Standard Application on Concrete Foundations

Simpson Strong-Tie® Steel Strong-Wall® shearwalls provide superior performance, design flexibility and ease of installation. All Steel Strong-Wall shearwalls are evaluated to the 2018 IRC/IBC and are listed by ICC-ES.

Material: Vertical Panel—10 gauge

Finish: Vertical Panel—Galvanized
Top and Base Plates—Simpson Strong-Tie gray paint

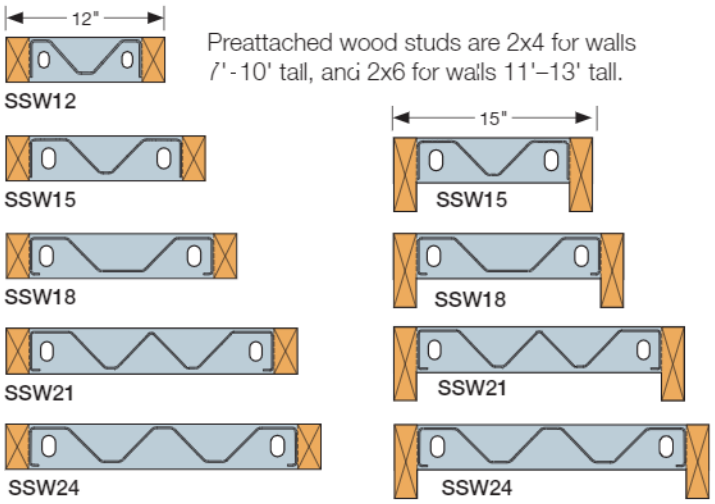
Codes: ICC-ES ESR-1679;
City of LA Building Code Supplement
State of Florida FL5113

Naming Legend

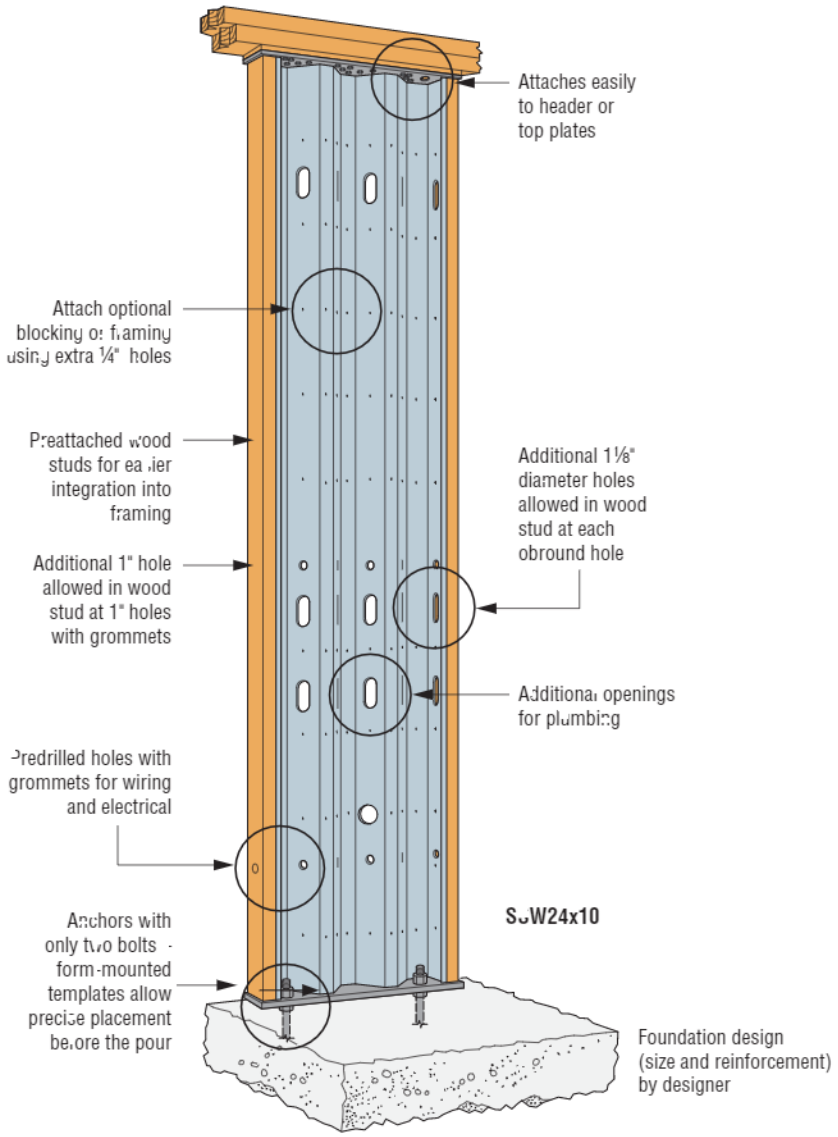
SSW24x8

- Steel Strong-Wall
- Width (in.)
- Nominal Height (ft.)

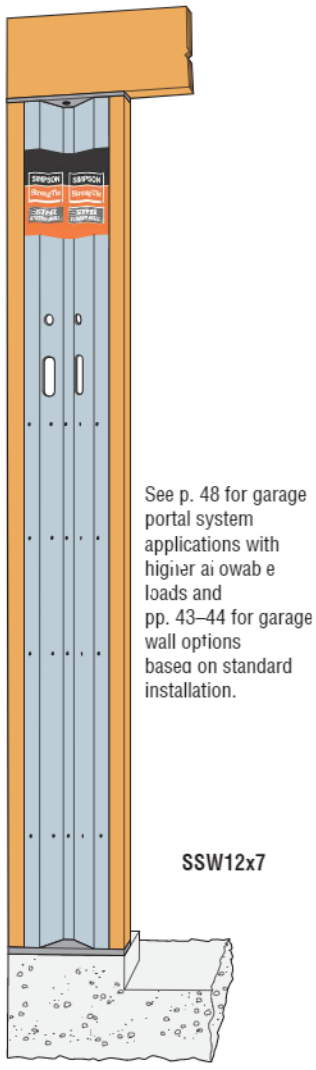
Wall Profiles



Preattached wood studs are 2x4 for walls 7'-10' tall, and 2x6 for walls 11'–13' tall.



Standard Installation
US Patent 8,281,551
Canadian Patent 2,489,845



See p. 48 for garage portal system applications with higher allowable loads and pp. 43–44 for garage wall options based on standard installation.

Garage Installation
US Patent 8,281,551
Canadian Patent 2,489,845

Standard Application on Concrete Foundations

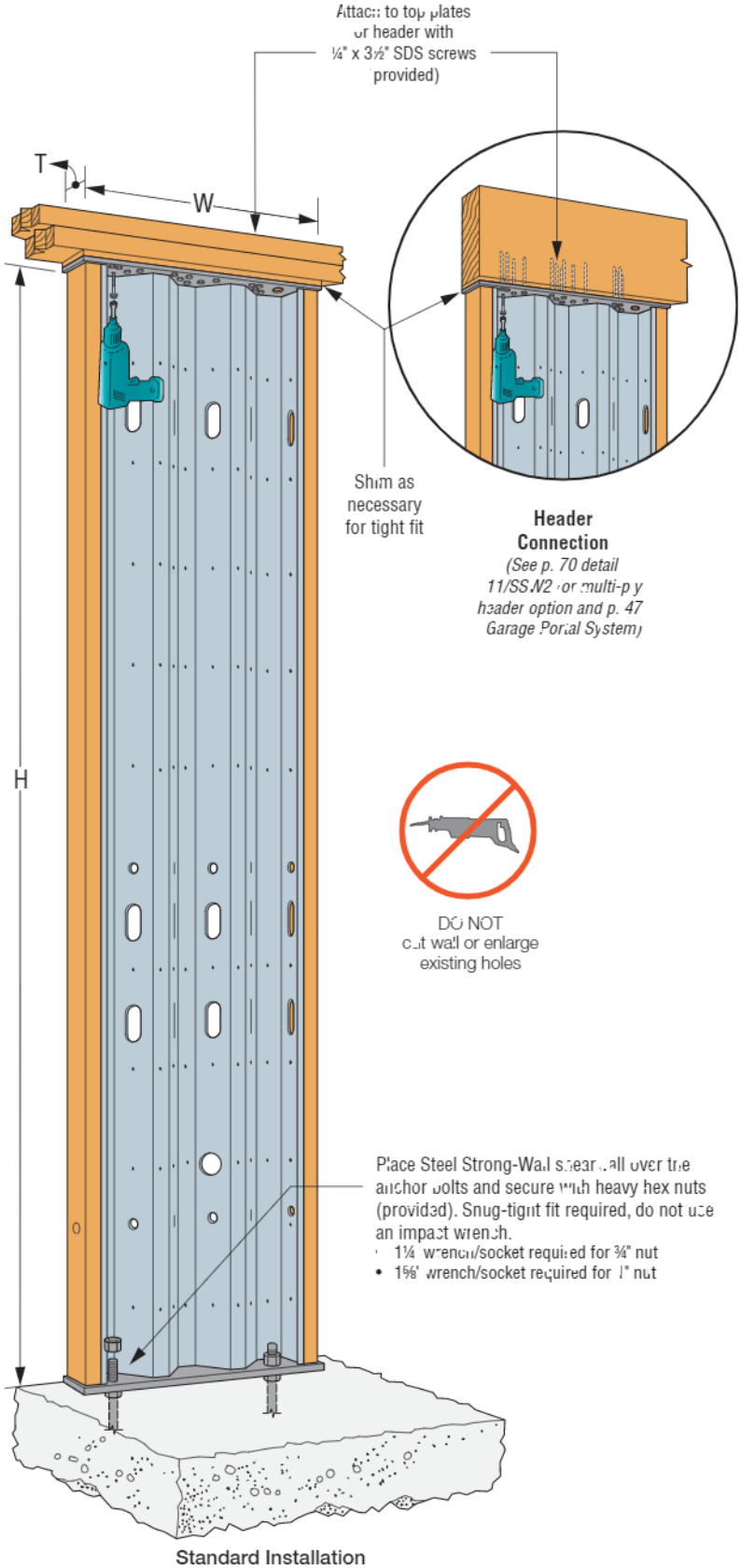
SIMPSON Strong-Tie

Installation Information

- Do not cut the Steel Strong-Wall® or enlarge existing holes. Doing so will compromise the performance of the wall.
- Do not use an impact wrench to tighten nuts on the anchor bolts.
- Maximum shim thickness between the Steel Strong-Wall and top plates or header is ¾" using Simpson Strong-Tie® Strong-Drive® ¼" x 3½" SDS Heavy-Duty Connector screws. For top of wall height adjustment, see detail 5/SSW2 on p. 69
- Walls with 2x4 preattached studs may also be used in 2x6 or 2x8 wall framing. Install the wall flush to one face of the framing and add furring to the opposite side.
- Walls may be installed with solid or multi-ply headers, see detail 11/SSW2 on p. 70 for details.

Steel Strong-Wall® Product Data

Model No.	W (in.)	H (in.)	T (in.)	Anchor Bolts		Number of Screws in Top of Wall	Total Wall Weight (lb.)
				Qty.	Dia. (in.)		
SSW12x7	12	80	3½	2	¾	4	74
SSW15x7	15	80	3½	2	1	6	86
SSW18x7	18	80	3½	2	1	9	99
SSW21x7	21	80	3½	2	1	12	117
SSW24x7	24	80	3½	2	1	14	127
SSW12x7 4	12	85½	3½	2	¾	4	76
SSW15x7 4	15	85½	3½	2	1	6	91
SSW18x7 4	18	85½	3½	2	1	9	104
SSW21x7 4	21	85½	3½	2	1	12	122
SSW24x7 4	24	85½	3½	2	1	14	134
SSW12x8	12	93¼	3½	2	¾	4	85
SSW15x8	15	93¼	3½	2	1	6	99
SSW18x8	18	93¼	3½	2	1	9	113
SSW21x8	21	93¼	3½	2	1	12	132
SSW24x8	24	93¼	3½	2	1	14	144
SSW12x9	12	105¼	3½	2	¾	4	94
SSW15x9	15	105¼	3½	2	1	6	110
SSW18x9	18	105¼	3½	2	1	9	125
SSW21x9	21	105¼	3½	2	1	12	147
SSW24x9	24	105¼	3½	2	1	14	160
SSW12x10	12	117¼	3½	2	¾	4	104
SSW15x10	15	117¼	3½	2	1	6	121
SSW18x10	18	117¼	3½	2	1	9	138
SSW21x10	21	117¼	3½	2	1	12	162
SSW24x10	24	117¼	3½	2	1	14	177
SSW15x11	15	129¼	5½	2	1	6	148
SSW18x11	18	129¼	5½	2	1	9	167
SSW21x11	21	129¼	5½	2	1	12	193
SSW24x11	24	129¼	5½	2	1	14	209
SSW15x12	15	141¼	5½	2	1	6	160
SSW18x12	18	141¼	5½	2	1	9	180
SSW21x12	21	141¼	5½	2	1	12	206
SSW24x12	24	141¼	5½	2	1	14	225
SSW18x13	18	153¼	5½	2	1	9	194
SSW21x13	21	153¼	5½	2	1	12	224
SSW24x13	24	153¼	5½	2	1	14	243



Header Connection
(See p. 70 detail 11/SSW2 for multi-ply header option and p. 47 Garage Portal System)

Standard Installation
US Patent 8,281,551
Canadian Patent 2,489,845

Standard Application on Concrete Foundations

Model No.	Allowable Axial Load (lb.)	Seismic[2]			Wind		
		Allowable ASD Shear Load V (lb.)	Drift at Allowable Shear (in.)	Anchor Tension at Allowable Shear[5] (lb.)	Allowable ASD Shear Load V (lb.)	Drift at Allowable Shear (in.)	Anchor Tension at Allowable Shear[5] (lb.)
SSW12x7	1 000	955	0.36	9 840	1,215	0.46	13 620
	4,000	955	0.36	9,840	1,095	0.42	11,765
	7,500	890	0.34	9,010	890	0.34	9,010
SSW15x7	1 000	1 855	0.36	15 655	1 860	0.36	15,715
	4,000	1,665	0.33	13,550	1,665	0.33	13,550
	7,500	1,445	0.28	11,340	1,445	0.28	11,340
SSW18x7	1,000	2,905	0.34	19,660	3 480	0.41	25 805
	4,000	2,905	0.34	19,660	3,250	0.38	23,135
	7,500	2,905	0.34	19,660	2,980	0.35	20,370
SSW21x7	1 000	4 200	0.32	23 755	4,440	0.34	25 710
	4,000	4,200	0.32	23,755	4,440	0.34	25,710
	7,500	4,200	0.32	23,755	4,310	0.33	24,635
SSW24x7	1 000	5 495	0.29	26 270	5 730	0.31	27,835
	4,000	5,495	0.29	26,270	5,730	0.31	27,835
	7,500	5,495	0.29	26,270	5,730	0.31	27,835
SSW12x7.4	1,000	870	0.39	9,515	1 105	0.49	13 070
	4,000	870	0.39	9,515	970	0.43	10,940
	7,500	750	0.33	7,940	750	0.33	7 940
SSW15x7.4	1 000	1 685	0.39	15 035	1,700	0.39	15 215
	4,000	1,500	0.34	12,905	1,500	0.34	12,905
	7,500	1,270	0.29	10,510	1,270	0.29	10,510
SSW18x7.4	1 000	2 700	0.37	19 475	3 255	0.44	25,790
	4,000	2,700	0.37	19,475	3,040	0.42	23,125
	7,500	2,700	0.37	19,475	2,790	0.38	20,390
SSW21x7.4	1,000	3,890	0.35	23,420	4 230	0.38	26 405
	4,000	3,890	0.35	23,420	4,230	0.38	26,405
	7,500	3,890	0.35	23,420	4,035	0.36	24,655
SSW24x7.4	1 000	5 330	0.34	27 610	5,450	0.34	28 485
	4,000	5,330	0.34	27,610	5,450	0.34	28,485
	7,500	5,330	0.34	27,610	5,450	0.34	28,485
SSW12x8	1 000	775	0.42	9 180	985	0.53	12,560
	4,000	775	0.42	9,180	865	0.47	10,550
	7,500	665	0.36	7,630	665	0.36	7 630
SSW15x8	1,000	1,505	0.42	14,515	1 530	0.43	14 835
	4,000	1,345	0.37	12,545	1,345	0.37	12,545
	7,500	1,135	0.32	10,190	1,135	0.32	10,190
SSW18x8	1 000	2 480	0.41	19 525	2,985	0.50	25 795
	4,000	2,480	0.41	19,525	2,790	0.47	23,160
	7,500	2,480	0.41	19,525	2,560	0.43	20,410
SSW21x8	1 000	3 560	0.39	23 360	3 960	0.43	27,240
	4,000	3,560	0.39	23,360	3,960	0.43	27,240
	7,500	3,560	0.39	23,360	3,700	0.41	24,660
SSW24x8	1,000	4,865	0.37	27,435	5 105	0.39	29 370
	4,000	4,865	0.37	27,435	5,105	0.39	29,370
	7,500	4,865	0.37	27,435	5,055	0.39	28,960
SSW12x9	1 000	660	0.47	8 745	840	0.60	11 915
	4,000	660	0.47	8,745	705	0.50	9 485
	7,500	505	0.36	6,380	505	0.36	6,380
SSW15x9	1 000	1 315	0.45	14 250	1 315	0.47	14,250
	4,000	1,130	0.38	11,740	1,130	0.40	11,740
	7,500	925	0.31	9,235	925	0.33	9 235
SSW18x9	1,000	2,145	0.47	18,890	2 645	0.58	25 800
	4,000	2,145	0.47	18,890	2,470	0.54	23,130
	7,500	2,145	0.47	18,890	2,265	0.50	20,370
SSW21x9	1 000	3 145	0.46	23 265	3,590	0.52	28 215
	4,000	3,145	0.46	23,265	3,530	0.51	27,490
	7,500	3,145	0.46	23,265	3,280	0.47	24,680
SSW24x9	1 000	4 285	0.44	27 210	4 605	0.47	30,150
	4,000	4,285	0.44	27,210	4,605	0.47	30,150
	7,500	4,285	0.44	27,210	4,480	0.46	28,970

See footnotes on p. 44.

Standard Application on Concrete Foundations

Model No.	Allowable Axial Load (lb.)	Seismic[2]			Wind		
		Allowable ASD Shear Load V (lb.)	Drift at Allowable Shear (in.)	Anchor Tension at Allowable Shear[5] (lb.)	Allowable ASD Shear Load V (lb.)	Drift at Allowable Shear (in.)	Anchor Tension at Allowable Shear[5] (lb.)
SSW12x10	1,000	570	0.52	8,345	725	0.67	11,300
	4,000	570	0.52	8,345	570	0.52	8,345
	7,500	360	0.33	4,930	360	0.33	4,930
SSW15x10	1,000	1,110	0.53	13,150	1,145	0.54	13,690
	4,000	960	0.45	10,975	960	0.45	10,975
	7,500	715	0.34	7,775	715	0.34	7,775
SSW18x10	1,000	1,860	0.53	18,030	2,360	0.67	25,545
	4,000	1,860	0.53	18,030	2,215	0.63	23,095
	7,500	1,860	0.53	18,030	2,035	0.57	20,395
SSW21x10	1,000	3,045	0.50	25,905	3,265	0.56	28,795
	4,000	3,045	0.50	25,905	3,170	0.54	27,510
	7,500	2,780	0.45	22,780	2,780	0.47	22,780
SSW24x10	1,000	3,835	0.50	27,100	4,205	0.55	30,920
	4,000	3,835	0.50	27,100	4,205	0.55	30,920
	7,500	3,790	0.49	26,660	3,790	0.49	26,660
SSW15x11	1,000	975	0.58	12,625	1,015	0.60	13,285
	4,000	815	0.48	10,135	815	0.48	10,135
	7,500	550	0.33	6,470	550	0.33	6,470
SSW18x11	1,000	1,635	0.58	17,295	2,075	0.73	24,280
	4,000	1,635	0.58	17,295	2,010	0.71	23,110
	7,500	1,635	0.58	17,295	1,730	0.61	18,045
SSW21x11	1,000	2,485	0.58	22,325	2,990	0.70	29,230
	4,000	2,485	0.58	22,325	2,785	0.65	26,220
	7,500	2,305	0.54	20,205	2,305	0.54	20,205
SSW24x11	1,000	3,475	0.57	27,055	3,845	0.63	31,285
	4,000	3,475	0.57	27,055	3,710	0.60	29,680
	7,500	3,205	0.52	24,260	3,205	0.52	24,260
SSW15x12	1,000	815	0.63	11,280	905	0.70	12,855
	4,000	690	0.53	9,245	690	0.53	9,245
	7,500	390	0.30	4,905	390	0.30	4,905
SSW18x12	1,000	1,450	0.63	16,605	1,845	0.80	23,220
	4,000	1,450	0.63	16,605	1,815	0.79	22,850
	7,500	1,435	0.62	16,380	1,435	0.62	16,380
SSW21x12	1,000	2,210	0.63	21,485	2,755	0.79	29,555
	4,000	2,210	0.63	21,485	2,420	0.69	24,335
	7,500	1,900	0.54	17,690	1,900	0.54	17,690
SSW24x12	1,000	3,150	0.63	26,710	3,540	0.71	31,575
	4,000	3,150	0.63	26,710	3,250	0.65	27,890
	7,500	2,705	0.54	21,855	2,705	0.54	21,855
SSW18x13	1,000	1,335	0.68	16,580	1,695	0.87	23,105
	4,000	1,335	0.68	16,580	1,580	0.81	20,830
	7,500	1,180	0.60	14,195	1,180	0.60	14,195
SSW21x13	1,000	1,985	0.68	20,765	2,520	0.87	29,200
	4,000	1,985	0.68	20,765	2,110	0.73	22,530
	7,500	1,555	0.53	15,300	1,555	0.53	15,300
SSW24x13	1,000	2,830	0.68	25,795	3,275	0.79	31,755
	4,000	2,830	0.68	25,795	2,830	0.69	26,165
	7,500	2,280	0.55	19,545	2,280	0.55	19,545

1. Allowable shear loads and anchor tension forces are applicable to installation on concrete with minimum f'_c = 2,500 psi using the ASD basic (Section 1605.3.1) or the alternative basic (Section 1605.3.2) load combinations. Load values include evaluation of bearing stresses on the foundation and do not require further evaluation by the designer.
2. For seismic designs based on the 2018 IBC using R = 6.5. For other codes, use the seismic coefficients corresponding to light-frame bearing walls with wood structural panels or sheet steel panels.
3. Allowable shear, drift, and anchor tension values may be interpolated for intermediate height or axial loads.
4. High-strength anchor bolts are required for anchor tension forces exceeding the allowable load for standard-strength bolts tabulated on pp. 60–61. High-strength anchor bolts are required for SSW12 when the seismic overturning moment (seismic shear x shearwall height) exceeds 61,600 in.-lb. See pp. 60–67 for SSWAB anchor bolt information and anchorage solutions.
5. Tabulated anchor tension loads assume no resisting axial load. For anchor tension loads at design shear values and including the effect of axial load, refer to the Strong-Wall Selector web application or use the equations on p. 46. Drifts at lower design shear may be linearly reduced.
6. See p. 45 for allowable out-of-plane loads and axial capacities.

Standard Application on Concrete Foundations

Allowable Out-of-Plane Loads (psf) for Single-Story Walls on Concrete Foundations

Model Width (in.)	Axial Load (lb.)	Nominal Height of Shearwall (ft.)					
		8	9	10	11	12	13
12	1,000	200	140	105	N/A	N/A	N/A
	4,000	150	105	70	N/A	N/A	N/A
	7,500	90	55	25	N/A	N/A	N/A
15	1,000	165	130	100	80	70	N/A
	4,000	130	95	70	50	40	N/A
	7,500	95	65	45	30	15	N/A
18	7,500	310	215	160	120	90	70
21	7,500	260	185	135	100	70	50
24	7,500	275	195	135	105	80	65

1. Loads shown are at ASD level in pounds per square foot (psf) of wall with no further increase in load allowed.
2. Axial load denotes maximum gravity load permitted on entire panel acting in combination with the out-of-plane load.
3. Load considers a deflection limit of h/240.
4. Values are applicable to either the ASD basic or alternative basic load combinations.
5. Allowable out-of-plane loads for the 12- and 15-inch walls may be linearly interpolated between the axial loads shown.
6. Table loads apply only to single-story walls on concrete foundations.
7. N/A =Not Applicable.

Axial Capacities for Single-Story Walls on Concrete Foundations

Model Width (in.)	Compression Capacity with No Lateral Loads (lb.) Nominal Height of Shearwall (ft.)							
	7	7.4	8	9	10	11	12	13
12	20,200	19,000	17,200	14,500	11,800	N/A	N/A	N/A
15	25,300	24,200	22,600	20,000	17,400	14,900	12,600	N/A
18	42,500	40,400	37,500	32,900	28,400	24,100	20,200	17,200
21	43,700	41,100	37,500	32,000	26,700	22,000	18,400	15,700
24	51,600	48,800	44,800	38,700	32,900	27,400	22,900	19,500

1. Compression capacity is lesser of wall buckling capacity or 2,500 psi concrete bearing limit.
2. Compression capacity of wall assumes no lateral loads present. See allowable in-plane or out-of-plane load tables for combined lateral and axial loading conditions.
3. Values are applicable to either the ASD basic or alternative basic load combinations.
4. Table loads apply only to single-story walls on concrete foundations.
5. N/A =Not Applicable.

Allowable Tension Loads for Walls with Wood Jamb Stud

Model Width (in.)	Tension Capacity per Jamb Stud (lb.) Nominal Height of Shearwall (ft.)							
	7	7.4	8	9	10	11	12	13
12	1,535	1,535	1,845	2,150	2,500	N/A	N/A	N/A
15	1,845	2,150	2,460	2,500	2,500	3,070	3,685	N/A
18	1,845	1,845	2,150	2,500	2,500	3,380	3,685	3,980
21	1,845	1,845	2,150	2,500	2,500	3,070	3,685	3,980
24	1,845	1,845	2,150	2,500	2,500	3,070	3,685	3,980

1. Allowable tension load is based on capacity of the lesser of the connection between the stud and the steel shearwall or stud tension capacity. The capacity of the SSW wall anchor bolt and anchorage to the foundation must be adequate to transfer the additional tension.
2. Loads include a 1.60 load duration increase for wood subjected to wind or earthquake. Reductions for other load durations must be taken according to the applicable code.
3. N/A =Not Applicable.