



# ICC-ES Evaluation Report ESR-2611

Reissued April 2023

This report is subject to renewal April 2024.

**DIVISION: 03 00 00—CONCRETE**  
**Section: 03 16 00—Concrete Anchors**

## REPORT HOLDER:

**SIMPSON STRONG-TIE COMPANY INC.**

## EVALUATION SUBJECT:

**SIMPSON STRONG-TIE® PROPRIETARY SSTB®  
SERIES AND SB SERIES CAST-IN-PLACE ANCHOR  
BOLTS**

## 1.0 EVALUATION SCOPE

### Compliance with the following codes:

- 2021, 2018, 2015, 2012 and 2009 *International Building Code®* (IBC)
- 2021, 2018, 2015, 2012 and 2009 *International Residential Code®* (IRC)

For evaluation for compliance with codes adopted by the Los Angeles Department of Building and Safety (LADBS), see [ESR-2611 LABC and LARC Supplement](#).

### Property evaluated:

Structural

## 2.0 USES

Simpson Strong-Tie® proprietary SSTB® series and SB series cast-in-place anchor bolts are used with light-frame wood and cold-formed steel construction to provide anchorage against uplift and overturning due to wind loads and seismic loads. The SSTB series and SB series cast-in-place anchor bolts are alternatives to cast-in-place anchors addressed in 2021, 2018 and 2015 IBC Section [1905](#) (2012 IBC Sections [1908](#) and [1909](#); 2009 IBC Sections [1911](#) and [1912](#)). For structures regulated under the IRC, the anchors may be used to meet the prescribed anchorage requirements and where an engineered design is submitted in accordance with Section [R301.1.3](#).

## 3.0 DESCRIPTION

### 3.1 General:

**3.1.1 SSTB Series Anchor Bolts:** The SSTB series cast-in-place anchor bolts are ductile steel anchors that transmit applied tension forces from light frame construction

into the concrete foundation stem-wall or concrete foundation. One end of the bolts has general-purpose, Unified National Coarse (UNC), rolled threads compliant with [ANSI/ASME B18.2.1](#), followed by a length of plain (unthreaded) bar where the manufacturer's identification is stamped onto the bar along with a stamped "embedment line" to facilitate the installation of the anchor with the required minimum embedment length,  $l_e$ , into the concrete foundation stem-wall or foundation to achieve the tabulated allowable tension loads. Below the stamped "embedment line" mark, the anchor is bent 6½ degrees. The S-shape embedded end of the SSTB anchor bolts develops a mechanical interlock with the surrounding concrete to achieve the tabulated allowable loads when transferring applied tension forces into normal-weight concrete foundation stem-walls or foundations. SSTB anchor bolts are available with standard and extended thread lengths. [Table 1](#) and [Table 3](#), and [Figures 1](#) through [5](#) and [11](#) through [19](#), provide product dimensions, installation details, minimum embedment lengths, and allowable tension loads. The SSTBL models (e.g., SSTB24L) have the same capacity and characteristic as the comparable SSTB models (e.g., SSTB24), except they have longer thread lengths. See footnote 8 to [Table 1](#) of this report.

**3.1.2 SB Series Anchor Bolts:** The SB Bolt series cast-in-place anchor bolts are ductile steel anchors that transmit applied tension forces into the concrete foundation stem-wall and concrete foundation. A mechanical interlock is formed between the hardened concrete and a factory-installed 3/8-inch-thick (9.5 mm) steel bearing plate (washer) held onto the end of the SB bolt with two hex head nuts, one having an indentation to prevent removal of the bearing plate. The SB anchor bolts have UNC rolled threads compliant with ANSI/ASME B18.2.1, a straight length of plain (unthreaded) bar where the stamped manufacturer's identification is located and a stamped "embedment line" to facilitate the installation of the anchor with the required minimum embedment length,  $l_e$ , into the concrete foundation stem-wall or concrete foundation to achieve the tabulated allowable tension loads. The bottom portion of the SB anchors has a large-radius bend, which provides increased concrete coverage for the steel bearing plate at the end of the anchors embedded in the concrete foundation stem-wall or concrete foundation. [Table 2](#) and [Table 4](#), and [Figures 6](#) through [10](#) and [20](#) through [28](#), provide product dimensions, installation details, minimum embedment lengths and allowable tension loads.

### 3.2 Material:

**3.2.1 Bolts:** The proprietary SSTB or SB anchor bolts described in this report are manufactured from steel complying with [ASTM F1554](#) Grade 36, with a minimum yield strength of 36,000 psi (248 MPa) and a minimum tensile strength of 58,000 psi (400 MPa). ASTM F1554 Grade 36 anchor bolts meet the definition of ductile steel elements in accordance with [ACI 318](#) Chapter 2 (ACI 318 Section D.1 for the 2012, 2009, and 2006 IBC). Some anchor bolts may also be available with batch hot-dipped galvanized coating and have an average minimum specified coating weight of 1.25 ounces of zinc per square foot of surface area (381 g/m<sup>2</sup>), in accordance with ASTM [A153](#) Class C. These anchors are denoted by model numbers ending with the letters HDG; model numbers in this report do not list the HDG ending, but the information shown applies.

Anchor bolts used in contact with preservative-treated or fire-retardant-treated lumber must comply with 2021 IBC Section [2304.10.6](#), 2018 and 2015 IBC Section [2304.10.5](#) (IBC Section [2304.9.5](#) for the 2012 or 2009 IBC); or IRC Section [R317.3](#), as applicable. The lumber treater, the report holder (Simpson Strong-Tie Company), or both, shall be contacted for recommendations on minimum corrosion resistance used with specific proprietary preservative-treated or fire-retardant-treated lumber.

**3.2.2 Nuts and Washers:** The end of each SB anchor bolt embedded in concrete has a factory-installed, <sup>3</sup>/<sub>8</sub>-inch-thick (9.5 mm), [ASTM A36](#) steel bearing plate (washer) sandwiched between two hex head nuts.

Nuts and washers, or transition couplers, used to connect an SSTB or SB anchor bolt to a hold-down device or threaded rod are not supplied with the anchor bolts. Hex head nuts and washers, or transition couplers must be specified by the report holder (Simpson Strong-Tie Company), the design professional, or both. Nuts and washers or transition couplers shall be of appropriate material, size, and coating to match the anchor bolt or attachment requirements.

**3.2.3 Concrete:** Concrete must be normal-weight concrete complying with the provisions of IBC [Chapter 19](#) or IRC Section [R402.2](#), as applicable. The design values in this report are based on a minimum specified concrete compressive strength,  $f'_c$ , of 2,500 psi (17.24 MPa).

**3.2.4 Steel Reinforcing Bars (Rebar):** Steel reinforcement must be minimum No. 4 deformed reinforcing bars complying with ACI 318.

## 4.0 DESIGN AND INSTALLATION

### 4.1 Design:

Applied loads (from engineered design) or prescribed loads (from the IRC) must not exceed the allowable loads shown in this report. [Tables 1](#) and [3](#) and [Tables 2](#) and [4](#) specify Allowable Stress Design (ASD) tension loads for, respectively, the SSTB and SB series cast-in-place anchor bolts. Allowable tension loads are shown for different anchor locations, as indicated in the tables, and for type of loading (seismic or wind). When the governing load combination includes seismic loads, the allowable (ASD) seismic load values shown in the tables must be converted to strength design (LRFD) load values for compliance with 2021, 2018 and 2015 IBC Section 1905, 2012 IBC Section 1909 or 2009 and 2006 IBC Section 1912. The procedure for converting tabulated allowable (ASD) load values to strength design (LRFD) load values is provided in the footnotes to the tables.

The first exception to IBC Section [1613.1](#) permits detached one- and two-family dwellings assigned to Seismic Design Category (SDC) A, B, or C to be exempt from the seismic design provisions of the code.

### 4.2 Installation:

Installation of the proprietary bolts must be in accordance with this evaluation report and the manufacturer's published installation instructions. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.

The SSTB and SB series cast-in-place anchor bolts must be installed in normal-weight concrete foundation walls or stem-walls having the minimum thickness shown in the tables, or in a monolithic concrete slab with integral footing with minimum dimensions shown in the tables. A horizontal cold joint is not allowed within the anchor's required minimum embedment depth, unless provisions are made to transfer the load.

Anchor bolts must be installed with the minimum embedment length,  $l_e$ , noted in the tables of this report. Each anchor bolt has a stamped embedment line to facilitate proper installation. Placement of the S-shaped end of the SSTB anchor bolts and the larger-radius bent end of the SB anchor bolt must be between 45 and 90 degrees relative to the edge of concrete foundation walls or stem-walls or foundation, except for corner and end-wall installations where it must be 45 degrees. Anchors must be installed with a minimum concrete edge to center of bolt distance of  $1\frac{3}{4}$  inches (44.5 mm) and a minimum end to center of bolt distance equal to the embedment length,  $l_e$ , to achieve the tabulated maximum allowable tension loads. [Tables 1](#) and [2](#) also provide allowable tension loads when the anchors are installed at reduced end distances and [Tables 3](#) and [4](#) provide allowable tension loads for installations in alternate footing configurations. Minimum anchor center-to-center spacing,  $S_{min}$ , must be three times the minimum required embedment length,  $l_e$ , that is,  $S_{min} = 3 \times l_e$ , for anchors acting in tension at the same time for each anchor to be assigned the tabulated maximum allowable tension load.

The tabulated allowable tension loads are based on anchors installed in concrete reinforced with a minimum of one No. 4 deformed steel reinforcing bar located within the potential concrete failure region at the top portion of the foundation wall where the proprietary anchor bolt is located. The No. 4 steel reinforcing bar must be installed from 3 to 5 inches (75.6 mm to 126 mm) from top of foundation, and centered within the concrete stem-wall or placed 3 to 4 inches (75.6 mm to 100.8 mm) from the edge of a monolithic concrete slab with integral footing. The No. 4 reinforcing bar is not required to be tied to the anchor bolt provided the reinforcing bar is installed at locations shown in the figures of this report and as described in the manufacturer's published installation instructions. The anchor bolts and the required No. 4 deformed steel reinforcing bar must be accurately placed and supported to preclude dislocation during placement of concrete.

When the foundation is reinforced structural concrete, the foundation rebar may be used in lieu of installing the No. 4 rebar previously described, provided the foundation rebar is located within the potential concrete failure region at the top portion of the foundation wall where the proprietary anchor bolt is placed.

When the foundation (footings and foundation walls) is permitted to consist of plain (unreinforced) structural concrete in accordance with IBC Section [1807](#), or IRC

[Chapter 4](#), installation of one No. 4 rebar is required within the potential concrete failure region at the top portion of the foundation wall where the proprietary anchor bolt is located, except the rebar need not be continuous throughout the foundation wall.

The rebar must have the minimum length and must be placed as shown in [Figures 2](#) and [7](#). The No. 4 reinforcing bar is not required for Slab-on-Grade Edge, Slab-on-Grade Garage Curb or Stem wall Garage Front Installations, as shown in [Figures 11](#) through [28](#).

#### 4.3 Special Inspection:

For installations under the IBC, special inspection shall be conducted as required under 2021 Section [1704.2](#), [1705.12](#) and [1705.13](#), 2018 and 2015 Sections [1704.2](#), [1705.11](#) and [1705.12](#) (2012 IBC Sections [1704.2](#), [1705.10](#) and [1705.11](#), and 2009 IBC Sections [1704.1](#), [1706](#) and [1707](#)), where the SSTB and SB anchor bolts are part of the main wind-force-resisting system or main seismic-force-resisting system, except where not required by 2021, 2018 and 2015 IBC Section 1704.2 (IBC 1704.1 for the 2009 IBC).

For installations under the IRC, special inspection is not normally required. However, for an engineered design where calculations are required to be signed by a registered design professional, the requirements of the IBC apply.

#### 5.0 CONDITIONS OF USE

The Simpson Strong-Tie SSTB Series and SB series cast-in-place anchor bolts 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 Proprietary bolt sizes, dimensions, minimum embedment depths, spacing and edge distances are as set forth in this report.

- 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 statutes of the jurisdiction in which the project is to be constructed.

- 5.3 Under the conditions noted in this report, the proprietary bolts are limited to resisting only tension forces.

- 5.4 Use of proprietary bolts with preservative- or fire-retardant-treated lumber must be in accordance with Section [3.2.1](#) of this report.

- 5.5 Special inspection is provided in accordance with Section 4.3 of this report.

#### 6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Cast-in-place Proprietary Bolts in Concrete for Light-frame Construction (AC399), dated February 2017 (editorially revised December 2020).

#### 7.0 IDENTIFICATION

- 7.1 The cast-in-place proprietary bolts described in this report are identified with the Simpson Strong-Tie Company trademark logo ("no equal" symbol, ≠), the model number length (for example, "16" for model SSTB16), and bolt orientation stamped onto the top of the bolt head. In addition, the evaluation report number (ESR-2611) must be on the carton or container.

- 7.2 The report holder's contact information is the following:

**SIMPSON STRONG-TIE COMPANY INC.**  
**5956 WEST LAS POSITAS BOULEVARD**  
**PLEASANTON, CALIFORNIA 94588**  
**(800) 999-5099**  
[www.strongtie.com](http://www.strongtie.com)

TABLE 1—ALLOWABLE STRESS DESIGN (ASD) LOADS FOR SSTB SERIES CAST-IN-PLACE ANCHOR BOLTS<sup>8</sup>

SSTB ANCHOR BOLT			INSTALLATION <sup>1,2</sup>		ALLOWABLE TENSION LOADS <sup>3,4,5</sup> (lbs.) BASED ON ANCHOR LOCATION:								
Model No.	Major Thread Dia. (in.)	Total Length (in.)	Min. Stem-Wall Width (in.)	Min. Anchor Embed., <i>l<sub>e</sub></i> (in.)	Continuous Concrete Foundation Stem Wall <sup>6</sup> (See Figure 3)			Corner of Concrete Foundation Stem Wall <sup>6</sup> (See Figure 4)			End of Concrete Foundation Stem Wall <sup>6</sup> (See Figure 5)		
					Seismic Design Categories		Wind	Seismic Design Categories		Wind	Seismic Design Categories		Wind
					A, B <sup>(7)</sup>	C <sup>(7)</sup> , D, E, F		A, B <sup>(7)</sup>	C <sup>(7)</sup> , D, E, F		A, B <sup>(7)</sup>	C <sup>(7)</sup> , D, E, F	
SSTB16	5/8	17 <sup>5</sup> / <sub>8</sub>	6	12 <sup>5</sup> / <sub>8</sub>	3,465	2,550	3,465	3,465	2,550	3,465	3,465	2,550	3,465
SSTB20		21 <sup>5</sup> / <sub>8</sub>		16 <sup>5</sup> / <sub>8</sub>	4,145	3,145	4,145	3,880	2,960	3,880	3,880	2,960	3,880
SSTB24		25 <sup>5</sup> / <sub>8</sub>		20 <sup>5</sup> / <sub>8</sub>	4,825	3,740	4,825	4,295	3,325	4,295	4,295	3,325	4,295
SSTB28	7/8	29 <sup>7</sup> / <sub>8</sub>	8	24 <sup>7</sup> / <sub>8</sub>	9,505	8,315	9,505	8,360	7,315	8,360	7,310	6,395	7,310
SSTB34		34 <sup>7</sup> / <sub>8</sub>		28 <sup>7</sup> / <sub>8</sub>	9,505	8,315	9,505	8,360	7,315	8,360	7,310	6,395	7,310
SSTB36		36 <sup>7</sup> / <sub>8</sub>		28 <sup>7</sup> / <sub>8</sub>	9,505	8,315	9,505	8,360	7,315	8,360	7,310	6,395	7,310

For SI: 1 in. = 25.4 mm, 1 lb. = 4.45 N, 1 psi = 6.895 kPa.

<sup>1</sup>Minimum specified concrete compressive strength,  $f'_c$  is 2,500 psi, unless required otherwise by 2021, 2018 and 2015 IBC Section 1904, 2012 IBC Section 1904.2, or 2009 IBC Section 1904.3, or IRC Section R402.2, as applicable.

<sup>2</sup>Allowable loads for all installations are based on minimum edge distance of 1<sup>3</sup>/<sub>4</sub> inches (measured from the edge of the concrete to the centerline of the SSTB anchor bolt).

<sup>3</sup>One No. 4 rebar must be installed in the breakout zone of the concrete foundation stem-wall where the SSTB anchor is located. Typically, providing one No. 4 rebar located from 3 to 5 inches from the top of the stem wall is adequate. May be foundation rebar; not post-tensioned cable.

<sup>4</sup>Minimum center-to-center spacing is 3 times the required anchor embedment ( $S_{min} = 3 \times l_e$ ) for SSTB bolts acting in tension simultaneously for the tabulated tension load assigned to each anchor.

<sup>5</sup>For compliance with 2021, 2018 and 2015 IBC Section 1905, 2012 IBC Section 1909 or 2009 IBC Section 1912, the allowable (ASD) seismic or wind loads must be converted to strength design (LRFD) load values by multiplying the tabulated Allowable Stress Design (ASD) load values by 1.43 or 1.67, respectively. The tabulated ASD loads are adjusted nominal strength values and include a strength reduction factor,  $\Phi$ , for tension (uplift) loads. Consequently, when using the load combinations of 2021 IBC Section 1605.1, 2018, 2015 and 2012 IBC Section 1605.2 or 2009 IBC Section 1605.2.1, it is not necessary to apply a strength reduction factor,  $\Phi$ , because it is already incorporated into the derived strength design (LRFD) load values.

<sup>6</sup>Tabulated allowable tension loads shown in the table for SSTB anchor bolts installed at corner and end of concrete foundation stem walls are based on a minimum end distance of 5 inches from the centerline of the anchor bolt to the end of the concrete foundation stem wall. See Figures 4 and 5. Allowable tension loads under the header "Continuous Concrete Foundation Stem-Wall" are used when the SSTB anchor is installed 1.5  $\times l_e$  or greater from the end. For this condition, terminate rebar at the end of the stem wall with concrete clear cover as required by ACI 318 or if a stem wall return exists, extend rebar into return similar to Figure 4.

<sup>7</sup>According to the first exception to IBC Section 1613.1, detached one- and two-family dwellings assigned to Seismic Design Category (SDC) A, B, or C are exempt from the seismic design provisions of IBC Section 1613. When this is the case, the allowable wind loads assigned to the SSTB anchor bolts may be used.

<sup>8</sup>For SSTBL models, longer thread lengths are: 16L = 5<sup>1</sup>/<sub>2</sub> inches; 20L = 6 inches; 24L = 6<sup>1</sup>/<sub>2</sub> inches; 28L = 6<sup>1</sup>/<sub>2</sub> inches.

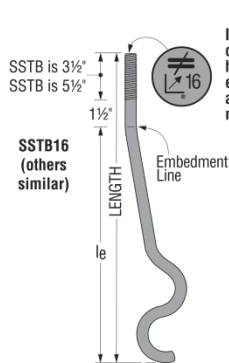


FIGURE 1—TYPICAL SSTB ANCHOR BOLT  
(Identification on Bolt Top, Req'd Embedment,  $l_e$ )

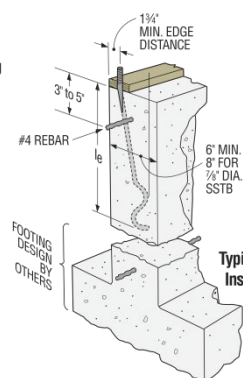


FIGURE 2—TYPICAL SSTB ANCHOR BOLT INSTALLATION  
(No. 4 Rebar in Breakout Zone, Min. 1<sup>3</sup>/<sub>4</sub>" Edge Distance)

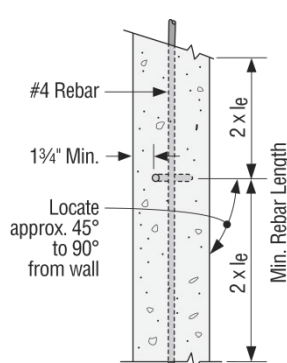


FIGURE 3—SSTB ANCHOR BOLT INSTALLATION—ALONG CONTINUOUS STEM WALL  
(No. 4 Rebar Min. Length =  $4 \times l_e$ , Min. 1<sup>3</sup>/<sub>4</sub>" Edge Distance)

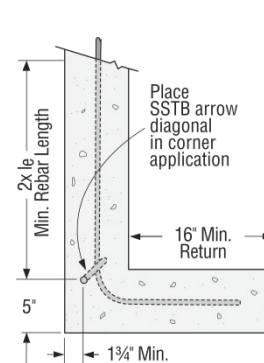


FIGURE 4—SSTB ANCHOR BOLT INSTALLATION—CORNER OF STEM WALL  
(Min. 16" Return Stem Wall, Min. 5" End Distance)

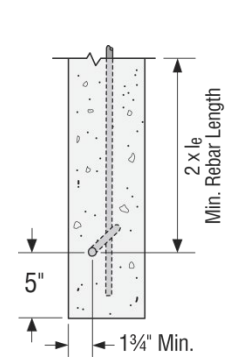


FIGURE 5—SSTB ANCHOR BOLT INSTALLATION—END OF STEM WALL  
(Min. 5" End Distance, and No. 4 Rebar Min. Length)

TABLE 2—ALLOWABLE STRESS DESIGN (ASD) LOADS FOR SB SERIES CAST-IN-PLACE ANCHOR BOLTS

SB ANCHOR BOLT				INSTALLATION <sup>1,2</sup>		ALLOWABLE TENSION LOADS <sup>3,4,5</sup> (lbs.) BASED ON ANCHOR LOCATION:								
Model No.	Major Thread Dia. (in.)	Thread Length (in.)	Total Length (in.)	Min. Stem-Wall Width (in.)	Min. Anchor Embed. $l_e$ (in.)	Continuous Concrete Foundation Stem Wall <sup>6</sup>			Corner of Concrete Foundation Stem Wall <sup>6</sup>			End of Concrete Foundation Stem Wall <sup>6</sup>		
						Seismic Design Categories <sup>7</sup>		Wind	Seismic Design Categories		Wind	Seismic Design Categories		Wind
						A, B <sup>(8)</sup>	C <sup>(8)</sup> , D, E, F		A, B <sup>(8)</sup>	C <sup>(8)</sup> , D, E, F		A, B <sup>(8)</sup>	C <sup>(8)</sup> , D, E, F	
SB5/8x24	5/8	6	24	6	18	6,675	6,675	6,675	6,550	5,730	6,550	6,550	5,730	6,550
SB7/8x24 <sup>(8)</sup>	7/8	6	24	8	18	10,055	8,795	10,055	8,980	7,855	8,980	6,550	5,730	6,550
SB1x30	1	6	30	8	24	13,110	11,470	13,110	9,595	8,315	9,505	6,930	6,065	6,930

For **SI**: 1 inch = 25.4 mm, 1 lb. = 4.45 N, 1 psi = 6.895 kPa.

<sup>1</sup>Minimum specified concrete compressive strength,  $f'_c$  is 2,500 psi, unless required otherwise by 2021, 2018 and 2015 IBC Section 1904, 2012 IBC Section 1904.2, or 2009 IBC Section 1904.3, or IRC Section 402.2, as applicable.

<sup>2</sup>Allowable loads for all installations are based on minimum edge distance of  $1\frac{3}{4}$  inches (measured from the edge of the concrete to the centerline of the SB anchor bolt).

<sup>3</sup>One No. 4 rebar must be installed in the breakout zone of the concrete foundation stem-wall where the SB anchor is located. Typically, providing one No. 4 rebar located from 3 to 5 inches from the top of the stem wall is adequate. May be foundation rebar; not post-tensioned cable.

<sup>4</sup>Minimum center-to-center spacing is 3 times the required anchor embedment ( $S_{min} = 3 \times l_e$ ) for SB bolts acting in tension simultaneously for the tabulated tension load assigned to each anchor.

<sup>5</sup>For compliance with 2021, 2018 and 2015 IBC Section 1905, 2012 IBC Section 1909 or 2009 IBC Section 1912, the allowable (ASD) seismic or wind loads must be converted to strength design (LRFD) load values by multiplying the tabulated Allowable Stress Design (ASD) load values by 1.43 or 1.67, respectively. The tabulated ASD loads are adjusted nominal strength values and include a strength reduction factor,  $\Phi$ , for tension (uplift) loads. Consequently, when using the load combinations of 2021 IBC Section 1605.1, 2018, 2015 and 2012 IBC Section 1605.2 or 2009 IBC Section 1605.2.1, it is not necessary to apply a strength reduction factor,  $\Phi$ , because it is already incorporated into the derived design (LRFD) load values.

<sup>6</sup>Tabulated allowable loads for end of stem wall and corner installations are based on a minimum end distance of  $4\frac{1}{2}$  inches for SB7/8, and 5 inches for SB1 from the end of the wall. See Figures 9 and 10. Allowable tension loads under the header "Continuous Concrete Foundation Stem-Wall" are used when the SB anchor is installed  $1.5 \times l_e$  or greater from the end. For this condition, terminate rebar at the end of the stem wall with concrete clear cover as required by ACI 318 or if a stem wall return exists, extend rebar into return similar to Figure 9.

<sup>7</sup>For SB7/8x24 installed in concrete having a minimum specified compressive strength of 3,000 psi, the seismic values listed under the column "Continuous Concrete Foundation Stem Wall" may be adjusted: Allowable Load for SDC A, B = 11,205 lb and SDC C, D, E, and F = 9,415 lbs.

<sup>8</sup>According to the first exception to IBC Section 1613.1, detached one- and two-family dwellings assigned to Seismic Design Category (SDC) A, B, or C are exempt from the seismic design provisions of IBC Section 1613. When this is the case, the allowable wind loads assigned to the SB anchor bolts may be used.

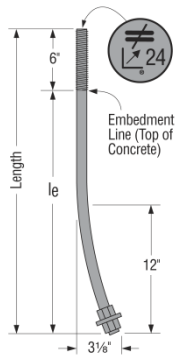
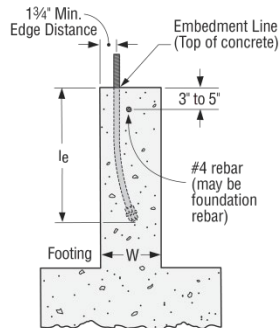


FIGURE 6—TYPICAL SB ANCHOR BOLT



Typical SB Installation

FIGURE 7—SB ANCHOR BOLT—TYPICAL INSTALLATION

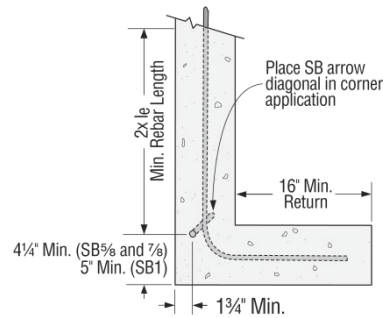


FIGURE 8—SB ANCHOR BOLT INSTALLATION—CONTINUOUS STEM WALL

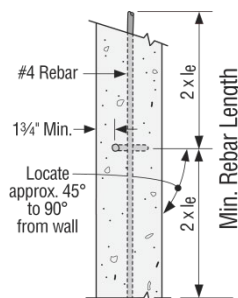


FIGURE 9—SB ANCHOR BOLT INSTALLATION—CORNER OF STEM WALL

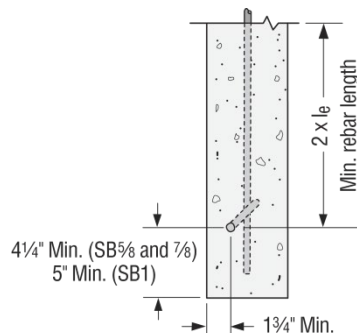
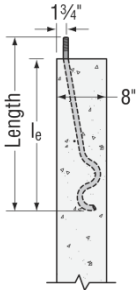


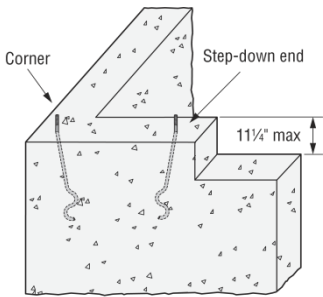
FIGURE 10—SB ANCHOR BOLT INSTALLATION—END OF STEM WALL

TABLE 3—ALLOWABLE STRESS DESIGN (ASD) LOADS FOR SSTB ADDITIONAL INSTALLATIONS<sup>1,2,3</sup>

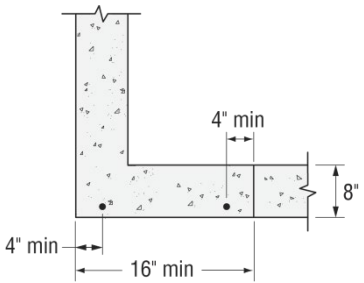
SSTB BOLTS AT STEMWALL: GARAGE FRONT (See Figures 11, 12, and 13)								
Model No.	Dimensions (in.)				Allowable Tension Loads (lbs.)			
	Stemwall Width	Dia.	Length	Min. Embed. ( $l_e$ )	Wind & SDC A&B		SDC C - F	
					Step-down End	Corner	Step-down End	Corner
SSTB28	8	$\frac{7}{8}$	$29\frac{7}{8}$	$24\frac{7}{8}$	6,735	6,765	5,895	5,920



**FIGURE 11—STEMWALL GARAGE FRONT**

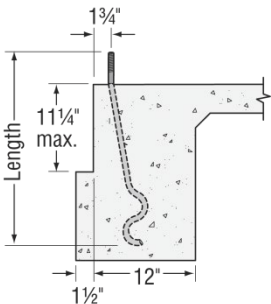


**FIGURE 12—PERSPECTIVE VIEW**

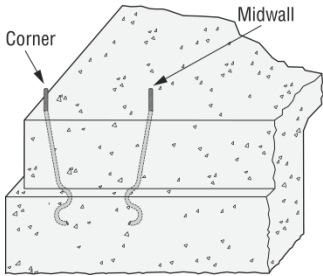


**FIGURE 13—PLAN VIEW**

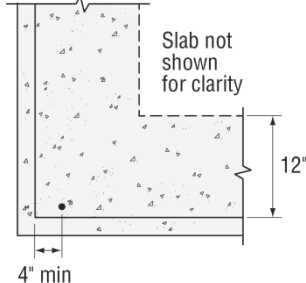
SSTB BOLTS AT SLAB ON GRADE: EDGE (See Figures 14, 15, and 16)								
Model No.	Dimensions (in.)				Allowable Tension Loads (lbs.)			
	Footing Width	Dia.	Length	Min. Embed. ( $l_e$ )	Wind & SDC A&B		SDC C - F	
					Midwall	Corner	Midwall	Corner
SSTB16	12	$\frac{5}{8}$	$17\frac{5}{8}$	$12\frac{5}{8}$	5,140	5,140	3,780	3,780
SSTB20	12	$\frac{5}{8}$	$21\frac{5}{8}$	$16\frac{5}{8}$	6,285	6,285	4,785	4,785
SSTB24	12	$\frac{5}{8}$	$25\frac{5}{8}$	$20\frac{5}{8}$	6,675	6,675	5,790	5,790
SSTB28	12	$\frac{7}{8}$	$29\frac{7}{8}$	$24\frac{7}{8}$	12,640	13,080	11,060	11,645
SSTB34	12	$\frac{7}{8}$	$34\frac{7}{8}$	$28\frac{7}{8}$	12,640	13,080	11,060	11,645
SSTB36	12	$\frac{7}{8}$	$36\frac{7}{8}$	$28\frac{7}{8}$	12,640	13,080	11,060	11,645



**FIGURE 14—SLAB EDGE**

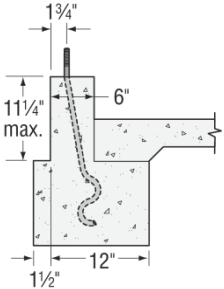


**FIGURE 15—PERSPECTIVE VIEW**

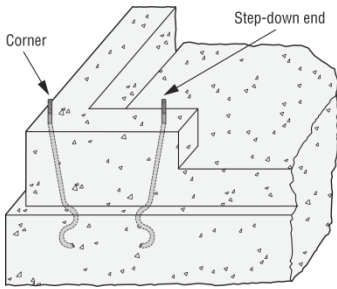


**FIGURE 16—PLAN VIEW**

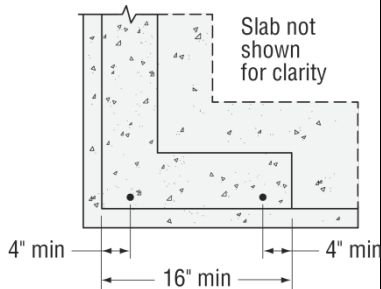
SSTB BOLTS AT SLAB ON GRADE: GARAGE CURB (See Figures 17, 18, and 19)								
Model No.	Dimensions (in.)				Allowable Tension Loads (lbs.)			
	Curb Width	Dia.	Length	Min. Embed. ( $l_e$ )	Wind & SDC A&B		SDC C - F	
					Step-down End	Corner	Step-down End	Corner
SSTB28	6	$\frac{7}{8}$	$29\frac{7}{8}$	$24\frac{7}{8}$	9,685	11,880	8,475	10,395



**FIGURE 17—SLAB GARAGE CURB**



**FIGURE 18—PERSPECTIVE VIEW**



**FIGURE 19—PLAN VIEW**

For SI: 1 inch = 25.4 mm, 1 pound = 4.45 N, 1 psi = 6.895 kPa.

<sup>1</sup>Unless noted otherwise, see footnotes 1, 2, 4, 5, 7 and 8 under [Table 1](#).

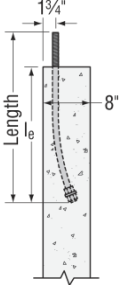
<sup>2</sup>Top #4 rebar not required.

<sup>3</sup>Midwall loads apply when the anchor is 1.5  $l_e$  or greater from the end. For bolts acting in tension simultaneously, minimum bolt center-to-center spacing is 3  $l_e$ .

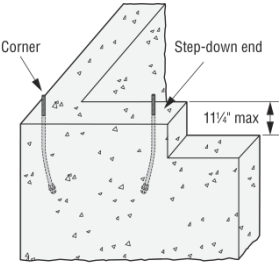
TABLE 4—ALLOWABLE STRESS DESIGN (ASD) LOADS FOR SB ADDITIONAL INSTALLATIONS<sup>1,2,3</sup>

SB BOLTS AT STEMWALL: GARAGE FRONT (See Figures 20, 21, and 22)								
Model No.	Dimensions (in.)				Allowable Tension Loads (lbs.)			
	Stemwall Width	Dia.	Length	Min. Embed. ( $l_e$ )	Wind & SDC A&B		SDC C - F	
					Step-down End	Corner	Step-down End	Corner
SB7/8x24	8	7/8	24	18	6,935	7,355	6,070	6,435
SB1x30	8	1	30	24	10,850	9,400	9,495	8,030

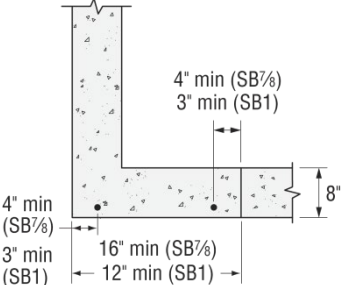
  



**FIGURE 20—STEMWALL GARAGE FRONT**



**FIGURE 21—PERSPECTIVE VIEW**

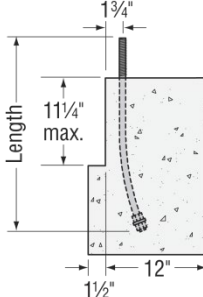


**FIGURE 22—PLAN VIEW**

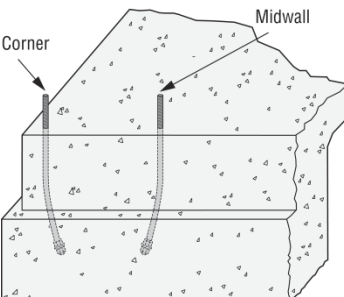
  

SB BOLTS AT SLAB ON GRADE: EDGE (See Figures 23, 24, and 25)								
Model No.	Dimensions (in.)				Allowable Tension Loads (lbs.)			
	Footing Width	Dia.	Length	Min. Embed. ( $l_e$ )	Wind & SDC A&B		SDC C - F	
					Midwall	Corner	Midwall	Corner
SB5/8x24	12	5/8	24	18	6,675	6,550	6,675	5,730
SB7/8x24	12	7/8	24	18	13,080	11,650	12,320	10,190
SB1x30	12	1	30	24	17,080	14,960	16,300	13,090

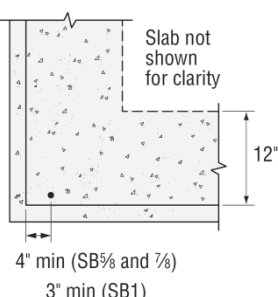
  



**FIGURE 23—SLAB EDGE**



**FIGURE 24—PERSPECTIVE VIEW**

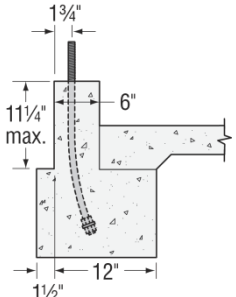


**FIGURE 25—PLAN VIEW**

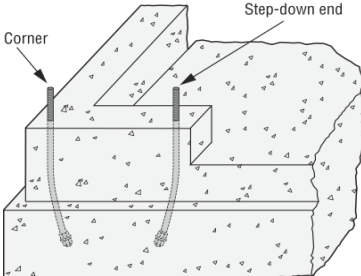
  

SB BOLTS AT SLAB ON GRADE: GARAGE CURB (See Figures 26, 27, and 28)								
Model No.	Dimensions (in.)				Allowable Tension Loads (lbs.)			
	Curb Width	Dia.	Length	Min. Embed. ( $l_e$ )	Wind & SDC A&B		SDC C - F	
					Step-down End	Corner	Step-down End	Corner
SB7/8x24	6	7/8	24	18	8,805	10,635	7,705	9,305
SB1x30	6	1	30	24	14,960	14,960	13,090	13,090

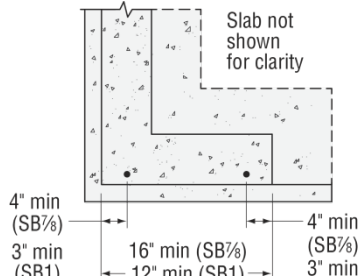
  



**FIGURE 26—SLAB GARAGE CURB**



**FIGURE 27—PERSPECTIVE VIEW**



**FIGURE 28—PLAN VIEW**

For SI: 1 inch = 25.4 mm, 1 pound = 4.45 N, 1 psi = 6.895 kPa.

<sup>1</sup>Unless noted otherwise, see footnotes 1, 2, 4, 5, and 8 under [Table 2](#).

<sup>2</sup>Top #4 rebar not required.

<sup>3</sup>Midwall loads apply when the anchor is 1.5  $l_e$  or greater from the end. For bolts acting in tension simultaneously, minimum bolt center-to-center spacing is 3  $l_e$ .

DIVISION: 03 00 00—CONCRETE  
Section: 03 16 00—Concrete Anchors

**REPORT HOLDER:**

SIMPSON STRONG-TIE COMPANY INC.

**EVALUATION SUBJECT:**

SIMPSON STRONG-TIE® PROPRIETARY SSTB® SERIES AND SB SERIES CAST-IN-PLACE ANCHOR BOLTS

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that Simpson Strong-Tie Proprietary SSTB® Series and SB Series Cast-In-Place Anchor Bolts, described in ICC-ES evaluation report [ESR-2611](#), have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

**Applicable code editions:**

- 2023 *City of Los Angeles Building Code* (LABC)
- 2023 *City of Los Angeles Residential Code* (LARC)

**2.0 CONCLUSIONS**

The Simpson Strong-Tie Proprietary SSTB® Series and SB Series Cast-In-Place Anchor Bolts, described in Sections 2.0 through 7.0 of the evaluation report [ESR-2611](#), comply with the LABC Chapter 19, and the LARC, and are subjected to the conditions of use described in this supplement.

**3.0 CONDITIONS OF USE**

The Simpson Strong-Tie Proprietary SSTB® Series and SB Series Cast-In-Place Anchor Bolts, described in this evaluation report supplement, must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-2611](#).
- The design, installation, conditions of use and labeling are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report [ESR-2611](#).
- The tabulated allowable loads in the evaluation report [ESR-2611](#) must not be increased for duration of loading.
- The design, installation and inspection are in accordance with additional requirements of LABC Chapter 16 and 17, as applicable.
- Under the LARC, an engineered design in accordance with LARC Section R301.1.3 must be submitted.

This supplement expires concurrently with the evaluation report, reissued April 2023.

**DIVISION: 03 00 00—CONCRETE**  
**Section: 03 16 00—Concrete Anchors**

**REPORT HOLDER:**

**SIMPSON STRONG-TIE COMPANY, INC**

**EVALUATION SUBJECT:**

**SIMPSON STRONG-TIE® PROPRIETARY SSTB® SERIES AND SB SERIES CAST-IN-PLACE ANCHOR BOLTS**

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that Simpson Strong-Tie® Proprietary SSTB® Series and SB Series Cast-In-Place Anchor Bolts, described in ICC-ES evaluation report ESR-2611, have also been evaluated for compliance with the codes noted below.

**Applicable code editions:**

- 2023 *Florida Building Code—Building*
- 2023 *Florida Building Code—Residential*

**2.0 CONCLUSIONS**

The Simpson Strong-Tie® proprietary SSTB® Series and SB Series Cast-In-Place Anchor Bolts, described in Sections 2.0 through 7.0 of the evaluation report ESR-2611, comply with the *Florida Building Code—Building*, and the *Florida Building Code—Residential*. The design requirements must be determined in accordance with the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable. The installation requirements noted in ICC-ES evaluation report ESR-2611 for the 2021 *International Building Code*® meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable.

Use of the Simpson Strong-Tie® Proprietary SSTB® Series and SB Series Cast-In-Place Anchor Bolts has also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building*, and the *Florida Building Code—Residential* with the following condition:

- a. For connections subject to uplift, the connection must be designed for no less than 700 pounds (3,114 N).

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued April 2023.