Southern Pine Allowable Load Tables

NEW SOUTHERN PINE DESIGN VALUES

Requirements for Use of Allowable Load Tables

1. These tables are for gravity loads only. Consult a registered design professional for wind and seismic load analysis and design.
2. All tables are based on uniformly distributed loads only. Other loads, such as concentrated or unbalanced snow loads, have not been considered and must be analyzed separately.
3. These tables are only applicable to members used under dry-service conditions where the moisture content in use is a maximum of 19% for lumber and less than 16% for glued laminated timber.
4. The compression edge of the header or beam must be laterally supported at intervals of 24" or less. In addition, lateral support must be provided at bearing points.
5. Allowable total and live plf (pounds per lineal foot) loads used to select a header or beam must be equal to or greater than the actual plf loads applied.
6. Multiple-member headers and beams must be properly connected together. See page 5 for connection guidelines.
7. These tables assume unbalanced glued laminated timber combinations used in simple-span applications. Balanced beam combinations with equal or greater design values may be substituted and used in either simple-span or continuous-span applications.
8. These tables are only applicable to members used under ordinary ranges of temperature and occasionally heated in use up to 150° F.

Southern Forest Products Association does not develop design values for either lumber or glued laminated timber. Accordingly, SFPA does not warrant the design values on which these tables are based, and assumes no liability for damage caused or contributed to by the use of such design values. In addition, SFPA and its members have no knowledge of the loads, spans, materials used, quality of workmanship, professional competence of the users, and other factors involved in specifying headers or beams for any given project; and accordingly, cannot, and do not, represent or warrant the performance in use of headers or beams incorporated into any particular construction project, and disclaim liability for injury or damage caused by the failure of a header or beam in use.

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Key – for each clear opening there are three rows of values:

TL: Maximum total load in pounds per lineal foot (plf) with deflection limited to $\ell/180$

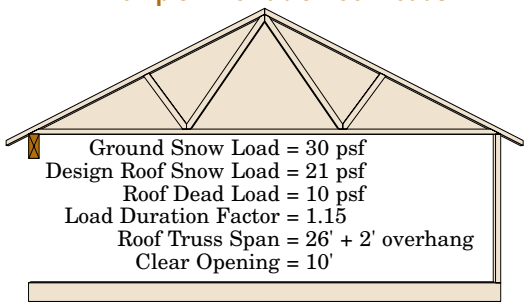
LL: Maximum live load in pounds per lineal foot (plf) with deflection limited to $\ell/240$

BL: Required bearing length in inches

Steps in Sizing Headers and Beams:

1. Determine the required total load (live load + dead load) in plf.
2. Determine the required live load in plf.
3. Select a clear opening and find columns where the plf value in the TL row equals or exceeds the required total load, *and* the plf value in the LL row equals or exceeds the required live load.
4. Check required bearing lengths in the BL row.
5. Find product size options at the top of the columns meeting the total load, live load and bearing length requirements.

Example: Allowable Roof Loads



Total Load = (26'/2 + 2') x (21 + 10) psf = 465 plf
Live Load = (26'/2 + 2') x 21 psf = 315 plf

Select the 10' clear opening in Tables 27-32. Read across the TL row in each table to find columns with total loads equal to or greater than the required 465 plf. Then check the LL row in those columns to make sure the corresponding live loads are equal to or greater than the required 315 plf. Solutions include: from Table 27 for No.1 SP lumber, select (2) 2x12s, (3) 2x10s or (4) 2x8s; from Table 28 for No.2 SP lumber, select (3) 2x12s or (4) 2x10s; from Table 29 for No.3 SP lumber, select (4) 2x12s; from Table 30 for 24F-1.7E (V4) SP glulam, select a 3-1/2x9-1/4" beam; from Table 32 for 24F-1.8E (V3) SP glulam, select a 3-1/8x8-1/4" beam. All of the lumber solutions and the 24F-1.8E glulam solution require a 1.5" bearing length, while the 24F-1.7E glulam solution requires a 3.0" bearing length.

Table 27 – No. 1 Southern Pine Lumber

Clear Opening		1-ply				2-ply				3-ply				4-ply			
		2 x 6	2 x 8	2 x 10	2 x 12	2 x 6	2 x 8	2 x 10	2 x 12	2 x 6	2 x 8	2 x 10	2 x 12	2 x 6	2 x 8	2 x 10	2 x 12
4'	TL	464	725	962	1296	928	1450	1925	2591	1590	2472	3266	4366	2120	3296	4355	5821
	LL	464	725	962	1296	928	1450	1925	2591	1590	2472	3266	4366	2120	3296	4355	5821
	BL	1.5	3.0	3.0	4.5	1.5	3.0	3.0	4.5	1.5	3.0	3.0	4.5	1.5	3.0	3.0	4.5
6'	TL	211	335	453	626	422	671	906	1252	726	1152	1552	2139	968	1536	2070	2852
	LL	211	335	453	626	422	671	906	1252	726	1152	1552	2139	968	1536	2070	2852
	BL	1.5	1.5	3.0	3.0	1.5	1.5	3.0	3.0	1.5	1.5	3.0	3.0	1.5	1.5	3.0	3.0
8'	TL	119	190	259	361	238	381	517	722	410	656	890	1240	547	875	1187	1654
	LL	119	190	259	361	238	381	517	722	410	656	890	1240	547	875	1187	1654
	BL	1.5	1.5	1.5	3.0	1.5	1.5	1.5	3.0	1.5	1.5	1.5	3.0	1.5	1.5	1.5	3.0
10'	TL	76	122	166	233	151	244	332	466	262	421	573	802	349	561	764	1069
	LL	73	122	166	233	146	244	332	466	219	421	573	802	292	561	764	1069
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	3.0	1.5	1.5	1.5	3.0
12'	TL	52	84	115	162	104	168	230	323	164	291	397	558	218	388	529	744
	LL	42	84	115	162	85	168	230	323	127	290	397	558	170	386	529	744
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
14'	TL	34	61	84	118	68	123	168	236	101	212	290	409	135	283	387	545
	LL	27	61	84	118	54	122	168	236	80	183	290	409	107	244	387	545
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16'	TL	22	46	64	90	44	93	127	180	66	156	220	311	88	208	294	415
	LL	18	41	64	90	36	82	127	180	54	123	220	311	72	164	294	415
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
18'	TL	15	36	50	70	30	72	99	141	45	108	172	244	60	144	230	325
	LL	13	29	50	70	25	58	99	141	38	87	172	244	51	116	230	325
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

(See *Requirements for Use* on page 23, and *Key*, *Example* and *Notes* on this page)

Notes for Tables 27 - 32: Allowable Roof Loads (plf) - 1.15 Load Duration Factor

- Tabulated total loads (TL) and live loads (LL) represent the allowable uniformly distributed loads that a beam can support in addition to its own weight. Deflection is limited to $\ell/180$ for total load and $\ell/240$ for live load. To determine an allowable live load for a deflection limit other than $\ell/240$, multiply the LL value by the ratio of 240 divided by the desired deflection constant. The result must not exceed the corresponding TL value for the same clear opening and product.
- Tabulated bearing lengths (BL) reflect the number of 2x trimmers required at each end of the header or beam based on the corresponding plf loads (e.g., 1.5" = one trimmer, 3.0" = two trimmers, etc.). Additional checks may be required for bearing length and trimmers.
- See *Assumptions for Table Development* beginning on page 2 for details on design assumptions made to generate these tables.
- Interpolation between clear openings is permitted.
- The design span is assumed to be the clear opening plus 1/2 the required bearing length at each end.

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Table 28 – No. 2 Southern Pine Lumber

Clear Opening		1-ply				2-ply				3-ply				4-ply			
		2 x 6	2 x 8	2 x 10	2 x 12	2 x 6	2 x 8	2 x 10	2 x 12	2 x 6	2 x 8	2 x 10	2 x 12	2 x 6	2 x 8	2 x 10	2 x 12
4'	TL	348	547	752	1010	695	1094	1504	2020	1194	1872	2563	3425	1591	2495	3418	4566
	LL	348	547	752	1010	695	1094	1504	2020	1194	1872	2563	3425	1591	2495	3418	4566
	BL	1.5	1.5	3.0	3.0	1.5	1.5	3.0	3.0	1.5	3.0	3.0	3.0	1.5	3.0	3.0	3.0
6'	TL	157	250	348	477	313	499	696	953	540	859	1196	1633	720	1146	1595	2178
	LL	157	250	348	477	313	499	696	953	540	859	1196	1633	720	1146	1595	2178
	BL	1.5	1.5	1.5	3.0	1.5	1.5	1.5	3.0	1.5	1.5	1.5	3.0	1.5	1.5	1.5	3.0
8'	TL	88	141	198	272	176	282	395	545	303	486	681	937	405	648	908	1250
	LL	88	141	198	272	176	282	395	545	303	486	681	937	405	648	908	1250
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	3.0	1.5	1.5	1.5	3.0
10'	TL	56	90	126	175	111	179	252	349	193	310	436	603	257	414	581	804
	LL	56	90	126	175	111	179	252	349	192	310	436	603	256	414	581	804
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
12'	TL	38	62	87	121	76	123	174	242	132	214	301	418	177	285	402	557
	LL	37	62	87	121	74	123	174	242	112	214	301	418	149	285	402	557
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
14'	TL	28	45	63	88	55	89	126	176	88	155	219	305	117	207	292	406
	LL	23	45	63	88	47	89	126	176	70	155	219	305	94	207	292	406
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16'	TL	19	34	48	67	38	67	95	133	57	117	166	231	76	156	221	308
	LL	16	34	48	67	31	67	95	133	47	108	166	231	63	144	221	308
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
18'	TL	13	26	37	52	26	52	74	104	38	91	129	180	51	122	172	241
	LL	11	25	37	52	22	51	74	104	33	76	129	180	44	101	172	241
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Table 29 – No. 3 Southern Pine Lumber

Clear Opening		1-ply				2-ply				3-ply				4-ply			
		2 x 6	2 x 8	2 x 10	2 x 12	2 x 6	2 x 8	2 x 10	2 x 12	2 x 6	2 x 8	2 x 10	2 x 12	2 x 6	2 x 8	2 x 10	2 x 12
4'	TL	202	317	461	633	404	635	921	1267	696	1090	1579	2164	928	1454	2105	2885
	LL	202	317	461	633	404	635	921	1267	696	1090	1579	2164	928	1454	2105	2885
	BL	1.5	1.5	1.5	3.0	1.5	1.5	1.5	3.0	1.5	1.5	1.5	3.0	1.5	1.5	1.5	3.0
6'	TL	90	142	208	290	180	284	417	580	310	491	718	999	414	654	958	1331
	LL	90	142	208	290	180	284	417	580	310	491	718	999	414	654	958	1331
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
8'	TL	50	79	117	164	100	159	234	327	173	275	404	565	230	366	539	753
	LL	50	79	117	164	100	159	234	327	173	275	404	565	230	366	539	753
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
10'	TL	31	50	74	104	63	100	148	208	109	174	256	360	145	231	342	480
	LL	31	50	74	104	63	100	148	208	109	174	256	360	145	231	342	480
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
12'	TL	21	34	51	71	42	68	101	142	74	118	176	247	98	158	234	330
	LL	21	34	51	71	42	68	101	142	74	118	176	247	98	158	234	330
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
14'	TL	15	24	36	51	30	49	73	103	53	85	127	179	70	113	169	238
	LL	15	24	36	51	30	49	73	103	53	85	127	179	70	113	169	238
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16'	TL	11	18	27	38	22	36	54	77	39	63	95	134	52	84	126	179
	LL	11	18	27	38	22	36	54	77	39	63	95	134	52	84	126	179
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
18'	TL	8	14	21	30	17	27	41	59	30	48	73	104	39	65	97	138
	LL	8	14	21	30	17	27	41	59	30	48	73	104	39	65	97	138
	BL	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

(See *Requirements for Use* on page 23, and *Key*, *Example* and *Notes* on page 29)

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Table 30 – 24F-1.7E (V4) Southern Pine Glued Laminated Timber

Clear Opening		3-1/2" Width								5-1/2" Width								
		Depth (in.)								Depth (in.)								
		9-1/4	9-1/2	11-1/4	11-7/8	14	16	18	19-1/4	11-1/4	11-7/8	14	16	18	19-1/4	20-5/8	22	23-3/8
6'	TL	1940	2012	2551	2763	---	---	---	---	3204	3470	4489	5645	---	---	---	---	---
	LL	1940	2012	2551	2763	---	---	---	---	3204	3470	4489	5645	---	---	---	---	---
	BL	3.0	3.0	4.5	4.5	---	---	---	---	3.0	3.0	4.5	4.5	---	---	---	---	---
8'	TL	1337	1382	1715	1842	2308	2803	---	---	2153	2312	2898	3520	4225	4717	5309	5964	---
	LL	1337	1382	1715	1842	2308	2803	---	---	2153	2312	2898	3520	4225	4717	5309	5964	---
	BL	3.0	3.0	3.0	3.0	4.5	6.0	---	---	3.0	3.0	3.0	4.5	4.5	6.0	6.0	7.5	---
10'	TL	883	930	1290	1380	1703	2035	2399	2645	1619	1732	2137	2554	3011	3320	3682	4071	4489
	LL	834	901	1290	1380	1703	2035	2399	2645	1619	1732	2137	2554	3011	3320	3682	4071	4489
	BL	3.0	3.0	3.0	3.0	4.5	4.5	6.0	6.0	3.0	3.0	3.0	4.5	4.5	4.5	6.0	6.0	6.0
12'	TL	617	650	905	1005	1348	1596	1862	2039	1296	1383	1691	2002	2336	2558	2815	3086	3373
	LL	489	529	867	1005	1348	1596	1862	2039	1296	1383	1691	2002	2336	2558	2815	3086	3373
	BL	1.5	3.0	3.0	3.0	4.5	4.5	4.5	6.0	3.0	3.0	3.0	4.5	4.5	4.5	4.5	6.0	6.0
14'	TL	407	441	668	743	1024	1312	1521	1658	1049	1150	1397	1645	1907	2079	2277	2483	2699
	LL	311	337	553	648	1024	1312	1521	1658	869	1019	1397	1645	1907	2079	2277	2483	2699
	BL	1.5	1.5	3.0	3.0	3.0	4.5	4.5	6.0	3.0	3.0	3.0	3.0	4.5	4.5	4.5	4.5	6.0
16'	TL	272	295	488	570	788	1022	1285	1396	767	895	1190	1395	1610	1750	1910	2076	2248
	LL	210	227	374	438	709	1022	1285	1396	587	688	1117	1395	1610	1750	1910	2076	2248
	BL	1.5	1.5	3.0	3.0	3.0	4.5	4.5	4.5	3.0	3.0	3.0	3.0	4.5	4.5	4.5	4.5	6.0
18'	TL	189	205	343	403	623	811	1021	1163	538	633	976	1210	1392	1510	1644	1782	1924
	LL	148	160	264	310	502	743	1021	1163	415	487	790	1171	1392	1510	1644	1782	1924
	BL	1.5	1.5	1.5	1.5	3.0	3.0	4.5	4.5	1.5	1.5	3.0	3.0	4.5	4.5	4.5	4.5	4.5
20'	TL	136	148	248	293	479	658	829	944	390	460	753	1018	1225	1327	1442	1560	1681
	LL	108	117	194	227	369	546	770	936	304	357	580	858	1214	1327	1442	1560	1681
	BL	1.5	1.5	1.5	1.5	3.0	3.0	4.5	4.5	1.5	1.5	3.0	3.0	4.5	4.5	4.5	4.5	4.5
22'	TL	100	109	185	218	359	536	684	778	290	343	565	836	1050	1183	1283	1386	1492
	LL	81	88	146	171	279	412	583	709	229	269	438	648	917	1117	1283	1386	1492
	BL	1.5	1.5	1.5	1.5	3.0	3.0	3.0	4.5	1.5	1.5	3.0	3.0	3.0	4.5	4.5	4.5	4.5
24'	TL	---	---	140	166	275	412	572	651	220	261	432	648	878	1000	1143	1247	1340
	LL	---	---	113	132	216	320	452	550	177	208	339	502	710	865	1059	1247	1340
	BL	---	---	1.5	1.5	1.5	3.0	3.0	4.5	1.5	1.5	1.5	3.0	3.0	3.0	4.5	4.5	4.5
26'	TL	---	---	108	129	214	323	460	552	170	202	337	507	723	847	969	1097	1216
	LL	---	---	89	104	170	253	357	435	139	164	267	397	561	684	838	1012	1211
	BL	---	---	1.5	1.5	1.5	3.0	3.0	3.0	1.5	1.5	1.5	3.0	3.0	3.0	4.5	4.5	4.5
28'	TL	---	---	85	101	170	256	367	450	---	159	267	403	577	706	831	942	1059
	LL	---	---	71	84	137	203	287	350	---	131	215	319	451	550	674	815	973
	BL	---	---	1.5	1.5	1.5	1.5	3.0	3.0	---	1.5	1.5	1.5	3.0	3.0	3.0	4.5	4.5
30'	TL	---	---	---	---	136	206	297	364	---	---	214	324	466	572	704	816	918
	LL	---	---	---	---	111	165	234	286	---	---	175	260	368	449	550	665	795
	BL	---	---	---	---	1.5	1.5	3.0	3.0	---	---	1.5	1.5	3.0	3.0	3.0	4.5	4.5
32'	TL	---	---	---	---	110	168	242	298	---	---	173	264	381	468	578	703	802
	LL	---	---	---	---	92	137	194	236	---	---	144	215	304	371	455	550	657
	BL	---	---	---	---	1.5	1.5	3.0	3.0	---	---	1.5	1.5	3.0	3.0	3.0	3.0	4.5
34'	TL	---	---	---	---	90	138	200	246	---	---	141	217	314	387	479	583	701
	LL	---	---	---	---	77	114	162	197	---	---	120	179	254	310	380	460	550
	BL	---	---	---	---	1.5	1.5	1.5	3.0	---	---	1.5	1.5	1.5	3.0	3.0	3.0	3.0
36'	TL	---	---	---	---	---	114	166	205	---	---	---	179	261	322	400	488	587
	LL	---	---	---	---	---	96	137	167	---	---	---	151	215	262	321	389	465
	BL	---	---	---	---	---	1.5	1.5	1.5	---	---	---	1.5	1.5	1.5	3.0	3.0	3.0
38'	TL	---	---	---	---	---	95	139	172	---	---	---	149	219	271	336	411	496
	LL	---	---	---	---	---	82	116	142	---	---	---	129	183	223	274	331	396
	BL	---	---	---	---	---	1.5	1.5	1.5	---	---	---	1.5	1.5	1.5	3.0	3.0	3.0

(See *Requirements for Use* on page 23, *Key* and *Example* on page 29, and *Notes* on page 29 and this page)

Notes for Table 30: Allowable Roof Loads (plf) - 1.15 Load Duration Factor

- For practicality, allowable roof loads are omitted from the table when they exceed 3,000 and 6,000 pounds per lineal foot (plf) for the 3-1/2" and 5-1/2"-wide beams, respectively, and when a glued laminated timber's span-to-depth ratio exceeds 30.
- To determine allowable roof loads for 3- and 3-1/8"-wide glued laminated timber beams, multiply tabulated total loads (TL) and live loads (LL) for 3-1/2"-wide beams by 0.857 and 0.893, respectively. Then check the required bearing length (BL).
- To determine allowable roof loads for 5- and 5-1/8"-wide glued laminated timber beams, multiply the TL and LL values for 5-1/2" wide beams by 0.909 or 0.932, respectively. Then check the required bearing length (BL).

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Table 31 – 24F-1.7E (V4) Southern Pine Glued Laminated Timber

Clear Opening		3-1/8" Width								5-1/8" Width									
		Depth (in.)								Depth (in.)									
		8-1/4	9-5/8	11	12-3/8	13-3/4	15-1/8	16-1/2	17-7/8	11	12-3/8	13-3/4	15-1/8	16-1/2	17-7/8	19-1/4	20-5/8	22	23-3/8
6'	TL	1489	1828	2205	2626	---	---	---	---	2890	3442	4062	4763	5564	---	---	---	---	---
	LL	1489	1828	2205	2626	---	---	---	---	2890	3442	4062	4763	5564	---	---	---	---	---
	BL	3.0	3.0	3.0	4.5	---	---	---	---	3.0	3.0	4.5	4.5	6.0	---	---	---	---	---
8'	TL	976	1254	1487	1738	2009	2303	2622	2971	1948	2277	2632	3017	3436	3894	4395	4947	5557	---
	LL	976	1254	1487	1738	2009	2303	2622	2971	1948	2277	2632	3017	3436	3894	4395	4947	5557	---
	BL	3.0	3.0	3.0	4.5	4.5	4.5	6.0	6.0	3.0	3.0	3.0	4.5	4.5	4.5	6.0	6.0	7.5	---
10'	TL	631	852	1104	1298	1485	1684	1895	2121	1468	1699	1945	2205	2483	2778	3093	3431	3793	4183
	LL	533	836	1104	1298	1485	1684	1895	2121	1468	1699	1945	2205	2483	2778	3093	3431	3793	4183
	BL	1.5	3.0	3.0	3.0	4.5	4.5	4.5	6.0	3.0	3.0	3.0	4.5	4.5	4.5	4.5	6.0	6.0	6.0
12'	TL	410	595	773	972	1177	1326	1483	1648	1176	1354	1540	1736	1941	2157	2384	2623	2876	3143
	LL	312	491	725	972	1177	1326	1483	1648	1176	1354	1540	1736	1941	2157	2384	2623	2876	3143
	BL	1.5	3.0	3.0	3.0	4.5	4.5	4.5	4.5	3.0	3.0	3.0	3.0	4.5	4.5	4.5	4.5	6.0	6.0
14'	TL	258	409	570	719	883	1063	1217	1346	935	1125	1274	1430	1592	1761	1938	2122	2314	2515
	LL	198	312	462	652	883	1063	1217	1346	758	1073	1274	1430	1592	1761	1938	2122	2314	2515
	BL	1.5	1.5	3.0	3.0	3.0	4.5	4.5	4.5	3.0	3.0	3.0	3.0	4.5	4.5	4.5	4.5	4.5	6.0
16'	TL	172	274	408	552	679	818	969	1133	669	905	1086	1215	1349	1487	1631	1780	1934	2094
	LL	134	211	312	441	601	793	969	1133	512	724	987	1215	1349	1487	1631	1780	1934	2094
	BL	1.5	1.5	1.5	3.0	3.0	3.0	4.5	4.5	1.5	3.0	3.0	3.0	3.0	4.5	4.5	4.5	4.5	6.0
18'	TL	119	191	286	407	537	648	769	899	469	667	881	1055	1169	1286	1407	1532	1660	1793
	LL	94	149	221	312	425	563	725	899	362	512	698	924	1169	1286	1407	1532	1660	1793
	BL	1.5	1.5	1.5	3.0	3.0	3.0	4.5	4.5	1.5	3.0	3.0	3.0	3.0	4.5	4.5	4.5	4.5	4.5
20'	TL	85	137	207	296	406	525	624	730	339	485	665	854	1010	1132	1236	1343	1453	1567
	LL	69	109	162	229	312	413	533	674	265	376	512	678	875	1109	1236	1343	1453	1567
	BL	1.5	1.5	1.5	1.5	3.0	3.0	3.0	4.5	1.5	1.5	3.0	3.0	3.0	4.5	4.5	4.5	4.5	4.5
22'	TL	---	102	154	221	304	405	516	604	252	362	498	664	830	969	1102	1196	1292	1390
	LL	---	82	122	173	236	312	403	510	200	284	387	512	661	837	1041	1196	1292	1390
	BL	---	1.5	1.5	1.5	1.5	3.0	3.0	3.0	1.5	1.5	1.5	3.0	3.0	3.0	4.5	4.5	4.5	4.5
24'	TL	---	---	117	168	233	311	404	506	192	276	381	509	662	810	935	1069	1162	1249
	LL	---	---	94	134	183	242	312	395	154	219	299	397	512	648	806	987	1162	1249
	BL	---	---	1.5	1.5	1.5	3.0	3.0	3.0	1.5	1.5	1.5	3.0	3.0	3.0	3.0	4.5	4.5	4.5
26'	TL	---	---	90	131	181	243	316	402	148	214	297	398	519	660	792	906	1026	1133
	LL	---	---	74	105	144	191	247	312	122	173	236	313	405	512	637	780	943	1128
	BL	---	---	1.5	1.5	1.5	1.5	3.0	3.0	1.5	1.5	1.5	1.5	3.0	3.0	3.0	4.5	4.5	4.5
28'	TL	---	---	---	103	143	193	252	321	---	169	235	316	413	526	658	777	881	990
	LL	---	---	---	84	116	153	198	251	---	138	189	251	325	412	512	628	759	907
	BL	---	---	---	1.5	1.5	1.5	3.0	3.0	---	1.5	1.5	1.5	3.0	3.0	3.0	3.0	4.5	4.5
30'	TL	---	---	---	82	115	155	203	259	---	134	188	254	332	425	533	656	763	858
	LL	---	---	---	69	94	125	162	205	---	113	154	205	265	336	418	512	620	741
	BL	---	---	---	1.5	1.5	1.5	1.5	3.0	---	1.5	1.5	1.5	1.5	3.0	3.0	3.0	4.5	4.5
32'	TL	---	---	---	---	93	126	165	212	---	---	152	206	271	347	436	538	655	750
	LL	---	---	---	---	78	103	134	169	---	---	127	169	219	278	346	424	512	613
	BL	---	---	---	---	1.5	1.5	1.5	1.5	---	---	1.5	1.5	1.5	1.5	3.0	3.0	3.0	4.5
34'	TL	---	---	---	---	76	103	136	175	---	---	124	169	223	286	361	446	543	653
	LL	---	---	---	---	65	86	112	141	---	---	106	141	183	232	289	354	429	512
	BL	---	---	---	---	1.5	1.5	1.5	1.5	---	---	1.5	1.5	1.5	1.5	3.0	3.0	3.0	3.0
36'	TL	---	---	---	---	---	85	112	145	---	---	---	139	184	238	300	373	455	547
	LL	---	---	---	---	---	73	94	119	---	---	---	119	154	196	244	299	362	433
	BL	---	---	---	---	---	1.5	1.5	1.5	---	---	---	1.5	1.5	1.5	1.5	3.0	3.0	3.0
38'	TL	---	---	---	---	---	---	94	121	---	---	---	---	154	199	252	313	383	462
	LL	---	---	---	---	---	---	80	102	---	---	---	---	131	167	208	255	309	369
	BL	---	---	---	---	---	---	1.5	1.5	---	---	---	---	1.5	1.5	1.5	3.0	3.0	3.0

(See *Requirements for Use* on page 23, *Key* and *Example* on page 29, and *Notes* on page 29 and this page)

Notes for Table 31: Allowable Roof Loads (plf) - 1.15 Load Duration Factor

- For practicality, allowable roof loads are omitted from the table when they exceed 3,000 and 6,000 pounds per lineal foot (plf) for the 3-1/8" and 5-1/8"-wide beams, respectively, and when a glued laminated timber's span-to-depth ratio exceeds 30.
- To determine allowable roof loads for 3- and 3-1/2"-wide glued laminated timber beams, multiply tabulated total loads (TL) and live loads (LL) for 3-1/8"-wide beams by 0.96 and 1.12, respectively. Then check the required bearing length (BL).
- To determine allowable roof loads for 5- and 5-1/2"-wide glued laminated timber beams, multiply the TL and LL values for 5-1/8" wide beams by 0.976 or 1.073, respectively. Then check the required bearing length (BL).

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Table 32 – 24F-1.8E (V3) Southern Pine Glued Laminated Timber

Clear Opening		3-1/8" Width								5-1/8" Width									
		Depth (in.)								Depth (in.)									
		8-1/4	9-5/8	11	12-3/8	13-3/4	15-1/8	16-1/2	17-7/8	11	12-3/8	13-3/4	15-1/8	16-1/2	17-7/8	19-1/4	20-5/8	22	23-3/8
6'	TL	1689	2245	2850	---	---	---	---	---	4675	5728	---	---	---	---	---	---	---	---
	LL	1689	2245	2850	---	---	---	---	---	4675	5728	---	---	---	---	---	---	---	---
	BL	3.0	4.5	4.5	---	---	---	---	---	4.5	6.0	---	---	---	---	---	---	---	---
8'	TL	976	1311	1687	2098	2539	---	---	---	2767	3441	4165	4929	5723	---	---	---	---	---
	LL	976	1311	1687	2098	2539	---	---	---	2767	3441	4165	4929	5723	---	---	---	---	---
	BL	3.0	3.0	4.5	4.5	6.0	---	---	---	4.5	4.5	6.0	6.0	7.5	---	---	---	---	---
10'	TL	631	852	1103	1381	1685	2011	2357	2720	1809	2265	2763	3298	3866	4461	5080	5718	---	---
	LL	565	852	1103	1381	1685	2011	2357	2720	1809	2265	2763	3298	3866	4461	5080	5718	---	---
	BL	1.5	3.0	3.0	4.5	4.5	6.0	6.0	7.5	3.0	4.5	4.5	6.0	6.0	7.5	7.5	9.0	---	---
12'	TL	434	595	773	972	1191	1428	1683	1953	1268	1595	1953	2342	2759	3202	3669	4156	4651	5156
	LL	330	520	768	972	1191	1428	1683	1953	1259	1595	1953	2342	2759	3202	3669	4156	4651	5156
	BL	1.5	3.0	3.0	3.0	4.5	4.5	6.0	6.0	3.0	3.0	4.5	4.5	6.0	6.0	7.5	7.5	9.0	9.0
14'	TL	273	433	570	719	883	1062	1255	1462	935	1179	1448	1742	2058	2397	2747	3114	3497	3894
	LL	210	330	489	691	883	1062	1255	1462	802	1133	1448	1742	2058	2397	2747	3114	3497	3894
	BL	1.5	1.5	3.0	3.0	3.0	4.5	4.5	6.0	3.0	3.0	3.0	4.5	4.5	6.0	6.0	6.0	7.5	9.0
16'	TL	182	290	432	552	679	818	969	1131	708	905	1114	1342	1586	1844	2117	2406	2709	3026
	LL	141	223	330	467	636	818	969	1131	542	766	1043	1342	1586	1844	2117	2406	2709	3026
	BL	1.5	1.5	3.0	3.0	3.0	3.0	4.5	4.5	3.0	3.0	3.0	3.0	4.5	4.5	6.0	6.0	6.0	7.5
18'	TL	126	202	303	431	537	648	769	899	497	706	881	1059	1251	1457	1676	1908	2153	2409
	LL	100	157	234	330	450	596	768	899	383	542	739	977	1251	1457	1676	1908	2153	2409
	BL	1.5	1.5	1.5	3.0	3.0	3.0	4.5	4.5	1.5	3.0	3.0	3.0	4.5	4.5	4.5	6.0	6.0	6.0
20'	TL	90	146	220	313	430	525	624	730	360	514	705	854	1010	1177	1356	1546	1747	1957
	LL	73	115	171	242	330	437	565	713	281	398	542	717	926	1171	1356	1546	1747	1957
	BL	1.5	1.5	1.5	1.5	3.0	3.0	3.0	4.5	1.5	1.5	3.0	3.0	3.0	4.5	4.5	4.5	6.0	6.0
22'	TL	---	108	163	234	322	428	516	604	268	384	528	701	830	969	1118	1275	1442	1618
	LL	---	87	129	183	250	330	427	540	212	300	409	542	700	886	1101	1275	1442	1618
	BL	---	1.5	1.5	1.5	3.0	3.0	3.0	3.0	1.5	1.5	3.0	3.0	3.0	3.0	4.5	4.5	4.5	6.0
24'	TL	---	---	124	179	247	329	427	506	204	293	405	540	693	810	935	1068	1209	1357
	LL	---	---	100	141	193	256	330	418	163	232	317	420	542	686	853	1045	1209	1357
	BL	---	---	1.5	1.5	1.5	3.0	3.0	3.0	1.5	1.5	1.5	3.0	3.0	3.0	3.0	4.5	4.5	4.5
26'	TL	---	---	96	139	192	257	335	426	157	228	315	422	550	686	792	906	1026	1153
	LL	---	---	78	111	152	202	261	330	129	183	250	331	428	542	674	826	999	1153
	BL	---	---	1.5	1.5	1.5	1.5	3.0	3.0	1.5	1.5	1.5	1.5	3.0	3.0	3.0	4.5	4.5	4.5
28'	TL	---	---	---	109	152	204	267	340	---	179	250	335	438	558	679	777	881	990
	LL	---	---	---	89	122	162	210	266	---	147	201	266	344	436	542	665	804	960
	BL	---	---	---	1.5	1.5	1.5	3.0	3.0	---	1.5	1.5	1.5	3.0	3.0	3.0	3.0	4.5	4.5
30'	TL	---	---	---	87	122	164	215	275	---	143	200	270	353	451	565	673	763	858
	LL	---	---	---	73	100	132	171	217	---	119	163	217	281	356	442	542	656	784
	BL	---	---	---	1.5	1.5	1.5	1.5	3.0	---	1.5	1.5	1.5	1.5	3.0	3.0	3.0	4.5	4.5
32'	TL	---	---	---	---	99	134	175	225	---	---	162	219	288	369	463	571	666	750
	LL	---	---	---	---	82	109	141	179	---	---	135	179	232	294	366	448	542	649
	BL	---	---	---	---	1.5	1.5	1.5	3.0	---	---	1.5	1.5	1.5	3.0	3.0	3.0	3.0	4.5
34'	TL	---	---	---	---	81	110	144	186	---	---	132	180	237	304	383	473	576	660
	LL	---	---	---	---	69	91	118	150	---	---	112	149	194	246	306	375	453	542
	BL	---	---	---	---	1.5	1.5	1.5	1.5	---	---	1.5	1.5	1.5	1.5	3.0	3.0	3.0	3.0
36'	TL	---	---	---	---	---	91	120	154	---	---	---	148	196	253	319	396	483	581
	LL	---	---	---	---	---	77	100	126	---	---	---	126	163	207	258	317	383	458
	BL	---	---	---	---	---	1.5	1.5	1.5	---	---	---	1.5	1.5	1.5	3.0	3.0	3.0	3.0
38'	TL	---	---	---	---	---	---	100	129	---	---	---	---	164	212	268	333	407	491
	LL	---	---	---	---	---	---	85	108	---	---	---	---	139	176	220	270	327	391
	BL	---	---	---	---	---	---	1.5	1.5	---	---	---	---	1.5	1.5	1.5	3.0	3.0	3.0

(See *Requirements for Use* on page 23, *Key* and *Example* on page 29, and *Notes* on page 29 and this page)

Notes for Table 32: Allowable Roof Loads (plf) - 1.15 Load Duration Factor

- For practicality, allowable roof loads are omitted from the table when they exceed 3,000 and 6,000 pounds per lineal foot (plf) for the 3-1/8" and 5-1/8"-wide beams, respectively, and when a glued laminated timber's span-to-depth ratio exceeds 30.
- To determine allowable roof loads for 3- and 3-1/2"-wide glued laminated timber beams, multiply tabulated total loads (TL) and live loads (LL) for 3-1/8"-wide beams by 0.96 and 1.12, respectively. Then check the required bearing length (BL).
- To determine allowable roof loads for 5- and 5-1/2"-wide glued laminated timber beams, multiply the TL and LL values for 5-1/8" wide beams by 0.976 or 1.073, respectively. Then check the required bearing length (BL).

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