August 24, 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: Address rafter to ceiling joist connection above front entry**.

   Vista Structural's response: *We recommend installing a 0.22" x 6"-long Simspon SDWS screw up through the top plate, into the bottom of each ceiling joist. The ceiling joists should then be connected to the rafters with a 2x4 fastened to both the ceiling joist and rafter with (2) 10d nails into each. This will provide a complete path of resistance to design uplift forces*

2) **Inspection comment: Address rafter landing on blocks at 2nd floor.**

   Vista Structural's response: *We recommend installing Simpson SDWS22600DB-R50 screws, to be driven up through the plates and into the bottom of each of the rafters. The ceiling joists should be fastened to the rafters with a minimum of (2) 10d nails. This will provide a complete path of resistance to design uplift forces.*

3) **Inspection comment: Address over-notched ceiling joists and rafter bearing at bed 2/3 bath.**

   Vista Structural's response: *We recommend furring out the wall to provide an additional 1 ½" of bearing for rafters and ceiling joists by installing a 2x10 fastened to each stud with a minimum or (3) 10d nails. Picture of completed work attached.*

4) **Address over-notched floor joists at master shower.**

   Vista Structural's response: *We recommend installing doubled joists under the shower, where the depth of the joists is reduced from 9 ¼" to 7 ¾". A calculation has been attached, showing that doubled 1 ½" x 7 ¾" joists will adequately support design loading.*

5) **Address notched LVL header above rear slider.**

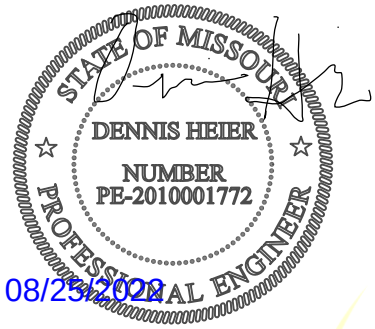
   Vista Structural's response: *Since the ceiling joists above the patio and the floor joists above the dining area are spanning parallel to the beam, the loading on the beam is coming from the second floor wall and the roof above this second floor wall. Therefore, it is acceptable to install the LVL beam at the bottom of the second floor wall. The main item that should be verified before city approval is that the struts that are clouded on the partial roof plan attached should be supported by the beam in the second floor wall. These struts can be supported by a cleat fastened to the side of the bottom of the LVL beam.*

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.



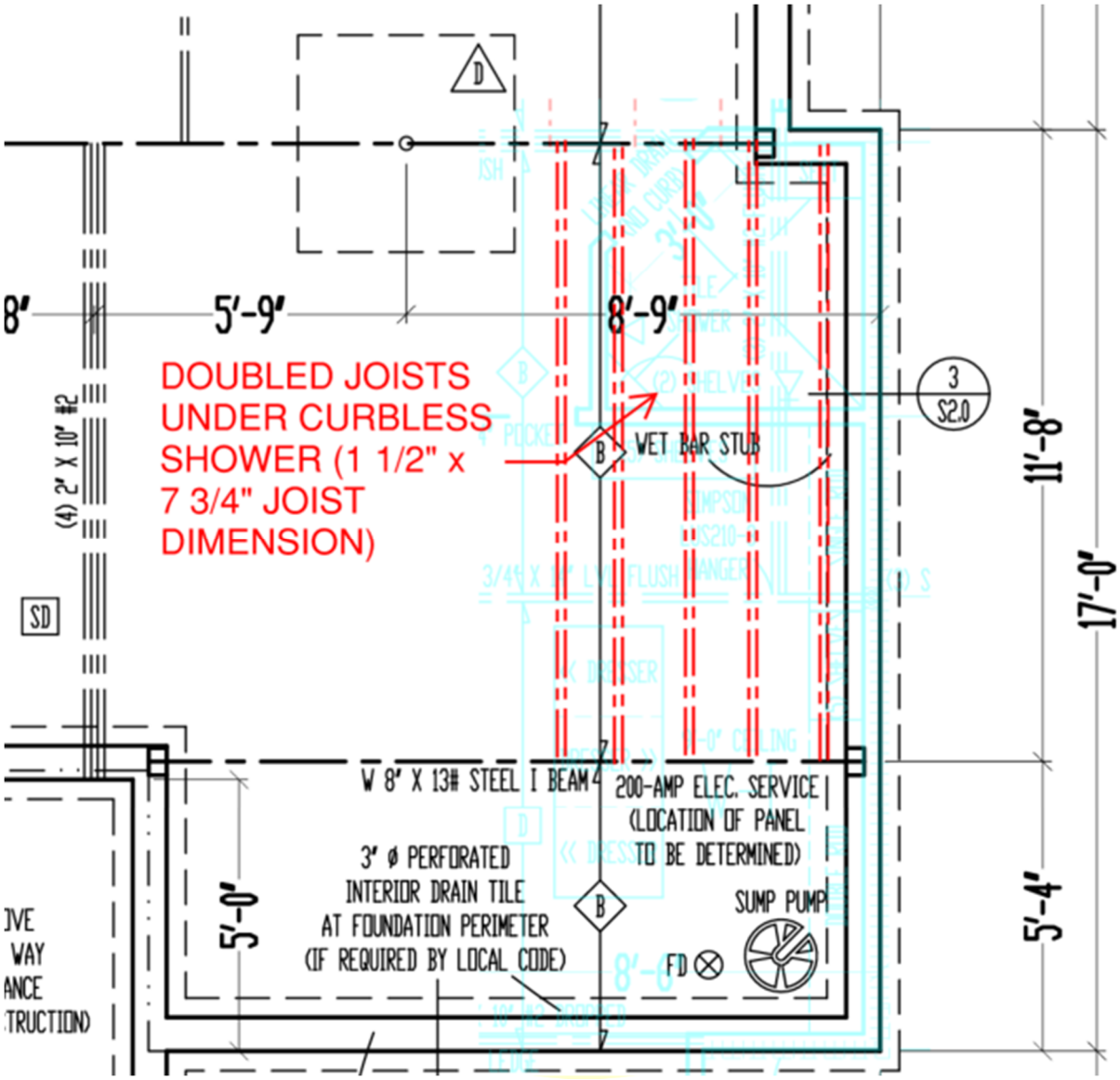
Item #1


INSTALL 0.22" x 6"-LONG SIMPSON SDWS SCREWS UP THROUGH BLOCKS, INTO BLOTTOM OF RAFTERS
FASTEN CJ'S TO RAFERS W/ (2) 10d NAILS
#2

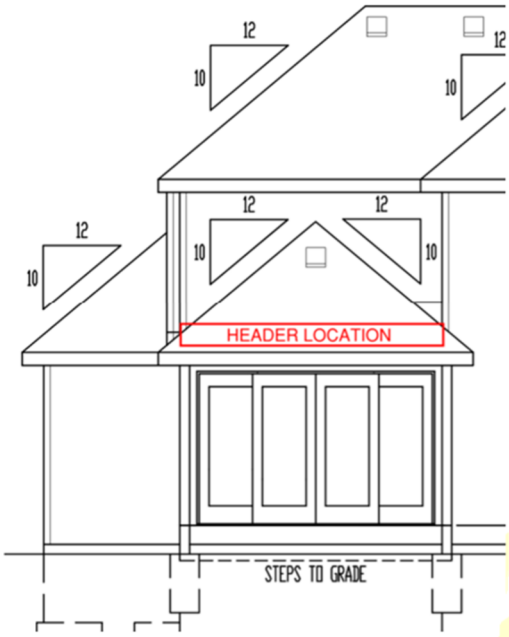
Item #2

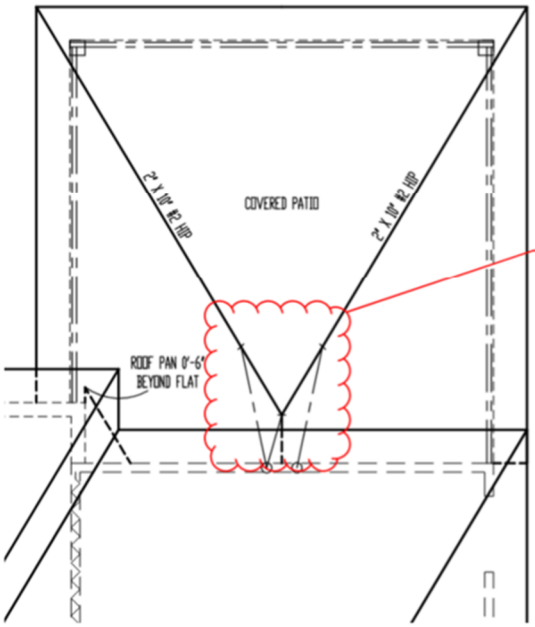
Item #3

Item #4 (calculation also attached)



Item #4 plan view





ASSURE THAT THESE THREE STRUTS ARE SUPPORTED BY THE LVL's INSTALLED AT THE BOTTOM OF THE 2ND FLOOR WALL. THEY CAN BE SUPPORTED BY A 2x4 CLEAT NAILED TO THE BOTTOM OF THE LVL's

Item #5

Vista Structural Engineering, LLC
14718 NW Delia St.
Portland, Oregon 97229
(971) 233-6099
dennis@vistastructural.com

Project Title:
Engineer:
Project ID:
Project Descr:

Printed: 25 AUG 2022, 9:17AM

Wood Beam

File: HHF005.ec6

Lic. # : KW-06010523 — Vista Structural Engineering, LLC

DESCRIPTION: joists under zero entry shower

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10
Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2018

Wood Species : DouglasFir-Larch
Wood Grade : No.2

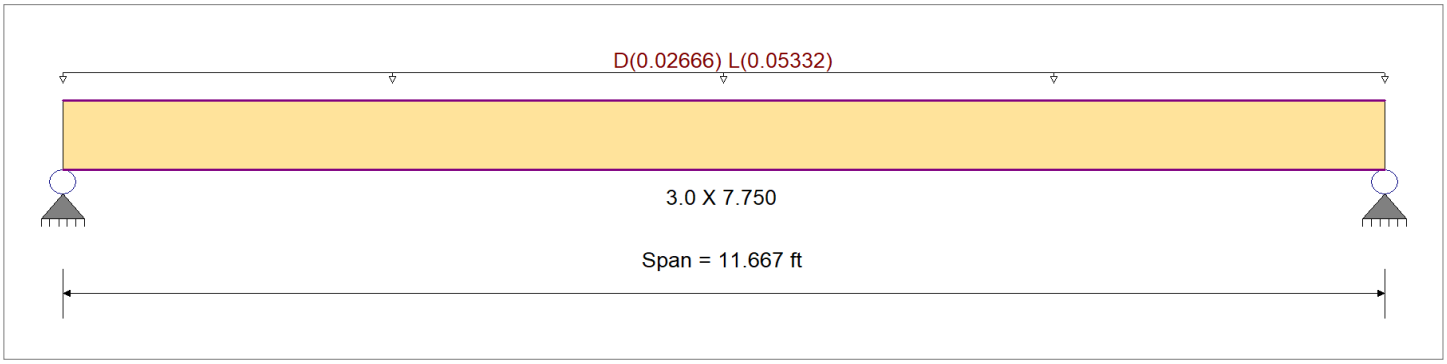
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.020, L = 0.040 ksf, Tributary Width = 1.333 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.478 : 1	Maximum Shear Stress Ratio	=	0.149 : 1
Section used for this span		3.0 X 7.750	Section used for this span		3.0 X 7.750
fb: Actual	=	543.77 psi	fv: Actual	=	26.81 psi
Fb: Allowable	=	1,138.50 psi	Fv: Allowable	=	180.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	5.834 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.120 in	Ratio =	1165 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.180 in	Ratio =	777 >=240
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	Moment Values fb	Moment Values F'b	Shear Values V	Shear Values fv	Shear Values F'v
D Only													0.00	0.00	0.00	0.00
Length = 11.667 ft	1	0.177	0.055	0.90	1.100	1.00	1.15	1.00	1.00	1.00	0.45	181.26	1024.65	0.14	8.94	162.00
+D+L					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.667 ft	1	0.478	0.149	1.00	1.100	1.00	1.15	1.00	1.00	1.00	1.36	543.77	1138.50	0.42	26.81	180.00
+D+0.750L					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.667 ft	1	0.318	0.099	1.25	1.100	1.00	1.15	1.00	1.00	1.00	1.13	453.14	1423.13	0.35	22.34	225.00
+0.60D					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.667 ft	1	0.060	0.019	1.60	1.100	1.00	1.15	1.00	1.00	1.00	0.27	108.75	1821.60	0.08	5.36	288.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.1801	5.876		0.0000	0.000

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Vista Structural Engineering, LLC

DESCRIPTION: joists under zero entry shower

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.467	0.467
Overall MINimum	0.311	0.311
D Only	0.156	0.156
+D+L	0.467	0.467
+D+0.750L	0.389	0.389
+0.60D	0.093	0.093
L Only	0.311	0.311