

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)	2710	2571	2305	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)	2183	2041	1770	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)	1771	1628	1355	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)	1445	1301		4382	4382	4382	4382	4222	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)	1183	1040		4382	4382	4231	3815	3407	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)	971			4233	4005	3565	3140	2724	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)	797			3682	3449	3002	2571	2147	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)				3211	2974	2523	2088		5777	5777	5777	5769	5225
	Defl. ratio				L/386	L/290	L/193	L/145		L/886	L/664	L/443	L/332	L/265
17	Vert. (lbs)				2806	2568	2115	1675		5777	5777	5545	4978	4422
	Defl. ratio				L/322	L/241	L/161	L/120		L/738	L/554	L/369	L/277	L/221
18	Vert. (lbs)				2457	2218	1764			5763	5456	4861	4285	3718
	Defl. ratio				L/271	L/203	L/135			L/622	L/466	L/311	L/233	L/186
19	Vert. (lbs)				2155	1916				5177	4863	4260	3675	3099
	Defl. ratio				L/231	L/173				L/529	L/396	L/264	L/198	L/158
20	Vert. (lbs)				1892	1654				4658	4339	3729	3138	2553
	Defl. ratio				L/198	L/148				L/453	L/340	L/226	L/170	L/136
21	Vert. (lbs)				1662	1425				4196	3874	3259	2662	
	Defl. ratio				L/171	L/128				L/391	L/293	L/195	L/146	
22	Vert. (lbs)				1460					3784	3460	2841	2240	
	Defl. ratio				L/148					L/340	L/255	L/170	L/127	
23	Vert. (lbs)				1283					3417	3091	2470		
	Defl. ratio				L/130					L/298	L/223	L/149		
24	Vert. (lbs)									3087	2761	2138		
	Defl. ratio									L/262	L/196	L/131		
25	Vert. (lbs)									2791	2465			
	Defl. ratio									L/232	L/174			
26	Vert. (lbs)									2525	2199			
	Defl. ratio									L/206	L/154			
28	Vert. (lbs)									2067	1743			
	Defl. ratio									L/165	L/123			
30	Vert. (lbs)									1691				
	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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