Nordic Lam Joists

CHECKLIST: **Nordic Lam Joists**

To verify that the tabulated resistances and $E_S I$ values are appropriate for the structure being designed, the following questions should be asked (the appropriate modification factor is given in brackets):

1. Is load duration "standard" (K_D)?
K_D is a load duration factor. The tabulated resistances are based on a standard term load (K_D = 1.0), which includes the effects of dead loads plus live loads due to use and occupancy, and snow loads. For other load durations, the tabulated values w_{FR} shall be multiplied by the appropriate factor permitted by the code.

2. Is the service condition "dry" (K_S)?
K_S is a service condition factor. The tabulated values are based on dry service conditions (K_S = 1.0). For wet service conditions, multiply the tabulated values by the following factors:

K_{Sb} = 0,80 for M_r $\quad$ K_{sv} = 0,87 for V_r and $W_r L^{0,18}$ $\quad$ K_{SE} = 0,90 for $E_S I$

3. Is the material free of incising and/or strength-reducing chemicals (K_T)?
K_T is a treatment factor. The tables are based on untreated timber (K_T = 1.0). For glued-laminated timber treated with fire-retardant or other potentially strength-reducing chemicals, strength and stiffness capacities shall be based on documented results of tests that shall take into account the effects of time, temperature, and moisture content. For preservative treatment, the treatment factor for unincised glued-laminated timber may be taken as unity.

4. Are the joists free of notches (K_N)?
K_N is a notch factor. The tables are based on joists that are not notched (K_N = 1.0). If members are notched on the tension side at supports, multiply the tabulated V_r and $W_r L^{0.18}$ values by:

$$K_N = [\, 1 - d_n/d \,]^2$$

If members are notched on the compression side, multiply the tabulated V_r and $W_r L^{0.18}$ values by:

(if e > d) $\quad K_N = 1 - d_n/d$

(if e < d) $\quad K_N = 1 - d_n e / [d(d-d_n)]$

where:

d = depth of member, mm

d_n = depth of notch, mm (which shall not exceed 0.25d)

e = length of notch, mm, from inner edge of closest support to farthest edge of notch

5. Does the construction provide lateral stability to the joists (K_L)?
K_L is a lateral stability factor. The tables are based on joists that are restrained against lateral displacement and rotation at their ends, the compressive edges are held in line by the sheathing, and bridging is provided at intervals not exceeding 8 times the member depth (K_L = 1.0). For depth to width ratios of 6.5:1 or less, the bridging may be omitted. If the joists lack this restraint, refer to Clause 6.5.6.4 of CSA O86-09 for the appropriate adjustment factor.

If the answer to any of these questions is no, refer to the description of modifications factors above and make the necessary adjustments to tabulated resistances and $E_S I$ values. Otherwise, the Joist Selection Tables may be used directly. The joists self weight has not been considered in the calculations. Floor joists in Part 9 buildings should be designed using the National Building Code vibration criterion.

Joist Selection Tables — Nordic Lam 24F-ES/NPG

44 mm

	Single member			System case 1			$E_S I$
Depth	M'_r	V_r	$W_r L^{0,18}$	M'_r	V_r	$W_r L^{0,18}$	$x10^9$
mm	kN-m	kN	kN-$m^{0,18}$	kN-m	kN	kN-$m^{0,18}$	N-mm^2
70	1,00	4,11	30,8	1,10	4,52	33,9	15,8
95	1,85	5,57	39,6	2,03	6,13	43,6	39,4
121	3,00	7,10	48,3	3,30	7,81	53,1	81,4
146	4,36	8,57	56,4	4,80	9,42	62,0	143
171	5,99	10,0	64,2	6,58	11,0	70,6	230
197	7,94	11,6	72,1	8,74	12,7	79,3	351
222	10,1	13,0	79,5	11,1	14,3	87,4	503
248	12,6	14,6	87,0	13,8	16,0	95,7	701
273	15,3	16,0	94,2	16,8	17,6	104	935
298	18,2	17,5	101	20,0	19,2	111	1 216
324	21,5	19,0	108	23,6	20,9	119	1 562
349	24,9	20,5	115	27,4	22,5	127	1 952
375	28,8	22,0	122	31,7	24,2	134	2 422
400	32,8	23,5	129	36,0	25,8	142	2 940
425	37,0	24,9	135	40,7	27,4	149	3 526
451	41,6	26,5	142	45,8	29,1	156	4 213

Notes:

1. K_H is a system factor. In the tables, resistances are given for single members (K_H = 1.0), and Case 1 systems (K_H = 1.1). Case 1 systems are composed of three or more essentially parallel members spaced no more than 610 mm apart and arranged so that they mutually support the load.
2. V_r may only be used as a simplified check of shear capacity, if the beam volume is less than 2.0 m^3.
3. $W_r L^{0,18}$ may be used for beams of any volume to check shear capacity.
4. A complete design shall include the verification of bearing resistance and a consideration for the effect of vibrations, when applicable.
5. Other dimensions are available on request; please contact Nordic.

Joist Selection Tables — Nordic Lam 24F-ES/NPG

86 mm

	Single member			System case 1			$E_S I$
Depth	M'_r	V_r	$W_r L^{0,18}$	M'_r	V_r	$W_r L^{0,18}$	$x10^9$
mm	kN-m	kN	kN-$m^{0,18}$	kN-m	kN	kN-$m^{0,18}$	N-mm^2
127	6,39	14,4	86,4	7,03	15,9	95,0	182
178	12,5	20,2	114	13,8	22,2	125	501
222	19,5	25,2	137	21,5	27,7	150	972
267	28,2	30,3	159	31,1	33,3	175	1 692
318	40,0	36,1	183	44,1	39,7	202	2 858
362	51,9	41,1	204	57,1	45,2	224	4 216
406	65,3	46,1	224	71,8	50,7	246	5 947
457	82,7	51,9	247	91,0	57,1	271	8 482
502	99,8	57,0	267	110	62,7	293	11 242
546	118	62,0	286	130	68,2	314	14 465
597	141	67,8	307	155	74,5	338	18 909
641	163	72,8	326	179	80,0	358	23 405
686	186	77,9	344	205	85,7	379	28 689
737	215	83,7	365	237	92,0	402	35 575
781	242	88,7	383	266	97,5	421	42 334
826	270	93,8	401	297	103	441	50 082
870	300	98,8	418	330	109	460	58 519
921	336	105	438	370	115	482	69 425
965	369	110	456	406	121	501	79 858
1010	404	115	473	444	126	520	91 559

Notes:

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