



November 8, 2022

Bellah Homes  
Attn: Zach Speake

Re: Inspection Letter – Lot 115, Pergola Park, New Longview

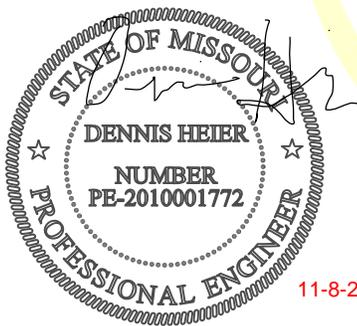
Vista Structural Engineering, LLC was asked to address the following rough-in inspection items for the project located at above referenced address. Please see the following responses w/ attached partial plan mark up, calculations, and site photos for reference.

- 1) **Inspection comment:** “Address notched Microllam LVL hip rafters in Bedroom #2 & 3”

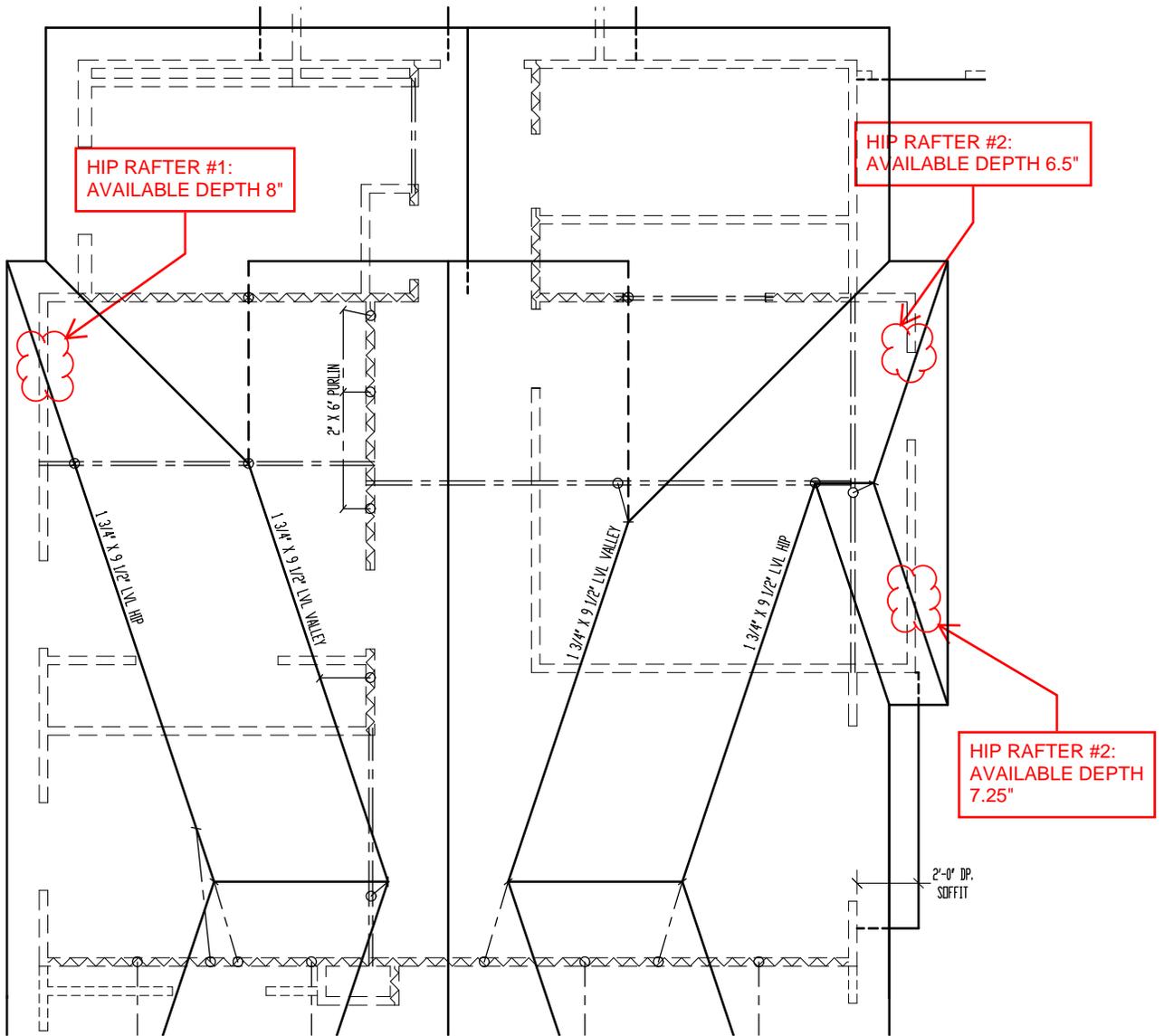
**Vista Structural’s response:** *Available depth of notched rafters/ceiling joists varies (see partial plan & calculations). Design shear stresses are lower than allowable shear stresses per NDS 2018. Therefore, we recommend approval of the current framing, without repair.*

Our firm appreciates the opportunity to serve you. If you have any questions or if you need anything further, please feel free to contact us.

Sincerely,  
Vista Structural Engineering, LLC  
Dennis Heier, P.E.



11-8-22

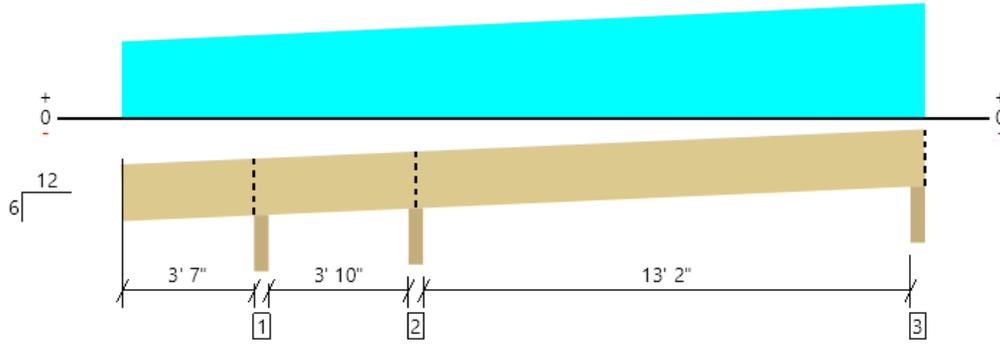


**ROOF PARTIAL PLAN**

ROOF, HIP RAFTER 1

1 piece(s) 1 3/4" x 9 1/2" 2.0E Microllam® LVL

Sloped Length: 23' 11 7/8"



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Member Length : 24' 4 5/8"

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2920 @ 7' 10 1/4"	2910 (3.50")	Passed (100%)	--	1.0 D + 1.0 S (Adj Spans)
Shear (lbs)	1599 @ 8' 8 1/2"	3633	Passed (44%)	1.15	1.0 D + 1.0 S (Adj Spans)
Moment (Ft-lbs)	-3924 @ 7' 10 1/4"	6771	Passed (58%)	1.15	1.0 D + 1.0 S (Adj Spans)
Live Load Defl. (in)	0.298 @ 15' 3 1/16"	0.751	Passed (L/606)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.508 @ 15' 3 1/8"	1.002	Passed (L/355)	--	1.0 D + 1.0 S (Alt Spans)

System : Roof  
 Member Type : Drop Beam  
 Building Use : Residential  
 Building Code : IBC 2018  
 Design Methodology : ASD  
 Member Pitch : 6/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Beveled Plate - SPF	3.50"	3.50"	1.50"	182	522/-48	703	Blocking
2 - Beveled Plate - SPF	3.50"	3.50"	3.51"	1173	1748	2920	Blocking
3 - Beveled Plate - SPF	3.50"	3.50"	1.82"	561	793	1355	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	10' 8" o/c	
Bottom Edge (Lu)	9' 1" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 21' 5 1/2"	N/A	4.8	--	
1 - Tapered (PSF)	0 to 21' 5 1/2"	4' to 6'	15.0	25.0	ROOF

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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Dennis Nguyen Vista Structural Engineering LLC (503) 515-1124 dn@vistastructural.com	



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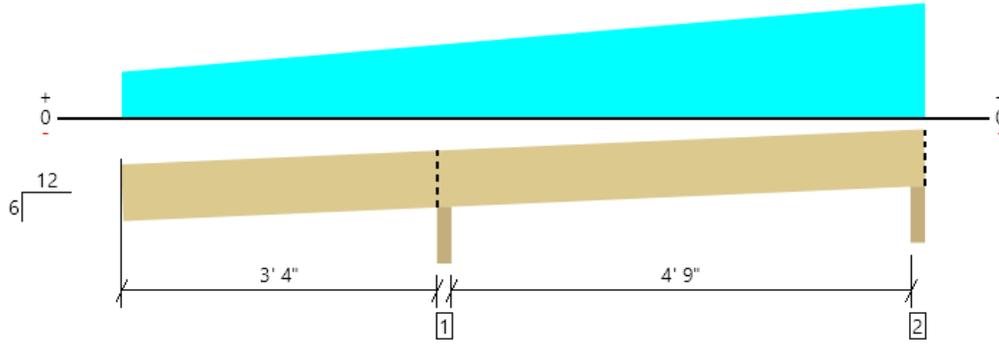
ForteWEB v3.4, Engine: V8.2.2.122, Data: V8.1.3.0

File Name: LOT 115 PERGOLA PARK (BELLAH HOMES) - FIELD

ROOF, HIP RAFTER 2/3

1 piece(s) 1 3/4" x 9 1/2" 2.0E Microllam® LVL

Sloped Length: 9' 8 1/4"



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Member Length : 10' 1"

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1383 @ 3' 5 3/4"	2910 (3.50")	Passed (48%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	613 @ 4' 4"	3633	Passed (17%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	-943 @ 3' 5 3/4"	6771	Passed (14%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.033 @ 0	0.389	Passed (2L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.049 @ 0	0.519	Passed (2L/999+)	--	1.0 D + 1.0 S (Alt Spans)

System : Roof  
 Member Type : Drop Beam  
 Building Use : Residential  
 Building Code : IBC 2018  
 Design Methodology : ASD  
 Member Pitch : 6/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Left cantilever length exceeds 1/3 member length or 1/2 back span length. Additional bracing should be considered.
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Beveled Plate - SPF	3.50"	3.50"	1.66"	579	804	1383	Blocking
2 - Beveled Plate - SPF	3.50"	3.50"	1.50"	232	388	619	Blocking

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	9' 8" o/c	
Bottom Edge (Lu)	9' 8" o/c	

- Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 8' 8"	N/A	4.8	--	
1 - Tapered (PSF)	0 to 8' 8"	3' to 7' 6"	15.0	25.0	ROOF

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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Dennis Nguyen Vista Structural Engineering LLC (503) 515-1124 dn@vistastructural.com	



11/8/2022 12:56:12 PM UTC

ForteWEB v3.4, Engine: V8.2.2.122, Data: V8.1.3.0

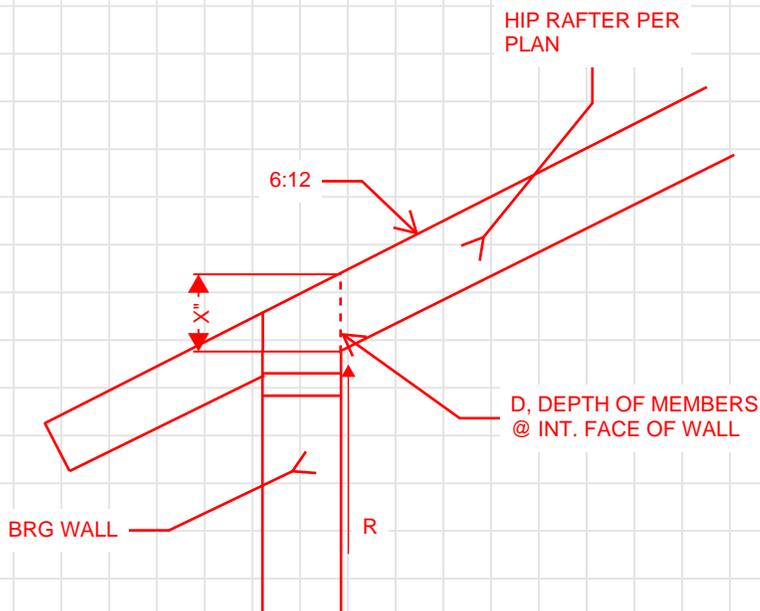
File Name: LOT 115 PERGOLA PARK (BELLAH HOMES) - FIELD

PROJ:  
DATE:  
PROJ #:  
ENGR:



**VISTA**  
— STRUCTURAL —  
ENGINEERING, LLC

**NOTCHED HIP RAFTER DESIGN SHEAR CAPACITY CHECK FOR REDUCED DEPTH:**



$$F_v = 265 * 1.15 = \underline{305 \text{ PSI}}$$

**NOTCHED HIP RAFTER #1 CHECK:**

$$R (D+S, \#) = 703\# \text{ (SEE HIP RAFTER RXN CALC)}$$

$$f_v = 3/2 * R/A = 3/2 * 703 / (8 * 1.75) = \underline{75 \text{ psi} < F_v, \text{OK}}$$

**NOTCHED HIP RAFTER #2 & 3 CHECK:**

$$R (D+S, \#) = 1383\# \text{ (SEE HIP RAFTER RXN CALC)}$$

$$f_v = 3/2 * R/A = 3/2 * 1383 / (6.5 * 1.75) = \underline{182 \text{ psi} < F_v, \text{OK}}$$