

## 18 ft. Nominal Heights: Allowable Loads

## Strong Frame™ Ordinary Moment Frame – 18 ft. Nominal Heights

Model No.	Clear Opening Width, W1	Outside Frame Width, W2	Allowable ASD Shear Load V (lbs) <sup>1</sup>		Maximum Total Gravity Load, W <sub>Max</sub> <sup>3</sup> (lbs)	Drift at Allow Shear Load V (in.)	Shear Reaction Factor, X <sup>4</sup>	Maximum Column Reactions <sup>4</sup>			Top Plate to Nailer Connection		Total Frame Weight (lbs)
			Maximum Shear <sup>2</sup>	Minimum Shear <sup>3</sup>				Tension <sup>5</sup> (lbs)	Shear due to w + V (lbs)	Shear due to W <sub>Max</sub> + V (lbs)	16d Option <sup>6</sup>	¼" x 3½" SDS Screw Option <sup>6</sup>	
OMF69-8x18	8'-2"	9'-8"	840	620	33500	1.24	0.018	1670	550	915	9	9	1351
OMF612-8x18	8'-2"	9'-8"	915	655	38000	1.24	0.010	1820	530	710	9	9	1384
OMF99-8x18	8'-2"	10'-2"	2095	1870	33500	1.24	0.035	4060	1305	2110	10	9	1498
OMF912-8x18	8'-2"	10'-2"	2455	2200	36000	1.24	0.023	4760	1395	1930	11	9	1531
OMF129-8x18	8'-2"	10'-8"	3050	2990	14500	1.24	0.044	5740	1855	2135	14	9	1485
OMF1212-8x18	8'-2"	10'-8"	3755	3720	12000	1.24	0.032	7070	2120	2245	17	9	1517
OMF1512-8x18	8'-2"	11'-2"	4520	4520	6500	1.03	0.041	8290	2575	2525	21	9	1539
OMF69-10x18	10'-2"	11'-8"	805	645	28000	1.24	0.025	1305	620	1025	11	11	1410
OMF612-10x18	10'-2"	11'-8"	890	655	36500	1.24	0.014	1445	565	840	11	11	1449
OMF99-10x18	10'-2"	12'-2"	1975	1775	32000	1.24	0.046	3140	1400	2360	11	11	1557
OMF912-10x18	10'-2"	12'-2"	2375	2155	34500	1.24	0.031	3780	1465	2145	11	11	1595
OMF129-10x18	10'-2"	12'-8"	2825	2775	15500	1.24	0.057	4385	1935	2270	13	11	1543
OMF1212-10x18	10'-2"	12'-8"	3610	3585	12500	1.24	0.043	5605	2200	2330	17	11	1582
OMF1512-10x18	10'-2"	13'-2"	4410	4410	8000	1.06	0.054	6700	2710	2635	20	11	1604
OMF69-12x18	12'-4"	13'-10"	765	665	23500	1.24	0.034	1035	790	1130	13	13	1474
OMF612-12x18	12'-4"	13'-10"	860	745	24500	1.24	0.020	1165	640	865	13	13	1519
OMF99-12x18	12'-4"	14'-4"	1850	1710	27500	1.24	0.059	2465	1585	2480	13	13	1620
OMF912-12x18	12'-4"	14'-4"	2295	2140	29500	1.24	0.041	3055	1585	2280	13	13	1666
OMF129-12x18	12'-4"	14'-10"	2595	2560	15500	1.24	0.071	3385	2070	2380	13	13	1607
OMF1212-12x18	12'-4"	14'-10"	3440	3425	13500	1.24	0.055	4490	2320	2455	16	13	1652
OMF1512-12x18	12'-4"	15'-4"	4150	4150	10000	1.06	0.067	5320	2815	2745	19	13	1674
OMF69-16x18	16'-4"	17'-10"	695	695	14000	1.24	0.052	720	1265	1075	17	17	1591
OMF612-16x18	16'-4"	17'-10"	810	810	13500	1.24	0.031	840	905	825	17	17	1648
OMF99-16x18	16'-4"	18'-4"	1640	1620	17500	1.24	0.084	1680	2265	2280	17	17	1738
OMF912-16x18	16'-4"	18'-4"	2140	2140	16000	1.24	0.062	2190	2020	2060	17	17	1795
OMF129-16x18	16'-4"	18'-10"	2235	2235	14500	1.24	0.098	2255	2790	2540	17	17	1725
OMF1212-16x18	16'-4"	18'-10"	3145	3145	13500	1.24	0.079	3170	2755	2640	17	17	1782
OMF1512-16x18	16'-4"	19'-4"	3320	3320	12500	0.96	0.094	3300	3145	2835	17	17	1804

- Allowable shear loads are applicable to Seismic Designs utilizing R = 3.5 and Wind Designs.
- Maximum shear is allowable horizontal shear force, V, applied in combination with allowable stress design uniform gravity loads, w = 800-plf dead load, 400-plf floor live load, and 400-plf roof live load. Where vertical loads exceed these values, use minimum shear loads.
- Minimum shear is allowable horizontal shear force, V, applied in combination with maximum total gravity load, W<sub>Max</sub>, which may be applied as a single point load, P=W<sub>Max</sub>, at mid-span or as a uniform distributed load, w<sub>Max</sub> = W<sub>Max</sub>/L<sub>beam</sub>.
- Maximum horizontal column shear reactions occur at the compression column and can be solved by the equations:
 

Compression Column: V = Design Frame Shear (lbs)  
 $R_H = \frac{V}{2} + X(P)$   
 or  
 $R_H = \frac{V}{2} + X(\frac{2}{3}wL)$

Tension Column  
 $R_H = \frac{V}{2}$

Note: Designer to determine governing load combinations based on the applicable building code.
- Tension reactions are for lateral shear and neglect resisting vertical load. Reduced tension forces may be calculated by the Designer by statics. T = (Vh-M<sub>R</sub>)/L, where M<sub>R</sub> = resisting moment due to Dead Load. L = column centerline dimension, h = H1 - 6 (steel column height).
- Fastening is minimum nailing or Simpson Strong-Tie® Strong-Drive® (SDS) screws to achieve the full allowable shear load. For seismic designs, designer shall evaluate if top plate to nailer connection is required to be designed as a collector for overstrength force levels and increase fastening as required for E<sub>m</sub> level loading. Top plate splice, as required, by Designer.
- Drift at allowable shear is applicable to either vertical load case (uniform load, w, or maximum total load, W<sub>Max</sub>)
- Shear loads include seismic load combinations using S<sub>DS</sub> = 1.0 for vertical acceleration effects. For seismic designs where S<sub>DS</sub> > 1.0 factor dead load by the factor (1.0+14S<sub>DS</sub>) to account for vertical acceleration effects, E<sub>v</sub>, per code.
- Vertical beam deflections due to unfactored ASD gravity load do not exceed the following:
 

Dead load	L/480
Floor live load	L/600
Dead load + floor live load	L/360
W <sub>MAX</sub> (Point Load)	L/300
- See page 21 and 25 for anchorage solutions.