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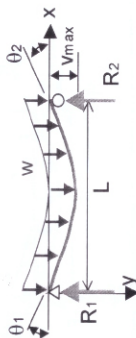
STRUCTURAL PLASTIC LUMBER SPAN TABLE - JOIST MODE UNIFORM LOAD LONG-TERM CREEP (DEAD LOAD) L/360 TABLE

Modulus Of Elasticity Per ASTM D6109 - @ 72 Deg F = 306080 PSI (not used, ref only)

Temperature adjustment factor (Ct) (90 deg F) = 0.81 (From Figure #1)

Creep adjusted Modulus of Elasticity (E) for (10 YEAR) = 101000 PSI (From Figure #4)

Deflection limited to L/360 = 0.033 inches / foot



Nominal size			Actual size		Section Property		L SPAN (FEET)											
Size	Width	Height	I (in ⁴)	Z (in ³)	lbs/ft.	2	3	4	5	6	7	8	9	10	11	12		
5/4 x 4	1.1	3.5	3.9	2.2	1.4	58	16	6	2									
5/4 x 6	1.1	5.4	14.4	5.3	2.2	214	62	25	12	6								
5/4 x 8	1.1	7.3	35.7	9.8	3.0	532	155	64	31	17	9	5						
2 x 2	1.5	1.5	0.4	0.6	0.8	5												
2 1/4" round	2.25	2.25	1.3	1.1	1.5	17	4											
2 x 3	1.5	2.5	2.0	1.6	1.4	28	7	2										
2 x 4	1.5	3.5	5.4	3.1	2.0	78	22	8	3									
2 x 6	1.5	5.4	19.7	7.3	3.0	292	84	34	16	8								
2 x 7	2.0	7.0	54.6	15.7	5.1	813	237	97	47	25	14	8						
2 x 8	1.5	7.3	48.6	13.3	4.1	725	212	87	43	23	13	7	4					
2 x 10	1.5	9.25	98.9	21.4	5.2	1479	434	180	90	50	29	18	11	7				
2 x 12	1.5	11.3	180.4	31.9	6.4	2699	795	332	167	94	57	36	23	15	10	6		
2 x 24	2.0	24.0	2246.4	187.2	17.6	33675	9965	4194	2139	1230	768	509	352	252				
3 x 4	2.4	3.4	7.9	4.6	3.1	115	32	12	4									
3 x 6	2.4	5.5	33.3	12.1	5.0	494	143	57	27	14	7							
3 x 8	2.4	7.4	81.0	21.9	6.7	1209	354	145	71	38	22	12	7					
3 x 10	2.4	9.3	160.9	34.6	8.4	2404	707	293	146	81	48	29	18	11				
3 x 12	2.4	11.3	288.6	51.1	10.2	4318	1272	531	267	150	91	57	37	24	16	10		
4" round		3.8	10.2	5.4	4.3	149	41	15	6									
4 x 4	3.4	3.4	11.1	6.6	4.3	163	45	17	6									
4 x 4 True	3.9	3.9	19.3	9.9	5.7	283	80	30	13	5								
4 x 6	3.4	5.4	44.6	16.5	6.9	662	191	77	36	18	9							
4 x 8	3.4	7.5	119.5	31.9	9.6	1783	522	215	105	57	32	18	10					
4 x 10	3.4	9.375	233.5	49.8	12.0	3490	1026	426	212	118	70	43	26	16				
4 x 12	3.45	11.375	423.1	74.4	14.7	6332	1866	779	391	220	133	84	55	36	23	15		
5 x 5	4.4	4.4	31.2	14.2	7.3	461	132	51	23	10								
6 x 6	5.4	5.4	70.9	26.2	10.9	1052	304	122	57	28	14							
6 x 8	5.4	7.4	182.4	49.3	15.0	2720	795	327	160	86	49	28	15					
6 x 12	5.4	11.3	649.3	114.9	22.9	9716	2863	1194	600	338	204	129	84	55	36	22		
8 x 8	7.3	7.3	236.7	64.8	20.0	3529	1032	424	207	111	63	35	19					
8 x 10	7.3	9.3	489.3	105.2	25.5	7314	2149	892	444	246	146	89	55	33	19			
8 x 12	7.3	11.25	866.2	154.0	30.8	12960	3818	1593	801	450	272	172	112	73	47	29		
10" round		9.8	452.8	92.4	28.3	6791	2012	849	435	252	158	106	75	54	41	31		
10 x 10	9.8	9.8	768.6	156.9	36.0	11492	3380	1405	702	391	233	144	90	56	33	17		
12 x 12	11.8	11.8	1615.6	273.8	52.2	24180	7128	2977	1499	845	513	326	214	142	93	60		
12 x 16	11.8	15.7	3805.4	484.8	69.5	57006	16842	7065	3583	2044	1262	822	557	387	274	195		
13" round		12.8	1317.7	205.9	48.3	19763	5856	2470	1265	732	461	309	217	158	119	91		

Notes:

- 1) Designers are to understand table limitations and apply them appropriately. Loads are assumed to be uniformly applied to a simple span condition.
- 2) Table includes the weight of the beam in the allowable load values.
- 3) Table is based on adjusted modulus of elasticity based on long term creep and temperature.
- 4) All designs should be reviewed by a professional engineer.
- 5) Tables are generated from uniform loaded beam formula $y = 5WL^4/384EI$
- 6) Note: Temperature Correction Factor (Ct) is found in Figure #1.
- 7) Note: Modulus E, corrected for (10 Year) creep, is found in Figure #4.
- 8) All designs should be reviewed by a professional engineer.
- 9) Example: In a pergola application, can a 2 x 8 x 8' joist spaced 24" on center support the load of 2 x 4 boards spaced 12" on center placed on top of the joist? The 2 x 4 boards weight 2 lbs / foot. This results in total loading on the 2 x 8 of 4 lbs / foot. Using the chart a 2 x 8 at 8' span is rated at 7 lbs / foot and load is 4 lbs / foot. Application is OK for creep deflection of L/360.

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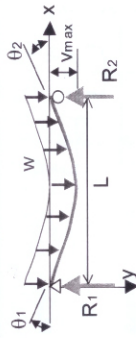
STRUCTURAL PLASTIC LUMBER SPAN TABLE - PLANK MODE
UNIFORM LOAD LONG-TERM CREEP (DEAD LOAD) L/360 TABLE

Modulus Of Elasticity Per ASTM D6109 - @ 72 Deg F = 306080 PSI (not used, ref only)

Temperature adjustment factor (Ct) (90 deg F) = 0.81 (From Figure #1)

Creeper adjusted Modulus of Elasticity (E) for (10 YEAR) = 101000 PSI (From Figure #4)

Deflection limited to L/360 = 0.033 inches / foot



Nominal size		Actual size		Section Property		L SPAN (FEET)											
Size	Width	Height	I (in ⁴)	Z (in ³)	lbs/ft.	2	3	4	5	6	7	8	9	10	11	12	
W - Allowable Uniform Load (pounds / foot)																	
5/4 x 4	3.5	1.1	0.4	0.7	1.4	4											
5/4 x 6	5.4	1.1	0.6	1.1	2.2	7											
5/4 x 8	7.3	1.1	0.8	1.5	3.0	9											
2 x 2	1.5	1.5	0.4	0.6	0.8	5											
2 1/4" round	2.25	2.25	1.3	1.1	1.5	17	4										
2 x 3	2.5	1.5	0.7	0.9	1.4	9											
2 x 4	3.5	1.5	1.0	1.3	2.0	13											
2 x 6	5.4	1.5	1.5	2.0	3.0	20	4										
2 x 7	7.0	2.0	4.3	4.4	5.1	59	14	3									
2 x 8	7.3	1.5	2.1	2.7	4.1	27	5										
2 x 10	9.25	1.5	2.6	3.5	5.2	34	6										
2 x 12	11.3	1.5	3.2	4.2	6.4	41	8										
2 x 24	24.0	2.0	14.8	15.2	17.6	205	48	10									
3 x 4	3.4	2.4	3.9	3.3	3.1	56	14	4									
3 x 6	5.5	2.4	6.3	5.3	5.0	90	23	7									
3 x 8	7.4	2.4	8.5	7.1	6.7	121	31	9									
3 x 10	9.3	2.4	10.7	8.9	8.4	152	39	12									
3 x 12	11.3	2.4	13.0	10.8	10.2	185	48	14									
4" round	3.8	3.8	10.2	5.4	4.3	149	41	15	6								
4 x 4	3.4	3.4	11.1	6.6	4.3	163	45	17	6								
4 x 4 True	3.9	3.9	19.3	9.9	5.7	283	80	30	13	5							
4 x 6	5.4	3.4	17.7	10.4	6.9	258	72	26	10								
4 x 8	7.5	3.4	24.6	14.5	9.6	359	100	36	14	4							
4 x 10	9.375	3.4	30.7	18.1	12.0	449	125	46	18	5							
4 x 12	11.38	3.45	38.9	22.6	14.7	569	158	58	23	7							
5 x 5	4.4	4.4	31.2	14.2	7.3	461	132	51	23	10	4						
6 x 6	5.4	5.4	70.9	26.2	10.9	1052	304	122	57	28	14	6					
6" round	5.9	5.9	58.5	19.9	10.2	867	250	99	46	22	10	4					
6 x 8	7.4	5.4	97.1	36.0	15.0	1441	417	167	78	39	19	8					
6 x 12	11.3	5.4	148.3	54.9	22.9	2201	636	255	119	59	29	12					
8 x 8	7.3	7.3	236.7	64.8	20.0	3529	1032	424	207	111	63	35	19	8			
8 x 10	9.3	7.3	301.5	82.6	25.5	4496	1314	540	264	142	80	45	24	11			
8 x 12	11.25	7.3	364.7	99.9	30.8	5439	1590	653	319	172	97	55	29	13			
10" round	9.8	9.8	452.8	92.4	28.3	6791	2012	849	435	252	158	106	75	54	41	31	
10 x 10	9.8	9.8	768.6	156.9	36.0	11492	3380	1405	702	391	233	144	90	56	33	17	
12 x 12	11.8	11.8	1615.6	273.8	52.2	24180	7128	2977	1499	845	513	326	214	142	93	60	
12 x 16	15.7	11.8	2149.6	364.3	69.5	32172	9483	3961	1994	1125	683	434	284	188	124	80	
13" round	12.8	12.8	1317.7	205.9	48.3	19763	5856	2470	1265	732	461	309	217	158	119	91	

Notes:

- 1) Designers are to understand table limitations and apply them appropriately. Loads are assumed to be uniformly applied to a simple span condition.
- 2) Table includes the weight of the beam in the allowable load values.
- 3) Table is based on adjusted modulus of elasticity based on long term creep and temperature.
- 4) All designs should be reviewed by a professional engineer.
- 5) Tables are generated from uniform loaded beam formula $y = 5WL^4/384EI$
- 6) Note: Temperature Correction Factor (Ct) is found in Figure #1.
- 7) Note: Modulus E, corrected for (10 Year) creep, is found in Figure #4.
- 8) All designs should be reviewed by a professional engineer.
- 9) Example: In a pergola application, can a 2 x 4 laid flat be used as purlin with the joist spacing of 24" on center? Using the chart, a 2 x 4 at 2' span is rated at 13 lbs/foot allowed. Application is OK for creep deflection of L/360.

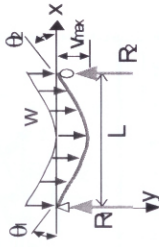
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STRUCTURAL PLASTIC LUMBER SPAN TABLE - JOIST MODE
UNIFORM LOAD LONG-TERM CREEP (DEAD LOAD) L/360 TABLE

Modulus Of Elasticity Per ASTM D6109 - @ 72 Deg F= 137600 PSI (not used, ref only)

Temperature adjustment factor (Ct) (90 deg F) = 0.81 (From Figure #1)

Creep adjusted Modulus of Elasticity (E) for (10 YEAR) = 34400 PSI (From Figure #4)

Deflection limited to L/360 = 0.033 inches / foot



Nominal size	Actual size		Section Property		Board only lbs/ft.
	Width	Height	I (in ⁴)	Z (in ³)	
1 x 5-1/2	1.0	5.5	13.9	5.0	11.7
2 x 6	1.5	5.5	20.8	7.6	2.6
6" round		5.95	61.5	20.7	8.7

L SPAN (FEET)										
2	3	4	5	6	7	8	9	10		
W - Allowable Uniform Load (pounds / foot)										
69	19	7	3							
104	29	11	4	1						
314	93	39	20	12	7	5	3			

Notes:

- 1) Designers are to understand table limitations and apply them appropriately. Loads are assumed to be uniformly applied to a simple span condition.
- 2) Table includes the weight of the beam in the allowable load values.
- 3) Table is based on adjusted modulus of elasticity based on long term creep and temperature.
- 4) All designs should be reviewed by a professional engineer.
- 5) Tables are generated from uniform loaded beam formula $y = 5WL^4/384EICT$
- 6) Note: Temperature Correction Factor (Ct) is found in Figure #1.
- 7) Note: Modulus E, corrected for (10 Year) creep, is found in Figure #4.
- 8) All designs should be reviewed by a professional engineer.
- 9) Example: In a pergola application, can a 2 x 6 x 8' joist spaced 24" on center support the load of 2 x 4 boards spaced 12" on center placed on top of the joist? The joists are supported every 5 ft. The 2 x 4 boards weight 2 lbs / foot. This results in total loading on the 2 x 6 of 4 lbs / foot. Using the chart a 2 x 6 at 5' span is rated at 6 lbs / foot and load is 4 lbs / foot. Application is OK for creep deflection of L/360.

Bedford Technology, LLC

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RT10-360 CEFF

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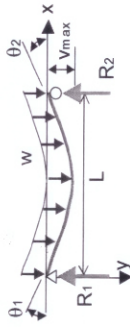
STRUCTURAL PLASTIC LUMBER SPAN TABLE - JOIST MODE UNIFORM LOAD LONG-TERM CREEP (DEAD LOAD) L/240 TABLE

Modulus Of Elasticity Per ASTM D6109 - @ 72 Deg F= 306080 PSI (not used, ref only)

Temperature adjustment factor (Ct) (90 deg F) = 0.81 (From Figure #1)

Creep adjusted Modulus of Elasticity (E) for (10 YEAR) = 101000 PSI (From Figure #4)

Deflection limited to L/360 = 0.05 inches / foot



Nominal size	Actual size	Width	Height	Section Property		L SPAN (FEET)											
				I (in ⁴)	Z (in ³)	W - Allowable Uniform Load (pounds / foot)											
5/4 x 4	1.1	3.5	3.9	2.2	1.4	88	25	10	4								
5/4 x 6	1.1	5.4	14.4	5.3	2.2	326	95	39	19	10							
5/4 x 8	1.1	7.3	35.7	9.8	3.0	807	237	98	49	27	16	10	6				
2 x 2	1.6	1.6	0.5	0.7	1.0	11	3										
2 1/2" round	2.25	2.25	1.3	1.1	1.5	27	7										
2 x 3	1.5	2.5	2.0	1.6	1.4	43	12	4									
2 x 4	1.5	3.5	5.4	3.1	2.0	120	34	13	6								
2 x 6	1.5	5.4	19.7	7.3	3.0	444	129	53	26	14	7						
2 x 7	2.0	7.0	54.6	15.7	5.1	1235	362	150	74	41	24	14	9				
2 x 8	1.5	7.3	48.6	13.3	4.1	1101	323	134	67	37	22	13	8	5			
2 x 10	1.5	9.25	98.9	21.4	5.2	2243	661	276	139	78	47	30	19	13			
2 x 12	1.5	11.3	180.4	31.9	6.4	4092	1208	506	256	145	89	58	39	26	18	13	
2 x 24	2.0	24.0	2246.4	187.2	17.6	18720	15108	6364	3250	1873	1173	780	543	391			
3 x 4	2.4	3.4	7.9	4.6	3.1	176	50	19	8								
3 x 6	2.4	5.5	33.3	12.1	5.0	751	219	90	43	23	13	7					
3 x 8	2.4	7.4	81.0	21.9	6.7	1835	539	224	111	62	36	22	14	8			
3 x 10	2.4	9.3	160.9	34.6	8.4	3647	1075	449	226	127	77	49	32	21			
3 x 12	2.4	11.3	288.6	51.1	10.2	6548	1933	810	410	233	143	92	62	42	29	20	
4" round	3.8	3.8	10.2	5.4	4.3	228	65	25	11								
4 x 4	3.4	3.4	11.1	6.6	4.3	249	71	27	12	5							
4 x 4 True	3.9	3.9	19.3	9.9	5.7	432	124	49	22	11	5						
4 x 6	3.4	5.4	44.6	16.5	6.9	1007	294	120	58	31	17	9					
4 x 8	3.4	7.5	119.5	31.9	9.6	2707	795	330	164	91	54	33	20	12			
4 x 10	3.4	9.375	233.5	49.8	12.0	5293	1560	651	328	185	112	71	46	30	20	13	
4 x 12	3.45	11.375	423.1	74.4	14.7	9601	2834	1187	601	341	210	136	91	62	43	30	
5 x 5	4.4	4.4	31.2	14.2	7.3	703	203	81	38	19	9						
6 x 6	5.4	5.4	70.9	26.2	10.9	1599	466	190	92	49	27	14					
6" round	5.9	5.9	58.5	19.9	10.2	1319	384	156	75	39	21	11					
6 x 8	5.4	7.4	182.4	49.3	15.0	4129	1213	503	250	138	82	50	30	18	10		
6 x 10	5.4	9.38	371.4	79.2	19.0	8421	2482	1036	521	294	178	113	74	49	32	20	
6 x 12	5.4	11.3	649.3	114.9	22.9	14733	4349	1822	921	524	321	208	139	95	66	45	
6 x 16	5.9	15.56	1852.2	238.1	34.4	42058	12437	5227	2659	1525	947	623	427	302	219	160	
8 x 8	7.3	7.3	236.7	64.8	20.0	5358	1573	652	324	179	105	64	39	23	12		
8 x 10	7.3	9.3	489.3	105.2	25.5	11094	3269	1365	686	386	234	148	97	63	41	26	
8 x 12	7.3	11.25	866.2	154.0	30.8	19653	5801	2430	1229	698	428	277	185	127	88	60	
10" round	9.8	9.8	452.8	92.4	28.3	10289	3049	1286	659	381	240	161	113	82	62	48	
10 x 10	9.8	9.8	768.6	156.9	36.0	17431	5139	2147	1082	611	371	237	156	104	69	45	
12 x 12	11.8	11.8	1615.6	273.8	52.2	36663	10826	4537	2298	1308	804	521	351	242	168	118	
12 x 16	11.8	15.7	3805.4	484.8	69.5	86408	25554	10740	5465	3133	1947	1282	880	622	450	331	
13" round	12.8	12.8	1317.7	205.9	48.3	29944	8872	3743	1916	1109	698	468	329	240	180	139	

Notes:

- 1) Designers are to understand table limitations and apply them appropriately. Loads are assumed to be uniformly applied to a simple span condition.
- 2) Table includes the weight of the beam in the allowable load values.
- 3) Table is based on adjusted modulus of elasticity based on long term creep and temperature.
- 4) All designs should be reviewed by a professional engineer.
- 5) Tables are generated from uniform loaded beam formula $v = 5WL^4/384EI$
- 6) Note: Temperature Correction Factor (Ct) is found in Figure #1.
- 7) Note: Modulus E, corrected for (10 Year) creep, is found in Figure #4.
- 8) All designs should be reviewed by a professional engineer.
- 9) Example: In a pergola application, can a 2 x 8 x 8' joist spaced 24" on center support the load of 2 x 4 boards spaced 12" on center placed on top of the joist? The 2 x 4 boards weight 2 lbs / foot. This results in total loading on the 2 x 8 of 4 lbs / foot. Using the chart a 2 x 8 at 8' span is rated at 7 lbs / foot and load is 4 lbs / foot. Application is OK for creep deflection of L/360.

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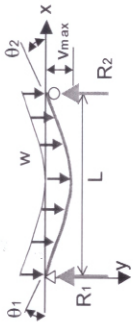
STRUCTURAL PLASTIC LUMBER SPAN TABLE - PLANK MODE UNIFORM LOAD LONG-TERM CREEP (DEAD LOAD) L/240 TABLE

Modulus Of Elasticity Per ASTM D6109 - @ 72 Deg F= 306080 PSI (not used, ref only)

Temperature adjustment factor (Ct) (90 deg F) = 0.81 (From Figure #1)

Creep adjusted Modulus of Elasticity (E) for (10 YEAR) = 101000 PSI (From Figure #4)

Deflection limited to L/240 = 0.05 inches / foot



Nominal size	Actual size	Section Property	Board only	L SPAN (FEET)												
				2	3	4	5	6	7	8	9	10	11	12		
Size	Width	Height	I (in ⁴)	Z (in ³)	W - Allowable Uniform Load (pounds / foot)											
5/4 x 4	3.5	1.1	0.4	0.7	7											
5/4 x 6	5.4	1.1	0.6	1.1	11											
5/4 x 8	7.3	1.1	0.8	1.5	15											
2 x 2	1.6	1.6	0.5	0.7	11	3										
2 1/4" round	2.25	2.25	1.3	1.1	27	7										
2 x 3	2.5	1.5	0.7	0.9	14	15	3									
2 x 4	3.5	1.5	1.0	1.3	20	5										
2 x 6	5.4	1.5	1.5	2.0	30	31	7									
2 x 7	7.0	2.0	4.3	4.4	51	93	24	7								
2 x 8	7.3	1.5	2.1	2.7	41	43	10									
2 x 10	9.25	1.5	2.6	3.5	52	54	12									
2 x 12	11.3	1.5	3.2	4.2	64	66	15									
2 x 24	24.0	2.0	14.8	15.2	17.6	319	82	25								
3 x 4	3.4	2.4	3.9	3.3	31	86	23	8								
3 x 6	5.5	2.4	6.3	5.3	50	139	38	13								
3 x 8	7.4	2.4	8.5	7.1	67	187	51	18	6							
3 x 10	9.3	2.4	10.7	8.9	84	235	64	22	7							
3 x 12	11.3	2.4	13.0	10.8	10.2	286	77	27	9							
4" round	3.8	3.8	10.2	5.4	4.3	228	65	25	11							
4 x 4	3.4	3.4	11.1	6.6	4.3	249	71	27	12	5						
4 x 4 True	3.9	3.9	19.3	9.9	5.7	432	124	49	22	11						
4 x 6	5.4	3.4	17.7	10.4	6.9	395	112	43	19							
4 x 8	7.5	3.4	24.6	14.5	9.6	549	156	60	26	11						
4 x 10	9.375	3.4	30.7	18.1	12.0	686	195	75	33	14						
4 x 12	11.38	3.45	38.9	22.6	14.7	870	247	96	42	18	6					
5 x 5	4.4	4.4	31.2	14.2	7.3	703	203	81	38	19	9					
6 x 6	5.4	5.4	70.9	26.2	10.9	1599	466	190	92	49	27	14				
6" round	5.9	5.9	58.5	19.9	10.2	1319	384	156	75	39	21	11				
6 x 8	7.4	5.4	97.1	36.0	15.0	2192	639	261	126	67	36	19	9			
6 x 10	9.38	5.4	123.1	45.6	19.0	2778	810	331	160	85	46	25	12			
6 x 12	11.3	5.4	148.3	54.9	22.9	3347	976	398	193	102	56	30	14			
6 x 16	15.56	5.9	266.3	90.3	34.4	6017	1759	722	353	190	107	60	32	14		
8 x 8	7.3	7.3	236.7	64.8	20.0	5358	1573	652	324	179	105	64	39	23		
8 x 10	9.3	7.3	301.5	82.6	25.5	6826	2005	831	413	228	134	82	50	29		
8 x 12	11.25	7.3	364.7	99.9	30.8	8257	2425	1005	500	276	163	99	60	36		
10" round	9.8	9.8	452.8	92.4	28.3	10289	3049	1286	659	381	240	161	113	82		
10 x 10	9.8	9.8	768.6	156.9	36.0	17431	5139	2147	1082	611	371	237	156	104		
12 x 12	11.8	11.8	1615.6	273.8	52.2	36663	10826	4537	2298	1308	804	521	351	242		
12 x 16	15.7	11.8	2149.6	364.3	69.5	48781	14405	6037	3057	1740	1070	694	467	321		
13" round	12.8	13.17	205.9	48.3	48.3	29944	8872	3743	1916	1109	698	468	320	180		

Notes:

- 1) Designers are to understand table limitations and apply them appropriately. Loads are assumed to be uniformly applied to a simple span condition.
- 2) Table includes the weight of the beam in the allowable load values.
- 3) Table is based on adjusted modulus of elasticity based on long term creep and temperature.
- 4) All designs should be reviewed by a professional engineer.
- 5) Tables are generated from uniform loaded beam formula $y = 5WL^4/384EI$
- 6) Note: Temperature Correction Factor (Ct) is found in Figure #1.
- 7) Note: Modulus E, corrected for (10 Year) creep, is found in Figure #4.
- 8) All designs should be reviewed by a professional engineer.
- 9) Example: In a pergola application, can a 2 x 4 laid flat be used as purlin with the joist spacing of 24" on center? Using the chart, a 2 x 4 at 2' span is rated at 13 lbs/foot allowed. Application is OK for creep deflection of L/360.