

LORAC DESIGN GROUP, LLC

Structural Engineers

February 17, 2022

Mr. Jeff Boehm, Owner
Zvacek Construction Company
Lee's Summit, Missouri

VIA ELECTRONIC TRANSMISSION

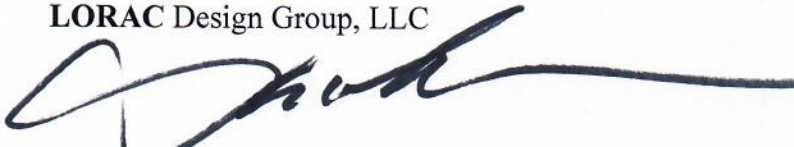
Re: Structural Review of Slider Header
4720 NE Freehold Drive, Lee's Summit, Missouri

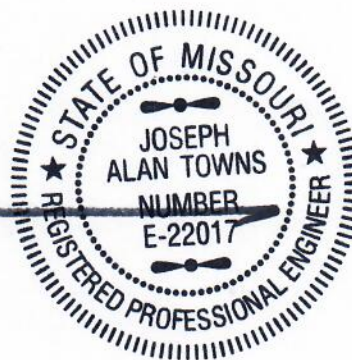
Jeff,

We have reviewed the condition shown in your photographs where the header over the slider was questioned.

We have reviewed the condition and found that it is acceptable per the attached calculations. If you have any further questions, please ask.

For the Firm,
LORAC Design Group, LLC


Joseph A. Towns, R.A., P.E., SE., AIA, NCARB, LEED AP, BD+C
Missouri Professional Engineer, #E-22017 (Structural)



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Design Calculations

4720 NE Freehold

Lee's Summit, Missouri

Misc. Calcs - Normal LVL Girder

Supporting Roof

Beam Designation None

Beam Span	13 feet	Re: Plan Drawings
Uniform Load Width	5.00 feet	Re: Plan Drawings
Uniform Load (DL=.025+ LL=.025+ Wall=.00)	0.05 klf	Load & Codes
Beam Loading	0.25 klf	By Calculation
Point Load 1	0.0 kips	
Point Load 1 Location	6.5 feet	
Point Load 2	0.0 kips	
Point Load 2 Location	6.5 feet	
Point Load 3	0.0 kips	
Point Load 3 Location	6.5 feet	

For Conservatism All Moments Consider at Midspan !!
All beams considered continually braced at top flange !!

Moments	Uniform Load	5.281 k-ft	By Calculation
	Point Load 1	0.00 k-ft	By Calculation
	Point Load 2	0.00 k-ft	By Calculation
	Point Load 2	0.00 k-ft	By Calculation
	Total	5.28 k-ft	By Calculation
Allow Deflection	L/ 360	0.433 inches	By Calculation
Reaction		0.325 kips	By Calculation

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Size Beam

Measured Joists

By Design

b =	3.0 inches
d =	9.5 inches
lxx =	214.3 inches ⁴
E =	1800 ksi
Deflection, Uniform	0.4164 inches
Deflection, PL 1	0.0000 inches
Deflection, PL 2	0.0000 inches
Deflection, PL 3	0.0000 inches
Deflection Total	0.4164 inches
	OK
Shear Stress	0.011 ksi

Check Bending Stresses

Sxx=	45.1 inches ³
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Adjustment Factors

Cd	0.95 Section 2.3.2 Duration
Cm	1.00 ASD Wood Design Manual
Ct	1.00 ASD Wood Design Manual
Cl	Braced Section 4.4.1 Stability
Cf	1.00 ASD Wood Design Manual
Cv	1.06 Table 5A Wood Supplement page 57
Adjusted Cv	1.00 Max Value from Suppl. page 57
Cfu	1.00 ASD Wood Design Manual
Cr	1.15 ASD Rep Factor, NDS Section 4.3.9 Ref: Page 30
Fb=	1800 Southern Pine

F'b=	2093.19 psi
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Actual fb=	1404.43 psi
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OK

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