

PAB

Pre-Assembled Anchor Bolt

The PAB anchor bolt is a versatile cast-in-place anchor bolt ideal for high-tension-load applications, such as rod systems and shearwalls. It features a plate washer, at the embedded end, sandwiched between two fixed hex nuts and a head stamp for easy identification after the pour.

- Available in diameters from 1/2" to 1 1/4" in lengths from 12" to 36" (in 6" increments)
- Available in standard and high-strength steel
- Head stamp contains the No Equal sign, diameter designation and an "H" on high-strength rods

Material:

Standard Steel — ASTM F1554 Grade 36, A36 or A307; $F_u = 58$ ksi

High-Strength Steel (up to 1" dia.) — ASTM A449; $F_u = 120$ ksi

High-Strength Steel (1 1/8" and 1 1/4" dia.) — ASTM A193 B7 or F1554 Grade 105; $F_u = 125$ ksi

Finish: None. May be ordered in HDG; contact Simpson Strong-Tie.

Installation:

- On HDG PABs, chase the threads to use standard nuts or couplers or use overtapped products in accordance with ASTM A563; for example, Simpson Strong-Tie® NUT^{5/8}-OST, NUT^{7/8}-OST, CNW^{5/8}-OST, CNW^{7/8}-OST. OST couplers are typically oversized on one end of the coupler nut only and will be marked with an "O" on oversized side. **Couplers may be special ordered with both ends oversized.** Contact Simpson Strong-Tie.

Related Software

The Simpson Strong-Tie Anchor Designer™ Software analyzes and suggests anchor solutions using the ACI 318 strength-design methodology (or CAN/CSA A23.3 Annex D Limit States Design methodology). It provides cracked and uncracked-concrete anchorage solutions for numerous Simpson Strong-Tie mechanical and adhesive anchors as well as the PAB anchor bolt. With its easy-to-use graphical user interface, the software makes it easy for the designer to identify anchorage solutions without having to perform time-consuming calculations by hand. See strongtie.com/software.

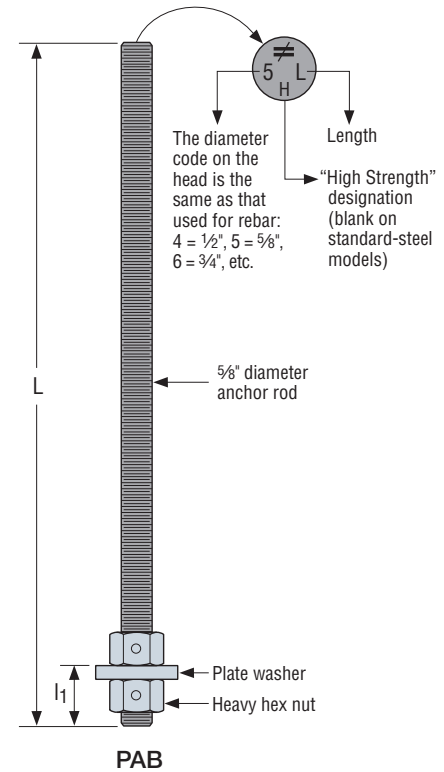
How to Specify and Order:

- When calling out PAB anchor bolts, substitute the desired length for the "XX" in the Root Model Number
- For a 5/8" x 18" anchor bolt, the model number would be PAB5-18 (or PAB5H-18 for high strength)

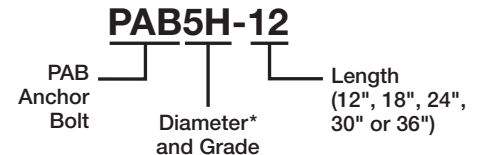
PAB Anchor Bolt

| Diameter (in.) | Plate Washer Size (in.) | I ₁ (in.) | Root Model No. | | Lengths (in.) |
|----------------|-------------------------|----------------------|-------------------|---------------|----------------------------------|
| | | | Standard Strength | High Strength | |
| 1/2 | 3/8 x 1 1/2 x 1 1/2 | 1 1/8 | PAB4—XX | PAB4H—XX | 12" to 36" (in 6" increments) |
| 5/8 | 1/2 x 1 3/4 x 1 3/4 | 1 3/8 | PAB5—XX | PAB5H—XX | |
| 3/4 | 1/2 x 2 1/4 x 2 1/4 | 1 1/2 | PAB6—XX | PAB6H—XX | |
| 7/8 | 1/2 x 2 1/2 x 2 1/2 | 1 5/8 | PAB7—XX | PAB7H—XX | |
| 1 | 5/8 x 3 x 2 3/4 | 1 7/8 | PAB8—XX | PAB8H—XX | |
| 1 1/8 | 5/8 x 3 1/2 x 3 1/4 | 2 | PAB9—XX | PAB9H—XX | |
| 1 1/4 | 3/4 x 3 1/2 x 3 1/2 | 2 1/4 | PAB10—XX | PAB10H—XX | |

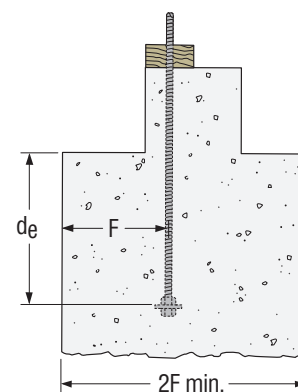
1. Lengths greater than 36" are available as a special order.
2. Plate washers are designed to develop the capacity of the bolt.



Naming Legend



*Units in 1/8" Increments
(Ex: 9 = 5/8" or 1 1/8")



Design loads are calculated using a full shear cone. Coverage on each side of the bolt shall be a minimum of F or reductions must be taken.

PAB

Pre-Assembled Anchor Bolt (cont.)

PAB Anchor Bolt – Anchorage Solutions

| Design Criteria | Diameter (in.) | Anchor Bolt | 2,500 psi Concrete | | | | 3,000 psi Concrete | | | | |
|-----------------|----------------|-------------|--------------------|--------|--------------|--------|--------------------|--------|--------------|--------|--------|
| | | | Dimensions (in.) | | Tension Load | | Dimensions (in.) | | Tension Load | | |
| | | | d _e | F | ASD | LRFD | d _e | F | ASD | LRFD | |
| Wind | ½ | PAB4 | 4½ | 7 | 4,270 | 6,405 | 4 | 6 | 4,270 | 6,405 | |
| | ⅝ | PAB5 | 4 | 6 | 4,030 | 6,720 | 4 | 6 | 4,415 | 7,360 | |
| | | | 6 | 9 | 6,675 | 10,010 | 5½ | 8½ | 6,675 | 10,010 | |
| | ¾ | PAB6 | 5½ | 8½ | 6,500 | 10,835 | 5 | 7½ | 6,175 | 10,290 | |
| | | | 7½ | 11½ | 9,610 | 14,415 | 7 | 10½ | 9,610 | 14,415 | |
| | ⅞ | PAB7 | 6 | 9 | 7,405 | 12,345 | 5½ | 8½ | 7,120 | 11,870 | |
| | | | 9 | 13½ | 13,080 | 19,620 | 8½ | 13 | 13,080 | 19,620 | |
| | | | 9 | 13½ | 13,610 | 22,680 | 8½ | 13 | 13,680 | 22,805 | |
| | 1 | PAB7H | 14 | 21 | 27,060 | 40,590 | 13½ | 20½ | 27,060 | 40,590 | |
| | | | PAB8 | 8 | 12 | 11,405 | 19,005 | 7½ | 11½ | 11,340 | 18,900 |
| | | | | 10½ | 16 | 17,080 | 25,565 | 10 | 15 | 17,080 | 25,560 |
| | PAB8H | 10½ | 16 | 17,150 | 28,580 | 10 | 15 | 17,460 | 29,100 | | |
| | | 16½ | 25 | 35,345 | 53,015 | 15½ | 23½ | 35,345 | 53,015 | | |
| | 1½ | PAB9 | 9 | 13½ | 13,610 | 22,680 | 8 | 12 | 12,495 | 20,820 | |
| 12½ | | | 19 | 21,620 | 32,430 | 12 | 18 | 21,620 | 32,430 | | |
| 1¾ | PAB10 | 14 | 21 | 26,690 | 40,035 | 13½ | 20½ | 26,690 | 40,035 | | |
| Seismic | ½ | PAB4 | 5 | 7½ | 4,270 | 6,405 | 4½ | 7 | 4,270 | 6,405 | |
| | ⅝ | PAB5 | 6½ | 10 | 6,675 | 10,010 | 6 | 9 | 6,675 | 10,010 | |
| | ¾ | PAB6 | 7½ | 11½ | 9,060 | 12,940 | 7 | 10½ | 8,945 | 12,780 | |
| | | | 8 | 12 | 9,610 | 14,415 | 7½ | 11½ | 9,610 | 14,415 | |
| | ⅞ | PAB7 | 9 | 13½ | 11,905 | 17,010 | 8½ | 13 | 11,970 | 17,100 | |
| | | | 10 | 15 | 13,080 | 19,620 | 9½ | 14½ | 13,080 | 19,620 | |
| | | | 14½ | 22 | 25,350 | 36,215 | 13½ | 20½ | 24,650 | 35,215 | |
| | 1 | PAB7H | 15½ | 23½ | 27,060 | 40,590 | 14½ | 22 | 27,060 | 40,590 | |
| | | | PAB8 | 11 | 16½ | 15,996 | 22,850 | 10½ | 16 | 16,435 | 23,480 |
| | | | | 11½ | 17½ | 17,080 | 25,625 | 11 | 16½ | 17,080 | 25,625 |
| | PAB8H | 17 | 25½ | 33,045 | 47,205 | 16 | 24 | 32,720 | 46,740 | | |
| | | 18 | 27 | 35,345 | 53,015 | 17 | 25½ | 35,345 | 53,015 | | |
| | 1½ | PAB9 | 12½ | 19 | 19,795 | 28,275 | 12 | 18 | 20,255 | 28,940 | |
| | | | 13½ | 20½ | 21,620 | 32,430 | 12½ | 19 | 21,620 | 32,430 | |
| 1¾ | PAB10 | 14½ | 22 | 25,350 | 36,215 | 14 | 21 | 26,190 | 37,415 | | |
| | | 15 | 22½ | 26,690 | 40,035 | 14½ | 22 | 26,690 | 40,035 | | |

- Anchorage designs conform to ACI 318-14 and assume cracked concrete with no supplementary reinforcement.
- Seismic indicates Seismic Design Category C-F and designs comply with ACI 318-14, Section 17.2.3.4.
Per Section 1613 of the 2012/2015/2018/2021 IBC, detached one- and two-family dwellings in SDC C may use wind values.
- Wind includes Seismic Design Category A and B.
- Foundation dimensions are for anchorage only. Foundation design (size and reinforcement) by designer. The registered design professional may specify alternative embedment, footing size, and anchor bolt.
- Where tension loads are governed by anchor steel, the design provisions from AISC 360 are used to determine the tensile steel limit. LRFD values are calculated by multiplying the nominal AISC steel capacity by a 0.75 phi factor, and allowable values are calculated by dividing the AISC nominal capacity by a 2.0 omega factor.
- Where tension loads are governed by ACI 318 concrete limit, the Allowable Stress Design (ASD) values are obtained by multiplying Load Resistance Factor Design (LRFD) capacities by 0.7 for Seismic and by 0.6 for Wind.