Project: federal street

Location: MSFB3 LVL at Mezzanine
Multi-Span Floor Beam
[2012 International Building Code(2012 NDS)]
(2) 1.75 IN x 9.25 IN x 21.5 FT (18.3 + 3.2)
Versa-Lam 3100 Fb - Boise Cascade
Section Adequate By: 38.8%
Controlling Factor: Deflection

Lindsey Architects
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4 Market Place Drive Suite 201B
York Maine 03909

StruCalc Version 9.0.2.6 10/15/2016 11:01:55 PM

CAUTIONS
* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Left		Center	
Live Load	0.44	IN L/500	-0.01	IN L/2977
Dead Load	0.20	in	-0.01	in
Total Load	0.64	IN L/345	-0.02	IN L/2069

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS	A		B		C	
Live Load	902	lb	3219	lb	122	lb
Dead Load	415	lb	1471	lb	-694	lb
Total Load	1317	lb	4690	lb	-572	lb
Uplift (1.5 F.S)	0	**lb**	0	**lb**	**-2363**	**lb**
Bearing Length	0.50	in	1.79	in	0.00	in

BEAM DATA	Left		Center	
Span Length	18.33	ft	3.17	ft
Unbraced Length-Top	0	ft	0	ft
Unbraced Length-Bottom	18.33	ft	3.17	ft
Floor Duration Factor	1.00			
Notch Depth	0.00			

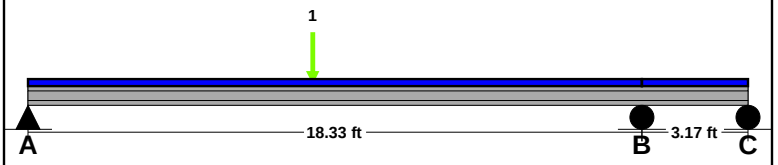
MATERIAL PROPERTIES
Versa-Lam 3100 Fb - Boise Cascade

	Base Values		Adjusted	
Bending Stress:	Fb = 3100	psi	Fb' = 2839	psi
	Cd=1.00 Cl=0.89 CF=1.03			
Shear Stress:	Fv = 285	psi	Fv' = 285	psi
	Cd=1.00			
Modulus of Elasticity:	E = 2000	ksi	E' = 2000	ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 750	psi	Fc - ⊥' = 750	psi

Controlling Moment: -7703 ft-lb
18.33 Ft from left support of span 1 (Left Span)
Created by combining all dead loads and live loads on span(s) 1, 2
Controlling Shear: 2619 lb
At left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 1, 2

Comparisons with required sections:	Req'd		Provided	
Section Modulus:	32.56	in3	49.91	in3
Area (Shear):	13.79	in2	32.38	in2
Moment of Inertia (deflection):	166.27	in4	230.84	in4
Moment:	-7703	ft-lb	11809	ft-lb
Shear:	2619	lb	6151	lb

LOADING DIAGRAM



FLOOR LOADING		Left		Center	
Floor Live Load	FLL =	40	psf	40	psf
Floor Dead Load	FDL =	15	psf	15	psf
Floor Tributary Width Side One	TW1 =	1	ft	1	ft
Floor Tributary Width Side Two	TW2 =	1	ft	1	ft
Wall Load	WALL =	0	plf	0	plf

POINT LOADS - LEFT SPAN	
Load Number	One
Live Load	853 lb
Dead Load	344 lb
Location	8.5 ft

BEAM LOADING	Left		Center	
Reduced Floor Live Load	40	psf	40	psf
Total Live Load	80	plf	80	plf
Total Dead Load	30	plf	30	plf
Beam Self Weight	9	plf	9	plf
Total Load	119	plf	119	plf

NOTES