Timber Beam-Cont. Beam Example 1-Floor Beam B-1

Element: C:/DCC/Timber12/Projects/Cont Beam Example 1-Floor Beam B-1.rtf
Description:
Date: 6/18/2015 10:16:28 AM

Company:
User:
Software: Timber Design 12.0

Timber Design 1 - Option 1 - Design of Member 1 - 3 1/8"x16 1/2"

Design Data

Design of Member 1 - 3 1/8"x16 1/2"		
Material type is 20F-V3-Un-Balanced Layup-Glulam - Western		
Check for repetitive use? Yes	Top flange bracing is Fully Braced	E_{bx}: 1600 ksi
Moist use? No	Bottom flange bracing is Braced At Inflection Points	E_{by}: 1500 ksi
I_x= 1169.8 in^4 S_x= 141.8 in^3	I_y= 42 in^4 S_y= 26.9 in^3	G assumed as .06E
Snow C_d= 1.15	This is not a spaced column	F_b: 2 ksi
Side loaded? No	K_x = 1	F_t: 0.975 ksi
Overstress factor = 1	L_x =	F_c: 1.55 ksi
Allowable Roof live load deflection = L/240	K_y = 1	$F_{c\perp}$: 0.56 ksi
Allowable Roof total load deflection = L/180	L_y =	F_v: 0.265 ksi
Member weight used in analysis = 0.01 klf	Area = 51.56 in^2	Actual density: 31.2 pcf

Critical Design Checks

	Critical reaction	Axial	Bending - X	Bending -Y	Shear	LL Defl.	TL Defl.
	K	ksi	ksi	ksi	ksi	in	in
Gov. Value	3.968	0.018	2.03	0	0.094	-1.1677	-1.6366
Allowable	6.791	1.121	2.293	0	0.305	1.2885	1.718
% of Allow.	58 ✓	2 ✓	89 ✓	0 ✓	31 ✓	90 ✓	95 ✓
Location	0	13.5446	12.8847	0	1.69838	12.8848	12.8848

Notes:

- Member has an actual/allowable ratio in span 1 of 95 ✓ %.
- Design is governed by total deflection
- Governing load combination is Dead+0.75*Wind in Pos X+0.75*Floor Live+0.75*Snow Condition 2 w/Pattern Loads
- Axial capacity of member is 6.64 K.
- Maximum hanger forces: 3.968 K (Left) and 3.855 K (Right).

Minimum Bearing

Span	Actual Length	Left Support Min. Bearing	Right Support Min. Bearing
	ft	in	in
1	25.7694	2.29	2.225

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.