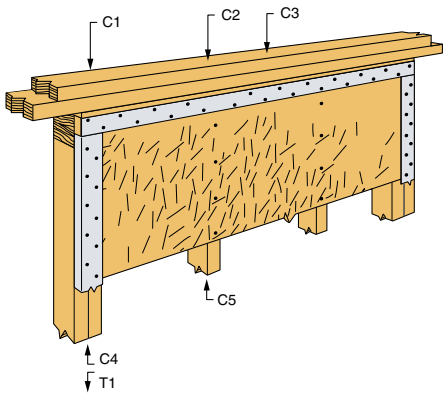
WOOD STRONG-WALL®: Allowable Vertical and Out-of-Plane Loads

These allowable vertical loads are intended to aid the user in correctly implementing the Wood Strong-Wall® shearwall into the load path of the structure. Load combinations that tend to cause compression can be limited by perpendicular to grain interface issues, by buckling of the vertical members or by the bending and shear capacity of the combined top plates. Loads that result in net uplift in the boundary posts are limited by the value T1 shown in the table.

C1 = Max. compressive force applied over end post.
C2 = Max. compressive force applied over interior post.
C3 = Max. compressive force applied to top plates between studs.
C4 = Max. compressive force in end post due to load from above (C1) and overturning.
C5 = Max. compressive force in interior post.
T1 = Max. allowable tension force in holdown due to net uplift.



ALLOWABLE VERTICAL LOADS FOR STRONG-WALL® PANELS (lbs)

Strong-Wall® Model No.	C1	C2	C3		C4	C5		T1
	C_D = 1.0	C_D = 1.0	C_D = 1.0	C_D = 1.25	C_D = 1.6	C_D = 1.0	C_D = 1.25	C_D = 1.6
SW16x7x4, 8x4 SW22x7x4, 8x4	7100	N/A	N/A	N/A	21100	N/A	N/A	12200
SW16x7x6, 8x6 SW22x7x6, 8x6	10700	N/A	N/A	N/A	35200	N/A	N/A	12200
SW18x8, 9 SW24x8, 9, 10	6100	N/A	1685	2105	14100	N/A	N/A	12200
SW32x8, 9, 10 SW48x8, 9, 10	6100	3330	2955	3690	14100	4270	4620	12200
SW24x12x6	9920	N/A	2820	3525	16800	N/A	N/A	12200
SW32x12x6 SW48x12x6	9920	5410	4945	6185	16800	5280	5520	12200

1. For RF Raised-Floor walls, use the corresponding standard Wood Strong-Wall® shearwall values.

ALLOWABLE OUT-OF-PLANE LOADS FOR STANDARD AND RAISED-FLOOR STRONG-WALL® PANELS[1,2,3,4]

Model No.	Allowable Load (plf) (lbs. per lineal foot)		Allowable Load (psf) (lbs. per square foot)	
	End Post	Interior Stud	End Post	Interior Stud
SW18x8	64	—	45	—
SW24x8	64	—	38	—
SW32x8	64	31	48	23
SW48x8	64	31	48	23
SW18x9	44	—	31	—
SW24x9	44	—	26	—
SW32x9	44	21	33	16
SW48x9	44	21	33	16
SW24x10	31	—	19	—
SW32x10	31	15	23	11
SW48x10	31	15	23	11
SW24x12x6	68	—	41	—
SW32x12x6	68	36	51	27
SW48x12x6	68	36	51	27

1. Allowable loads are governed by deflection at L/240.
2. For deflection limit of L/180, the tabulated loads must be multiplied by $\left(\frac{240}{180}\right)$ = 1.33.
3. Combined axial and bending loads on the Strong-Wall® panels' studs and end posts must be determined by the following formula:
   $P_{actual} / P_{allow} + W_{actual} / W_{allow} \leq 1.0$
   where: P_{actual} = Actual axial ASD design load (lbs.).
   P_{allow} = 14100 lbs. *(end post)* or 4620 lbs. *(stud)* for the 8-, 9- and 10-foot tall panels.
   P_{allow} = 16800 lbs. *(end post)* or 5520 lbs. *(stud)* for the 12-foot tall panels.
   W_{actual} = Actual ASD out-of-plane load (plf).
   W_{allow} = Allowable load (plf) from table.
4. Allowable post loads in psf are based on the panel tributary width plus 8 inches.

ALLOWABLE OUT-OF-PLANE LOADS FOR GARAGE PORTAL STRONG-WALL® PANELS[1,2,3,4]

Model No.	Allowable Load	
	End Post (plf)	Sheathing (psf)
SW16x7x4	155	217
SW22x7x4	155	103
SW16x8x4	101	217
SW22x8x4	101	103
SW16x7x6	470	217
SW22x7x6	470	103
SW16x8x6	306	217
SW22x8x6	306	103

1. Allowable post loads are governed by deflection at L/240.
2. Allowable sheathing loads are governed by material strength properties, where duration of load, C_D, is equal to 1.6.
3. For deflection limit of L/180, the tabulated loads must be multiplied by $\left(\frac{240}{180}\right)$ = 1.33.
4. Combined axial and bending loads on the Strong-Wall® panels' end posts must be determined by the following formula:
   $P_{actual} / P_{allow} + W_{actual} / W_{allow} \leq 1.0$
   where P_{actual} = Actual axial ASD design load (lbs.).
   P_{allow} = 21100 lbs. for the 4-inch-thick panels.
   P_{allow} = 35200 lbs. for the 6-inch-thick panels.
   W_{actual} = Actual ASD out-of-plane load (plf).
   W_{allow} = Allowable load (plf) from table.

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