

# HD Engineering & Design

*Solutions for all your engineering and design needs*

## FRAMING ADDENDUM

5/9/2022

SAB HOMES

**RE: SOLAIA II (E737)  
2366 SW HICKORY LN  
LEE'S SUMMIT, MO.**

Our firm has been asked to address a framing inspection item for the home being built at the location listed above. At the time of inspection the home was in a rough framed state.

### **Notched Joist at Lower Level Below Master Bath**

The plumber has notched the top of the floor joist that sits below the shower. The notch is 3.25" wide (within code allowable) x 2.75" deep (just outside code allowable). To compensate the lost inertia of the floor joist and allow for proper transfer of the loads, see attached section properties, our firm recommends leaving the 2x4 sister currently attached in place and adding additional reinforcing on the other side of the joist. The required additional reinforcing will be a 3.5" tall by 48" long piece of 7/16 OSB attached top and bottom at 12" on center. With the additional recommended sister installed our firm recommends approval of this item as framed.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted engineering practices. No warranties, either express or implied, are intended or made.

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding this report, please contact us.

Very truly yours,  
HD ENGINEERING & DESIGN, INC.

John Hulse, Principal



Project Title:  
 Engineer:  
 Project ID:  
 Project Descr:

## General Section Property Calculator

Project File: RETAINING WALLS.ec6

LIC# : KW-06015579, Build:20.22.4.26

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**DESCRIPTION:** SISTER JOIST

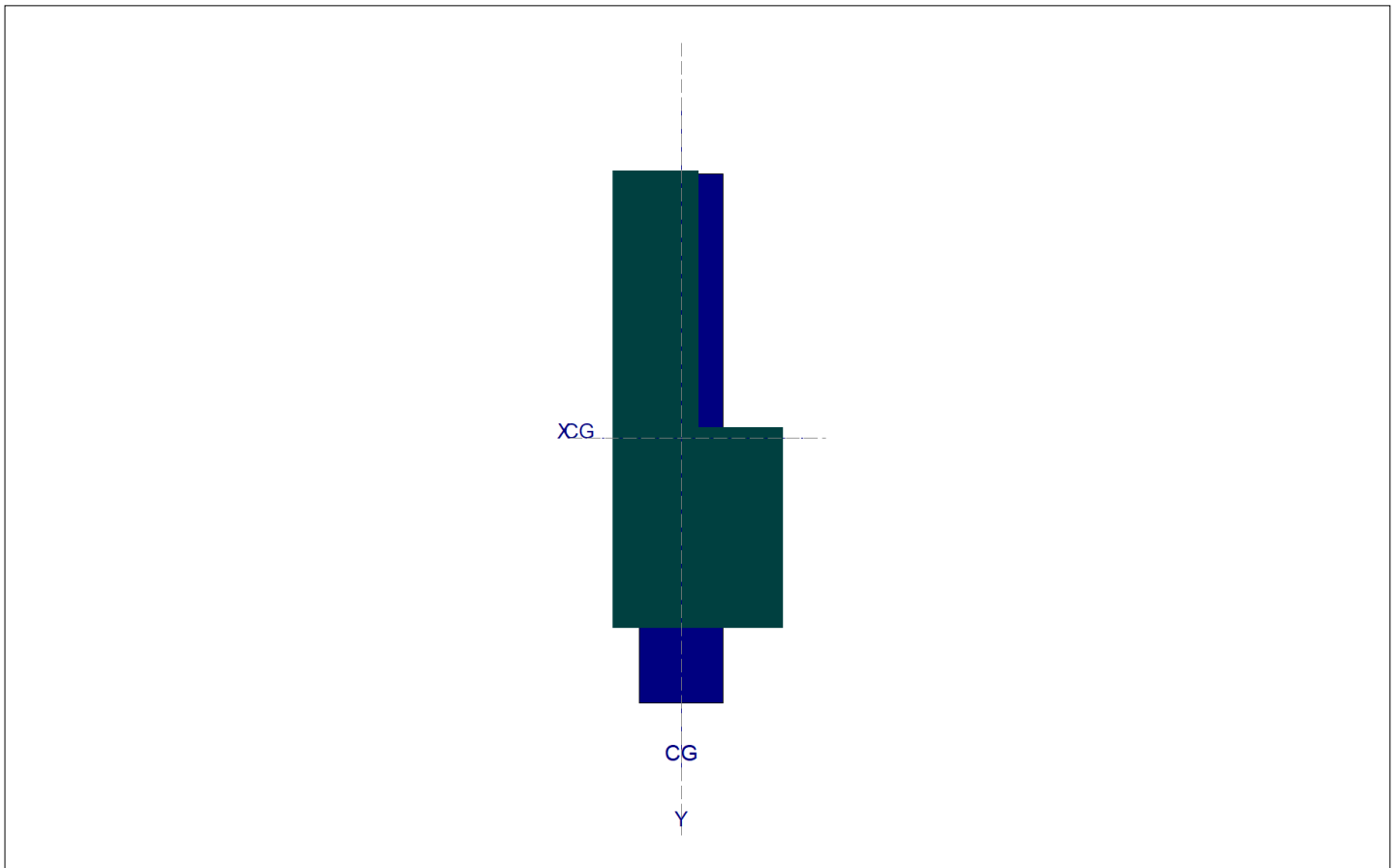
### Final Section Properties

|   |   |                        |     |   |                         |           |   |                        |
|---|---|------------------------|-----|---|-------------------------|-----------|---|------------------------|
| Total Area                                | : | 31.125 in <sup>2</sup> | lxx | : | 186.773 in <sup>4</sup> | Sxx : - Y | : | 40.383 in <sup>3</sup> |
| Calculated final C.G. distance from Datum | : |                        | lyy | : | 14.052 in <sup>4</sup>  | Sxx : +Y  | : | 39.868 in <sup>3</sup> |
| X cg Dist.                                | : | 0.0 in                 | Zxx | : | 64.669 in <sup>3</sup>  | Syy : - X | : | 11.646 in <sup>3</sup> |
| Y cg Dist.                                | : | 0.0 in                 | Zyy | : | 16.786 in <sup>3</sup>  | Syy : +X  | : | 7.835 in <sup>3</sup>  |
| Edge Distances from CG. :                 |   |                        |     |   |                         | r xx      | : | 2.450 in               |
| +X  | : | 1.793 in               | +Y  | : | 4.685 in                | r yy      | : | 0.6719 in              |
| -X  | : | -1.207 in              | -Y  | : | -4.625 in               |           |   |                        |


Rotation of All Components @ / 0.00 deg CCW

#### Minumim Section Properties

|                      |                |                     |                        |
|----------------------|----------------|---------------------|------------------------|
| Rotation Angle (CC)  | 85.920 deg CCW | I: Moment of Inerti | 13.177 in <sup>4</sup> |
| r: Radius of Gyritic | 0.6506 in      | S: Modulus          | 7.315 in <sup>3</sup>  |
|                      |                | Z: Plastic Modulus  | 16.411 in <sup>3</sup> |



### Rectangular & Circular Shapes

|  |                       |          |                        |         |          |            |           |
|--|-----------------------|----------|------------------------|---------|----------|------------|-----------|
|  | Rectangular Shape : 1 | Height = | 9.250 in               | Width = | 1.500 in | Rotation = | 0 deg CCW |
|  |                       | Area =   | 13.875 in <sup>2</sup> | Xcg =   | 0.000 in |            |           |
|  |                       |          |                        | Ycg =   | 0.000 in |            |           |

### General Shapes

Project Title:  
Engineer:  
Project ID:  
Project Descr:

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### DESCRIPTION: SISTER JOIST

L : #1

Xcg = 0.000 in

Ycg = 0.000 in

Rotation = 0 deg CCW

Width = 3.000in

Height =

8.000in

Vert. Section Width

1.500in

Horiz. Section Heig

3.500in