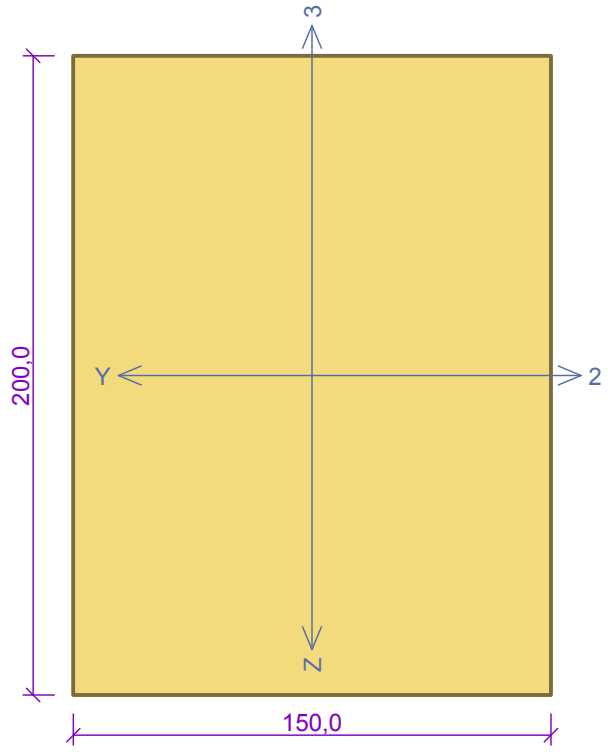
Section B (4,580m)



Calculation standard EN 1995-1-1
Calculation according to Czech national annex.
Coefficient γ_M for basic combinations : 1,300
Coefficient γ_M for accidental combinations : 1,000

Service class: 1

Section: rectangle
Dimensions:
Cross-section height h = 200,0 mm
Cross-section width b = 150,0 mm

Material: C22 - coniferous
Material characteristics:

Elastic modulus	$E_{0,mean}$	10000	MPa
Shear modulus	G_{mean}	630	MPa
Bending strength	$f_{m,k}$	22,0	MPa
Tensile strength in fibre direction	$f_{t,0,k}$	13,0	MPa
Compressive strength in fibre direction	$f_{c,0,k}$	20,0	MPa
Shear strength	$f_{v,k}$	2,4	MPa
Compressive strength perpendicular to fibres	$f_{c,90,k}$	2,4	MPa
Tensile strength perpendicular to fibres	$f_{t,90,k}$	0,5	MPa
5% elastic modulus quantile	$E_{0,05}$	6700	MPa
Characteristic density value	ρ_k	340,0	kg/m3

Calculation ignores coefficient k_h for increasing timber strength.

Internal forces in system of cross-section coordinates:
Load with maximal utilization
Load 1: compression + bending
Long-term load
N = -152,000 kN
M_y = 0,000 kNm M_z = 0,000 kNm
V_z = -10,000 kN V_y = 0,000 kN

Buckling:
Calculation with buckling
Sector length for buckling L_z = 2,290 m
Buckling length factor k_z = 1,000 Buckling length $L_{cr,z}$ = 2,290 m
Sector length for buckling L_y = 2,290 m
Buckling length factor k_y = 1,000 Buckling length $L_{cr,y}$ = 2,290 m

Buckling:
Calculation without buckling

Results
Decisive load: Load 1: compression + bending
Internal forces: N = -152,000 kN; M_y = 0,000 kNm; M_z = 0,000 kNm; V_z = -10,000 kN; V_y = 0,000 kN

Buckling compression check:
Resistance: N_R = 241,587 kN
| -0,629 | < 1 **Pass**

Shear forces check:
Resistance: V_R = 17,317 kN
0,577 < 1 **Pass**

Member slenderness check:
member slenderness: 52,9
limit slenderness: 120,0
Member slenderness ok

Section ok

PASS