12 ft. Nominal Heights: Allowable Loads

SIMPSON Strong-Tie®

Strong Frame™ Ordinary Moment Frame – 12 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]	
OMF69-8x12	8'-2"	9'-8"	2010	1765	35500	0.81	0.037	2605	1270	2195	9	9	987
OMF612-8x12	8'-2"	9'-8"	2275	1900	40000	0.81	0.022	2950	1295	1830	11	9	1020
OMF99-8x12	8'-2"	10'-2"	4545	4245	40000	0.81	0.064	5745	2740	4685	21	9	1085
OMF912-8x12	8'-2"	10'-2"	5660	5250	40000	0.81	0.046	7155	3165	4465	26	11	1117
OMF129-8x12	8'-2"	10'-8"	6305	6020	39500	0.81	0.078	7740	3740	6090	28	12	1081
OMF1212-8x12	8'-2"	10'-8"	8350	8090	36000	0.81	0.061	10255	4635	6240	38	16	1114
OMF1512-8x12	8'-2"	11'-2"	11585	11400	28000	0.81	0.075	13855	6375	7800	52	22	1133
OMF69-10x12	10'-2"	11'-8"	1930	1755	29500	0.81	0.051	2045	1410	2380	11	11	1046
OMF612-10x12	10'-2"	11'-8"	2225	1945	40000	0.81	0.031	2355	1385	2215	11	11	1084
OMF99-10x12	10'-2"	12'-2"	4225	4010	33500	0.81	0.084	4385	2860	4820	19	11	1143
OMF912-10x12	10'-2"	12'-2"	5445	5105	40000	0.81	0.062	5650	3275	5035	25	11	1182
OMF129-10x12	10'-2"	12'-8"	5725	5525	32000	0.81	0.099	5800	3765	5930	26	11	1140
OMF1212-10x12	10'-2"	12'-8"	7915	7675	35500	0.81	0.080	8015	4690	6680	36	15	1178
OMF1512-10x12	10'-2"	13'-2"	10775	10585	30000	0.81	0.096	10680	6285	8175	48	20	1198
OMF69-12x12	12'-4"	13'-10"	1845	1720	25500	0.81	0.068	1630	1700	2595	13	13	1109
OMF612-12x12	12'-4"	13'-10"	2170	2035	26500	0.81	0.042	1920	1525	2130	13	13	1154
OMF99-12x12	12'-4"	14'-4"	3905	3760	27500	0.81	0.106	3390	3080	4795	18	13	1207
OMF912-12x12	12'-4"	14'-4"	5210	5025	32000	0.81	0.081	4525	3470	5105	24	13	1252
OMF129-12x12	12'-4"	14'-10"	5175	5035	26500	0.81	0.122	4405	3915	5750	23	13	1203
OMF1212-12x12	12'-4"	14'-10"	7450	7250	33500	0.81	0.101	6340	4825	7010	34	14	1249
OMF1512-12x12	12'-4"	15'-4"	9945	9850	22000	0.81	0.119	8310	6290	7545	45	19	1268
OMF69-16x12	16'-4"	17'-10"	1695	1695	15500	0.81	0.101	1145	2590	2415	17	17	1227
OMF612-16x12	16'-4"	17'-10"	2070	2070	14000	0.81	0.066	1400	2055	1960	17	17	1284
OMF99-16x12	16'-4"	18'-4"	3400	3360	19500	0.81	0.147	2270	4160	4545	17	17	1325
OMF912-16x12	16'-4"	18'-4"	4795	4770	18000	0.81	0.117	3200	4095	4490	22	17	1382
OMF129-16x12	16'-4"	18'-10"	4350	4350	12500	0.81	0.165	2860	4920	4240	20	17	1321
OMF1212-16x12	16'-4"	18'-10"	6665	6665	10500	0.81	0.142	4385	5330	4825	30	17	1378
OMF1512-16x12	16'-4"	19'-4"	8640	8640	8000	0.81	0.162	5600	6630	5615	39	17	1398

1. Allowable shear loads are applicable to Seismic Designs utilizing R = 3.5 and Wind Designs.
2. 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.
3. 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, $w_{Max} = W_{Max}/L_{beam}$.
4. Maximum horizontal column shear reactions occur at the compression column and can be solved by the equations:

   Compression Column:

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

   or

   $R_H = \frac{V}{2} + X(\frac{2}{3}wL)$

   Tension Column

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

   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)

   Note: Designer to determine governing load combinations based on the applicable building code.
5. 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).
6. 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.
7. Drift at allowable shear is applicable to either vertical load case (uniform load, w, or maximum total load, W_{Max})
8. 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.
9. 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

10. See page 21 and 25 for anchorage solutions.