

Timber Column-No Name

Element: C:/DCC/Timber12/Projects/CheckAllow.rtf
 Description:
 Date: 4/15/2020 11:24:38 AM

Company:
 User:
 Software: Timber Design 12.2

Input Data

Span	Horizontal Span Length	Vertical Span Length	Actual Length	Axial Unbraced Length X	Axial Unbraced Length Y
	ft	ft	ft	ft	ft
Span 1	0'	12'	12'	12'	12'
Overall Length	0'	12'	12'		

Notes:

- Lengths are to center line of bearing.
- Elevation Angle is 90.00 deg.
- Bottom is considered to be pinned.

User Defined Loads

Load Case	Load Type	Component	Distance(s) to Start	Load Length	Load at Start	Load at End	Offset X	Offset Y
			ft	ft	lb	lb	ft	ft
Description:	DL							
Dead	Concentrated	Axial	12'		15		0'	0'
Description:	Horizontal_Wind							
Wind in Pos X	Concentrated	Shear - In Plane	6'		350		0'	0'

Notes:

- Positive loads act down.
- Distances are measured along length of member.
- Live loads are patterned to 100%.
- Weight of members is included in the calculations.

Summary of Member Forces - Load Cases

Member	Axial	Shear Major Axis	Shear Minor Axis	Bending Major Axis	Bending Minor Axis	Torsion	Deflection Major Axis	Deflection Minor Axis
	lb	lb	lb	ft-lb	ft-lb	ft-lb	in	in
1	-64.0	175.0		1050.0			-0.291	

Reactions

Support	Load Case	Horizontal Major Axis	Horizontal Minor Axis	Vertical	Moment Major Axis	Moment Minor Axis
		lb	lb	lb	ft-lb	ft-lb
1	Dead	-175.0	-175.0	64.0	0.0	0.0
2	Dead	-175.0	-175.0	0.0	0.0	0.0

Summary of Member Forces - Load Combinations

Member	Axial	Shear Major Axis	Shear Minor Axis	Bending Major Axis	Bending Minor Axis	Torsion	Deflection Major Axis	Deflection Minor Axis
	lb	lb	lb	ft-lb	ft-lb	ft-lb	in	in
1	-64.0	175.0		1050.0			-0.291	

Reactions

Support	Load Comb.	Horizontal Major Axis	Horizontal Minor Axis	Vertical	Moment Major Axis	Moment Minor Axis
		lb	lb	lb	ft-lb	ft-lb
1	Dead	-175.0	0.0	64.0	0.0	0.0
2	Dead	-175.0	0.0	0.0	0.0	0.0

Timber Design 1 - Option 1 - Design of Member 1 - (2)2x6

Design Data

Design of Member 1 - (2)2x6		
Material type is Select Structural-Southern Pine-Dimensional		
Check for repetitive use? No	Top flange bracing is Fully Braced	E_{0x} : 1.80E+006 psi
Moist use? No	Bottom flange bracing is Braced At Inflection Points	E_{0y} : 1.80E+006 psi
$I_x = 41.6 \text{ in}^4$ $S_x = 15.1 \text{ in}^3$	$I_y = 12.4 \text{ in}^4$ $S_y = 8.3 \text{ in}^3$	G assumed as .06E
Snow $C_d = 1.15$	This is not a spaced column	F_b : 2550 psi
Side loaded? No	$K_x = 1$	F_c : 1400 psi
Overstress factor = 1	$L_x = 12'$	F_c : 2000 psi
Allowable Floor live load deflection = $L/360$	$K_y = 1$	$F_{c\parallel}$: 565 psi
Allowable Floor total load deflection = $L/240$ (3 in Maximum)	$L_y = 12'$	F_v : 175 psi
Member weight used in analysis = 4.08 plf	Area = 16.5 in^2	Actual density: 35.6 pcf

Critical Design Checks

	Critical reaction	Axial	Bending - X	Bending -Y	Shear	LL Defl.	TL Defl.
	lb	psi	psi	psi	psi	in	in
Gov. Value	175	-2.392	833.058	0	15.909	-0.2908	-0.2908
Allowable	2542.669	138.601	4080	0	280	0.4	0.6
% of Allow.	7	2	20	0	6	72	48
Location	0'	6'	6'	0'	5-1/2"	6'	6'

Notes:

- Member has an actual/allowable ratio in span 1 of 72 %.
- Design is governed by live load deflection
- Governing load combination is 0.6*Dead+Wind in Pos X
- Axial capacity of member is 1980 lb.
- Maximum hanger forces: 175 lb (Left) and 175 lb (Right).

Minimum Bearing

Span	Actual Length	Left Support Min. Bearing	Right Support Min. Bearing
	ft	in	in
1	12'	1.5	1.5

Notes:

- Locations of maximum stress, moment, etc. are measured from the left end of the member.
- Bearing across full width of beam is required.
- Structural adequacy of supporting members must be confirmed.
- Bearing lengths required may be limited by bearing stress on supporting members.
- A negative reaction indicates that the beam must be fastened to the support to resist uplift.
- See manufacturer's literature for side loaded connection requirements.
- Cantilever deflection allowables are based on twice the span length.
- Timber design is governed by NDS 2005.