

FOR EQUATIONS SEE NATIONAL DESIGN STANDARD

``SPAN OF FLOOR JOIST`` EXAMPLE

Southern Yellow Pine Reference Design Values:

wood = No 1 Standard
 wet service factor (CM) = 0.85
 load duration factor (CD) = 1.6 for 10 minute loads
 bending force (Fb) = {'2x4': 1500, '4x4': 1500, '2x6': 1350,
 '4x6': 1350, '2x8': 1250, '4x8': 1250, '2x10': 1050, '4x10':
 : 1000, '2x12': 1000} psi
 shear force (Fv) = 175 psi
 elastic modulus = 1600000 psi
 deflection limit = 1/240
 compression perpendicular to grain = 565 psi

TO GET ALLOWED WEIGHT PER SQUARE FOOT,
 TAKE ALLOWED WEIGHT FOR ONE STRINGER PER FOOT,
 MULITPLY BY THE NUMBER OF STRINGERS,
 AND DIVIDE BY THE LENGTH OF THE TREAD IN FEET.

BEARING LENGTH IS PROPORTIONAL TO WEIGHT PER FOOT.

- (1) ALLOWED WEIGHT IN LBF/FT BY MOMENT CAPACITY
- (2) ALLOWED WEIGHT IN LBF/FT BY SHEAR
- (3) ALLOWED WEIGHT IN LBF/FT BY DEFLECTION
- (4) MINIMUM OF ABOVE ALLOWED WEIGHTS IN LBF/FT
- (5) BEARING LENGTH IN INCHES FOR MINIMUM WEIGHT

SPAN FT		4x4	2x6	4x6	2x8	2x10	2x12
6	(1)	202.47	192.84	449.97	310.26	424.25	597.66
	(2)	647.89	436.33	1018.11	575.17	733.83	892.50
	(3)	205.85	342.34	798.78	784.11	1628.50	2929.69
	(4)	202.47	192.84	449.97	310.26	424.25	597.66
	(5)	1.08	1.02	2.39	1.65	2.25	3.17
8	(1)	113.89	108.47	253.11	174.52	238.64	336.18
	(2)	485.92	327.25	763.58	431.38	550.38	669.38
	(3)	86.84	144.42	336.99	330.80	687.03	1235.96
	(4)	86.84	108.47	253.11	174.52	238.64	336.18
	(5)	0.61	0.77	1.79	1.24	1.69	2.38
10	(1)	72.89	69.42	161.99	111.70	152.73	215.16
	(2)	388.73	261.80	610.87	345.10	440.30	535.50
	(3)	44.46	73.94	172.54	169.37	351.76	632.81
	(4)	44.46	69.42	161.99	111.70	152.73	215.16
	(5)	0.39	0.61	1.43	0.99	1.35	1.90
12	(1)	50.62	48.21	112.49	77.57	106.06	149.41
	(2)	323.94	218.17	509.06	287.58	366.92	446.25
	(3)	25.73	42.79	99.85	98.01	203.56	366.21
	(4)	25.73	42.79	99.85	77.57	106.06	149.41
	(5)	0.27	0.45	1.06	0.82	1.13	1.59
14	(1)	37.19	35.42	82.65	56.99	77.92	109.77
	(2)	277.67	187.00	436.33	246.50	314.50	382.50
	(3)	16.20	26.95	62.88	61.72	128.19	230.62
	(4)	16.20	26.95	62.88	56.99	77.92	109.77
	(5)	0.20	0.33	0.78	0.71	0.97	1.36
16	(1)	28.47	27.12	63.28	43.63	59.66	84.05
	(2)	242.96	163.63	381.79	215.69	275.19	334.69
	(3)	10.86	18.05	42.12	41.35	85.88	154.50
	(4)	10.86	18.05	42.12	41.35	59.66	84.05
	(5)	0.15	0.26	0.60	0.59	0.84	1.19

SPAN FT	4x4	2x6	4x6	2x8	2x10	2x12
18 (1)	22.50	21.43	50.00	34.47	47.14	66.41
(2)	215.96	145.44	339.37	191.72	244.61	297.50
(3)	7.62	12.68	29.58	29.04	60.31	108.51
(4)	7.62	12.68	29.58	29.04	47.14	66.41
(5)	0.12	0.20	0.47	0.46	0.75	1.06
20 (1)	18.22	17.36	40.50	27.92	38.18	53.79
(2)	194.37	130.90	305.43	172.55	220.15	267.75
(3)	5.56	9.24	21.57	21.17	43.97	79.10
(4)	5.56	9.24	21.57	21.17	38.18	53.79
(5)	0.10	0.16	0.38	0.37	0.68	0.95
22 (1)	15.06	14.34	33.47	23.08	31.56	44.45
(2)	176.70	119.00	277.67	156.86	200.14	243.41
(3)	4.18	6.94	16.20	15.91	33.04	59.43
(4)	4.18	6.94	16.20	15.91	31.56	44.45
(5)	0.08	0.14	0.32	0.31	0.61	0.87
24 (1)	12.65	12.05	28.12	19.39	26.52	37.35
(2)	161.97	109.08	254.53	143.79	183.46	223.13
(3)	3.22	5.35	12.48	12.25	25.45	45.78
(4)	3.22	5.35	12.48	12.25	25.45	37.35
(5)	0.07	0.11	0.27	0.26	0.54	0.79