

DIY Decking Load Tables

General Data and Assumptions

E 10,000,000 lbs/in² - Modulus of Elasticity 6063 Aluminum
 rho(density) 0.097543662 lbs/in³ - standard aluminum density
 I(Mom of Inertia) 0.1 in⁴ - 8" deck board

v or v(max) in - calculated deflection or max deflection
 l ft - joist length

W=concentrated load [lbs]

Beam Formulas take from Mechanics of Materials - Bauld - 2nd edition page 647

Case 1:

Single Span - Pinned at both ends : $v(\max) = (W \cdot l^3) / (48 \cdot E \cdot I)$

Joist Length	Concentrated Load [lbs]		
	I/180	I/240	I/360
1.0	1,851.85	1,388.89	925.93
1.5	823.05	617.28	411.52
2.0	462.96	347.22	231.48
2.5	296.30	222.22	148.15
3.0	205.76	154.32	102.88
3.5	151.17	113.38	75.59
4.0	115.74	86.81	57.87
4.5	91.45	68.59	45.72
5.0	74.07	55.56	37.04
5.5	61.22	45.91	30.61
6.0	51.44	38.58	25.72
6.5	43.83	32.87	21.92

Case 2:

Double span - Pinned at both ends and center

Joist Length	Concentrated Load [lbs]		
	I/180	I/240	I/360
1.0	4,140.82	3,105.61	2,070.41
1.5	1,840.36	1,380.27	920.18
2.0	1,035.20	776.40	517.60
2.5	662.53	496.90	331.27
3.0	460.09	345.07	230.05
3.5	338.03	253.52	169.01
4.0	258.80	194.10	129.40
4.5	204.48	153.36	102.24
5.0	165.63	124.22	82.82
5.5	136.89	102.66	68.44
6.0	115.02	86.27	57.51
6.5	98.01	73.51	49.00

Case 3:

Multi Span

Joist Length	Concentrated Load [lbs]		
	I/180	I/240	I/360
1.0	9,259.26	6,944.44	4,629.63
1.5	4,115.23	3,086.42	2,057.61
2.0	2,314.81	1,736.11	1,157.41
2.5	1,481.48	1,111.11	740.74
3.0	1,028.81	771.60	514.40
3.5	755.86	566.89	377.93
4.0	578.70	434.03	289.35
4.5	457.25	342.94	228.62
5.0	370.37	277.78	185.19
5.5	306.09	229.57	153.05
6.0	257.20	192.90	128.60
6.5	219.15	164.37	109.58

