

STRENGTH DATA (IMPERIAL)

LOADING OF BEAMS (LBF. PER PAIR)

		3 Feet	4 Feet	5 Feet	6 Feet	7 Feet	8 Feet	9 Feet	10 Feet	11 Feet	12 Feet
1 1/2"		869	525	387	296						
		931	590	443	358	291	237	189			
		1798	1170	866	650	513	425	372			
		1744	1155	859	640	491	364	280			
2 1/4"		1934	1370	896	710	570	444	337			
		2094	1480	1140	880	702	590	513			
		2330	1600	1368	1210	1100	1020	959	898		
		2919	2425	2067	1815	1614	1390	1220	1095		
		4173	3020	2307	1770	1353	1080	900			
		6016	4185	3494	3055	2710	2400	2140	1885		
3"		3044	2220	1590	1120	780	585	480			
		3703	3175	2672	2100	1720	1350	1088	915	813	745
		3525	2970	2545	2200	1945	1770	1640	1530	1445	1360
		5434	4710	3996	3300	2750	2415	2448	1975	1796	1630
		7741	5980	4941	4020	3253	2650	2139	1720	1430	1272
		11615	8930	7457	6400	5683	4900	4323	3720	3184	2710

Where beams are restrained against rotation by cross ties, the symbols are modified by the insertion of a letter T thus: Ties must be cleated in at maximum 2ft centres.

Example:

Consider a pair of 6ft. long beams of 3" angle, unrestrained (without ties) and simply supported at both ends.

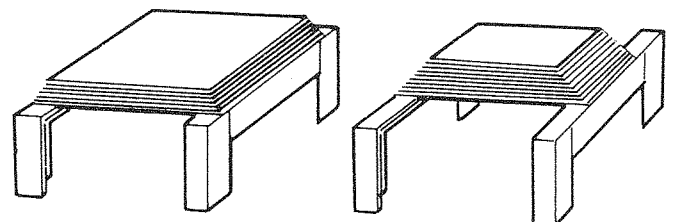
From the above loading tables it can be determined that an evenly distributed load of 1120 lbf. or a single point concentrated load of 560 lbf. can be safely applied to the beams.

USE OF BEAM LOADING TABLES

The above figures are for pairs of simply supported uniformly loaded beams. To calculate the permissible point loading, multiply the stated load by 0.5 for a single point load, by 0.65 for a two-point load.

UNIFORM LOADING occurs when an equal proportion of the applied load is taken on each increment of beam length - see right.

POINT LOADING occurs when the applied load is concentrated over a small area or a series of small areas of a beam - see right.



Uniformly Distributed Load

Concentrated Load

STRENGTH DATA (IMPERIAL)

LOADING OF STRUTS (SINGLE) - CONCENTRIC - UNRESTRAINED

		3 Feet	4 Feet	5 Feet	6 Feet	7 Feet	8 Feet	9 Feet	10 Feet
1 1/2"	T	1677	1400	848	701				
	C	4542	3800	3150	2550	2010	1570	1192	
	I	4738	4000	3389	2780	2290	1840	1467	
2 1/4"	T	1184	1000	840	690	565	445	343	
	C	5244	4330	3679	3020	2480	1940	1429	1000
	U	4733	4040	3490	2925	2415	2025	1669	1300
	I	6298	5110	4150	3300	2570	1910	1369	900
3"	T	1295	1090	925	775	659	578	479	
	C	6801	5780	4960	4390	3828	3380	2908	2500
	U	9805	6470	5030	4000	3166	2410	1737	1010
	I	7909	5975	4630	3625	2890	2250	1728	1240
	I	12882	10300	9950	8400	7019	5750	4627	2350

EFFECTIVE LENGTH FACTOR = 1.0

LOADING OF STRUTS (SINGLE) - CONCENTRIC - RESTRAINED

		3 Feet	4 Feet	5 Feet	6 Feet	7 Feet	8 Feet	9 Feet	10 Feet
1 1/2"	T	1785	1700	1560	1310	880	745		
	C	5200	4660	4150	3660	3210	2790	2390	2010
	I	5450	4890	4350	3870	3420	3000	2620	2290
2 1/4"	T	1370	1260	1090	950	855	750	650	565
	C	6150	5360	4750	4190	3700	3270	2850	2480
	U	5350	4840	4400	3940	3520	3130	2780	2415
	I	7400	6430	5700	4910	4250	3620	3070	2570
3"	T	11680	10960	10330	9650	8980	8290	7625	6940
	C	1510	1325	1190	1055	935	830	735	659
	U	7840	7000	6250	5600	5080	4620	4220	3828
	I	12000	10500	7700	6100	5150	4400	3750	3166
	I	9700	8200	6750	5680	4750	4000	3380	2890
I	14200	13100	12050	11000	10000	8900	7950	7019	

EFFECTIVE LENGTH FACTOR = 0.7

NOTES:

1. Concentrically loaded struts are assumed to be loaded via the centre of area of the section or compound section.
2. A strut is considered RESTRAINED if it is continuous beyond the fixing points at both ends.
3. Figures in bold italics have KL/r greater than 120 where k = effective length factor.

STRENGTH DATA (IMPERIAL)

LOADING OF STRUTS (SINGLE) - ECCENTRIC - UNRESTRAINED

	3 Feet	4 Feet	5 Feet	6 Feet	7 Feet	8 Feet	9 Feet	10 Feet
1 1/2"	932	704	505	355				
	2472	2325	2132	1830	1458	1120	896	
	5588	4360	3478	2800	2291	1820	1459	
2 1/4"	1195	980	833	755	700	660	630	
	3280	2950	2691	2375	2120	1890	1578	1475
	3725	3175	2836	2580	2390	2220	2073	1935
	5433	4300	3597	3030	2570	2150	1771	1410
	10090	8900	7739	6550	5592	5100	4800	4550
3"	2827	2325	1913	1660	1440	1240	1052	890
	6112	5120	4294	3480	2824	2200	1689	1230
	6093	5480	4870	4240	3630	3130	2745	2475
	7613	6300	5298	4410	3743	3190	2797	2420
	14450	11900	9828	8130	6850	5750	4876	4080

EFFECTIVE LENGTH FACTOR = 1.0

LOADING OF STRUTS (SINGLE) - ECCENTRIC - RESTRAINED

	3 Feet	4 Feet	5 Feet	6 Feet	7 Feet	8 Feet	9 Feet	10 Feet
1 1/2"	1075	965	815	670	520	405		
	2535	2480	2405	2290	2150	1965	1720	1458
	6225	5730	5050	4150	3505	3010	2610	2291
2 1/4"	1390	1215	1070	945	845	782	738	700
	3575	3275	3100	2880	2680	2480	2300	2120
	4420	3850	3400	3090	2820	2670	2520	2390
	6660	5620	4800	4130	3650	3240	2900	2570
	11150	10250	9530	8710	7850	7020	6200	5592
3"	3325	2970	2550	2235	1960	1760	1580	1440
	7050	6290	5600	4925	4330	3780	3250	2824
	6675	6225	5800	5360	4925	4490	4070	3630
	8900	7850	6910	6070	5350	4735	4200	3743
	17000	15000	13100	11480	10100	8850	7800	6850

EFFECTIVE LENGTH FACTOR = 0.7

NOTES:

1. Eccentrically loaded struts are assumed to be loaded via the line of slots as indicated thus:
2. A strut is considered RESTRAINED if it is continuous beyond the fixing points at both ends with the distance between the fixings determining the length.
3. Figures in bold italics have KL/r greater than 120 where k = effective length factor.