



COMPANY

PROJECT

Feb. 7, 2025 15:41

Bearing_Assignment1.wwbcc

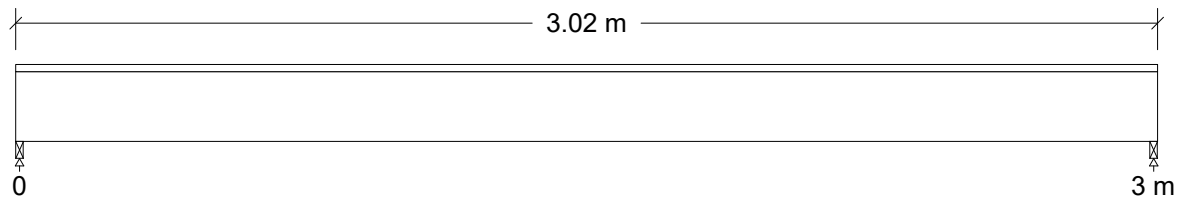
Design Check Calculation Sheet

WoodWorks Sizer 11.5

Loads:

Load	Type	Distribution	Pat- tern	Location [m] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area			1.50 (400mm)	kN/m2
Load2	Live	Full Area			2.40 (400mm)	kN/m2

Maximum Reactions (kN), Bearing Resistances (kN) and Bearing Lengths (mm) :



Unfactored:			
Dead	0.91		0.91
Live	1.45		1.45
Factored:			
Total	3.31		3.31
Bearing:			
Capacity			
Joist	3.31		3.31
Support	4.14		4.14
Des ratio			
Joist	1.00		1.00
Support	0.80		0.80
Load comb	#2		#2
Length	21		21
Min req'd	21		21
KB	1.00		1.00
KB min	1.00		1.00
KD	1.00		1.00
KB support	1.25		1.25
fcp sup	5.30		5.30
Kzcp sup	1.00		1.00

Lumber, S-P-F, No.1/No.2, 38x184 mm

Supports: All - Lumber Beam, S-P-F No.1/No.2

Floor joist spaced at 400 mm c/c; Total length: 3.021 m; Clear span: 3 m; Volume = 0.021 m³

Floor (vibration): 12.5 mm. CS Plywood subfloor, nailed or screwed, w/bracing and GWB ceiling

Load sharing: Case 2; Lateral support: top = continuous, bottom = at supports;

This section PASSES the design code check.

Force vs. Resistance and Deflection using CSA O86-19:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf @d = 2.86	Vr = 10.57	kN	Vf/Vr = 0.27
Moment (+)	Mf = 2.46	Mr = 3.83	kN-m	Mf/Mr = 0.64
Perm. Defl'n	3.4 = L/888	8.3 = L/360	mm	0.41
Live Defl'n	5.4 = L/555	8.3 = L/360	mm	0.65
Total Defl'n	8.8 = L/341	16.7 = L/180	mm	0.53
Vibration	L = 3.000	Lv = 3.536	m	L/Lv = 0.85

Additional Data:

FACTORS:	f/E (MPa)	KD	KH	KZ	KL	KT	KS	KN	LC#
Fv	1.5	1.00	1.40	1.200	-	1.00	1.00	-	#2
Fb+	11.8	1.00	1.40	1.200	1.000	1.00	1.00	-	#2
Fcp	5.3	-	-	1.000	-	1.00	1.00	-	#-
Es	9500	-	-	1.000	-	1.00	1.00	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L
 Moment (+) : LC #2 = 1.25D + 1.5L
 Deflection: LC #1 = 1.0D (permanent)
 LC #2 = 1.0D + 1.0L (live)
 LC #2 = 1.0D + 1.0L (total)
 Bearing : Support 1 - LC #2 = 1.25D + 1.5L
 Support 2 - LC #2 = 1.25D + 1.5L
 Load Types: D=dead L=live(use,occupancy)
 Load combinations from NBC 2015; code references and LC's listed in the Analysis report

CALCULATIONS:

EI = 187e06 kN-mm²
 "Live" deflection is due to all non-dead loads (live, wind, snow...)
 Vibration: E_{Ieff} = 194e06 kN-mm²; mL = 5.42 kg/m; K_{tss} = 0.445

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86 - 19 Engineering Design in Wood standard.
2. Please verify that the default deflection limits are appropriate for your application.
3. KL calculated as per O86 7.5.6.4
4. Allowable vibration-controlled span as per O86 A.5.4.5, with 5% increase for gypsum ceiling fastened directly, 5% increase for lateral bracing spaced no more than 2m apart.