

PROPERTIES OF JOIST AND BEAM SECTIONS

California Building Code 2007 Edition (CBC), NDS 2005

Lumber: Douglas Fir-Larch Surfaced Dry (19% Moisture Content)

Maximum Reaction at Support and Maximum Moment are based on size
adjusted allowable stress values per California Building Code, 2007 Edition.

Nominal Size	Surfaced Size	Area	Weight	Section Modulus	Moment of Inertia	Maximum Reaction at Support	Maximum Moment (IN-KIPS) for Values of F_b				Nominal Size
							$M = S \times F_b'$				
							GRADE				
							SS	#1+	#1	#2	
Inches b' h'	Inches b h	(In ²)	(PLF)	(In ³)	(In ⁴)	(lbs)					Inches b' h'
2 x 4	1.5 x 3.5	5.25	1.2	3.06	5.36	630	6.9	5.5	4.6	4.1	2 x 4
2 x 6	1.5 x 5.5	8.25	2.0	7.56	20.80	990	14.7	11.8	9.8	8.8	2 x 6
2 x 8	1.5 x 7.25	10.88	2.6	13.14	47.63	1305	23.7	18.9	15.8	14.2	2 x 8
2 x 10	1.5 x 9.25	13.88	3.3	21.39	98.93	1665	35.3	28.2	23.5	21.2	2 x 10
2 x 12	1.5 x 11.25	16.88	4.0	31.64	177.98	2025	47.5	38.0	31.6	28.5	2 x 12
2 x 14	1.5 x 13.25	19.88	4.7	43.89	290.78	2385	59.3	47.4	39.5	35.6	2 x 14
4 x 4	3.5 x 3.5	12.25	2.9	7.15	12.51	1470	16.1	12.9	10.7	9.6	4 x 4
4 x 6	3.5 x 5.5	19.25	4.6	17.65	48.53	2310	34.4	27.5	22.9	20.6	4 x 6
4 x 8	3.5 x 7.25	25.38	6.0	30.66	111.15	3045	59.8	47.8	39.9	35.9	4 x 8
4 x 10	3.5 x 9.25	32.38	7.7	49.91	230.84	3885	89.8	71.9	59.9	53.9	4 x 10
4 x 12	3.5 x 11.25	39.38	9.4	73.83	415.28	4725	121.8	97.5	81.2	73.1	4 x 12
4 x 14	3.5 x 13.25	46.38	11.0	102.41	678.48	5565	153.6	122.9	102.4	92.2	4 x 14
4 x 16	3.5 x 15.25	53.38	12.7	135.66	1034.42	6405	203.5	162.8	135.7	122.1	4 x 16
6 x 6	5.5 x 5.5	30.25	7.2	27.73	76.26	3428	41.6		33.3	20.8	6 x 6
6 x 8	5.5 x 7.5	41.25	9.8	51.56	193.36	4675	77.3		69.6	45.1	6 x 8
6 x 10	5.5 x 9.5	52.25	12.4	82.73	392.96	5922	132.4		111.7	72.4	6 x 10
6 x 12	5.5 x 11.5	63.25	15.0	121.23	697.07	7168	194.0		163.7	106.1	6 x 12
6 x 14	5.5 x 13.5	74.25	17.6	167.06	1127.67	8415	263.8		222.6	144.3	6 x 14
6 x 16	5.5 x 15.5	85.25	20.2	220.23	1706.78	9662	342.5		289.0	187.3	6 x 16
6 x 18	5.5 x 17.5	96.25	22.9	280.73	2456.38	10908	430.7		363.4	235.6	6 x 18
6 x 20	5.5 x 19.5	107.25	25.5	348.56	3398.48	12155	528.4		445.8	289.0	6 x 20
8 x 8	7.5 x 7.5	56.25	13.4	70.31	263.67	6375	112.5		84.4	52.7	8 x 8
8 x 10	7.5 x 9.5	71.25	16.9	112.81	535.86	8075	180.5		135.4	84.6	8 x 10
8 x 12	7.5 x 11.5	86.25	20.5	165.31	950.55	9775	248.0		223.2	144.6	8 x 12
8 x 14	7.5 x 13.5	101.25	24.0	227.81	1537.73	11475	337.3		303.5	196.7	8 x 14
8 x 16	7.5 x 15.5	116.25	27.6	300.31	2327.42	13175	437.8		394.1	255.4	8 x 16
8 x 18	7.5 x 17.5	131.25	31.2	382.81	3349.61	14875	550.6		495.6	321.2	8 x 18
8 x 20	7.5 x 19.5	146.25	34.7	475.31	4634.30	16575	675.5		608.0	394.1	8 x 20
8 x 22	7.5 x 21.5	161.25	38.3	577.81	6211.48	18275	812.3		731.1	473.9	8 x 22
8 x 24	7.5 x 23.5	176.25	41.9	690.31	8111.17	19975	961.0		864.9	560.6	8 x 24
10 x 10	9.5 x 9.5	90.25	21.4	142.90	678.76	10228	228.6		171.5	107.2	10 x 10
10 x 12	9.5 x 11.5	109.25	25.9	209.40	1204.03	12382	335.0		251.3	157.0	10 x 12
10 x 14	9.5 x 13.5	128.25	30.5	288.56	1947.80	14535	427.2		384.5	249.2	10 x 14
10 x 16	9.5 x 15.5	147.25	35.0	380.40	2948.07	16688	554.6		499.1	323.5	10 x 16
10 x 18	9.5 x 17.5	166.25	39.5	484.90	4242.84	18842	697.5		627.7	406.9	10 x 18
10 x 20	9.5 x 19.5	185.25	44.0	602.06	5870.11	20995	855.7		770.1	499.1	10 x 20

For Uniform Loading (W=wL): Actual Moment (In-Kips) = W(Total Load, Lbs) x L(Feet) x 1.5 / 1000

For Single Load at Mid Span: Actual Moment (In-Kips) = P(Lbs) x L(Feet) x 3 / 1000

DIVISION OF BUILDING AND SAFETY
COUNTY OF VENTURA

BUILDING OFFICIAL _____

Jim MacDonald

B & S
STD

B-6

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