








22.3 Timber, Beams and Planks

Figure 22h

SIZE (INCHES)	BEAM SPAN (FEET)											
	4	6	8	10	12	14	16	18	20	24		
4 x 4	990	660	500	390	330	280	280	330	455	380	 HORIZONTAL	
4 x 6 Hor	1,530	1,000	750	600	500	430	370	330	455	380		
4 x 6 Vert	2,280	1,520	1,140	910	760	650	570	510	690	570	 VERTICAL	
6 x 6	3,460	2,310	1,730	1,380	1,150	990	860	770	690	570		
6 x 8 Hor	4,710	3,140	2,360	1,880	1,570	1,340	1,170	1,040	940	780	 HORIZONTAL	
6 x 8 Vert	6,400	4,290	3,220	2,580	2,150	1,840	1,610	1,430	1,290	1,070		
8 x 8	8,540	5,870	4,400	3,520	2,930	2,510	2,200	1,950	1,750	1,460	 HORIZONTAL	
8 x 12 Vert	12,820	8,820	6,660	5,270	4,390	3,710	3,200	2,830	2,460	2,090		
8 x 14 Vert	14,920	10,000	7,500	5,910	4,910	4,150	3,590	3,120	2,750	2,380	 HORIZONTAL	
8 x 16 Vert	17,070	11,400	8,700	6,890	5,610	4,710	4,030	3,560	3,190	2,820		
10 x 10	13,330	8,930	6,690	5,270	4,390	3,710	3,200	2,830	2,460	2,090	 HORIZONTAL	
10 x 12 Vert	16,000	10,660	8,000	6,400	5,330	4,440	3,800	3,330	2,960	2,590		
10 x 14 Vert	18,660	12,440	9,330	7,460	6,160	5,110	4,370	3,890	3,520	3,150	 HORIZONTAL	
10 x 16 Vert	21,320	14,110	10,660	8,530	7,040	5,840	5,000	4,420	3,950	3,580		

*General Note: 1 in. = 25.4 mm; 1 ft = 0.305 m; 1 lb = 0.454 kg

Figure 22i

ALLOWABLE CONCENTRATED LOADS ON AMERICAN STANDARD BEAMS
LOAD IN CENTER OF SPAN WITH BEAM FIXED AGAINST HORIZONTAL MOVEMENT
LOAD IN KIPS (1,000 LBS.)

SPAN (FEET)	NOMINAL DEPTH & WIDTH – WEIGHT PER FEET													
	10 x 4-3/4		8 x 4		7 x 3-3/4		6 x 3-3/8		5 x 3		4 x 2-3/4		3 x 2-3/8	
	35	25.4	23	18.4	20	15.3	17.25	12.15	14.75	10	9.5	7.7	7.5	5.7
3	65		35		26			16	13	10	7	6	4	3
4	48		26	23	20	17	14	12	10	8	5	5	3	2
5	39	32	21	19	16	14	11	9	8	6	4	4	2	2
6	32	27	18	16	13	11	9	8	6	5	3	3	2	1
7	28	23	15	13	11	9	8	6	5	4	3	2	1	1
8	24	20	13	12	10	8	7	6	5	4	2	2		
9	21	18	12	10	8	7	6	5	4	3	2	2		
10	19	16	10	9	8	6	5	4	4	3				
11	17	15	9		7									
12	16													

*General Note: 1 in. = 25.4 mm; 1 ft = 0.305 m; 1 lb = 0.454 kg

ALLOWABLE LOADS FOR WOOD PLANKS

(Pounds)

Total allowable uniformly distributed loads for timber planks supported at ends. The allowable concentrated load shall be one-half the distributed load.

Based on unit stress of 1,000 psi

Nom. Size (Inches) Actual Size (Inches)	PLANKS									
	6 x 2	8 x 2	10 x 2	12 x 2	14 x 2	8 x 3	10 x 3	12 x 3	12 x 3	12 x 3
Area In. ²	5-5/8 x 1-5/8	7-1/2 x 1-5/8	9-1/2 x 1-5/8	11-1/2 x 1-5/8	13-1/2 x 1-5/8	7-1/2 x 2-5/8	9-1/2 x 2-5/8	11-1/2 x 2-5/8	11-1/2 x 2-5/8	11-1/2 x 2-5/8
	9.15	12.20	15.45	18.70	21.95	19.70	25.0	30.2	30.2	30.2
Span (Feet)										
4	410	550	700	850	990	1440	1820	2200	2200	2200
5	330	440	560	680	790	1150	1460	1770	1770	1770
6	280	370	470	560	660	960	1220	1470	1470	1470
7	240	320	400	480	570	820	1040	1260	1260	1260
8	210	280	350	420	500	720	910	1100	1100	1100
9	180	250	310	380	440	640	810	980	980	980
10	.....	220	280	340	400	580	730	880	880	880
11	.....	200	250	310	360	520	660	800	800	800
12	.....	180	230	280	330	480	610	740	740	740
13	.....	.....	220	260	310	440	520	630	630	630
14	.....	.....	200	240	280	410	520	590	590	590
15	.....	.....	180	230	270	380	490	550	550	550
16	.....	.....	.....	210	250	360	460	520	520	520
17	.....	.....	.....	200	240	340	430	500	500	500
18	.....	.....	.....	190	220	320	400	460	460	460
19	.....	.....	.....	.....	210	300	380	440	440	440
20	.....	.....	.....	.....	200	290	370	440	440	440

*General Note: 1 in. = 25.4 mm; 1 ft = 0.305 m; 1 psi = 6.89 kPa; 1 in.² = 6.451 E-04 m²

Figure 22j

Figure 22k

ALLOWABLE LOADS FOR BEAMS

(Pounds)

Allowable uniformly distributed loads for timber beams supported at ends. The allowable concentrated load shall be one-half (1/2) the distributed load.

Based on unit stress of 1,000 psi

Nom. Size (Inches) Actual Size (Inches)	BEAMS									
	2 x 4	2 x 6	2 x 8	2 x 10	2 x 12	2 x 14	4 x 4	4 x 6	6 x 6	
Area In. ²	5.90	9.15	12.20	15.45	18.70	21.95	13.15	20.4	30.2	
Span (Feet)										
4	600	1430	2540	4070	5970	8230	1330	3190	4600	
5	480	1140	2030	3260	4780	6580	1060	2550	3690	
6	400	950	1700	2720	3980	5490	890	2120	3080	
7	340	820	1450	2320	3410	4700	760	1820	2630	
8	300	710	1270	2040	2990	4110	660	1590	2300	
9	.....	630	1130	1810	2650	3660	590	1420	2050	
10	.....	570	1010	1630	2390	3290	530	1270	1840	
11	.....	520	920	1480	2170	3000	480	1160	1670	
12	.....	470	840	1360	1990	2740	440	1060	1530	
13	.....	.....	780	1250	1840	2530	.....	980	1410	
14	.....	.....	720	1160	1710	2350	.....	910	1310	
15	.....	.....	670	1090	1590	2190	.....	850	1220	
16	.....	.....	630	1020	1490	2060	.....	800	1150	
17	.....	.....	.....	960	1400	1930	.....	750	1080	
18	.....	.....	.....	900	1320	1820	.....	710	1020	
19	.....	.....	.....	860	1260	1730	.....	670	970	
20	.....	.....	.....	810	1200	1640	.....	640	930	

*Allowable
Load
for Shear at
100 lbs/in.²

*General Note: 1 in. = 25.4 mm; 1 ft = 0.305 m; 1 psi = 6.89 kPa; 1 in.² = 6.451 E-04 m²