

1½" 1.5E Engineered Framing Lumber (EFL) Studs

Single Studs - Maximum vertical load (lbs) for a given lateral wind load (plf)

Stud Height (ft)	Load & Deflection	1.5" x 3.5"			1.5" x 5.5"					1.5" x 7.25"				
		Lateral wind load (plf)			Lateral wind load (plf)					Lateral wind load (plf)				
		15	20	30	15	20	30	40	50	15	20	30	40	50
8	Vert. (lbs)	2789	2789	2789	4382	4382	4382	4382	4382	5777	5777	5777	5777	5777
	Defl. ratio	L/797	L/598	L/398	L/3094	L/2321	L/1547	L/1160	L/928	L/7088	L/5316	L/3544	L/2658	L/2126
9	Vert. (lbs)	2789	2724	2444	4382	4382	4382	4382	4382	5777	5777	5777	5777	5777
	Defl. ratio	L/560	L/420	L/280	L/2173	L/1630	L/1086	L/815	L/652	L/4978	L/3733	L/2489	L/1866	L/1493
10	Vert. (lbs)	2317	2167	1881	4382	4382	4382	4382	4382	5777	5777	5777	5777	5777
	Defl. ratio	L/408	L/306	L/204	L/1584	L/1188	L/792	L/594	L/475	L/3629	L/2721	L/1814	L/1360	L/1088
11	Vert. (lbs)	1883	1731	1442	4382	4382	4382	4382	4382	5777	5777	5777	5777	5777
	Defl. ratio	L/306	L/230	L/153	L/1190	L/892	L/595	L/446	L/357	L/2726	L/2045	L/1363	L/1022	L/818
12	Vert. (lbs)	1538	1385		4382	4382	4382	4382	4382	5777	5777	5777	5777	5777
	Defl. ratio	L/236	L/177		L/916	L/687	L/458	L/343	L/275	L/2100	L/1575	L/1050	L/787	L/630
13	Vert. (lbs)	1260	1109		4382	4382	4382	4037	3606	5777	5777	5777	5777	5777
	Defl. ratio	L/185	L/139		L/721	L/540	L/360	L/270	L/216	L/1651	L/1238	L/825	L/619	L/495
14	Vert. (lbs)	1035			4382	4240	3777	3328	2888	5777	5777	5777	5777	5777
	Defl. ratio	L/148			L/577	L/433	L/288	L/216	L/173	L/1322	L/991	L/661	L/495	L/396
15	Vert. (lbs)	851			3902	3656	3184	2729	2279	5777	5777	5777	5777	5777
	Defl. ratio	L/120			L/469	L/352	L/234	L/176	L/140	L/1075	L/806	L/537	L/403	L/322
16	Vert. (lbs)				3407	3157	2680	2219		5777	5777	5777	5777	5519
	Defl. ratio				L/386	L/290	L/193	L/145		L/886	L/664	L/443	L/332	L/265
17	Vert. (lbs)				2981	2729	2248	1782		5777	5777	5777	5264	4677
	Defl. ratio				L/322	L/241	L/161	L/120		L/738	L/554	L/369	L/277	L/221
18	Vert. (lbs)				2613	2360	1877			5777	5777	5145	4537	3938
	Defl. ratio				L/271	L/203	L/135			L/622	L/466	L/311	L/233	L/186
19	Vert. (lbs)				2293	2040				5480	5150	4514	3896	3286
	Defl. ratio				L/231	L/173				L/529	L/396	L/264	L/198	L/158
20	Vert. (lbs)				2015	1762				4935	4600	3955	3330	2710
	Defl. ratio				L/198	L/148				L/453	L/340	L/226	L/170	L/136
21	Vert. (lbs)				1771	1519				4450	4111	3460	2828	
	Defl. ratio				L/171	L/128				L/391	L/293	L/195	L/146	
22	Vert. (lbs)				1557					4017	3675	3019	2381	
	Defl. ratio				L/148					L/340	L/255	L/170	L/127	
23	Vert. (lbs)				1368					3630	3286	2627		
	Defl. ratio				L/130					L/298	L/223	L/149		
24	Vert. (lbs)									3282	2937	2275		
	Defl. ratio									L/262	L/196	L/131		
25	Vert. (lbs)									2969	2624			
	Defl. ratio									L/232	L/174			
26	Vert. (lbs)									2688	2342			
	Defl. ratio									L/206	L/154			
28	Vert. (lbs)									2203	1858			
	Defl. ratio									L/165	L/123			
30	Vert. (lbs)									1803				
	Defl. ratio									L/134				

- Based on design provisions of the 2024 National Design Specification for Wood Construction. Load duration factor = 1.6, $K_e = 0.85$.
- Table assumes structural sheathing on one side of wall, gypsum wallboard on other.
- Full depth blocking at 8' on-center maximum is assumed.
- Deflection limits are based on Components & 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 stud depth, measured from stud centerline.
- Compression perpendicular to grain stress of 425 psi (adjusted per NDS 2024 3.10.4) is assumed for bearing.
- The maximum lateral connection capacity at the stud ends is limited to 920 lbs (2 Simpson A23 clips).
- A repetitive member stress increase factor of 4% is used.
- Top & bottom plates may optionally be same depth dimension lumber, and sized per code and/or by others.
- To select a stud for a height not shown, use values for the next higher height shown.
- 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 end of the stud.
- EFL is composed of LVL (laminated veneer lumber).

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