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RESEARCH REPORT: RR 25712
(CSI # 06090)

BASED UPON ICC EVALUATION SERVICE
REPORT NO. ESR-1622

REEVALUATION DUE
DATE: July 1, 2013
Issued Date: May 1, 2011
Code: 2011 LABC

GENERAL APPROVAL – Reevaluation/Clerical Modification - Simpson Strong-Tie post base connectors for wood construction

1. AB Adjustable Post Base
2. ABE 44 Adjustable Post Base
3. ABU Adjustable Post Base

DETAILS

The above assemblies and/or products are approved when in compliance with the description, use, identification and findings of ICC-ES Report No. ESR-1622, reissued January 1, 2011, of the ICC Evaluation Service. The report, in its entirety, is attached and made part of this general approval.

The parts of ES Report No. ESR-1622 which are excluded on the attached copy have been removed by the Los Angeles Building Department as not being included in this approval.

The approval is subject to the following conditions:

1. The connections are not approved to resist uplift forces from wood shear walls.
2. Calculations showing compliance with this report shall be submitted to structural plan check for approval. The calculations shall be prepared by a California licensed architect or engineer.

RR 25712
Page 1 of 2

Simpson Strong-Tie
RE: Simpson Strong-Tie post base connectors for wood construction

DISCUSSION

The clerical modification is to change address of the company and phone number of the contact person.

This report is in compliance with the 2011 City of Los Angeles Building Code

The approval is based on tests in accordance with ICC-ES (AC 13).

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

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 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.

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Engineering Research Section
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Attachment: ICC ES Report No. ESR-1622 (5 Pages)

ICC-ES Evaluation Report

ESR-1622

Reissued January 1, 2011

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

www.icc-es.org | (800) 423-6587 | (562) 699-0543

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DIVISION: 06 00 00—WOOD, PLASTIC, AND COMPOSITES
Section: 06 05 23—Wood, Plastic, and Composite Fastenings

REPORT HOLDER:

SIMPSON STRONG-TIE COMPANY, INC.
 5956 WEST LAS POSITAS BOULEVARD
 PLEASANTON, CALIFORNIA 94588
 (800) 925-5099
www.strongtie.com

EVALUATION SUBJECT:

SIMPSON STRONG-TIE POST BASE CONNECTORS FOR WOOD CONSTRUCTION

1.0 EVALUATION SCOPE
Compliance with the following codes:

- 2009 *International Building Code*® (2009 IBC)
- 2009 *International Residential Code*® (2009 IRC)
- 2006 *International Building Code*® (2006 IBC)
- * ■ ~~2006 *International Residential Code*® (2006 IRC)~~

Property evaluated:

Structural

2.0 USES

Simpson Strong-Tie post base connectors described in this report are used as wood framing connectors in accordance with Section 2304.9.3 of the IBC, and are used to resist lateral and net induced uplift forces at the bottom end of wood posts in accordance with Section 2304.9.7 of the IBC, and to prevent lateral displacement at the bottom end of wood posts in accordance with Section R407.3 of the IRC. The products may also be used in structures regulated under the IRC when an engineered design is submitted in accordance with Section R301.1.3 of the IRC.

3.0 DESCRIPTION
3.1 General:

The Simpson Strong-Tie post base connectors described in this report are die-formed brackets that connect wood posts to concrete footings complying with the IBC or IRC, as applicable, by using anchor bolts installed during the concrete pour or after the concrete hardens. Since the design of anchor bolts in the concrete footings is not within the scope of this report, a footing larger than the minimum required by IBC Section 1805 or IRC Section R403 may be necessary to meet anchorage to concrete requirements.

Untreated wood columns may be supported by the post base connectors described in this report because the connectors provide a metal pedestal projecting minimum 1 inch (25.4 mm) above the concrete footing as required by Section 2304.11.2.7 of the IBC, Section R317.14 of the 2009 IRC and ~~Section R319.1.4 of the 2006 IRC.~~

3.1.1 AB Adjustable Post Base: The AB adjustable post base has three components: a post base cover fabricated from No. 16 gage galvanized steel; a C-shaped standoff channel fabricated from No. 12 gage galvanized steel; and a rectangular bearing plate fabricated from No. 12 gage galvanized steel, which has a slotted hole to accommodate a ¹/₂-inch diameter (12.7 mm) anchor bolt. The AB post base cover has an irregular shaped opening that permits lateral adjustment of the wood post, and prepunched holes for 10d nails driven into the side grain of the wood post. The AB post base cover is placed in contact with the concrete footing and the bearing plate is placed on top of the base cover and secured to the anchor bolt using a nut. The standoff channel fits inside the base cover and provides an elevated support for the bottom of the post. See Table 1 for the overall dimensions of the AB post base cover, the fastener schedule, and allowable downloads. See Figure 1 for drawings of the three components of the AB adjustable post base connector and a typical installation.

3.1.2 ABA Post Base Standoff: The ABA post base standoff is a one-piece connector that elevates the supported wood post ¹/₁₆ inches (27 mm) above a concrete footing. The ABA44 and ABA44R are formed from No. 16 gage galvanized steel and all other ABA models from No. 14 gage galvanized steel. The sides of the ABA post base connector have prepunched holes for 10d or 16d nails driven into the side grain of the wood post. Type A narrow plain washer, conforming to the dimensions shown in ASME B18.22.1 (R 1998), and a standard cut washer and nut must be used to secure the ABA post base connector to the concrete anchor bolt. See Table 2 for overall dimensions, required fasteners, and allowable uplift loads and downloads. See Figure 2 for drawings of an ABA post base standoff connector and a typical installation.

3.1.3 ABE Adjustable Post Base: The ABE post base consists of three components: a U-shaped galvanized steel channel having an adjustment slot for the anchor bolt, a galvanized steel standoff base that elevates the wood post 1 inch (25.4 mm) above the concrete footing, and a 0.109-inch-thick (2.8 mm) round washer (bearing plate) supplied with the ABE44 connectors and a 0.171-inch-thick (4.3 mm) rectangular washer (bearing plate) supplied with the ABE46 and ABE66 connectors. The round and rectangular bearing plates have a bolt hole diameter of ⁹/₁₆ inch (14.3 mm) and ¹¹/₁₆ inch (17.5 mm), respectively.

The sides of the ABE adjustable post base connector have prepunched holes for 10d or 16d nails driven into the side grain of the wood post. See Table 3 for the overall dimensions of the U-shaped channel, the nominal thickness of the steel channel and standoff base, required fasteners, and allowable uplift loads and downloads. See Figure 3 for drawings of the components of an ABE adjustable post base connector and a typical installation.

3.1.4 ABU Adjustable Post Base: The ABU44, ABU46, and the ABU66 adjustable post base connectors consist of three components: a U-shaped galvanized steel channel having an adjustment slot for the anchor bolt and prepunched holes for installing bolts or nails, but not both, into the side grain of the wood post; a galvanized steel standoff base that elevates the wood post 1 inch (25.4 mm) above the concrete footing, and a 0.171-inch-thick (4.3 mm) rectangular washer (bearing plate).

The ABU88 adjustable post base connector consists of the following components: a U-shaped galvanized steel channel having two 1¹/₁₆-inch-wide (27 mm) long-slotted holes for anchor bolts and prepunched holes for installing nails into the side grain of the wood post; a galvanized steel standoff base that elevates the wood post 1 inch (25.4 mm) above the concrete footing, and two nominally 1¹/₄-inch-thick (6.4 mm) square washers (bearing plates).

See Table 4 for the overall dimensions of the U-shaped channel, nominal thickness of the steel channel and standoff base, required fasteners, and allowable uplift loads and downloads. See Figure 4 for drawings of the components of an ABU44 and ABU88 adjustable post base connectors and a typical ABU connector installation.

3.1.5 PBV Post Base: The PBV post base is a single piece post base connector formed from No. 14 gage steel having a powder-coated paint coating. The PBV connector is circular and has a center channel section and two raised semicircular flat portions that provide a 1-inch (25.4 mm) raised bearing surface for a round post. The connector has prepunched holes for installing SDS screws into the end grain of a round post. See Table 5 for the connector dimensions, required fasteners and allowable downloads.

3.2 Materials:

3.2.1 Steel: Unless noted otherwise, the connectors described in this report are manufactured from galvanized steel in accordance with ASTM A 653, SS designation, Grade 33, with a minimum yield strength, F_y , of 33,000 psi (227 MPa) and a minimum tensile strength, F_u , of 45,000 psi (310 MPa). The bearing plates for the ABU88 are ASTM A 36 with a minimum yield strength of 36,000 psi (248 MPa) and a minimum tensile strength of 58,000 psi (400 MPa) and have no coating. Base metal thicknesses for the connectors in this report are as follows:

NOMINAL THICKNESS	MINIMUM BASE METAL THICKNESS (inches)
No. 10 Gage	0.1275
No. 12 Gage	0.0975
No. 14 Gage	0.0685
No. 16 Gage	0.0555
1 ¹ / ₄ -inch (Bearing Plate)	0.2145

For SI: 1 inch = 25.4 mm.

The connectors have a minimum G90 zinc coating specification per ASTM A 653 unless otherwise noted. Some models (designated with a model number ending with Z) are available with a G185 zinc coating specification in accordance with ASTM A 653. Some models (designated with a model number ending with HDG) are

available with a hot-dip galvanization, also known as “batch” galvanization, in accordance with ASTM A 123, with a minimum specified coating weight of 2.0 ounces of zinc per square foot of surface area (610 g/m²), total for both sides. Model numbers in this report do not include the Z or HDG ending, but the information shown applies. The PBV post base has a “PC” suffix indicating a powder-coated paint coating. The lumber treater and the holder of this report (Simpson Strong-Tie Company) should be contacted for recommendations on the appropriate level of corrosion resistance to specify for use of the steel connectors in contact with the specific proprietary preservative treated or fire retardant treated lumber.

3.2.2 Wood: Wood members with which the connectors are used must be either sawn lumber or engineered lumber having a minimum specific gravity of 0.50 (minimum equivalent specific gravity of 0.50 for engineered lumber), and having a maximum moisture content of 19 percent (16 percent for engineered lumber), except as noted in Section 4.1. The thickness of the supporting wood main member must be equal to or greater than the length of the fasteners specified in the tables in this report, or as required by wood member design, whichever is greater. For installation in engineered wood members, minimum allowable nail spacing and end and edge distances, as specified in the applicable evaluation report for the engineered wood product, must be met.

3.2.3 Fasteners: Nails used for hangers described in this report must comply with the material requirements, physical properties, tolerances, workmanship, protective coating and finishes, certification, and packaging and package marking requirements specified in ASTM F 1667. The nails must have the following minimum fastener dimensions and bending yield strengths (F_{yb}):

FASTENER	SHANK DIAMETER (inches)	FASTENER LENGTH (inches)	F_{yb} (psi)
10d	0.148	3	90,000
16d	0.162	3 ¹ / ₂	90,000

At a minimum, bolts must comply with ASTM A 36 or A 307. SDS Screws used in contact with preservative treated or fire retardant treated lumber must, as a minimum, comply with [ESR-2236](#). Fasteners used in contact with preservative treated or fire retardant treated lumber must comply with Section 2304.9.5 of the IBC, Section R317.3 of the 2009 IRC ~~or Section R319.3 of the 2006 IRC~~, as applicable. For use with treated lumber, the lumber treater or this report holder (Simpson Strong-Tie Company), or both, should be contacted for recommendations on the appropriate coating or material to specify for the fasteners as well as the connection capacities of fasteners used with the specific proprietary preservative treated or fire retardant treated lumber.

4.0 DESIGN AND INSTALLATION

4.1 Design:

The tabulated allowable loads shown in the product tables of this report are based on Allowable Stress Design (ASD) and include the load duration factor, C_D , corresponding with the applicable loads in accordance with the National Design Specification for Wood Construction and its supplement (NDS).

Tabulated allowable loads apply to products connected to wood used under dry conditions and where sustained temperatures are 100°F (37.8°C) or less. When products are installed to wood having a moisture content greater than 19 percent (16 percent for engineered wood products), or where wet service is expected, the allowable

loads must be adjusted by the applicable wet service factor, C_M , specified for lateral loads for dowel-type fasteners in the NDS. When connectors are installed in wood that will experience sustained exposure to temperatures exceeding 100°F (37.8°C), the allowable loads in this report must be adjusted by the applicable temperature factor, C_t , specified in the NDS. Connected wood members must be analyzed for load-carrying capacity at the connection in accordance with the NDS.

4.2 Installation:

Installation of the connectors must be in accordance with this evaluation report and the manufacturer’s published installation instructions. Bolts and nails must be installed in accordance with the applicable provisions in the NDS. In the event of a conflict between this report and the manufacturer’s published installation instructions, this report governs.

5.0 CONDITIONS OF USE

The Simpson Strong-Tie products described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The connectors must be manufactured, identified and installed in accordance with this report and the manufacturer's published installation instructions. A copy of the instructions must be available at the jobsite at all times during installation.
- 5.2 Calculations showing compliance with this report must be submitted to the code official. The calculations

must be prepared by a registered design professional where required by the statues of the jurisdiction in which the project is to be constructed

- 5.3 Adjustment factors noted in Section 4.1 and the applicable codes must be considered, where applicable.
- 5.4 Connected wood members and fasteners must comply, respectively, with Sections 3.2.2 and 3.2.3 of this report.
- 5.5 Use of connectors with preservative treated or fire retardant treated lumber must be in accordance with Section 3.2.1 of this report. Use of fasteners with preservative treated or fire retardant treated lumber must be in accordance with Section 3.2.3 of this report.
- 5.6 The design of anchor bolts and the concrete footings is not within the scope of this report.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Joist Hangers and Similar Devices (AC13), dated October 2010.

7.0 IDENTIFICATION

The products described in this report are identified with a die-stamped label indicating the name of the manufacturer (Simpson Strong-Tie), the model number, and the number of an index evaluation report ([ESR-2523](#)) that is used as an identifier for the products recognized in this report.

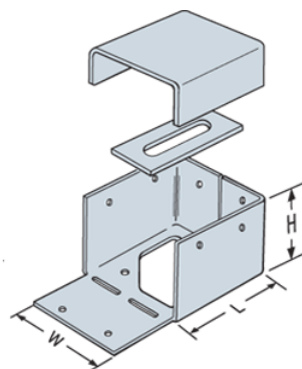
TABLE 1—AB ADJUSTABLE POST BASE CONNECTORS^{1,2}

MODEL NO.	DIMENSIONS (inches)			FASTENERS		ALLOWABLE DOWNLOADS (lbs)
	W	L	H	Anchor Bolt Diameter (inches)	Nails into Post (Quantity-Type)	$C_D = 1.0$ $C_D = 1.15$ $C_D = 1.25$
AB44	3 ⁹ / ₁₆	3 ⁹ / ₁₆	2 ⁹ / ₃₂	1/2	8-10d	4,065
AB46	3 ⁹ / ₁₆	5 ³ / ₈	3	1/2	8-10d	4,165
AB44R	4	4 ¹ / ₁₆	2 ⁹ / ₁₆	1/2	8-10d	4,065
AB46R	4	6	2 ¹³ / ₁₆	1/2	8-10d	4,165
AB66	5½	5 ⁹ / ₁₆	3	1/2	8-10d	5,335
AB66R	6	6	2 ¹³ / ₁₆	1/2	8-10d	5,335

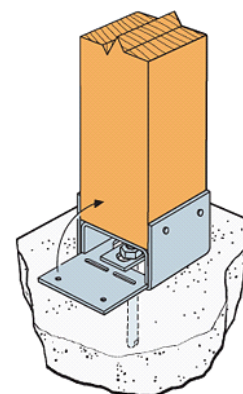
For **SI**: 1 inch = 25.4 mm, 1 lbs = 4.45 N.

¹The allowable downloads may not be increased for short term loading.

²Anchor bolts and the concrete footings must be capable of resisting all loads and forces transferred from the post base connector.



AB Adjustable Post Base



AB Installation

FIGURE 1—AB POST BASE CONNECTOR

TABLE 2—ABA ADJUSTABLE POST BASE CONNECTORS^{1,2,3}

MODEL NO.	DIMENSIONS (inches)			FASTENERS		ALLOWABLE LOADS (lbs)	
	W	L	H	Anchor Bolt Diameter (inches)	Nails into Post (Quantity–Type)	Uplift	Downloads
						C _D =1.6	C _D =1.0 C _D =1.15 C _D =1.25
ABA44	3 ⁹ / ₁₆	3 ¹ / ₈	3 ¹ / ₁₆	1/2	6–10d	555	6,000
ABA44R	4 ¹ / ₁₆	3 ¹ / ₈	2 ¹³ / ₁₆	1/2	6–10d	555	8,000
ABA46	3 ⁹ / ₁₆	5 ³ / ₁₆	3 ¹ / ₈	5/8	8–16d	700	9,435
ABA46R	4 ¹ / ₁₆	5 ³ / ₁₆	2 ⁷ / ₈	5/8	8–16d	700	12,000
ABA66	5 ¹ / ₂	5 ¹ / ₄	3 ¹ / ₈	5/8	8–16d	720	10,665
ABA66R	6	5 ³ / ₁₆	2 ⁷ / ₈	5/8	8–16d	720	12,665

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

¹The uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce loads when other load durations govern.

²The allowable downloads may not be increased for short term loading.

³Anchor bolts and the concrete footings must be capable of resisting all loads and forces transferred from the post base connector.

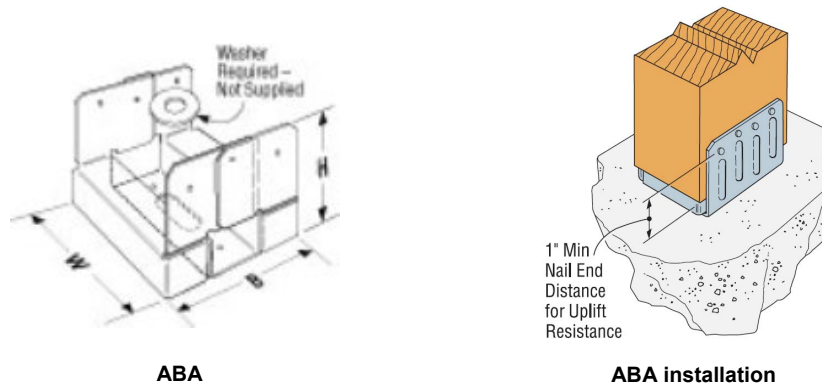


FIGURE 2—ABA ADJUSTABLE POST BASE CONNECTOR

TABLE 3—ABE ADJUSTABLE POST BASE CONNECTORS^{1,2,3}

MODEL NO.	DIMENSIONS (inches)			FASTENERS		ALLOWABLE LOADS	
	W	L	H	Anchor Bolt Diameter (inches)	Nails into Post (Quantity–Type)	Uplift	Download
						C _D = 1.6	C _D =1.0 C _D =1.15 C _D =1.25
ABE44	3 ⁹ / ₁₆	3 ¹ / ₂	2 ²⁵ / ₃₂	1/2	6–10d	520	6,665
ABE46	3 ⁹ / ₁₆	5 ⁷ / ₁₆	4 ¹ / ₁₆	5/8	8–16d	810	7,335
ABE66	5 ¹ / ₂	5 ⁷ / ₁₆	3 ¹ / ₈	5/8	8–16d	900	12,000

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

¹The uplift loads have been increased for wind or earthquake loading with no further increase allowed. The allowable loads must be reduced when other load durations govern.

²The allowable downloads may not be increased for short term loading.

³Anchor bolts and the concrete footings must be capable of resisting all loads and forces transferred from the post base connector.

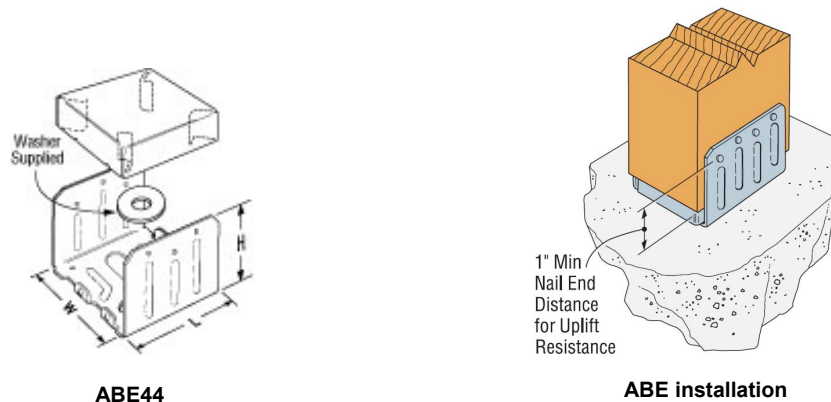


FIGURE 3—ABE ADJUSTABLE POST BASE CONNECTIONS

TABLE 4—ABU ADJUSTABLE POST BASE CONNECTORS^{1,2,3,4}

MODEL NO.	CONNECTOR DIMENSIONS					FASTENERS (Quantity-Type)			ALLOWABLE LOADS (lbs)		
	U-Channel				Standoff Base				Uplift		Download
	W (in.)	L (in.)	H (in.)	Gage No.	Gage No.	Nails into Post	Bolts through Post	Anchor Bolt Diameter (inches)	Nails	Bolts	Nails or Bolts
									C _D = 1.6	C _D = 1.6	C _D =1.0 C _D =1.15 C _D =1.25
ABU44	3 ⁹ / ₁₆	3	5 ¹ / ₂	12	16	12–16d	2 – 1 ¹ / ₂	1 – 5 ⁵ / ₈	2,200	2,160	6,665
ABU46	3 ⁹ / ₁₆	5	7	12	12	12–16d	2 – 1 ¹ / ₂	1 – 5 ⁵ / ₈	2,255	2,300	10,335
ABU66	5 ¹ / ₂	5	6 ¹ / ₁₆	10	12	12–16d	2 – 1 ¹ / ₂	1 – 5 ⁵ / ₈	2,300	2,300	12,000
ABU88	7 ¹ / ₂	7	7	12	14	18–16d	—	2 – 5 ⁵ / ₈	2,320	—	24,335

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

¹The uplift loads have been increased for wind or earthquake loading with no further increase allowed. The allowable loads must be reduced when other load durations govern.

²The allowable downloads may not be increased for short term loading.

³Anchor bolts and the concrete footings must be capable of resisting all loads and forces transferred from the post base connector.

⁴Allowable uplift loads based on nails and bolts are not cumulative.

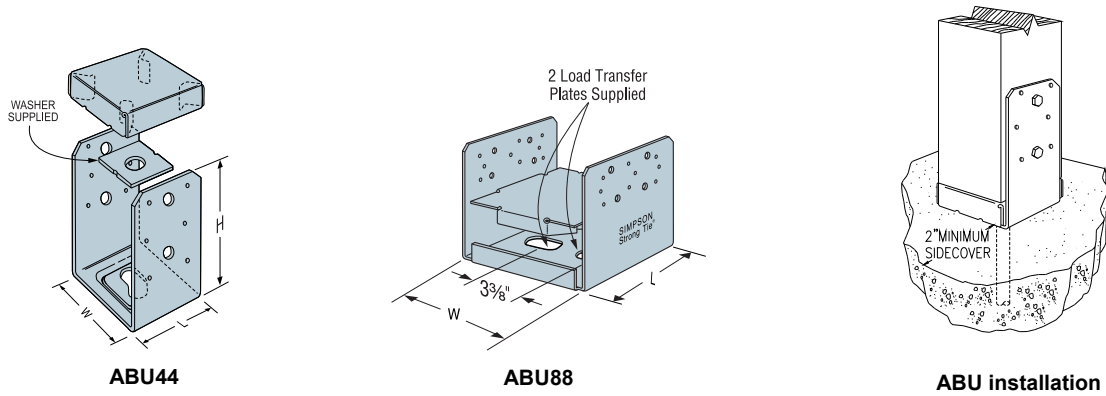


FIGURE 4—ABU ADJUSTABLE POST BASE CONNECTORS

TABLE 5—PBV POST BASE CONNECTORS^{1,2,3}

MODEL NO.	DIMENSIONS (inches)		FASTENERS		ALLOWABLE DOWNLOADS (lbs)
	L	H	SDS Screws into Post (Quantity-Type)	Anchor Bolt (Quantity- Diameter)	C _D =1.0 C _D =1.15 C _D =1.25
PBV6	5 ¹ / ₄	1	4 – SDS 1 ¹ / ₄ x 3	1 – 5 ⁵ / ₈	9,250
PBV10	9 ³ / ₁₆	1	4 – SDS 1 ¹ / ₄ x 3	1 – 5 ⁵ / ₈	19,225

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

¹The allowable downloads may not be increased for short term loading.

²Anchor bolts and the concrete footings must be capable of resisting all loads and forces transferred from the post base connector.

³The model number for the SDS 1¹/₄ x 3 inch screw is SD25300.

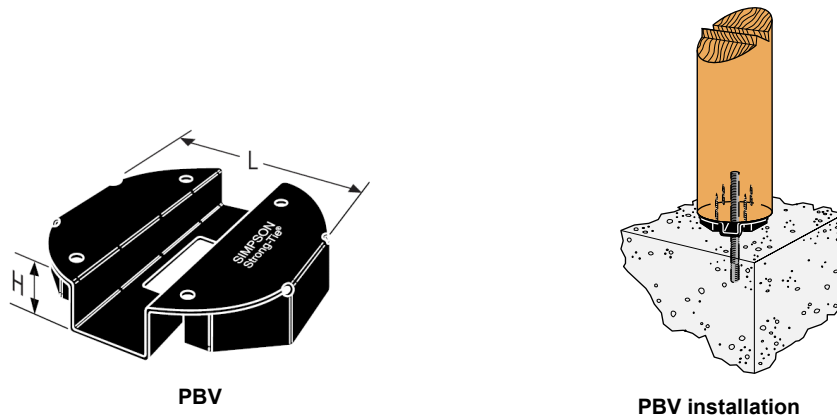


FIGURE 5—PBV POST BASE CONNECTORS