

# Engineer report for wall removal 1 floor

E. Randolph Marshall  
7575 McCartans Ford  
Linden, NC 28356  
(910) 850 5874  
[Randolph@RandolphMarshall.com](mailto:Randolph@RandolphMarshall.com)

Barry's Home Repair  
Berry Childers

May 27, 2021

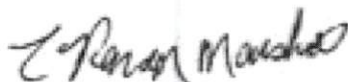
Subject: 275 Lakeland Port  
Carolina Lakes  
Sanford, NC 27335

I visited the construction site at the above address to do an engineering analysis for removing a wall and sizing a header beam.

A two-ply 2x10 beam with a 3/8" plywood member between and 5'-7 3/4" long will support the imposed loads. The beam should have double 2x4 columns on each end.

Please call if you have any questions or need additional engineering support.

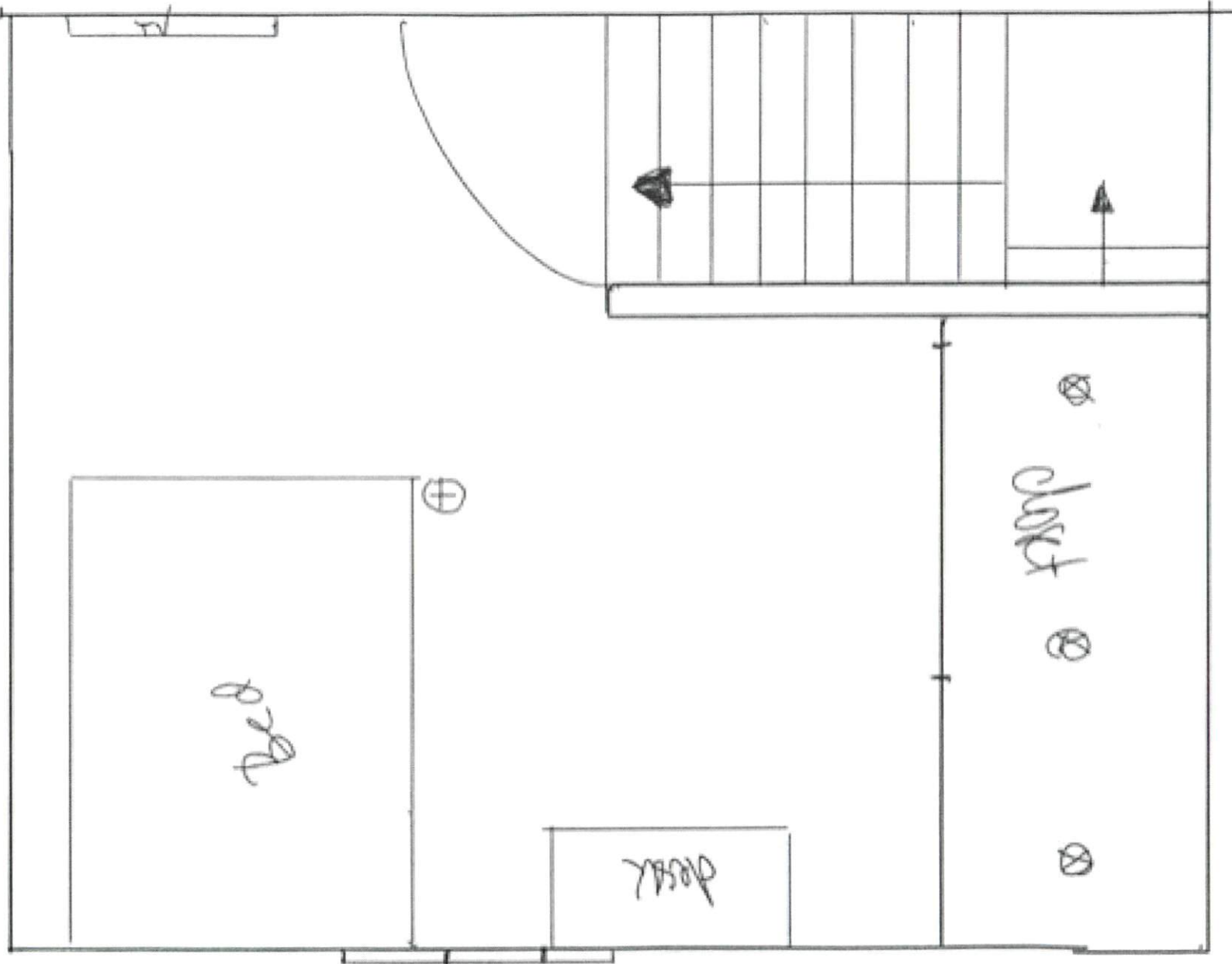
Sincerely,



E. Randolph Marshall, PE



27 May 2021



\* New \* Attic plan



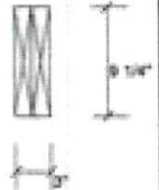
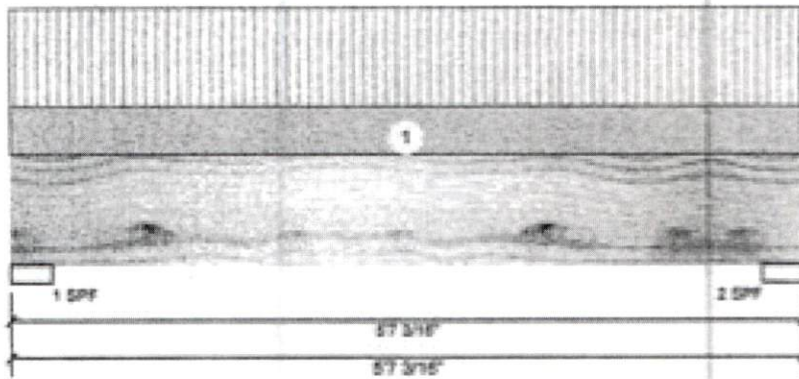
**EWP Studio**  
Simpson Strong-Tie®  
Component Solutions™

Client: Your Dream Home Improvement  
Project:  
Address: 3032 Southridge Ct

Date: 5/26/2021  
Input by:  
Job Name: Beam Evaluation  
Project #:

**B1 D FIR-L #1 2.000" X 10.000" 2-Ply - PASSED**

Level: Level



**Member Information**

Type: Girder	Application: Floor
Piles: 2	Design Method: ASD
Moisture Condition: Dry	Building Code: IRC 2018
Deflection LL: 360	Load Sharing: No
Deflection TL: 180	Deck: Not Checked
Importance: Normal - II	
Temperature: Temp <= 100°F	

**Reactions UNPATTERNED lb (Uplift)**

Dir	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	560	260	0	0	0
2	Vertical	560	260	0	0	0

**Bearings**

Bearing	Length	Dir.	Cap. React	Dfl. lb	Total Ld.	Case	Ld. Comb.
1 - SPF	3.500'	Vert	18%	260 / 560	640	L	D=L
2 - SPF	3.500'	Vert	18%	260 / 560	640	L	D=L

**Analysis Results**

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	991 ft-lb	2'9 5/8"	3622 ft-lb	0.253 (25%)	D=L	L
Unbraced	991 ft-lb	2'9 5/8"	3891 ft-lb	0.256 (25%)	D=L	L
Shear	621 lb	1' 3/4"	3330 lb	0.186 (18%)	D=L	L
LL Defl inch	0.009 (L/6602)	2'9 5/8"	0.171 (L/360)	0.055 (5%)	L	L
TL Defl inch	0.014 (L/4402)	2'9 5/8"	0.243 (L/180)	0.041 (4%)	D=L	L

**Design Notes**

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Multiple plies must be fastened together as per manufacturer's details.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be laterally braced at end bearings.
- 6 Bottom must be laterally braced at end bearings.
- 7 Lateral slenderness ratio based on full section width.

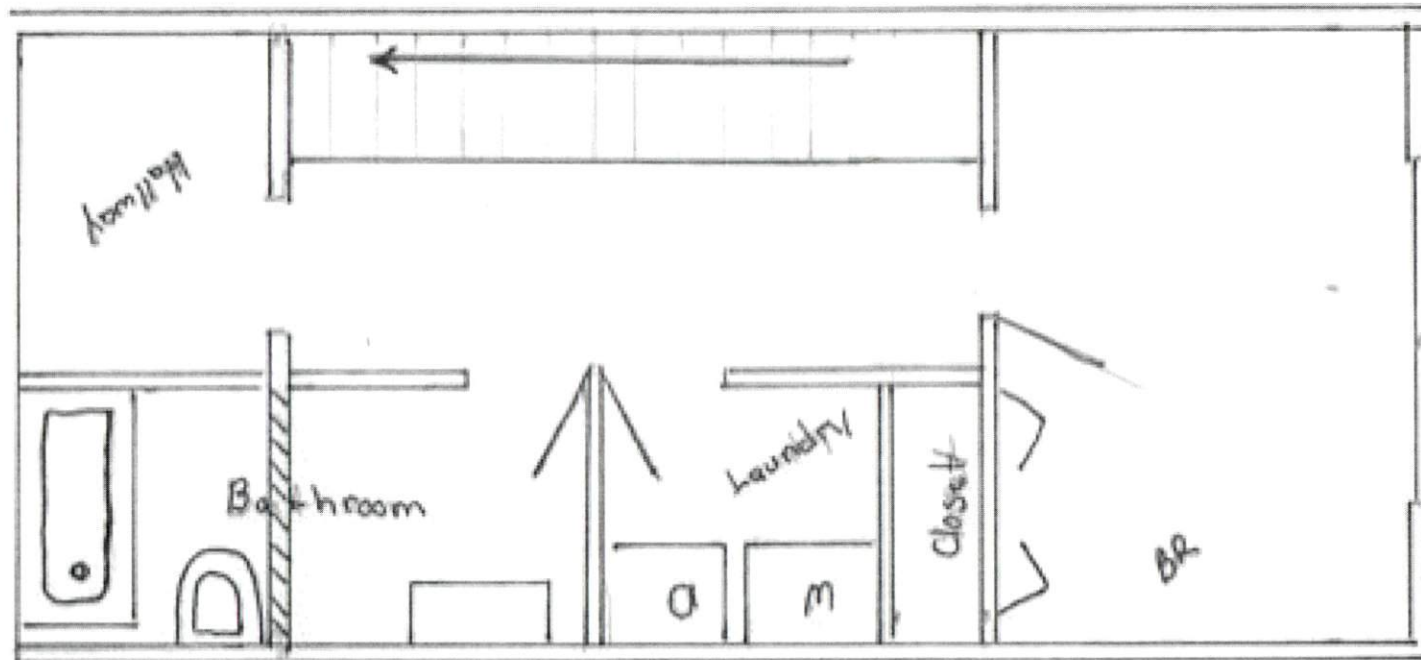


ID	Load Type	Location	Trib Width	Side	Dead 0.2	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform		10'-0'-0"	Top	12 PSF	20 PSF	0 PSF	0 PSF	0 PSF	

**Manufacturer Info**

\*New\*

1st Floor plan to convert family room into a bedroom with bathroom and laundry



Wall removed and header put in  
See engineer report