

April 9, 2025

Walker Custom Homes, LLC
 Attn: Tyler Lockler

Re: 2739 SW Heartland Road (Lot 191, Retreat at Hook Farms) – city inspection items

Vista Structural Engineering, LLC, was asked to address city inspection structural items for the new house being built at 2739 SW Heartland Road. The following are the inspection comments and our responses.

- 1) **Please address rafters landing on Smart Trim throughout sides of house on the second level.** As shown in Photo #1, each rafter is fastened to a vertical 2x4. This vertical 2x4 is fastened to a 2x4 located directly under the rafter. This 2x4 shall be fastened to the ceiling joists with a minimum of (2) 10d nails. The vertical 2x4 on the outside face of the rafter shall be fastened to the rafter with (2) 10d nails and to the adjacent 2x4 with (2) 10d nails. Due to this gravity support, there is minimal roof load on the rafter bearing point at the Smart Trim. The Smart Trim shall be fastened to the member below with (1) 10d nail @ 8" o.c., as shown in Photo #2. The rafters shall be fastened to the Smart Trim with (3) 8d nails, also as shown in Photo #2.
- 2) **Address beam separating kitchen and great room connection not to plans and LVL notched into I-beam.** We have determined that the connections are sufficient to support all applied design loading. The W8x48 steel beam bearing on top of the W12x50 is acceptable in lieu of the welded/bolted connection specified in detail 1/S3.4 shown on the plans. As shown in Photo #3, the reaction of the LVL beam above the W12x50 steel beam, based on design loads, is 900#. Given this loading, the minimum depth, per the calculation in the photo, is 1.4 inches. The remaining notched depth is significantly greater than 1.4 inches and, therefore, is adequate. The bearing length shall be verified to be a minimum of 1.5" on top of the W8x48 flange.
- 3) **Address holes drilled in joist for HVAC intake/exhaust located in lower level bedroom #5.** The holes in question are shown in photos #4 and #5. Per the attached calculations, we recommend scabbing on a 1 ½"-wide x 2"-deep x 36"-long piece of #2 Doug-Fir on both sides of the joist with holes, fastened to the joist with 10d nails @ 4" o.c., above the hole. No remediation is required below the holes. See Figure #1 for clarification.

The following pages include pictures and documentation for clarification.

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.



VISTA STRUCTURAL ENGINEERING, LLC

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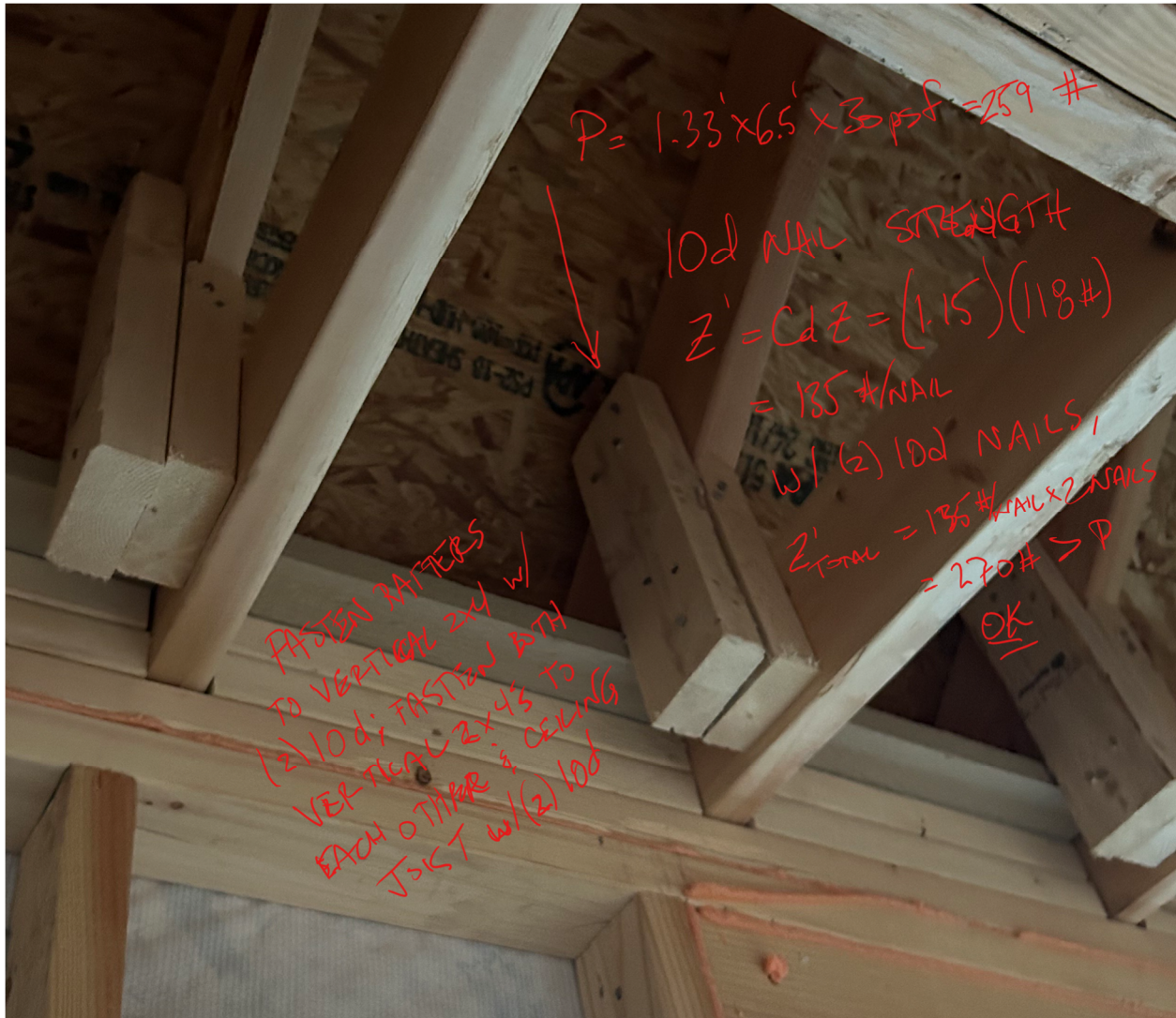


Photo #1 – fastening of rafters to vertical 2x4's and vertical 2x4's to ceiling joists

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Photo #2 – fastening of rafters to vertical 2x4's and vertical 2x4's to ceiling joists

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Photo #3 – Connection of beams above W12x50 steel beam

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Photo #4 – Dimensions to holes in question (item #3)



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Photo #5 – Hole Dimensions (item #3)

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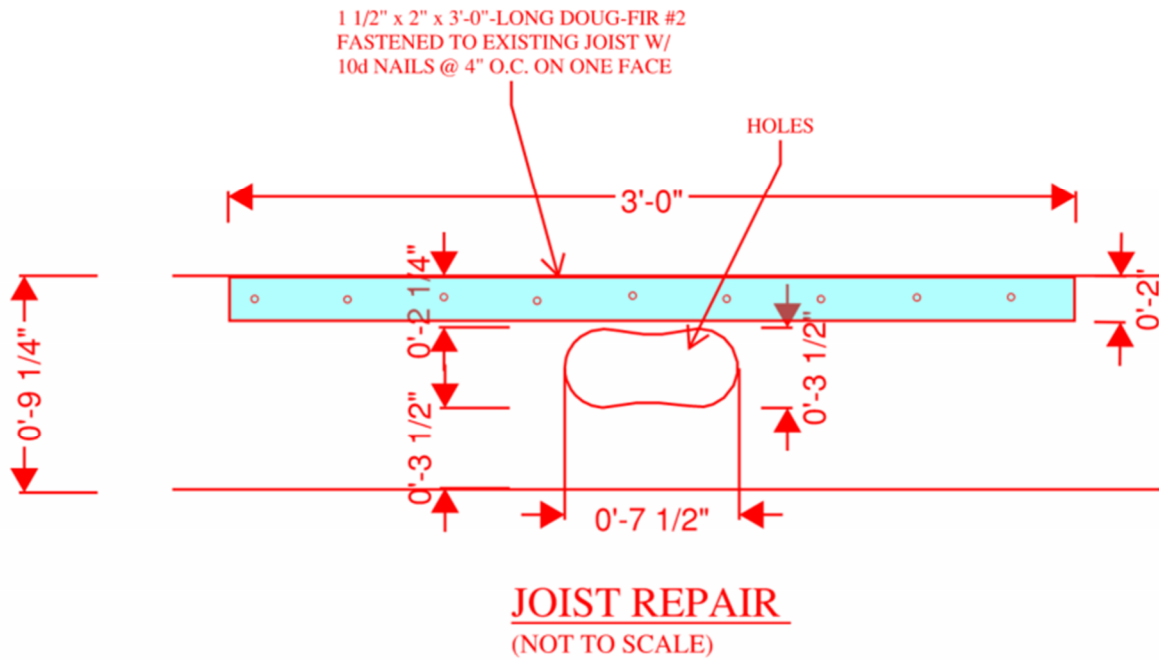


Figure #1 – Joist repair detail



VISTA STRUCTURAL ENGINEERING, LLC

General Section Property Calculator

Lic. #: KW-06010523

DESCRIPTION: RHF191 VITER - built-up section at joist with holes drilled, above bedroom #5

Final Section Properties

Total Area :	11.625 in ²	Ixx :	126.982 in ⁴	Sxx : - Y :	24.058 in ³
Calculated final C.G. distance from Datum :		Iyy :	7.187 in ⁴	Sxx : +Y :	31.971 in ³
X cg Dist. :	-0.3871 in	Zxx :	34.910 in ³	Syy : - X :	3.858 in ³
Y cg Dist. :	0.6532 in	Zyy :	7.342 in ³	Syy : +X :	6.321 in ³
Edge Distances from CG. :				r xx :	3.305 in
+X :	1.137 in	+Y :	3.972 in	r yy :	0.7863 in
-X :	-1.863 in	-Y :	-5.278 in		

Rotation of All Components @ Angle : 0.00 deg CCW

Minimum Section Properties

Rotation Angle (CCW)	83.70 deg CCW	I: Moment of Inertia	5.712 in ⁴
r: Radius of Gyration	0.7010 in	S: Modulus	3.496 in ³
		Z: Plastic Modulus	6.709 in ³

BUILT-UP SECTION WITH 1 1/2" x 2" SECTION ADDED TO (AND BEYOND) SECTION WHERE HOLES ARE LOCATED.

SECTION MUST MEET MINIMUM I_x AND S_x VALUES OF A FULL 2x10 (I_x=98.9in⁴ AND S_x=21.39in³)

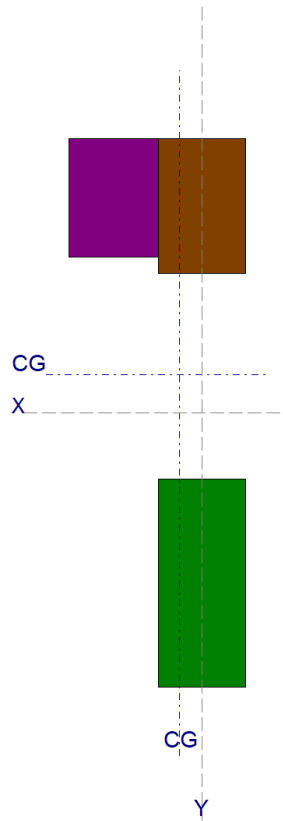
PER CALCULATIONS ABOVE:

I_x = 127.0in⁴ (OK)


S_x = 24.1in³ (OK)

PROPOSED BUILT-UP SECTION OK

INSTALL 3'-0"-LONG SECTION, CENTERED OVER HOLES, FASTENED W/ 10d NAILS @ 4" O.C. TO EXISTING 2x10 JOIST.



Rectangular & Circular Shapes

 Rectangular Shape : 2	Height =	2.250 in	Width =	1.500 in	Rotation =	0 deg CCW
	Area =	3.375 in ²	Xcg =	0.000 in	Ycg =	3.500 in

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Project Title:
Engineer:
Project ID:
Project Descr:

Printed: 9 APR 2025, 5:55PM

General Section Property Calculator

File: RHF191 VITER.ec6
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Lic. # : KW-06010523

Vista Structural Engineering, LLC

DESCRIPTION: RHF191 VITER - built-up section at joist with holes drilled, above bedroom #5

Rectangular Shape : 3	Height =	3.500 in	Width =	1.500 in	Rotation =	0 deg CCW
	Area =	5.250 in ²	Xcg =	0.000 in	Ycg =	-2.875 in
Rectangular Shape : 4	Height =	2.000 in	Width =	1.500 in	Rotation =	0 deg CCW
	Area =	3.000 in ²	Xcg =	-1.500 in	Ycg =	3.625 in