



# NORDIC LAM™

24F-1.9E BEAMS

**COMMERCIAL DEPTHS**



*Built for life*



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# NORDIC LAM™

## 24F-1.9E



# 24F-1.9E

### ALLOWABLE UNIFORM FLOOR LOADS (plf) – 100%

WIDTH (in.)	DEPTH (in.)	CRITERIA	SPAN (ft)												
			6	8	10	12	14	16	18	20	22	24	26	28	30
3-1/2	18	L/480 LL					1240	831	583	425	319	246	194	155	126
		L/360 LL						1107	778	567	426	328	258	207	168
		L/240 TL	4651	2985	2195	1735	1433	1166	918	741	605	477	372	295	237
		End/Int. B.	7.2/17.9	6.2/15.4	5.7/14.1	5.4/13.4	5.2/13	4.9/12.1	4.3/10.8	3.9/9.7	3.5/8.8	3.1/7.6	2.6/6.5	2.3/5.2	2/4.5
	20	L/480 LL						1139	800	583	438	338	266	213	173
		L/360 LL							1067	778	584	450	354	283	230
		L/240 TL	5583	3483	2528	1983	1630	1383	1135	909	741	614	514	408	329
		End/Int. B.	8.6/21.5	7.2/17.9	6.5/16.3	6.2/15.4	5.9/14.8	5.8/14.3	5.3/13.3	4.8/11.9	4.3/10.7	3.9/9.7	3.6/8.9	3.1/7.6	2.7/6.7
	22	L/480 LL						1516	1065	776	583	449	353	283	230
		L/360 LL							1035	778	599	471	377	307	
		L/240 TL	6677	4034	2887	2246	1837	1553	1344	1091	890	738	621	529	441
		End/Int. B.	10.3/26	8.3/20.7	7.5/18.6	7/17.4	6.7/16.6	6.5/16.1	6.3/15.7	5.7/14.2	5.1/12.8	4.7/11.6	4.3/10.7	4/9.8	3.6/8.9
24	L/480 LL							1383	1008	757	583	459	367	299	
	L/360 LL								1010	778	612	490	398		
	L/240 TL	7980	4646	3274	2525	2054	1730	1493	1289	1051	872	734	625	538	
	End/Int. B.	12.3/31	9.6/23.9	8.5/21.1	7.8/19.5	7.5/18.6	7.2/17.9	7/17.4	6.7/16.7	6.1/15.1	5.5/13.7	5.1/12.6	4.7/11.6	4.3/10.7	
5-1/2	18	L/480 LL					1948	1305	917	668	502	387	304	244	198
		L/360 LL						1740	1222	891	669	516	406	325	264
		L/240 TL	7309	4690	3450	2726	2252	1795	1396	1114	908	749	584	463	372
		End/Int. B.	7.2/17.9	6.2/15.4	5.7/14.1	5.4/13.4	5.2/13	4.8/11.9	4.2/10.4	3.7/9.3	3.4/8.4	3.1/7.6	2.6/6.5	2.3/5.2	2/4.5
	20	L/480 LL						1790	1257	917	689	530	417	334	272
		L/360 LL							1677	1222	918	707	556	445	362
		L/240 TL	8773	5473	3973	3116	2561	2173	1708	1364	1112	922	775	641	516
		End/Int. B.	8.6/21.5	7.2/17.9	6.5/16.3	6.2/15.4	5.9/14.8	5.8/14.3	5.1/12.7	4.6/11.3	4.1/10.2	3.7/9.3	3.4/8.5	3.1/7.6	2.7/6.7
	22	L/480 LL						2383	1674	1220	917	706	555	445	362
		L/360 LL							1627	1222	941	740	593	482	
		L/240 TL	10,492	6339	4537	3529	2886	2440	2050	1637	1335	1107	931	793	682
		End/Int. B.	10.3/26	8.3/20.7	7.5/18.6	7/17.4	6.7/16.6	6.5/16.1	6.1/15.2	5.5/13.6	4.9/12.2	4.5/11.1	4.1/10.2	3.8/9.4	3.5/8.7
24	L/480 LL							2173	1584	1190	917	721	577	469	
	L/360 LL								1222	961	770	626			
	L/240 TL	12,539	7301	5144	3968	3227	2718	2346	1934	1578	1309	1101	938	807	
	End/Int. B.	12.3/31	9.6/23.9	8.5/21.1	7.8/19.5	7.5/18.6	7.2/17.9	7/17.4	6.4/16	5.8/14.4	5.3/13.1	4.8/12	4.5/11.1	4.1/10.3	
7	18	L/480 LL					2480	1661	1167	851	639	492	387	310	252
		L/360 LL						2215	1556	1134	852	656	516	413	336
		L/240 TL	9,303	5969	4390	3469	2866	2229	1734	1384	1127	934	744	589	473
		End/Int. B.	7.2/17.9	6.2/15.4	5.7/14.1	5.4/13.4	5.2/13	4.7/11.6	4.1/10.2	3.7/9.1	3.3/8.2	3/7.4	2.6/6.5	2.3/5.2	2/4.5
	20	L/480 LL						2279	1600	1167	877	675	531	425	346
		L/360 LL							1556	1169	900	708	567	461	
		L/240 TL	11,166	6966	5057	3966	3260	2726	2121	1694	1380	1144	962	816	657
		End/Int. B.	8.6/21.5	7.2/17.9	6.5/16.3	6.2/15.4	5.9/14.8	5.7/14.1	5/12.4	4.5/11.1	4/10	3.7/9.1	3.4/8.3	3.1/7.6	2.7/6.7
	22	L/480 LL						3033	2130	1553	1167	899	707	566	460
		L/360 LL							1556	1198	942	755	613		
		L/240 TL	13,354	8068	5774	4492	3673	3105	2546	2033	1658	1375	1156	984	846
		End/Int. B.	10.3/26	8.3/20.7	7.5/18.6	7/17.4	6.7/16.6	6.5/16.1	6/14.9	5.3/13.3	4.8/11.9	4.4/10.9	4/9.9	3.7/9.2	3.4/8.5
24	L/480 LL							2765	2016	1515	1167	918	735	597	
	L/360 LL								1556	1223	980	796			
	L/240 TL	15,959	9293	6547	5050	4107	3459	2986	2402	1959	1625	1367	1164	1002	
	End/Int. B.	12.3/31	9.6/23.9	8.5/21.1	7.8/19.5	7.5/18.6	7.2/17.9	7/17.4	6.3/15.6	5.7/14.1	5.1/12.8	4.7/11.7	4.4/10.8	4/10	

See footnotes on page 3.

# 24F-1.9E

## ALLOWABLE UNIFORM FLOOR LOADS (plf) – 100% (continued)

WIDTH (in.)	DEPTH (in.)	CRITERIA	SPAN (ft)												
			6	8	10	12	14	16	18	20	22	24	26	28	30
3-1/2	27	L/480 LL								1435	1078	831	653	523	425
		L/360 LL											871	697	567
		L/240 TL		5704	3915	2977	2400	2009	1727	1514	1317	1094	921	785	676
		End/Int. B.	11.7/30	10.1/26	9.2/23	8.7/21.7	8.3/20.8	8.1/20.1	7.9/19.6	7.6/18.9	6.9/17.1	6.3/15.7	5.8/14.5	5.4/13.4	
	30	L/480 LL									1479	1139	896	717	583
		L/360 LL												957	778
		L/240 TL		6974	4641	3474	2774	2308	1974	1724	1530	1339	1127	961	828
		End/Int. B.	14.3/36	12/30	10.8/27	10/25	9.6/23.9	9.2/23	9/22.4	8.8/21.9	8.4/20.9	7.7/19.2	7.1/17.7	6.6/16.4	
	33	L/480 LL										1516	1193	955	776
		L/360 LL													
		L/240 TL		5472	4025	3180	2627	2237	1946	1722	1543	1354	1155	995	
		End/Int. B.	14.1/36	12.5/32	11.5/29	10.9/28	10.4/26	10.1/26	9.9/24.6	9.7/24.1	9.2/23	8.5/21.2	7.9/19.6		
36	L/480 LL											1548	1240	1008	
	L/360 LL														
	L/240 TL			4636	3622	2969	2515	2180	1923	1719	1554	1365	1177		
	End/Int. B.			14.3/36	13.1/33	12.3/31	11.7/30	11.3/29	11/28	10.8/27	10.6/27	10/25	9.3/23.1		
5-1/2	27	L/480 LL								2255	1694	1305	1027	822	668
		L/360 LL											1369	1096	891
		L/240 TL		8964	6151	4678	3772	3157	2714	2379	1977	1641	1381	1177	1014
		End/Int. B.	11.7/30	10.1/26	9.2/23	8.7/21.7	8.3/20.8	8.1/20.1	7.9/19.6	7.2/18	6.6/16.4	6/15	5.6/13.8	5.2/12.8	
	30	L/480 LL									2324	1790	1408	1127	917
		L/360 LL													1222
		L/240 TL		10,960	7293	5460	4360	3627	3103	2710	2404	2009	1692	1442	1242
		End/Int. B.	14.3/36	12/30	10.8/27	10/25	9.6/23.9	9.2/23	9/22.4	8.8/21.9	8/20	7.4/18.3	6.8/16.9	6.3/15.7	
	33	L/480 LL										2383	1874	1501	1220
		L/360 LL													
		L/240 TL		8599	6324	4998	4128	3515	3058	2706	2411	2031	1732	1493	
		End/Int. B.	14.1/36	12.5/32	11.5/29	10.9/28	10.4/26	10.1/26	9.9/24.6	9.6/24	8.8/22	8.1/20.2	7.5/18.8		
36	L/480 LL												1948	1584	
	L/360 LL														
	L/240 TL			7285	5691	4666	3952	3426	3022	2702	2401	2048	1765		
	End/Int. B.			14.3/36	13.1/33	12.3/31	11.7/30	11.3/29	11/28	10.8/27	10.4/26	9.6/23.9	8.9/22.1		
7	27	L/480 LL								2870	2157	1661	1307	1046	851
		L/360 LL											1395	1134	
		L/240 TL		11,409	7829	5954	4800	4019	3454	3010	2455	2038	1715	1461	1258
		End/Int. B.	11.7/30	10.1/26	9.2/23	8.7/21.7	8.3/20.8	8.1/20.1	7.8/19.5	7.1/17.6	6.4/16	5.9/14.7	5.4/13.5	5/12.5	
	30	L/480 LL									2958	2279	1792	1435	1167
		L/360 LL													
		L/240 TL		13,949	9282	6949	5549	4616	3949	3449	3005	2494	2101	1790	1542
		End/Int. B.	14.3/36	12/30	10.8/27	10/25	9.6/23.9	9.2/23	9/22.4	8.6/21.5	7.8/19.5	7.2/17.9	6.6/16.5	6.1/15.3	
	33	L/480 LL										2385	1910	1553	
		L/360 LL													
		L/240 TL		10,944	8049	6361	5254	4473	3893	3444	2995	2523	2151	1853	
		End/Int. B.	14.1/36	12.5/32	11.5/29	10.9/28	10.4/26	10.1/26	9.9/24.6	9.4/23.4	8.6/21.4	7.9/19.8	7.4/18.3		
36	L/480 LL											2480	2016		
	L/360 LL														
	L/240 TL			9272	7243	5939	5030	4360	3846	3439	2981	2543	2191		
	End/Int. B.			14.3/36	13.1/33	12.3/31	11.7/30	11.3/29	11/28	10.8/27	10.1/26	9.3/23.3	8.7/21.6		

### NOTES:

- Values shown are the maximum uniform loads, in pounds per lineal foot (plf), that can be applied to the beam in addition to its own weight.
- Selected beam shall satisfy both live and total loads. When no value is shown in the live load (LL) row, the total load governs the design.
- Table is based on uniform loads and the most restrictive of simple or continuous spans, and dry-use conditions. Span is measured center to center of supports.  
The maximum uniform loads are based on a load duration factor,  $C_D$ , of 1.00.
- Maximum deflection = either L/480 or L/360 under live load, and L/240 under total load. Other deflection limits may apply.
- Table values assume that lateral support is provided at each support and continuously along the compression edge of the beam.
- Multiple pieces may be used when properly connected.
- Sufficient bearing length shall be provided at supports. Review bearing length requirements (shown in inches) to ensure adequacy.  
The bearing length requirements are based on the maximum total uniform loads (L/240 TL), and have been adjusted per NDS 2005, 3.10.4.

# NORDIC LAM™

## 24F-1.9E

# 24F-1.9E

### ALLOWABLE UNIFORM ROOF LOADS (plf) – 115% and 125%

WIDTH (in.)	DEPTH (in.)	CRITERIA	SPAN (ft)													
			6	8	10	12	14	16	18	20	22	24	26	28	30	
3-1/2	18	L/240 LL									851	639	492	387	310	252
		115%, TL	5351	3435	2527	1997	1650	1343	1058	854	698	579	487	398	321	
		125%, TL	5818	3735	2748	2172	1795	1461	1151	930	760	631	501	398	321	
		End/Int. B.	9/22.4	7.7/19.2	7.1/17.7	6.7/16.8	6.5/16.2	6.1/15.1	5.4/13.4	4.9/12.1	4.4/10.9	4/9.9	3.5/8.6	3/7.4	2.6/6.5	
	20	L/240 LL									877	675	531	425	346	
		115%, TL	6423	4008	2910	2283	1877	1593	1308	1048	855	709	597	508	437	
		125%, TL	6983	4358	3165	2483	2042	1733	1423	1140	930	772	650	550	444	
		End/Int. B.	10.8/27	9/22.4	8.2/20.3	7.7/19.2	7.4/18.4	7.2/17.9	6.7/16.6	6/14.8	5.4/13.3	4.9/12.1	4.5/11.1	4.1/10.2	3.6/8.9	
	22	L/240 LL										899	707	566	460	
		115%, TL	7681	4642	3323	2586	2115	1788	1549	1257	1026	851	717	611	526	
		125%, TL	8351	5047	3613	2812	2301	1946	1685	1368	1117	927	781	666	573	
		End/Int. B.	12.9/33	10.4/26	9.3/23.2	8.7/21.7	8.3/20.8	8.1/20.1	7.9/19.6	7.1/17.7	6.4/16	5.8/14.5	5.4/13.3	4.9/12.3	4.6/11.4	
24	L/240 LL											918	735	597		
	115%, TL		5346	3768	2907	2365	1992	1720	1485	1212	1006	847	722	622		
	125%, TL		5813	4097	3161	2572	2167	1871	1616	1319	1095	923	787	678		
	End/Int. B.		12/30	10.6/27	9.8/24.4	9.3/23.2	9/22.4	8.7/21.8	8.4/20.9	7.6/18.8	6.9/17.1	6.3/15.7	5.8/14.5	5.4/13.4		
5-1/2	18	L/240 LL								1337	1004	773	608	487	396	
		115%, TL	8409	5397	3971	3138	2593	2067	1609	1285	1048	869	730	622	504	
		125%, TL	9143	5869	4318	3413	2821	2249	1751	1399	1141	946	787	625	504	
		End/Int. B.	9/22.4	7.7/19.2	7.1/17.7	6.7/16.8	6.5/16.2	6/14.8	5.2/13	4.7/11.6	4.2/10.4	3.8/9.5	3.5/8.6	3/7.4	2.6/6.5	
	20	L/240 LL									1377	1061	834	668	543	
		115%, TL	10,093	6298	4573	3588	2950	2503	1968	1572	1282	1064	895	762	656	
		125%, TL	10,973	6848	4973	3902	3209	2723	2142	1711	1396	1159	975	831	698	
		End/Int. B.	10.8/27	9/22.4	8.2/20.3	7.7/19.2	7.4/18.4	7.2/17.9	6.4/15.9	5.7/14.2	5.1/12.8	4.7/11.6	4.3/10.6	3.9/9.8	3.6/8.9	
	22	L/240 LL											1111	889	723	
		115%, TL	12,071	7294	5222	4063	3324	2810	2362	1887	1540	1278	1075	916	789	
		125%, TL	13,123	7931	5678	4419	3615	3057	2570	2054	1676	1391	1171	998	860	
		End/Int. B.	12.9/33	10.4/26	9.3/23.2	8.7/21.7	8.3/20.8	8.1/20.1	7.6/19	6.8/17	6.1/15.3	5.6/13.9	5.1/12.7	4.7/11.7	4.4/10.9	
24	L/240 LL												1155	939		
	115%, TL		8401	5921	4568	3716	3130	2703	2229	1819	1510	1271	1083	933		
	125%, TL		9135	6439	4968	4042	3405	2941	2426	1980	1644	1385	1180	1017		
	End/Int. B.		12/30	10.6/27	9.8/24.4	9.3/23.2	9/22.4	8.7/21.8	8/20	7.2/18	6.6/16.4	6/15	5.6/13.8	5.2/12.8		
7	18	L/240 LL								1701	1278	984	774	620	504	
		115%, TL	10,703	6869	5054	3994	3300	2568	1999	1596	1301	1078	907	772	641	
		125%, TL	11,636	7469	5496	4344	3590	2794	2175	1737	1417	1175	988	796	641	
		End/Int. B.	9/22.4	7.7/19.2	7.1/17.7	6.7/16.8	6.5/16.2	5.8/14.5	5.1/12.7	4.6/11.3	4.1/10.2	3.7/9.3	3.4/8.5	3/7.4	2.6/6.5	
	20	L/240 LL										1350	1062	850	691	
		115%, TL	12,846	8016	5821	4566	3754	3140	2445	1953	1592	1321	1111	946	814	
		125%, TL	13,966	8716	6330	4966	4084	3416	2660	2126	1734	1439	1211	1031	888	
		End/Int. B.	10.8/27	9/22.4	8.2/20.3	7.7/19.2	7.4/18.4	7.1/17.7	6.2/15.5	5.6/13.8	5/12.5	4.6/11.3	4.2/10.4	3.9/9.6	3.6/8.9	
	22	L/240 LL											1414	1132	920	
		115%, TL	15,363	9284	6646	5171	4230	3577	2934	2344	1912	1586	1335	1137	979	
		125%, TL	16,702	10,094	7227	5624	4601	3891	3192	2551	2081	1728	1454	1239	1067	
		End/Int. B.	12.9/33	10.4/26	9.3/23.2	8.7/21.7	8.3/20.8	8.1/20.1	7.5/18.6	6.7/16.6	6/14.9	5.5/13.6	5/12.4	4.6/11.5	4.3/10.6	
24	L/240 LL													1195		
	115%, TL		10,693	7536	5814	4730	3984	3440	2768	2259	1875	1578	1345	1158		
	125%, TL		11,626	8194	6323	5144	4334	3743	3013	2459	2041	1719	1466	1262		
	End/Int. B.		12/30	10.6/27	9.8/24.4	9.3/23.2	9/22.4	8.7/21.8	7.8/19.5	7.1/17.6	6.4/16	5.9/14.6	5.4/13.5	5/12.5		

See footnotes on page 5.

# 24F-1.9E



## ALLOWABLE UNIFORM ROOF LOADS (plf) – 115% and 125% (continued)

WIDTH (in.)	DEPTH (in.)	CRITERIA	SPAN (ft)												
			6	8	10	12	14	16	18	20	22	24	26	28	30
3-1/2	27	L/240 LL													851
		115%, TL	6563	4505	3427	2764	2314	1990	1744	1519	1261	1062	906	781	
		125%, TL	7136	4899	3727	3006	2517	2165	1898	1653	1373	1157	987	851	
		End/Int. B.	14.7/37	12.6/32	11.5/29	10.9/28	10.4/26	10.1/26	9.8/24.5	9.5/23.6	8.6/21.4	7.9/19.6	7.3/18.1	6.7/16.8	
	30	L/240 LL													956
		115%, TL		5341	3999	3194	2658	2274	1987	1763	1543	1300	1109	956	
		125%, TL		5808	4349	3474	2891	2474	2162	1919	1680	1416	1208	1042	
		End/Int. B.		14.9/38	13.4/34	12.5/32	12/30	11.5/29	11.2/28	11/28	10.5/27	9.6/23.9	8.9/22.1	8.2/20.5	
	33	L/240 LL													1149
		115%, TL				3662	3025	2576	2242	1984	1779	1561	1332	1149	
		125%, TL				3982	3291	2803	2440	2159	1936	1699	1450	1251	
		End/Int. B.				14.4/36	13.6/34	13/33	12.6/32	12.3/31	12.1/31	11.5/29	10.6/27	9.8/24.5	
36	L/240 LL													1358	
	115%, TL					2897	2511	2216	1982	1792	1574	1358			
	125%, TL					3151	2733	2411	2157	1951	1714	1478			
	End/Int. B.					14.7/37	14.1/36	13.8/35	13.4/34	13.2/33	12.5/32	11.6/29			
5-1/2	27	L/240 LL												1171	
		115%, TL	10,314	7080	5385	4343	3636	3126	2741	2279	1893	1594	1359	1171	
		125%, TL	11,214	7698	5857	4724	3956	3401	2982	2481	2060	1736	1481	1276	
		End/Int. B.	14.7/37	12.6/32	11.5/29	10.9/28	10.4/26	10.1/26	9.8/24.5	9/22.5	8.2/20.5	7.5/18.7	6.9/17.3	6.4/16	
	30	L/240 LL													1435
		115%, TL		8393	6285	5020	4177	3574	3122	2771	2316	1951	1664	1435	
		125%, TL		9127	6835	5460	4543	3888	3397	3015	2521	2125	1813	1563	
		End/Int. B.		14.9/38	13.4/34	12.5/32	12/30	11.5/29	11.2/28	11/28	10/25	9.2/22.9	8.5/21.1	7.9/19.6	
	33	L/240 LL													1723
		115%, TL				5754	4754	4049	3524	3118	2780	2343	1999	1723	
		125%, TL				6258	5171	4404	3834	3393	3025	2550	2176	1877	
		End/Int. B.				14.4/36	13.6/34	13/33	12.6/32	12.3/31	12/30	11/28	10.1/26	9.4/23.4	
36	L/240 LL													2037	
	115%, TL					4552	3947	3482	3114	2768	2362	2037			
	125%, TL					4952	4294	3789	3389	3013	2572	2218			
	End/Int. B.					14.7/37	14.1/36	13.8/35	13.4/34	13/33	12/30	11.1/28			
7	27	L/240 LL												1454	
		115%, TL	13,127	9010	6854	5527	4628	3979	3468	2831	2350	1979	1688	1454	
		125%, TL	14,272	9798	7454	6012	5035	4329	3774	3081	2559	2156	1838	1584	
		End/Int. B.	14.7/37	12.6/32	11.5/29	10.9/28	10.4/26	10.1/26	9.8/24.4	8.8/22	8/20	7.4/18.3	6.8/16.9	6.3/15.6	
	30	L/240 LL													1781
		115%, TL		10,682	7999	6389	5316	4549	3974	3463	2876	2423	2067	1781	
		125%, TL		11,616	8699	6949	5782	4949	4324	3769	3131	2638	2251	1940	
		End/Int. B.		14.9/38	13.4/34	12.5/32	12/30	11.5/29	11.2/28	10.8/27	9.8/24.4	9/22.3	8.3/20.6	7.7/19.1	
	33	L/240 LL													2140
		115%, TL				7323	6051	5153	4485	3969	3452	2909	2482	2140	
		125%, TL				7965	6582	5606	4880	4319	3757	3167	2703	2331	
		End/Int. B.				14.4/36	13.6/34	13/33	12.6/32	12.3/31	11.7/30	10.7/27	9.9/24.7	9.2/22.9	
36	L/240 LL													2529	
	115%, TL					5793	5023	4432	3964	3437	2933	2529			
	125%, TL					6302	5465	4822	4314	3742	3194	2755			
	End/Int. B.					14.7/37	14.1/36	13.8/35	13.4/34	12.7/32	11.7/30	10.8/27			

### NOTES:

- Values shown are the maximum uniform loads, in pounds per lineal foot (plf), that can be applied to the beam in addition to its own weight.
- Selected beam shall satisfy both live and total loads. When no value is shown in the live load (LL) row, the total load governs the design.
- Table is based on uniform loads and the most restrictive of simple or continuous spans, and dry-use conditions. Span is measured center to center of supports. The maximum uniform loads are based on a load duration factor,  $C_D$ , of 1.15 (snow) or 1.25 (non-snow).
- Maximum deflection =  $L/240$  under live load, and  $L/180$  under total load. Other deflection limits may apply. For deflection limit of  $L/360$  or  $L/480$ , use the appropriate column from the Uniform Floor Loads table. The resulting live load shall not exceed the total load shown.
- Table values assume that lateral support is provided at each support and continuously along the compression edge of the beam.
- Multiple pieces may be used when properly connected.
- Sufficient bearing length shall be provided at supports. Review bearing length requirements (shown in inches) to ensure adequacy. The bearing length requirements are based on the maximum total uniform load (125%, TL), and have been adjusted per NDS 2005, 3.10.4.

# DESIGN VALUES

## FOR NORDIC LAM™



### DESIGN STRESSES <sup>(1)(2)</sup>

NORDIC LAM	BEAMS	
STRESS GRADE	24F-1.9E	
EWS LAYUP COMBINATION	24F-E/ES1M1	
<b>Bending About X-X Axis</b> (Loaded Perpendicular to Wide Face of Laminations)		
Extreme Fiber in Bending <sup>(3)(4)</sup>	$F_{bx}$	2400 psi
Shear Parallel to Grain <sup>(5)</sup>	$F_{vx}$	250 psi
Compression Perpendicular to Grain	$F_{cpx}$	560 psi
Shear-Free Modulus of Elasticity	$E_x$	$1.9 \times 10^6$ psi
Apparent Modulus of Elasticity <sup>(6)</sup>	$E_{x, app.}$	$1.8 \times 10^6$ psi
<b>Bending About Y-Y Axis</b> (Loaded Parallel to Wide Face of Laminations)		
Extreme Fiber in Bending <sup>(7)</sup>	$F_{by}$	1100 psi
Shear Parallel to Grain <sup>(5)</sup>	$F_{vy}$	175 psi
Compression Perpendicular to Grain	$F_{cpy}$	300 psi
Shear-Free Modulus of Elasticity	$E_y$	$1.6 \times 10^6$ psi
Apparent Modulus of Elasticity <sup>(6)</sup>	$E_{y, app.}$	$1.5 \times 10^6$ psi
<b>Axially Loaded</b>		
Compression Parallel to Grain	$F_c$	1150 psi
Tension Parallel to Grain	$F_t$	1050 psi
Modulus of Elasticity	$E_a$	$1.6 \times 10^6$ psi

(1) The tabulated design values are for dry conditions of use. For wet conditions of use, multiply the tabulated values by the wet service factors,  $C_w$  (NDS-05, 5.3.3).

(2) The tabulated design values are for normal duration of loading. For other durations of loading, see applicable building code.

(3) Nordic Lam bending members are symmetrical throughout the depth of the member (balanced layups).

(4) The tabulated design values in bending ( $F_{bx}$ ) shall be multiplied by a volume effect factor,  $C_v$ . The volume factor formula is:  
 $C_v = (12/d)^{1/10} \times (5.125/b)^{1/10} \times (21/L)^{1/10} \leq 1.0$ , where  $d$  = beam depth (in.),  $b$  = beam width (in.), and  $L$  = beam length (ft).

(5) For notched members, members subject to impact or cyclic loading, or shear design of bending members at connections (NDS-05 3.4.3.3), the design value for shear ( $F_v$ ) shall be multiplied by a factor of 0.72.

(6) The tabulated "apparent E" values already include a 5% shear deflection.

(7) The values of  $F_{by}$  shall be permitted to be increased by multiplying by the size factor,  $(12/d)^{1/9}$ , where  $d$  is the beam depth in inches.

(8) Design of glulam members shall be in accordance to National Design Specification, 2005 Edition.

(9) The specific gravity for dowel-type fastener design is 0.41. Member weight shall be based on density of 35 pcf.

Refer to the *Nordic Lam Design/Construction Guide* for more information.



*Nordic Sustainable Wood Solutions*

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