16	2 1/2	27 11/16	1 3/8	5/8	18-16d Common	3,480
HTT22	2 1/2	16	1 3/8	5/8	32-16d Sinkers	5,250

For SI: 1 inch = 25.4 mm, 1 pound = 4.45 N.

<sup>1</sup>The designer must specify anchor bolt type, length and embedment.

<sup>2</sup>Allowable loads have been increased 33 percent for wind or earthquake loading with no further increase allowed.



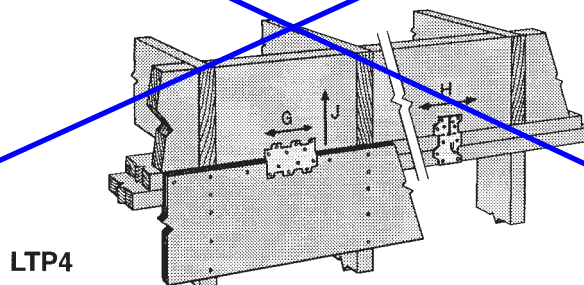
\* TABLE 2—LTP4<sup>1,2</sup>

MODEL NO.	DIRECTION OF LOAD	FASTENERS	ALLOWABLE LOADS (pounds)	
			Floor (100)	Roof (125)
LTP4	G	12-8d x 1 1/2	515	645
LTP4	J	12-8d x 1 1/2	515	645
LTP4	H	12-8d x 1 1/2	515	645

For SI: 1 inch = 25.4 mm, 1 pound = 4.45 N.

<sup>1</sup>Allowable loads are for one anchor. When anchors are installed on each side of the joist, the minimum joist thickness is 3 inches.

<sup>2</sup>Roof loads are 125 percent of the floor loads unless limited by other criteria. Floor loads may be adjusted for other load durations according to the code, provided they do not exceed those in the roof column.



\* deleted by City of Los Angeles

TABLE 3—RSP4<sup>1</sup>

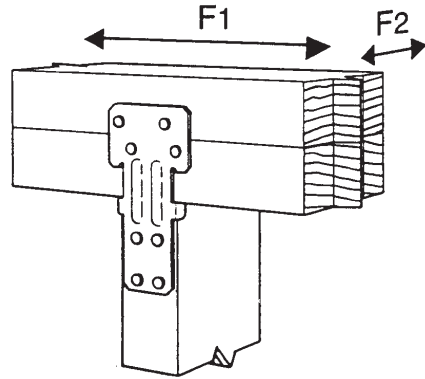
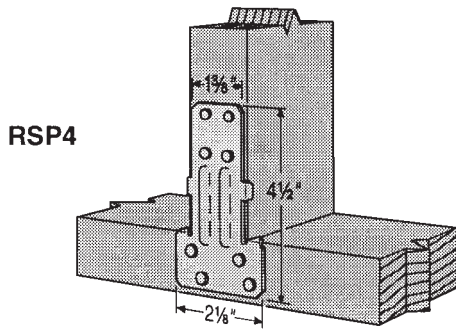
MODEL NO.	DIMENSIONS (inches)		FASTENERS		CONNECTION DESCRIPTION	ALLOWABLE UPLIFT LOADS (pounds)		
	W	L	Stud	Plate		Uplift	Lateral	
						133	F1 <sup>2</sup>	F2 <sup>3</sup>
RSP4	2 1/8	4 1/2	4-8d × 1 1/2	4-8d × 1 1/2	Stud to bottom plate	315	210	250
					Stud to double top plate	450	210	250

For **SI**: 1 inch = 25.4 mm, 1 pound = 4.45 N.

<sup>1</sup>Allowable loads have been increased 33 percent for wind or earthquake loading; no further increase is allowed. Reduce by 33 percent for normal loading.

<sup>2</sup>F1 load direction is parallel to plate.

<sup>3</sup>F2 load direction is perpendicular to plate.



~~TABLE 4—UFP10<sup>1,2,3,4</sup>~~

MODEL NO.	FASTENERS		ALLOWABLE LOADS PARALLEL TO PLATE (133) (pounds)
	Anchor Bolt <sup>5</sup>	Plate	
UFP10	2-1/2 DIA	5-SDS 1/4 × 3	1,340

For **SI**: 1 inch = 25.4 mm, 1 pound = 4.45 N.

<sup>1</sup>Loads are based on Simpson SDS 1/4 by 3 wood screws allowable shear values. See ICBO ES ER-5268.

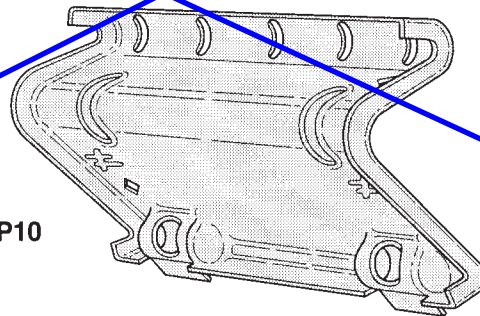
<sup>2</sup>Loads are for use with Douglas fir or redwood.

<sup>3</sup>Allowable loads have been increased 33 percent for wind or earthquake loading with no further increase allowed; reduce where other load durations apply.

<sup>4</sup>Not for use to resist uplift loads.

<sup>5</sup>The designer must specify anchor bolt type, length and embedment.

~~UFP10~~



~~\* deleted by City of Los Angeles~~