

Monday, April 05, 2021

Ref: Structural Evaluation and Design:
Removing Wall between Kitchen & Dining

Address: 163 Fairfield Lane
Lillington, NC 27546

To: Ariana Ganz/Whom it may concern.

On April 01, 2021, I have visited the above listed property for structural evaluation and design for the planned structural alteration in the interior of the house.

Property is detached single family home, two stories, gable roofing, built 1996 with elevated flooring above crawlspace.

Homeowner part of his remodeling project for the kitchen is planning to make structural alteration for the wall between the kitchen and the dining rooms. This wall is load bearing wall carrying the joists from second floor. The alteration will require a beam to replace the wall to create an opening of either 9 feet or 13.5 feet, in both cases the interior column will be directly loaded on the pier below. Either plan left to homeowner to decide.

owner states just replacing existing vinyl flooring w/ hardwood

A new beam is necessary to support the load from the second floor/ceiling joists:

Option one, Clear span of 9 feet.

- Use (2) 1.75"x9.5" LVL, E 2.0, maximum clear span of 9 feet, to be supported on each end with (4)2x4 column. Beam size is the clear span plus the support on both sides. Add straps to beam connection with columns.

Option two, Clear span of 13.5 feet.

- Use (2) 1.75"x11.875" LVL, E 2.0, maximum clear span of 13.5 feet, to be supported on each end with (4)2x4 column. Beam size is the clear span plus the support on both sides. Add straps to beam connection with columns.

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Note: connect the two plies LVL in accordance with the Fig 1.

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

MAXIMUM UNIFORM LOAD APPLIED TO EITHER OUTSIDE MEMBER (PLF)


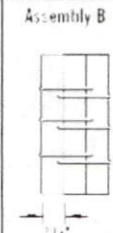

Connector Type	Location	Number of Rows	Connector On-Center Spacing	Fastener Pattern		
				Assembly A 	Assembly B 	Assembly F 
				3 1/2" 2-Ply	5 1/2" 3-Ply	7" 4-Ply
10d (0.128" x 3") Nail ¹	As Shown	3	12"	555	415	
		4	12"	740	555	
1/2" A307 Through Bolt ²		3	24"	760	570	505
			12"	1320	1140	1015
		4	24"	1015	760	675
			12"	2030	1520	1335
Screw Length				3 1/2"	3 1/2"	6"
SDS	As Shown	3	24"	1020	765	835
			12"	2040	1530	1670
		4	24"	1360	1020	1110
			12"	2720	2040	2225
USP WS	As Shown	3	24"	955	720	715
			12"	1915	1435	1430
		4	24"	1275	955	955
			12"	2550	1915	1910
Screw Length				3 3/8"	5"	6 3/4"
TrussLOK ³	One Side Only	3	24"	870	675	620
			12"	1740	1350	1240
		4	24"	1160	900	825
			12"	2320	1800	1635

Figure 1

- Taking 9ft out of load bearing wall.
- support both sides of opening and remove all 2x4's, install beam with new 2x4's - 4 on each side.

