

## PROFESSIONAL ENGINEERING SERVICES

111 Gold Meadow Dr, Cary, NC 27513 CONSULTING.DESIGN  
North Carolina License 021195

Friday, October 9, 2020

Ref: Structural Evaluation and Design:  
Replacing Wall with Beam

Address: 1462 Wheeler Dr,  
Angier, NC 27501

To: Christopher Kerns/Whom it may concern

Homeowner is planning to remove the wall separating the kitchen from living area at the above address.

Property is single family home, one story, gable roofing, built 1990.

The subject wall is between the living area on one side and kitchen plus hallway on the other side, as showing on Fig 1. The clear distance for the opening would be 29.75 feet.

Use (2)1.75"x18" LVL beam 2.0 E or higher, provide 4.5" seating over columns, connect the 2 ply according to the schedule attached Fig 3. Beam will be seated on each end over the columns. Use (3)2x6 studs for columns on each end, as showing on Fig 2. Nail column studs together at 24" off center with 2 nails, 16d box sinkers nails.

Other option is to use (3)1.75"x16" LVL with 2.0 E or higher, provide same seating 4.5" over (3)2"x6" columns, nail columns studs together at 24" off center with 2 nails, 16d box sinkers nails. Connect the three ply according to table on Fig 3.

Homeowner can use either 30 feet long beam, with clear span of 29'4" or a beam of 32' long to accommodate the current span 29.75 feet.

Use strap to connect column with LVL beams on each side of the beam and use hurricane ties, every other joist, between beam and ceiling joists above.

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

P (919) 749.5151  
ottel@yahoo.com

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Sincerely,

Kamal Essaid PE

kamal.essaid  
Sat Oct 10 2020 09:26:36

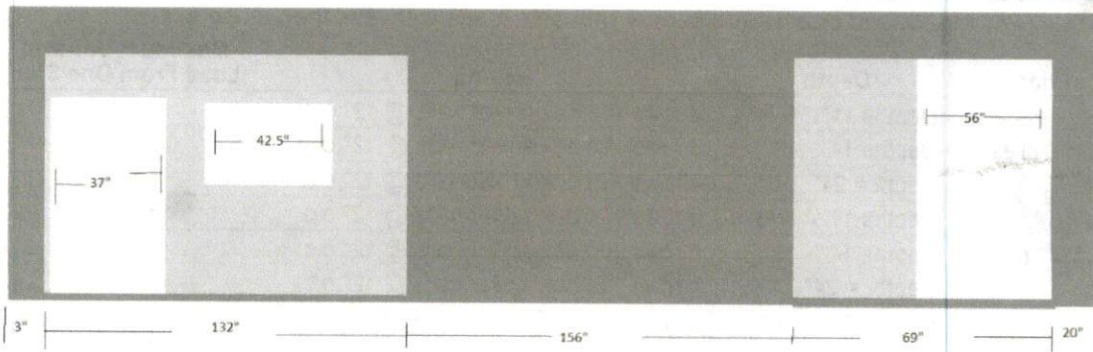


20X78

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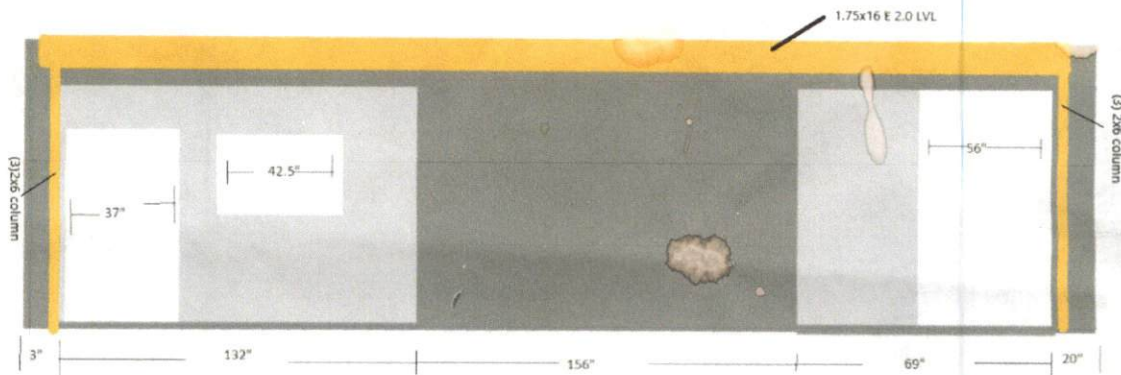
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1462 Wheeler Dr. Angier Changes in Lighter Gray, White represents current configuration

Figure 1



1462 Wheeler Dr. Angier Changes in Lighter Gray, White represents current configuration

Figure 2

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**Top Loaded Applications**

For top-loaded beams and beams with side loads with less than those shown:

Plies	Depth	Nailing <sup>(2)</sup>	Maximum Uniform Load From One Side
(2) 1 1/4" plies	Depths 11 1/4" & less	2 rows 16d box/sinker nails @ 12" o.c.	400 plf
	Depths 14" - 18" X	3 rows 16d box/sinker nails @ 12" o.c. X	600 plf
	Depth = 24"	4 rows 16d box/sinker nails @ 12" o.c.	800 plf
(3) 1 1/4" plies <sup>(1)</sup>	Depths 11 1/4" & less	2 rows 16d box/sinker nails @ 12" o.c.	300 plf
	Depths 14" - 18"	3 rows 16d box/sinker nails @ 12" o.c.	450 plf
	Depth = 24"	4 rows 16d box/sinker nails @ 12" o.c.	600 plf
(4) 1 1/4" plies	Depths 18" & less	2 rows 1/2" bolts @ 24" o.c., staggered	335 plf
	Depth = 24"	3 rows 1/2" bolts @ 24" o.c., staggered every 8"	505 plf
(2) 3/2" plies	Depths 18" & less	2 rows 1/2" bolts @ 24" o.c., staggered	855 plf
	Depth 20" - 24"	3 rows 1/2" bolts @ 24" o.c., staggered every 8"	1285 plf

Figure 3