

ANCHORING SYSTEMS *Sill Plate Anchor Solutions*

Simpson Strong-Tie Anchor Systems® offers several post-installed solutions for sill plate anchorage to concrete or concrete block foundations. Often times these products are used in retrofit applications or when cast-in-place anchors are omitted or mislocated. Some products are available in galvanized and stainless steel versions to address most preservative-treated wood applications.

For complete information on product performance, installation requirements and appropriate code listings for Simpson Strong-Tie Anchor Systems products please refer to the *Anchoring and Fastening Systems for Concrete and Masonry* catalog (form C-SAS) or visit www.simpsonanchors.com.

For Corrosion Information, refer to Simpson Strong-Tie *Anchoring and Fastening Systems for Concrete and Masonry* catalog (C-SAS).

EXTERIOR/INTERIOR SILL PLATE ANCHORAGE SOLUTIONS

The Titen HD® anchor and RFB Retrofit Bolt with Simpson Strong-Tie® adhesive may be used for sill plate applications. Use bearing plates as required by Code. Refer to the appropriate Code report or use Simpson Strong-Tie ACI 318 Anchor Designer™ software for anchor design information.



Titen HD®



RFB



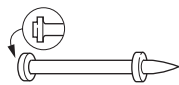
INTERIOR (ONLY) SILL PLATE ANCHORAGE SOLUTIONS

Simpson Strong-Tie Anchor Systems offers a full line of powder actuated tools, fasteners and powder loads for fastening to concrete and steel. Powder actuated pins are often used to fasten the sill plate to concrete slabs.

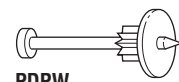
For complete information on product performance, installation requirements and appropriate code listings for Simpson Strong-Tie Anchor Systems products please refer to the *Anchoring and Fastening Systems for Concrete and Masonry* catalog (form C-SAS) or visit www.simpsonanchors.com.

These products are available with additional corrosion protection.

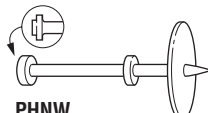
Catalog Number	Overall Length (in.)	Head Diameter (in.)	Shank Diameter (in.)	Maximum Spacing (in.)	
				Interior Braced Walls ³	Interior Walls ²
PDPW-300	3	5/16	0.145	12	24
PDPWL-300	3	5/16	0.145	12	24
PHN-72	2 7/8	5/16	0.145	18	36
PHNW-72	2 7/8	5/16	0.145	18	36



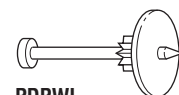
PHN



PDPW



PHNW



PDPWL

(PDPWL available in galvanized coating for preservative-treated wood applications)

- Spacings are based upon the attachment of 2-inch (*nominal thickness*) wood sill plates, with specific gravity of 0.50 or greater, to concrete floor slabs or footings. For species of wood with specific gravity of 0.42 to 0.49, multiply required spacing of fasteners for shear walls by 0.81. For species of wood with specific gravity of 0.31 to 0.41, multiply the required spacing of fasteners for shear walls by 0.65.
- All walls shall have fasteners placed at 6 inches from ends of sill plates, with maximum spacing as shown in the table.
- Fasteners indicated shall have two pins placed 6 inches and 10 inches, respectively, from each end of sill plates, with maximum spacing as shown in the table.
- All fasteners must be installed with a minimum 3/4-inch-diameter, No. 16 gauge (0.0598 inch) steel washer.
- Fasteners shall not be driven until the concrete has reached a compressive strength of 2,000 psi. Minimum edge distance is 1 3/4 inches.
- The fasteners shall not be used for the attachment of shear walls having a unit shear in excess of 100 pounds per foot. Spacings shown are independent of the number of building stories.

ANCHORING SYSTEMS

Concrete Anchors Designed to Meet 2006 IBC



Building Codes Are Changing – New Anchor Designs Now Required

Most states across the country have now adopted the 2006 International Building Code (IBC) and many jurisdictions within each state are now enforcing the new code. As a result, engineers and designers are increasingly being required to specify anchors designed and tested to meet the new requirements of the code. The 2006 IBC requires that Ultimate Strength Design methodology be used when designing structural anchorages within buildings and other structures. This affects how and when post-installed concrete anchors are specified and what products will be suitable for use.

When designing concrete anchorages, designers are now being required to consider, among other things, whether conditions exist that may cause the concrete to crack. If it's determined such conditions do exist, anchors designed and tested for use in cracked concrete must be specified. If it's determined there is no risk of concrete cracking, the designer may choose to specify anchors approved for use in uncracked concrete. In either case, Ultimate Strength Design methodology is required as part of the 2006 IBC.

Common conditions that cause cracking of concrete:

- Concrete in tension – such as in the underside of a slab
- Concrete elements located in areas prone to seismic activity
- Other factors that contribute to cracking include:
 - External short term loads (such as high winds)
 - Temperature variations
 - Shrinkage during curing



Simpson Strong-Tie Anchor Systems® has, for years, been at the forefront of developing anchors for use in both cracked and uncracked concrete. In fact, one of our test labs was the first lab in the U.S. to be accredited in testing on cracked concrete. We have devoted years of research, product development and extensive testing in the evolution of our cracked and uncracked concrete anchors. With our technical expertise and support you can rely on us to be the trusted source for concrete anchors.



ANCHORING SYSTEMS *Anchoring Adhesives***SET-XP™**

SET-XP is a 1:1 two component, high solids epoxy-based anchoring adhesive formulated for optimum performance in both cracked and uncracked concrete. SET-XP has been rigorously tested in accordance with ICC-ES AC308 and 2006 IBC requirements and has proven to offer increased reliability in the most adverse conditions, including performance in cracked concrete under static and seismic loading. SET-XP is teal in color in order to be identified as a high performance adhesive for adverse conditions. Resin and hardener are dispensed and mixed simultaneously through the mixing nozzle. SET-XP exceeds the ASTM C881 specification for Type I and Type IV, Grade 3, Class C epoxy.

USES: When SET-XP is used with the IXP anchor, all thread rod, or rebar, the system can be used in tension and seismic zones where there is a risk of cracks occurring that pass through the anchor location. It is also suitable for uncracked concrete conditions.

CODES: ICC-ES ESR-2508; City of L.A. pending; Florida FL 11506.5 NSF/ANSI Standard 61 (216 in²/1000 gal)

**IXP™ ANCHOR**

Patent Pending

The Simpson Strong-Tie IXP anchor is a torque-controlled adhesive anchor that, when used with Simpson Strong-Tie® SET-XP epoxy, provides optimum performance in both cracked and uncracked concrete under a variety of adverse service conditions. The IXP anchor was rigorously tested according to ICC-ES AC308 and 2006 IBC requirements. The unique conical shape of the helix configuration enables the IXP anchor to mimic the follow-up expansion behavior of a torque-controlled expansion anchor when tension-zone cracks in the base material intersect the anchor location.

CODES: ICC-ES pending

**SET EPOXY-TIE®**

SET Epoxy-Tie epoxy is a two-component, 1:1 ratio, high solids epoxy-based adhesive for use as a high strength, non-shrink anchor grouting material. Resin and hardener are dispensed and mixed simultaneously through the mixing nozzle. SET meets or exceeds the ASTM C-881 specification for Type I, II, IV and V, Grade 3, Class B and C.

CODES: ICC-ES ESR-1772 (CMU & URM); City of L.A. RR25279; Florida FL 11506.4; Caltrans approved; multiple DOT listings; NSF/ANSI Standard 61 (216 in²/1000 gal), except SET1.7KTA. SET-PAC-EZ™ covered by ICC-ES, City of L.A. and NSF/ANSI listings only

ET EPOXY-TIE®

ET Epoxy-Tie is a two-component, high solids epoxy-based system for use as a high strength, non-shrink anchor grouting material. Resin and hardener are dispensed and mixed simultaneously through the mixing nozzle. ET meets the ASTM C-881 specifications for Type I, II, IV and V, Grade 3, Classes B and C, except gel time.

CODES: ICC-ES ER-4945 (URM); City of L.A. RR25185, RR25120; Florida FL 11506.2; Multiple DOT Listings

AT ACRYLIC-TIE®

Acrylic-Tie is a two component, high solids, 10:1 ratio acrylic based adhesive for use as a high strength, anchor grouting material. Formulated for use in all types of weather, AT is designed to dispense easily and cure at temperatures down to 0°F. Resin and initiator are dispensed and mixed simultaneously through the mixing nozzle. AT meets the physical requirements of ASTM C881, Type I & IV, Grade 3, Classes A, B & C, except Acrylic-Tie is a non-epoxy product formulated for fast cure time.

CODES: ICC-ES ER-5791* (CMU & URM); City of L.A. RR25459*; Florida FL 11506.1*; NSF/ANSI Standard 61 (11 in²/5000 gal); Multiple DOT listings

*Applies to all AT products except AT10

ANCHORING SYSTEMS Mechanical Anchors**TITEN HD® Heavy Duty Screw Anchor**

The Titen HD anchor is a patented, high-strength screw anchor for concrete and masonry. It is designed for optimum performance in both cracked and uncracked concrete; a requirement that the 2006 IBC places on post-installed anchors. The high strength, easy-to-install Titen HD anchor has been tested and shown to provide outstanding performance in cracked and uncracked concrete under both static and seismic-loading conditions. The self-undercutting, non-expansion characteristics of the Titen HD anchor make it ideal for structural applications, even at reduced edge distances and spacings. Recommended for permanent dry, interior non-corrosive environments or temporary outdoor applications.



CODES: ICC-ES ESR-2713 (concrete); ICC-ES ESR-1056 (CMU); City of L.A. RR25560; Florida FL 11506.7; Factory Mutual 3017082

U.S. Patent
5,674,035 & 6,623,228

STRONG-BOLT™ Wedge Anchor

The Strong-Bolt is a wedge anchor specifically designed for optimum performance in both cracked and uncracked concrete; a requirement that the 2006 IBC places on post-installed anchors. Rigorously tested according to the latest industry-wide criteria, the Strong-Bolt anchor is proven to offer increased reliability in the most adverse conditions, including performance in cracked concrete under static and seismic loading. The proprietary tri-segmented clip has dual undercutting embossments on each segment which enable secondary or “follow-up” expansion if a crack forms and intersects the anchor location. This significantly increases the ability of the Strong-Bolt wedge anchor to carry load if the hole opened slightly due to a crack. The Strong-Bolt anchor sets like a standard wedge anchor and is available in Imperial fractional sizes.



CODES: ICC-ES ESR-1771; City of L.A. RR25705; Florida FL 11506.6

WEDGE-ALL® Wedge Anchor

The Wedge-All anchor is a non-bottom bearing, wedge style expansion anchor for use in solid concrete or grout filled masonry. A one-piece clip ensures uniform holding capacity that increases as tension is applied. The threaded stud version is available in eight diameters and multiple lengths. A single size tie-wire version is available for wire supported fixtures. Threaded studs are set by tightening the nut. Tie-wire anchors are set with the claw end of a hammer.

CODES: ICC-ES ESR-1396 (CMU); City of L.A. RR24682; Factory Mutual 3017082 and 3031136; Florida FL 11506.8; Underwriters Laboratories File Ex3605; Meets requirements of Federal Specifications A-A-1923A, Type 4. The Tie-Wire anchor is not code listed.

TORQ-CUT™ Self-Undercutting Anchor

The Torq-Cut self-undercutting anchor is a heavy-duty, high-capacity anchor designed and tested for use in cracked and uncracked concrete under static and seismic loading conditions. It is designed to meet the requirements that the 2006 IBC places on post-installed anchors. The built in ring with hardened cutters expands with installation torque forming undercut grooves in the concrete. This interlocking connection between the anchor and the concrete provides superior load carrying capacity.

CODES: ICC-ES pending