

19 ft. Nominal Heights: Allowable Loads

Strong Frame™ Ordinary Moment Frame – 19 ft. Nominal Heights

Model No.	Clear Opening Width, W1	Outside Frame Width, W2	Allowable ASD Shear Load V (lbs) ¹		Maximum Total Gravity Load, W _{Max} ³ (lbs)	Drift at Allow Shear Load V (in.)	Shear Reaction Factor, X ⁴	Maximum Column Reactions ⁴			Top Plate to Nailer Connection		Total Frame Weight (lbs)
			Maximum Shear ²	Minimum Shear ³				Tension ⁵ (lbs)	Shear due to w + V (lbs)	Shear due to W _{Max} + V (lbs)	16d Option ⁶	¼" x 3½" SDS Screw Option ⁶	
OMF69-8x19	8'-2"	9'-8"	745	540	32000	1.31	0.016	1565	485	780	9	9	1410
OMF612-8x19	8'-2"	9'-8"	810	575	35500	1.31	0.009	1700	470	605	9	9	1443
OMF99-8x19	8'-2"	10'-2"	1890	1695	30000	1.31	0.032	3870	1180	1810	9	9	1565
OMF912-8x19	8'-2"	10'-2"	2200	1975	32500	1.31	0.021	4505	1255	1670	10	9	1598
OMF129-8x19	8'-2"	10'-8"	2770	2735	12000	1.31	0.041	5510	1695	1860	13	9	1550
OMF1212-8x19	8'-2"	10'-8"	3380	3370	9500	1.31	0.029	6725	1910	1960	15	9	1583
OMF1512-8x19	8'-2"	11'-2"	3825	3825	6500	1.02	0.038	7410	2205	2160	17	9	1605
OMF69-10x19	10'-2"	11'-8"	715	565	27500	1.31	0.023	1225	560	915	11	11	1469
OMF612-10x19	10'-2"	11'-8"	790	580	34000	1.31	0.013	1355	510	730	11	11	1508
OMF99-10x19	10'-2"	12'-2"	1785	1620	28500	1.31	0.043	3000	1275	2035	11	11	1624
OMF912-10x19	10'-2"	12'-2"	2130	1940	31500	1.31	0.029	3580	1325	1885	11	11	1663
OMF129-10x19	10'-2"	12'-8"	2570	2540	13500	1.31	0.053	4215	1770	1985	12	11	1609
OMF1212-10x19	10'-2"	12'-8"	3250	3240	11500	1.31	0.039	5330	1980	2070	15	11	1647
OMF1512-10x19	10'-2"	13'-2"	3705	3705	8000	1.04	0.050	5950	2320	2255	17	11	1670
OMF69-12x19	12'-4"	13'-10"	680	580	23500	1.31	0.031	975	715	1020	13	13	1533
OMF612-12x19	12'-4"	13'-10"	760	645	24500	1.31	0.018	1090	570	765	13	13	1578
OMF99-12x19	12'-4"	14'-4"	1670	1530	27500	1.31	0.055	2350	1455	2280	13	13	1688
OMF912-12x19	12'-4"	14'-4"	2060	1905	28500	1.31	0.038	2900	1435	2035	13	13	1733
OMF129-12x19	12'-4"	14'-10"	2365	2350	13500	1.31	0.066	3260	1905	2065	13	13	1672
OMF1212-12x19	12'-4"	14'-10"	3105	3105	11500	1.31	0.050	4280	2095	2130	14	13	1718
OMF1512-12x19	12'-4"	15'-4"	3435	3435	10000	1.03	0.062	4650	2405	2340	16	13	1740
OMF69-16x19	16'-4"	17'-10"	615	615	13500	1.31	0.047	675	1140	940	17	17	1650
OMF612-16x19	16'-4"	17'-10"	710	710	13500	1.31	0.028	780	810	735	17	17	1707
OMF99-16x19	16'-4"	18'-4"	1480	1465	17500	1.31	0.078	1600	2085	2100	17	17	1805
OMF912-16x19	16'-4"	18'-4"	1920	1915	16000	1.31	0.057	2075	1840	1870	17	17	1862
OMF129-16x19	16'-4"	18'-10"	2035	2035	13500	1.31	0.092	2170	2595	2260	17	17	1790
OMF1212-16x19	16'-4"	18'-10"	2695	2695	12500	1.24	0.073	2870	2465	2260	17	17	1847
OMF1512-16x19	16'-4"	19'-4"	2625	2625	12500	0.88	0.087	2755	2745	2400	17	17	1870

- 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_{Max}, which may be applied as a single point load, P=W_{Max}, at mid-span or as a uniform distributed load, w_{Max} = W_{Max}/L_{beam}.
- Maximum horizontal column shear reactions occur at the compression column and can be solved by the equations:

Compression Column: V = Design Frame Shear (lbs)
P = Midspan Point Load (lbs)
w = Uniform Load (lbs/ft)
L = Column Centerline Dimension, W1 + Column Depth (ft)
X = Frame Shear Reaction Factor (no units)

$$R_H = \frac{V}{2} + X(P)$$

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_R)/L, where M_R = 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_m 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_{Max})
- Shear loads include seismic load combinations using S_{DS} = 1.0 for vertical acceleration effects. For seismic designs where S_{DS} > 1.0 factor dead load by the factor (1.0+ .14S_{DS}) to account for vertical acceleration effects, E_v, 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_{MAX} (Point Load) $L/300$
- See page 21 and 25 for anchorage solutions.