

VALUES OF MOMENT OF INERTIA (I INCHES⁴) REQUIRED TO LIMIT DEFLECTION

California Building Code 2007 Edition (CBC), NDS 2005

Based on: Modulus of Elasticity, E = 1.8 x 10⁶ PSI (Wood)

Modulus of Elasticity, E = 29 x 10⁶ PSI (Steel)

Span in Ft. - In.	Deflection in Inches		REQUIRED "I" = W _(PLF) x (Coefficient Below ①)			
			Wood		Steel	
	Span/360	Span/240	Span/360	Span/240	Span/360	Span/240
10 - 0	0.333	0.500	0.375	0.250	0.0233	0.0155
10 - 6	0.350	0.525	0.434	0.289	0.0269	0.0180
11 - 0	0.367	0.550	0.499	0.333	0.0310	0.0207
11 - 6	0.383	0.575	0.570	0.380	0.0354	0.0236
12 - 0	0.400	0.600	0.648	0.432	0.0402	0.0268
12 - 6	0.417	0.625	0.732	0.488	0.0455	0.0303
13 - 0	0.433	0.650	0.824	0.549	0.0511	0.0341
13 - 6	0.450	0.675	0.923	0.615	0.0573	0.0382
14 - 0	0.467	0.700	1.029	0.686	0.0639	0.0426
14 - 6	0.483	0.725	1.143	0.762	0.0710	0.0473
15 - 0	0.500	0.750	1.266	0.844	0.0786	0.0524
15 - 6	0.517	0.775	1.396	0.931	0.0867	0.0578
16 - 0	0.533	0.800	1.536	1.024	0.0953	0.0636
16 - 6	0.550	0.825	1.685	1.123	0.1046	0.0697
17 - 0	0.567	0.850	1.842	1.228	0.1144	0.0762
17 - 6	0.583	0.875	2.010	1.340	0.1247	0.0832
18 - 0	0.600	0.900	2.187	1.458	0.1357	0.0905
18 - 6	0.617	0.925	2.374	1.583	0.1474	0.0982
19 - 0	0.633	0.950	2.572	1.715	0.1596	0.1064
19 - 6	0.650	0.975	2.781	1.854	0.1726	0.1151
20 - 0	0.667	1.000	3.000	2.000	0.1862	0.1241
20 - 6	0.683	1.025	3.231	2.154	0.2005	0.1337
21 - 0	0.700	1.050	3.473	2.315	0.2156	0.1437
21 - 6	0.717	1.075	3.727	2.485	0.2313	0.1542
22 - 0	0.733	1.100	3.993	2.662	0.2478	0.1652
22 - 6	0.750	1.125	4.271	2.848	0.2651	0.1768
23 - 0	0.767	1.150	4.563	3.042	0.2832	0.1888
23 - 6	0.783	1.175	4.867	3.244	0.3021	0.2014
24 - 0	0.800	1.200	5.184	3.456	0.3218	0.2145
24 - 6	0.817	1.225	5.515	3.677	0.3423	0.2282
25 - 0	0.833	1.250	5.859	3.906	0.3637	0.2425
25 - 6	0.850	1.275	6.218	4.145	0.3859	0.2573
26 - 0	0.867	1.300	6.591	4.394	0.4091	0.2727
26 - 6	0.883	1.325	6.979	4.652	0.4332	0.2888
27 - 0	0.900	1.350	7.381	4.921	0.4581	0.3054
27 - 6	0.917	1.375	7.799	5.199	0.4841	0.3227
28 - 0	0.933	1.400	8.232	5.488	0.5110	0.3406
28 - 6	0.950	1.425	8.681	5.787	0.5388	0.3592
29 - 0	0.967	1.450	9.146	6.097	0.5677	0.3785
29 - 6	0.983	1.475	9.627	6.418	0.5975	0.3984
30 - 0	1.000	1.500	10.125	6.750	0.6284	0.4190
30 - 6	1.017	1.525	10.640	7.093	0.6604	0.4403
31 - 0	1.033	1.550	11.172	7.448	0.6934	0.4623
31 - 6	1.050	1.575	11.721	7.814	0.7275	0.4850
32 - 0	1.067	1.600	12.288	8.192	0.7627	0.5085
32 - 6	1.083	1.625	12.873	8.582	0.7990	0.5327
33 - 0	1.100	1.650	13.476	8.984	0.8365	0.5576
33 - 6	1.117	1.675	14.098	9.399	0.8751	0.5834
34 - 0	1.133	1.700	14.739	9.826	0.9148	0.6099
34 - 6	1.150	1.725	15.399	10.266	0.9558	0.6372
35 - 0	1.167	1.750	16.078	10.719	0.9980	0.6653
35 - 6	1.183	1.775	16.777	11.185	1.0413	0.6942
36 - 0	1.200	1.800	17.496	11.664	1.0860	0.7240
36 - 6	1.217	1.825	18.235	12.157	1.1318	0.7546
37 - 0	1.233	1.850	18.995	12.663	1.1790	0.7860
37 - 6	1.250	1.875	19.775	13.184	1.2274	0.8183

① For values of E other than those used in computing the table, multiply coefficient from the table by:

For Wood: 1.8 x 10⁶ PSI / E_(PSI)

For Steel: 29 x 10⁶ PSI / E_(PSI)

② For Concentrated Load, P_(Lbs) at midspan, Required I = 1.6 x P/L_(Ft.) x Coefficient_(From Table)

**DIVISION OF BUILDING AND SAFETY
COUNTY OF VENTURA**

BUILDING OFFICIAL _____

Jim MacDonald

B & S
STD **B-25**

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