

Simple Span Application



Roof Beams Non-Snow (LDF=1.25)

$F_b = 2,400$ psi
 $F_v = 265$ psi
 $E = 1.8 \times 10^6$
 True $E = 1.9 \times 10^6$

Width (in.)	Depth (in.)	Span (feet)																
		8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
3 1/2	6	651	331	189	117	77	53	-	-	-	-	-	-	-	-	-	-	-
	7 1/2	1,019	650	373	233	154	106	76	55	-	-	-	-	-	-	-	-	-
	9	1,469	937	649	406	269	187	134	99	74	57	-	-	-	-	-	-	-
	9 1/2	1,637	1,045	723	478	318	221	159	117	88	68	53	-	-	-	-	-	-
	10 1/2	2,001	1,277	884	647	431	300	216	160	121	94	73	58	-	-	-	-	-
	11 7/8	2,560	1,635	1,132	829	626	437	316	235	178	138	109	86	69	56	-	-	-
	13 1/2	3,311	2,115	1,465	1,073	819	645	467	348	265	206	163	130	105	86	71	58	-
	14	3,561	2,275	1,576	1,155	881	694	522	389	297	231	183	146	118	97	80	66	55
	15	4,089	2,612	1,810	1,327	1,013	797	643	480	367	286	226	182	147	121	100	83	69
	16	4,624	2,973	2,060	1,510	1,153	908	733	585	447	349	277	222	181	148	123	103	86
	16 1/2	4,844	3,162	2,192	1,606	1,227	966	780	642	491	384	304	245	199	164	136	113	95
	18	5,550	3,765	2,610	1,913	1,461	1,151	930	760	631	501	398	321	262	216	179	150	126
	19 1/2	6,329	4,420	3,064	2,247	1,716	1,353	1,086	886	736	619	509	411	335	277	231	194	164
	21	7,196	4,976	3,555	2,607	1,992	1,566	1,252	1,022	848	714	609	516	422	349	291	245	207
22 1/2	8,165	5,546	4,082	2,994	2,288	1,787	1,428	1,166	968	815	695	599	520	432	361	304	258	
Width (in.)	Depth (in.)	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
5 1/2	6	1,023	520	298	184	121	83	58	-	-	-	-	-	-	-	-	-	-
	7 1/2	1,601	1,021	587	366	242	167	119	87	65	-	-	-	-	-	-	-	-
	9	2,308	1,473	1,019	637	423	294	211	155	117	89	69	54	-	-	-	-	-
	9 1/2	2,573	1,642	1,136	751	499	347	249	184	139	107	83	65	51	-	-	-	-
	10 1/2	3,144	2,007	1,390	1,017	677	471	340	252	191	147	115	91	72	58	-	-	-
	11 7/8	4,024	2,569	1,779	1,303	983	686	496	369	280	217	171	136	109	88	72	59	-
	13 1/2	5,203	3,323	2,302	1,687	1,287	1,010	734	547	417	324	256	205	165	135	111	92	76
	14	5,596	3,575	2,477	1,815	1,385	1,083	820	611	466	363	287	230	186	152	125	104	86
	15	6,425	4,105	2,845	2,085	1,588	1,235	986	755	577	449	356	286	232	190	157	130	109
	16	7,266	4,672	3,238	2,373	1,796	1,398	1,116	910	703	548	435	349	284	233	193	161	135
	16 1/2	7,612	4,969	3,444	2,524	1,905	1,483	1,184	965	772	603	478	385	313	257	213	178	150
	18	8,721	5,916	4,101	2,985	2,249	1,751	1,399	1,141	946	787	625	504	411	339	281	236	199
	19 1/2	9,946	6,945	4,815	3,478	2,621	2,041	1,631	1,330	1,104	929	791	645	527	435	362	304	257
	21	11,308	7,820	5,547	4,005	3,019	2,351	1,879	1,533	1,272	1,071	913	786	663	548	457	384	326
22 1/2	12,830	8,715	6,326	4,568	3,444	2,683	2,144	1,750	1,453	1,223	1,043	898	780	678	567	477	405	
24	14,543	9,685	7,153	5,166	3,895	3,034	2,426	1,980	1,644	1,385	1,180	1,017	884	774	683	584	496	

Tabulated values are pounds per lineal foot.

Notes for X-Beam Roof Beams:

- (1) For preliminary design use only. Final design should include a complete analysis, including bearing stresses and lateral stability.
- (2) Span = simply supported beam.
- (3) Maximum deflection = $L/180$ under live load. Other deflection limits may apply.
- (4) Service condition = dry.
- (5) Tabulated values represent total loads and include beam weight (assumed 35 pcf).
- (6) Sufficient bearing length shall be provided at supports.
- (7) Maximum beam shear is located at a distance from the supports equal to the depth of the beam.

Special order sizes in green.

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Width (in.)	Depth (in.)	Span (feet)																
		8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
6 3/4	9	2,833	1,808	1,251	782	519	360	259	191	143	110	85	66	52	-	-	-	-
	10 1/2	3,859	2,463	1,705	1,248	831	578	417	309	234	180	141	111	89	71	57	-	-
	12	5,043	3,220	2,230	1,633	1,245	869	628	467	355	275	216	172	139	112	91	75	61
	13 1/2	6,385	4,078	2,826	2,070	1,560	1,214	900	671	512	398	314	251	203	166	136	112	93
	15	7,886	5,038	3,491	2,534	1,909	1,485	1,185	926	708	551	437	350	284	233	192	160	134
	16 1/2	9,343	6,099	4,212	3,040	2,290	1,782	1,423	1,160	948	740	587	472	384	316	262	219	183
	18	10,703	7,260	4,972	3,589	2,704	2,105	1,681	1,371	1,137	957	767	618	504	416	345	289	244
	19 1/2	12,207	8,507	5,791	4,181	3,151	2,453	1,960	1,599	1,326	1,116	951	792	647	534	445	373	316
	21	13,878	9,597	6,669	4,815	3,629	2,826	2,259	1,843	1,529	1,287	1,097	944	813	672	561	472	400
	22 1/2	15,746	10,696	7,605	5,492	4,140	3,225	2,577	2,103	1,746	1,470	1,253	1,079	937	821	696	586	497
	24	17,848	11,886	8,600	6,211	4,682	3,648	2,916	2,380	1,976	1,664	1,419	1,222	1,062	930	821	716	609
	25 1/2	20,231	13,179	9,652	6,971	5,256	4,095	3,274	2,673	2,219	1,870	1,594	1,373	1,194	1,046	923	820	732
	27	22,954	14,591	10,688	7,773	5,862	4,568	3,652	2,982	2,476	2,086	1,779	1,533	1,333	1,169	1,031	916	818
	28 1/2	26,097	16,137	11,673	8,617	6,498	5,064	4,050	3,307	2,747	2,314	1,974	1,702	1,480	1,297	1,145	1,017	909
30	29,763	17,838	12,728	9,501	7,166	5,585	4,467	3,647	3,030	2,554	2,178	1,878	1,634	1,433	1,265	1,124	1,004	
Width (in.)	Depth (in.)	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
8 3/4	9	3,672	2,343	1,621	1,014	673	467	335	247	186	142	110	86	67	53	-	-	-
	10 1/2	5,002	3,193	2,221	1,618	1,007	750	540	400	303	234	183	144	115	92	74	60	-
	12	6,537	4,174	2,891	2,090	1,573	1,127	814	606	461	357	281	223	180	145	119	97	79
	13 1/2	8,277	5,287	3,628	2,617	1,970	1,532	1,167	870	663	516	407	326	263	215	176	146	121
	15	10,222	6,520	4,436	3,200	2,410	1,875	1,496	1,201	918	715	566	454	369	302	249	207	173
	16 1/2	12,111	7,818	5,320	3,839	2,892	2,250	1,797	1,464	1,214	959	761	612	498	409	339	283	238
	18	13,874	9,226	6,279	4,532	3,414	2,658	2,123	1,731	1,435	1,207	995	802	654	539	448	375	316
	19 1/2	15,824	10,745	7,313	5,280	3,978	3,098	2,474	2,018	1,674	1,409	1,200	1,027	839	692	577	484	409
	21	17,990	12,372	8,422	6,081	4,583	3,569	2,852	2,326	1,930	1,625	1,384	1,191	1,035	872	727	612	518
	22 1/2	20,412	13,865	9,605	6,936	5,228	4,072	3,254	2,655	2,204	1,855	1,581	1,361	1,183	1,036	902	759	644
	24	23,136	15,407	10,861	7,844	5,913	4,606	3,682	3,005	2,494	2,101	1,790	1,542	1,340	1,174	1,035	919	789
	25 1/2	26,225	17,084	12,190	8,804	6,638	5,172	4,134	3,375	2,802	2,360	2,012	1,733	1,507	1,320	1,165	1,034	923
	27	29,755	18,914	13,592	9,817	7,403	5,768	4,612	3,765	3,126	2,634	2,246	1,935	1,683	1,475	1,301	1,156	1,032
	28 1/2	33,829	20,919	15,065	10,882	8,206	6,395	5,114	4,175	3,468	2,922	2,492	2,148	1,868	1,637	1,445	1,284	1,146
30	38,582	23,124	16,499	11,999	9,049	7,052	5,640	4,605	3,826	3,224	2,750	2,370	2,062	1,808	1,596	1,418	1,267	

Tabulated values are pounds per lined foot.

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