

## PROFESSIONAL ENGINEERING SERVICES

4912 Ten-Ten Rd, Apex, NC 27539  
North Carolina License 021195

CONSULTING.DESIGN  
(919) 749.5151

[ottel@yahoo.com](mailto:ottel@yahoo.com)

September 06, 2023

Ref: Structural Evaluation and Design:  
Revision for Plans

Address: 276 Maple Rd.  
Angier, NC 27501

To: Reynaldo Gill  
/Whom it may concern.

On September 05, I visited the above listed property for structural evaluation of the structural condition for the addition to the bedroom after placing the footing.

The property is a detached single family home, one and a half stories, gable roofing, built 2005 with elevated flooring above crawlspace.

This report confirms beam size for the addition near the bedroom on the right side of the house. The beam should be supported on studs columns as shown on Fig 1. The clear spans from each openings will be as shown on the plan, 13'11", 7'4" and 10'8". LVLs sizes for practical reason can be one beam with clear span of 13'11" and one beam to cover the other two spans.

-Use (2)1.75"11.875" LVL, E 2.0, Use (4)2x4 for columns supports. Add strap between beams and columns on both sides and both ends.

-Use Fig 2 to connect the two plies of the LVLs together. Ceiling joists can be bottom seating or flush with the beam, use appropriate hangers for flush loading.

**All work should be in accordance with 2018 NCBC.**

### **Limitation:**

This report is an assessment of the noted conditions based on visual evidence and limited destructive investigation. All comments and conclusions are considered accurate to a reasonable degree of engineering certainty based on the evidence available at the

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time the report was issued. All opinions and conclusions are subject to revision based on receipt of new additional information.

Should you have any questions or concerns regarding the information contained in this report, please contact me at: 919-749-5151.

Sincerely,

Kamal Essaid PE



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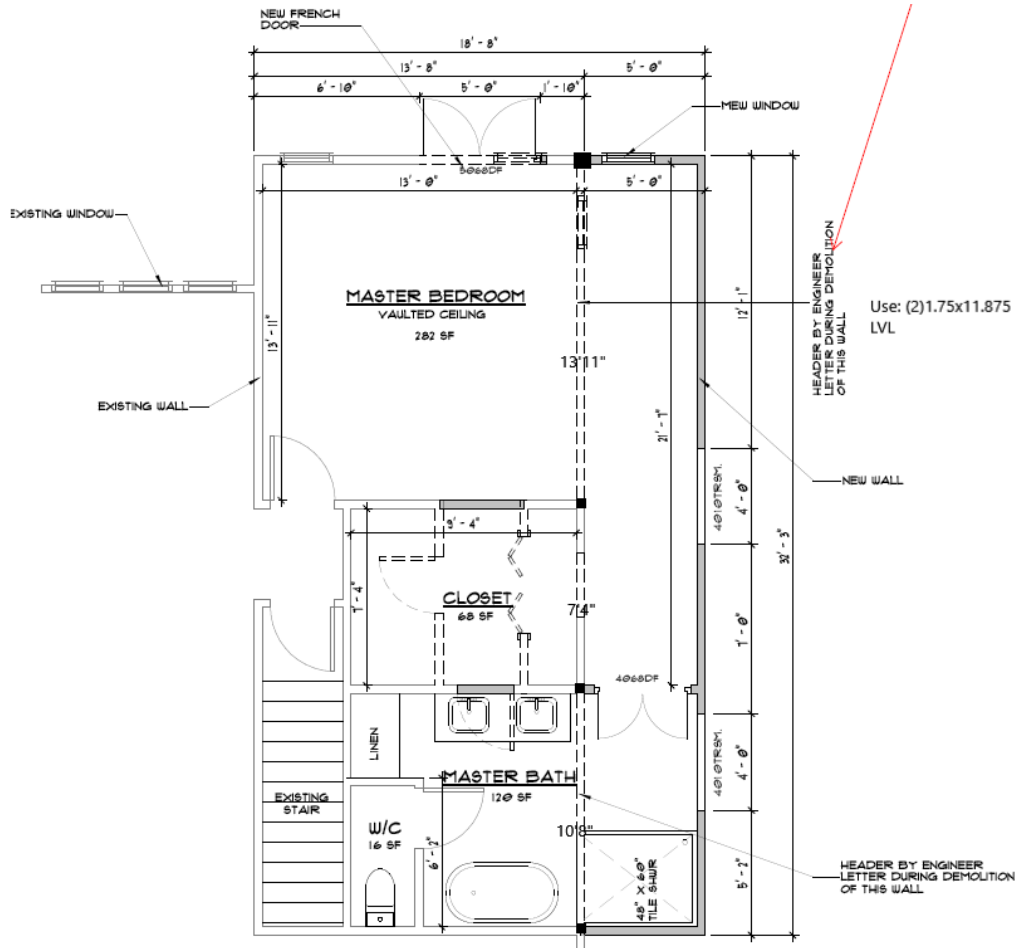


Figure 1

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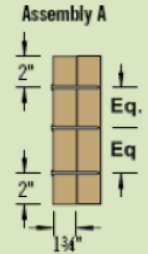
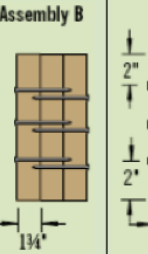

| Connector Type                        | Location | Number of Rows | Connector On-Center Spacing | Fastener Pattern   |   |   |
|---------------------------------------|----------|----------------|-----------------------------|--|---|---|
|                                       |          |                |                             | Assembly A<br> | Assembly B<br> | Assembly F<br> |
|                                       |          |                |                             | 3 1/2" 2-Ply   | 5 1/4" 3-Ply  | 7" 4-Ply  |
| 10d (0.128" x 3") Nail <sup>[1]</sup> | As Shown | 3              | 12"                         | 555  | <b>415</b>  |   |
|                                       |          | 4              | 12"                         | 740  | <b>555</b>  |   |
| 1/2" A307 Through Bolt <sup>[2]</sup> | -        | 3              | 24"                         | 760  | 570   | 505   |
|                                       |          |                | 12"                         | 1,520  | 1,140   | 1,015   |
|                                       |          | 4              | 24"                         | 1,015  | 760   | 675   |
|                                       |          |                | 12"                         | 2,030  | 1,520   | 1,355   |
| <b>Screw Length</b>                   |          |                |                             | <b>3 1/2"</b>  | <b>3 1/2"</b>   | <b>6"</b>   |
| SDS ✘                                 | As Shown | 3              | 24"                         | 1,020  | <b>765</b>  | <b>835</b>  |
|                                       |          |                | 12" ✘                       | 2,040 ✘  | <b>1,530</b>  | <b>1,670</b>  |
|                                       |          | 4              | 24"                         | 1,360  | <b>1,020</b>  | <b>1,110</b>  |
|                                       |          |                | 12"                         | 2,720  | <b>2,040</b>  | <b>2,225</b>  |
| USP WS                                | As Shown | 3              | 24"                         | 955  | <b>720</b>  | <b>715</b>  |
|                                       |          |                | 12"                         | 1,915  | <b>1,435</b>  | <b>1,430</b>  |
|                                       |          | 4              | 24"                         | 1,275  | <b>955</b>  | <b>955</b>  |
|                                       |          |                | 12"                         | 2,550  | <b>1,915</b>  | <b>1,910</b>  |
| <b>Screw Length</b>                   |          |                |                             | <b>3 3/8"</b>  | <b>5"</b>   | <b>6 3/4"</b>   |
|                                       |          |                | 24"                         | 870  | 675   | 620   |

Figure 2