

**PAB Pre-Assembled Anchor Bolt**

The PAB anchor bolt is a versatile new cast-in-place anchor bolt ideal for high-tension-load applications. 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 6" to 36" (in 1/2" increments)
- Available in standard and high-strength steel
- Head stamp contains the No Equal sign, diameter designation and an "HS" on high-strength rods

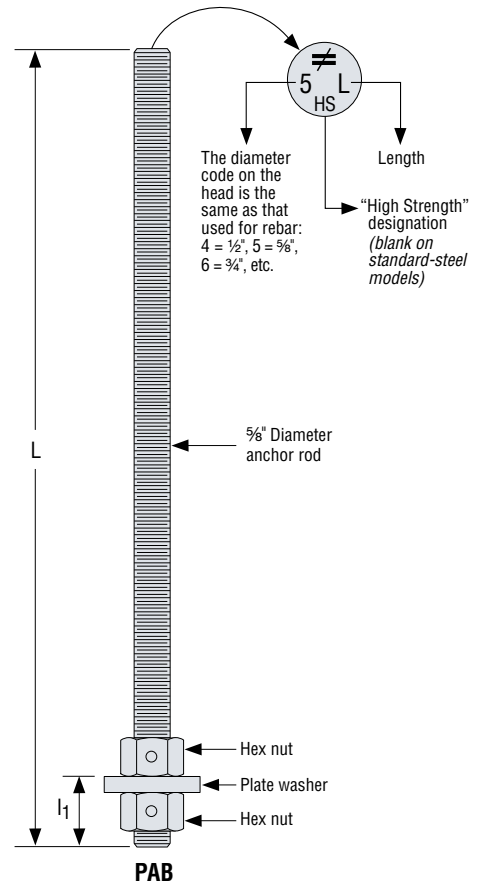
**MATERIAL:** Standard Steel –  $F_u = 58$  ksi  
High-Strength Steel (*up to 1" dia.*) –  $F_u = 120$  ksi  
High-Strength Steel (*1 1/8" and 1 1/4" dia.*) –  $F_u = 125$  ksi

**FINISH:** None

The Simpson Strong-Tie® Anchor Designer Software™ for ACI 318 analyzes and suggests anchor solutions using the ACI 318 Appendix D 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 Anchor Systems® 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.



Anchors

**PAB Anchor Bolt – Standard Steel**

| Diameter (in.) | Plate Washer Size (in.) | I <sub>1</sub> (in.) | Root Model No. | Length Range                      |
|----------------|-------------------------|----------------------|----------------|-----------------------------------|
| 1/2            | 1/4 x 1 1/4 x 1 1/4     | 1                    | PAB4-XX        | 6" to 36"<br>(in 1/2" increments) |
| 5/8            | 3/8 x 1 1/2 x 1 1/2     | 1 1/4                | PAB5-XX        |                                   |
| 3/4            | 3/8 x 2 x 2             | 1 3/8                | PAB6-XX        |                                   |
| 7/8            | 3/8 x 2 1/4 x 2 1/4     | 1 1/2                | PAB7-XX        |                                   |
| 1              | 3/8 x 2 1/2 x 2 1/2     | 1 5/8                | PAB8-XX        |                                   |
| 1 1/8          | 3/8 x 2 3/4 x 2 3/4     | 1 3/4                | PAB9-XX        |                                   |
| 1 1/4          | 1/2 x 3 x 3             | 2 1/2                | PAB10-XX       |                                   |

**How to specify and order:**

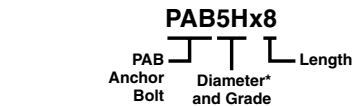
When calling out PAB anchor bolts, substitute the desired length for the "XX" in the Root Model Number.

So for a 5/8" x 16 1/2" anchor bolt, the model number would be PAB5-16.5 (or PAB5H-16.5 for high strength).

**PAB Anchor Bolt – High-Strength Steel**

| Diameter (in.) | Plate Washer Size (in.) | I <sub>1</sub> (in.) | Root Model No. | Length Range                      |
|----------------|-------------------------|----------------------|----------------|-----------------------------------|
| 1/2            | 1/4 x 1 1/4 x 1 1/4     | 1                    | PAB4H-XX       | 6" to 36"<br>(in 1/2" increments) |
| 5/8            | 3/8 x 1 1/2 x 1 1/2     | 1 1/4                | PAB5H-XX       |                                   |
| 3/4            | 3/8 x 2 x 2             | 1 3/8                | PAB6H-XX       |                                   |
| 7/8            | 3/8 x 2 1/4 x 2 1/4     | 1 1/2                | PAB7H-XX       |                                   |
| 1              | 3/8 x 2 1/2 x 2 1/2     | 1 5/8                | PAB8H-XX       |                                   |
| 1 1/8          | 3/8 x 2 3/4 x 2 3/4     | 1 3/4                | PAB9H-XX       |                                   |
| 1 1/4          | 1/2 x 3 x 3             | 2 1/2                | PAB10H-XX      |                                   |

**Naming Scheme:**



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

1. Plate washers are designed to develop the capacity of the bolt.

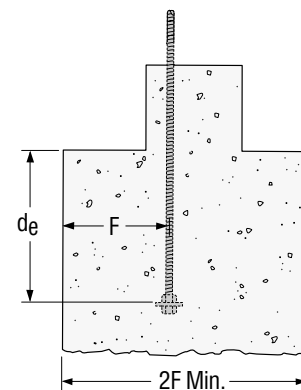
**PAB** Pre-Assembled Anchor Bolt

In addition to anchorage solutions provided by the SB and SSTB anchor bolts, the following table provides design options using the new PAB anchor bolts. These solutions may be used with Simpson Strong-Tie holdowns and are calculated per ACI 318 Appendix D. For special loads or footing geometries not addressed in the table below, the new PAB anchor bolts are also included in Simpson Strong-Tie Anchor Systems Anchor Designer ACI 318 software, which is available for download at [www.simpsonanchors.com](http://www.simpsonanchors.com).

**PAB ANCHOR BOLT ANCHORAGE SOLUTIONS**

| Design Criteria | Diameter | Anchor Bolt Model No. | 2500 psi Concrete |        |        |        | 3000 psi Concrete |        |        |        |
|-----------------|----------|-----------------------|-------------------|--------|--------|--------|-------------------|--------|--------|--------|
|                 |          |                       | $d_e$             | F      | ASD    | LRFD   | $d_e$             | F      | ASD    | LRFD   |
| Wind            | 5/8      | PAB5                  | 4                 | 6      | 4,200  | 6,720  | 4                 | 6      | 4,600  | 7,360  |
|                 |          |                       | 5                 | 7½     | 5,870  | 9,390  | 5                 | 7½     | 6,140  | 9,830  |
|                 | ¾        | PAB6                  | 5                 | 7½     | 5,870  | 9,390  | 5                 | 7½     | 6,430  | 10,290 |
|                 |          |                       | 6                 | 9      | 7,720  | 12,350 | 5                 | 7½     | 6,430  | 10,290 |
|                 | 7/8      | PAB7                  | 8                 | 12     | 11,880 | 19,010 | 7                 | 10½    | 10,650 | 17,040 |
|                 |          |                       | 10                | 15     | 16,600 | 26,560 | 10                | 15     | 18,190 | 29,100 |
|                 |          |                       | 14                | 28     | 25,970 | 41,560 | 13                | 26     | 25,970 | 41,560 |
|                 | 1        | PAB8                  | 8                 | 12     | 11,880 | 19,010 | 7                 | 10½    | 10,650 | 17,040 |
|                 |          |                       | 10                | 15     | 16,470 | 26,350 | 9                 | 13½    | 15,530 | 24,840 |
|                 |          | PAB8H                 | 11                | 16½    | 19,040 | 30,470 | 11                | 16½    | 20,860 | 33,380 |
|                 |          |                       | 16                | 24     | 34,070 | 54,520 | 15                | 22½    | 34,070 | 54,520 |
|                 | 1½       | PAB9                  | 6                 | 9      | 7,720  | 12,350 | 6                 | 9      | 8,450  | 13,520 |
|                 |          |                       | 9                 | 13½    | 14,180 | 22,680 | 9                 | 13½    | 15,530 | 24,840 |
|                 |          |                       | 11                | 16½    | 19,040 | 30,470 | 10                | 15     | 18,190 | 29,100 |
| 1¼              | PAB10    | 12                    | 24                | 22,010 | 35,220 | 11     | 16½               | 20,860 | 33,380 |        |
| Seismic         | 5/8      | PAB5                  | 7                 | 10½    | 6,870  | 9,830  | 6                 | 9      | 6,870  | 9,830  |
|                 | ¾        | PAB6                  | 9                 | 13½    | 10,170 | 14,550 | 8                 | 12     | 10,170 | 14,550 |
|                 | 7/8      | PAB7                  | 11                | 16½    | 14,050 | 20,090 | 10                | 15     | 14,050 | 20,090 |
|                 |          | PAB7H                 | 16                | 24     | 29,060 | 41,560 | 15                | 22½    | 29,060 | 41,560 |
|                 | 1        | PAB8                  | 12                | 18     | 18,430 | 26,350 | 12                | 18     | 18,430 | 26,350 |
|                 |          | PAB8H                 | 19                | 28½    | 38,120 | 54,520 | 18                | 27     | 38,120 | 54,520 |
|                 | 1½       | PAB9                  | 14                | 21     | 23,220 | 33,200 | 13                | 19½    | 23,220 | 33,200 |
|                 | 1¼       | PAB10                 | 16                | 24     | 29,480 | 42,160 | 16                | 24     | 29,480 | 42,160 |

1. Anchorage designs conform to ACI 318 Appendix D and assume cracked concrete with no supplementary reinforcement.
2. Seismic indicates Seismic Design Category C through F. Detached 1 and 2 family dwellings in SDC C may use wind anchorage solutions. Seismic anchorage designs conform to ACI 318-05 Section D3.3.4
3. Wind includes Seismic Design Category A and B.
4. Foundation dimensions are for anchorage only. Foundation design (size and reinforcement) by Designer. The registered design professional may specify alternate embedment, footing size, and anchor bolt.
5. Allowable Stress Design (ASD) values are obtained by dividing Load Resistance Factor Design (LRFD) capacities by 1.43 for Seismic and 1.6 for Wind.



**Anchor with Nut/Washer/Nut**

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