

Design Properties, Nordic Lam

SPECIFIED STRENGTHS AND DESIGN PROPERTIES^(1,2,3,4,5)

Product	Nordic Lam	Nordic Lam
Application	Beams and columns	Decking
Appearance grade	Architectural	Architectural
Stress grade	24F-ES/NPG	20F-ES/CPG
Bending about X-X or Y-Y axis		
Bending moment (F_b) ⁽⁶⁾	30,7 MPa	25,6 MPa
Longitudinal shear (F_v) ⁽⁷⁾	2,5 MPa	2,2 MPa
Compression perpendicular to grain (F_{cp}) ⁽⁸⁾	7,5 MPa	5,8 MPa
Shear-free modulus of elasticity (E)	13 100 MPa	13 100 MPa
Apparent modulus of elasticity ($E_{app.}$) ⁽⁹⁾	12 400 MPa	12 400 MPa
Axially loaded		
Compression parallel to grain (F_c)	33,0 MPa	14,4 MPa
Tension parallel to grain (F_t)	20,4 MPa	10,2 MPa
Tension perpendicular to grain (F_{tp})	0,51 MPa	0,51 MPa
Modulus of elasticity (E_s)	13 100 MPa	13 100 MPa
Connections design		
Mean relative density (G) ⁽¹⁰⁾	0,47	0,42
Characteristic density (ρ_k) ⁽¹⁰⁾	430 kg/m ³	385 kg/m ³
Density (for member weight) (ρ)	560 kg/m ³	560 kg/m ³

(1) Design of glulam members shall be in accordance to CSA O86-14 Standard.

(2) The tabulated values apply to members consisting of 4 or more laminations.

(3) The tabulated design values are for standard term duration of load. For other durations of load, see applicable design code (CSA O86-14, Clauses 5.3.2).

(4) The tabulated design values are for dry service conditions. For wet service conditions, multiply the tabulated values by the wet service condition factors, K_s (CSA O86-14, Clause 7.4.2).

(5) Nordic Lam 24F-ES/NPG and 20F-ES/CPG members are symmetrical throughout the depth and the width of the member (homogeneous layups). It should be noted that Clause 7.5.3 of CSA O86-14 is not applicable.

(6) The tabulated specified strengths in bending, F_b , shall be multiplied by a size factor, K_{zbg} . The size factor formula is: $K_{zbg} = 1.03 (BL)^{-0.18} \leq 1.0$, where B = net beam width (m), and L = length of beam segment from point of zero moment to point of zero moment (m).

(7) At the location of notches in rectangular members, the specified strength in shear (F_v) shall be adjusted per CSA O86-14, Clause 7.5.7.3 or 7.5.7.4.

(8) The compression perpendicular to grain strength values, F_{cp} , shall be permitted to be adjusted by a size factor for bearing, K_{zcp} (CSA O86-14, Clause 7.5.9.2).

(9) The tabulated apparent E values already include a 5% shear deflection. For column stability calculations, E_{05} shall be determined by multiplying the tabulated apparent modulus of elasticity by 0.87.

(10) Mean relative density values for dowel-type fastener design in accordance to CSA O86-14, and characteristic density values for dowel-type fastener design in accordance to EN 1995-1-1.

* Nordic Lam products are listed in CCMC evaluation report 13216-R and APA Product Report PR-L294C.