

1½" 1.5E Engineered Framing Lumber (EFL) Studs

Columns - Lateral Loads (plf) / Vertical Load (lbs)

Deflection Ratio	Column Height (ft)	Maximum Defl. (in.)	3.5" Wall Thickness			5.5" Wall Thickness			7.25" Wall Thickness		
			(2) Studs	(3) Studs	(4) Studs	(2) Studs	(3) Studs	(4) Studs	(2) Studs	(3) Studs	(4) Studs
L/360	8	0.27	66 / 2968	99 / 6657	132 / 8876	257 / 4176	300 / 10461	300 / 13948	300 / 6176	300 / 13789	300 / 18386
	10	0.33	34 / 2929	51 / 6647	68 / 8863	132 / 4397	198 / 10446	264 / 13928	300 / 5198	300 / 13770	300 / 18360
	12	0.40		29 / 5077	39 / 6758	76 / 4496	114 / 10432	152 / 13909	175 / 5496	262 / 13751	300 / 18335
	14	0.47			24 / 5258	48 / 4501	72 / 10417	96 / 13890	110 / 5674	165 / 13732	220 / 18309
	16	0.53				32 / 4443	48 / 9910	64 / 13271	73 / 5773	110 / 13713	147 / 18284
	18	0.60				22 / 5428	33 / 8313	45 / 11072	51 / 5796	77 / 13694	103 / 18259
	20	0.67					24 / 7020	33 / 9334	37 / 5760	56 / 13675	75 / 18233
	22	0.73						24 / 8010	28 / 5656	42 / 11977	56 / 16021
	24	0.80							21 / 6834	32 / 10498	43 / 14014
	26	0.87								25 / 9246	34 / 12309
L/240	8	0.40	99 / 2637	149 / 6657	199 / 8876	300 / 3879	300 / 10461	300 / 13948	300 / 6176	300 / 13789	300 / 18386
	10	0.50	51 / 2641	76 / 5992	102 / 7971	198 / 3676	297 / 10256	300 / 13928	300 / 5198	300 / 13770	300 / 18360
	12	0.60	29 / 3002	44 / 4590	59 / 6110	114 / 3896	171 / 10432	229 / 13909	262 / 4340	300 / 13751	300 / 18335
	14	0.70		27 / 3623	37 / 4797	72 / 3968	108 / 10345	144 / 13890	165 / 4704	247 / 13031	300 / 18309
	16	0.80			24 / 3870	48 / 3958	72 / 8724	96 / 11702	110 / 4920	166 / 13713	221 / 18284
	18	0.90				33 / 4822	50 / 7414	67 / 9919	77 / 5023	116 / 13527	155 / 18120
	20	1.00				24 / 4127	37 / 6292	49 / 8447	56 / 5045	85 / 11874	113 / 15934
	22	1.10					27 / 5456	37 / 7248	42 / 4999	63 / 10523	85 / 14026
	24	1.20					21 / 4711	28 / 6305	32 / 5991	49 / 9264	65 / 12425
	26	1.30						22 / 5496	25 / 5342	38 / 8258	51 / 11027
L/180	8	0.53	132 / 2291	199 / 6657	265 / 8876	300 / 3879	300 / 10461	300 / 13948	300 / 6176	300 / 13789	300 / 18386
	10	0.67	68 / 2354	102 / 5264	136 / 7019	264 / 2857	300 / 10187	300 / 13928	300 / 5198	300 / 13770	300 / 18360
	12	0.80	39 / 2684	59 / 4132	78 / 5529	152 / 3253	229 / 9903	300 / 13598	300 / 3768	300 / 13751	300 / 18335
	14	0.93	24 / 2164	37 / 3293	49 / 4402	96 / 3418	144 / 8739	192 / 11768	220 / 3605	300 / 11095	300 / 18309
	16	1.07		24 / 2690	33 / 3552	64 / 3474	96 / 7585	128 / 10195	147 / 3996	221 / 12115	295 / 16304
	18	1.20				45 / 4194	67 / 6560	90 / 8775	103 / 4215	155 / 11159	207 / 14984
	20	1.33				33 / 3632	49 / 5660	66 / 7559	75 / 4316	113 / 10093	151 / 13532
	22	1.47				24 / 3210	37 / 4904	49 / 6592	56 / 4347	85 / 9062	113 / 12179
	24	1.60					28 / 4307	38 / 5735	43 / 5187	65 / 8158	87 / 10915
	26	1.73					22 / 3778	30 / 5022	34 / 4660	51 / 7325	68 / 9815
28	1.87							27 / 4220	41 / 6568	55 / 8773	
30	2.00							22 / 3806	33 / 5938	44 / 7950	

- Based on design provisions of the 2024 National Design Specification for Wood Construction. Load duration factor = 1.6, Ke = 0.85.
- Table assumes structural sheathing on one side of wall, gypsum wallboard on other.
- Full depth blocking at 8' on-center maximum.
- Deflection limits based on the Component & Cladding pressures multiplied by 0.7 (2024 IRC Table R301.7) & 0.42 (2024 IBC Table 1604.3).
- Axial loads are applied eccentrically at a distance 1/6 the wall thickness dimension of the column, measured from the column centerline.
- Compression perpendicular to grain stress of 425 psi (adjusted per NDS 2024 3.10.4) is assumed for bearing.
- For column heights in between those shown, check that both the next shorter column and the next longer column have adequate lateral & vertical capacity.
- Column studs may not be notched. They are permitted to have two 3/4" diameter holes, located in the center third of the stud width. The holes must be a minimum of 12" center to center from each other (measured vertically) and may be no closer than 8" to the ends of the column stud.
- The tabulated loads may be applied in addition to the weight of the column.

Multiple-Piece Member Fastening Recommendations (minimum 0.128" x 3" nails)

2-Ply All depths

Two rows 9" o.c. staggered. Offset the rows half the required spacing. Nail from one side.
Edge distance for 3.5" width = 1". Edge distance for 5.5" width = 1.5". Edge distance for 7.25" width = 2.5".

3-Ply 3.5" depth

Two rows 8" o.c. staggered. Offset the rows half the required spacing. Nail from both sides.

5.5" & 7.25" depths

Three rows 8" o.c. staggered. Offset the rows half the required spacing. Nail from both sides.

4-Ply 3.5" depth

Nail each ply in turn with two rows 9" o.c. staggered. Each additional ply nailing must be offset 3" from the previous ply.

5.5" & 7.25" depths

Nail each ply in turn with three rows 9" o.c. staggered. Each additional ply nailing must be offset 3" from the previous ply.

Alternate 4-ply 5.5" & 7.25" depths fastening: attach together with two rows 1/2" diameter bolts & washers 8" o.c., 1.5" from edges.

General fastening notes (all depths and plies)

- End distance for nails to be 2". End distance for bolts to be 4".
- Nail rows for three and four ply members to be 1" from edges of 2x4 & 2x6 depths and 1.5" from edges of 2x8.



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