



August 8, 2022

Walker Custom Homes
Attn: Ryan Hamilton

Re: Inspection Letter: HHF005 Spec Lot 5 Homestead at Hook Farms 1st Plat – 2022 SW Farm Field Ln., Lee's Summit, Missouri

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:** Header framing at Great Room differs than on plan. Header is continuous with triple full height trimmers between windows w/ double triple trimmers and (1) king stud at ends (Great Room stud height = 18'-0").

Vista Structural's response: *We recommend approval of the current framing of the continuous header and intermediate tall stud trimmers. Single King Stud at ea. end of header is not acceptable. GC to install (1) additional 2x6 king stud each end w/ (1) Simpson A35 top & bottom. Please see attached plan mark up, calculation, and ref. photo.*

- 2) **Inspection comment:** Plumbing penetrations in upper floor joists (near bearing wall between Master Suite/Bath).

Vista Structural's response: *Per the attached calculations, the holes are near the end of the joists, where bending stresses are very low, and shear stresses govern. The depth of the holes, from bottom of the lowest hole to the top of the highest hole, is limited to approximately 2 ½". Based on the attached calculations, the resultant shear stress in the reduced section is only 84 psi, which is much lower than the allowable shear stress of 180 psi (per 2018 NDS). Therefore, we recommend approval of the joists as they are currently constructed, without any upgrade/replacement. Please see attached plan mark up, calculation, and ref. photo.*

- 3) **Inspection comment:** Header framing at front entry wall differs than on plan. Header has (2) king studs at one end instead of (3).

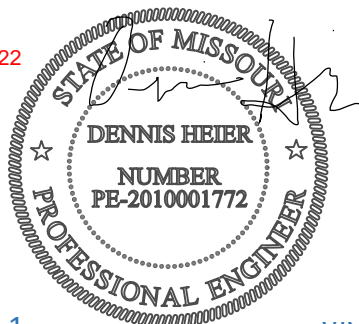
Vista Structural's response: *The (3) king studs called out on plan are not required for the applicable structural loads. We recommend approval of the current framing, without the need for any alterations. Please see attached calculation for (2) king studs.*

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.

8/8/2022



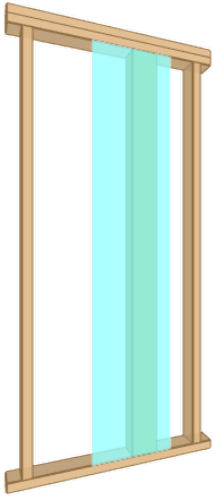
VISTA STRUCTURAL ENGINEERING, LLC
14718 NW DELIA STREET
PORTLAND, OREGON 97229

ROOF, KING STUD CONT. HDR
2 piece(s) 2 x 6 DF No.2

Wall Height: 18'

Member Height: 17' 7 1/2"

Tributary Width: 4' 11"



Drawing is Conceptual

Design Results	Actual	Allowed	Result	LDF	Load: Combination
Slenderness	38	50	Passed (77%)	--	--
Compression (lbs)	0	5163	Passed (0%)	1.60	1.0 D + 0.6 W
Plate Bearing (lbs)	0	10313	Passed (0%)	--	1.0 D + 0.6 W
Lateral Reaction (lbs)	448	--	--	1.60	1.0 D + 0.6 W
Lateral Shear (lbs)	425	3168	Passed (13%)	1.60	1.0 D + 0.6 W
Lateral Moment (ft-lbs)	1975 @ mid-span	2355	Passed (84%)	1.60	1.0 D + 0.6 W
Total Deflection (in)	1.16 @ mid-span	1.17	Passed (L/182)	--	1.0 D + 0.6 W
Bending/Compression	0.84	1	Passed (84%)	1.60	1.0 D + 0.6 W

- Lateral deflection criteria: Wind (L/180)
- Input axial load eccentricity for the design is zero
- Applicable calculations are based on NDS.
- The column stability factor ($K_f = 0.6$) applied to this design assumes nailed built-up columns per NDS section 15.3.3. For Weyerhaeuser ELP products refer to the U.S. Wall Guide for multiple-member connection requirements.

Supports	Type	Material
Top	Dbl 2X	Douglas Fir-Larch
Base	2X	Douglas Fir-Larch

System : Wall
Member Type : Column
Building Code : IBC 2018
Design Methodology : ASD

Max Unbraced Length	Comments
1'	

Lateral Connections: Simpson Strong-Tie

Supports	Connector	Type/Model	Quantity	Connector Nailing
Top	Angle Connectors	A34	1	(8) - 8d x 1 1/2"
Base	Angle Connectors	A34	1	(8) - 8d x 1 1/2"

An error occurred while attempting to execute the subreport.

Lateral Load	Location	Tributary Width	Wind (1.60)	Comments
1 - Uniform (PSF)	Full Length	4' 11"	17.2	

- ASCE/SEI 7 Sec. 30.4: Exposure Category (B), Mean Roof Height (33'), Topographic Factor (1.0), Wind Directionality Factor (0.85), Basic Wind Speed (100), Risk Category(II), Effective Wind Area determined using full member span and trib. width.
- IBC Table 1604.3, footnote f: Deflection checks are performed using 42% of this lateral wind load.

Weyerhaeuser Notes

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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	



7/11/2022 5:59:28 PM UTC

ForteWEB v3.2, Engine: V8.2.0.17, Data: V8.1.0.16

File Name: FARM FIELD - WALKER

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PROJ: LOT 5 HOMESTEAD
AT HOOK FARMS

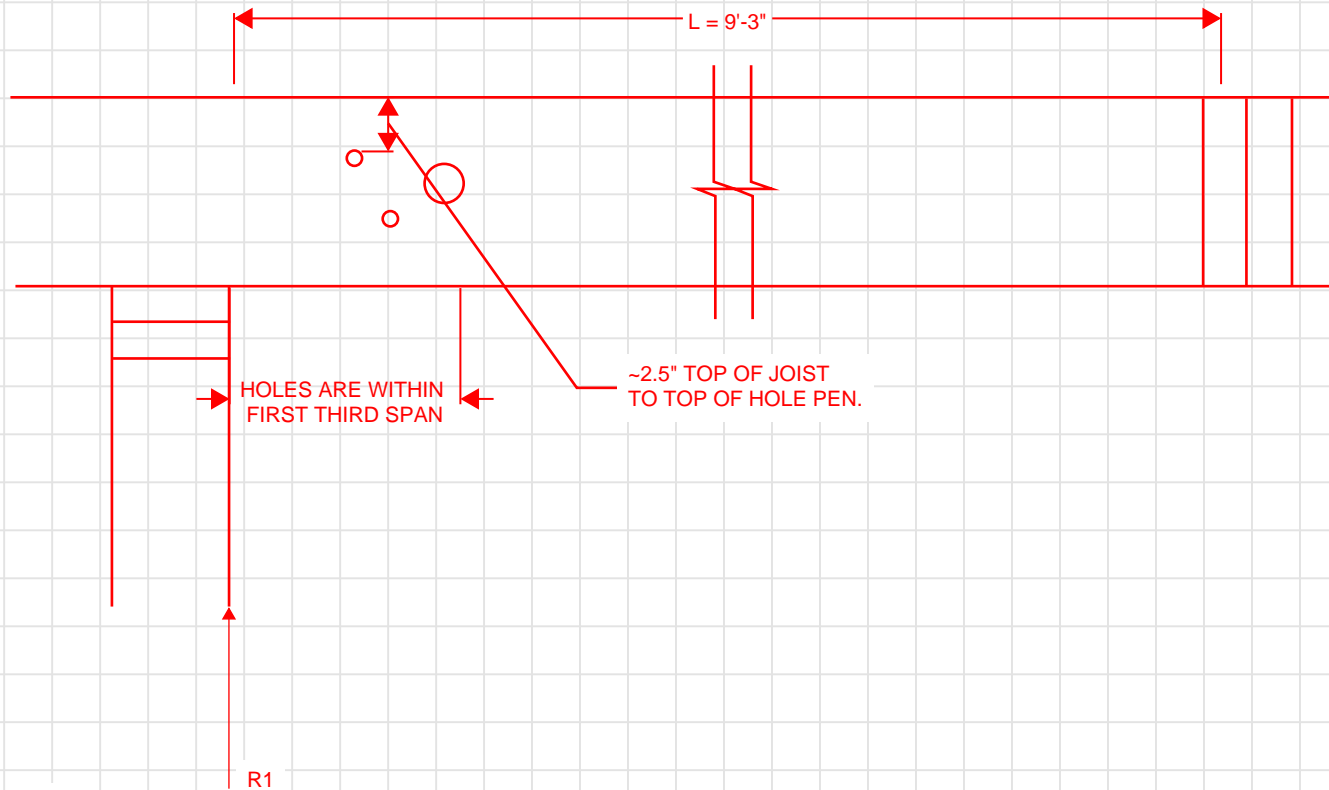
DATE: 7/11/22

PROJ #:

ENGR: DN



VISTA
—STRUCTURAL—
ENGINEERING, LLC



TILE

R1

$$W = 16/12 * (30+40) = 91 \text{ PLF}$$

$$R = 421\#$$

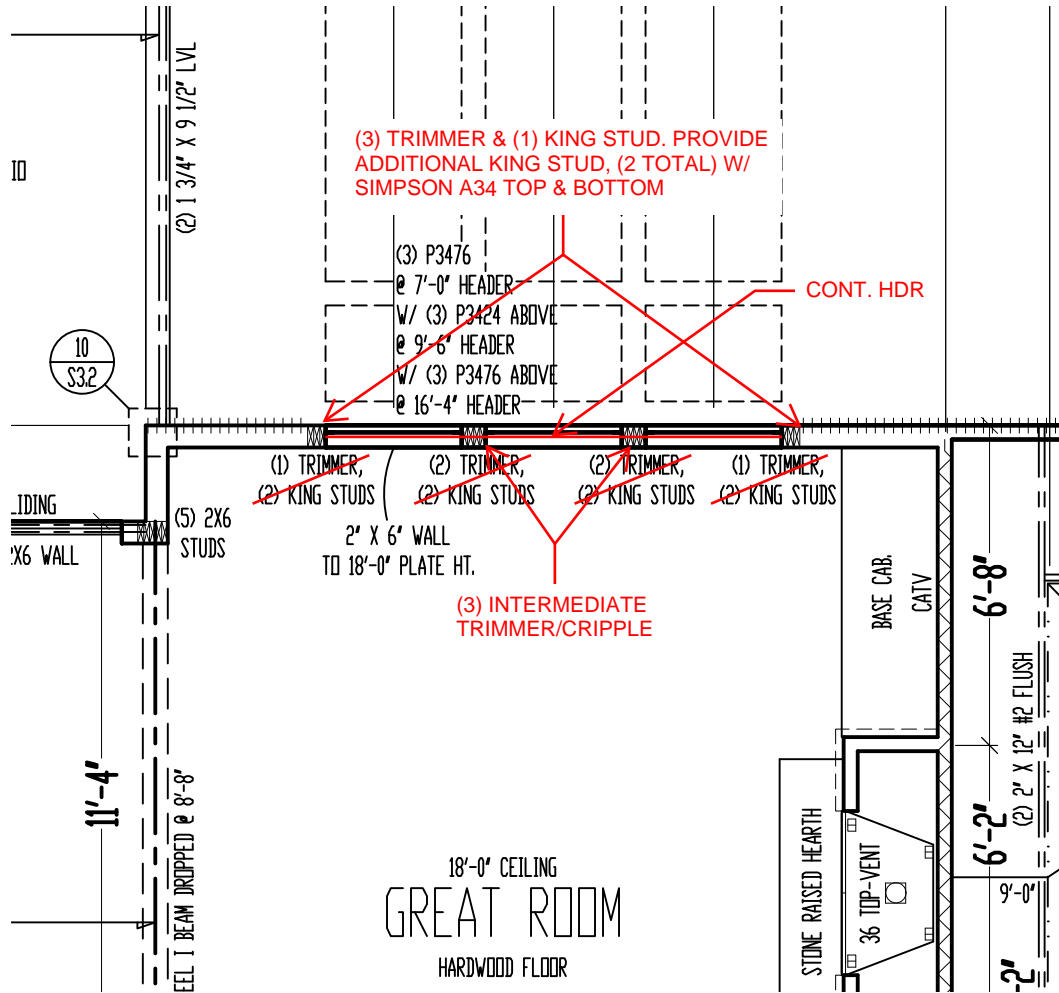
$$A (\text{DBL } 2 \times 10) = 1.5'' \times 9.25'' \times 2 = 27.8 \text{ SI}$$

$$F_v = 180 \text{ PSI}$$

GIVEN DISTANCE FROM BEARING END, AVAILABLE MEMBER DEPTH FROM TOP OF JOIST TO HOLE PENETRATION $\approx 2.5''$

$$A(\text{reduced}) = 2 \times [1.5'' \times 2.5''] = 7.5 \text{ in}^2$$

$$f_v (\text{reduced section}) = 3/2 * R/A (\text{reduced}) = 3/2 * (421/7.5) = 84.2 \text{ psi} < F_v, \text{ OK}$$



MAIN FL (UPPER FL FRAMING) - GREAT ROOM PARTIAL PLAN



JOIST PENETRATIONS BETWEEN MASTER SUITE/BATH



HEADER FRAMING AT GREAT ROOM