



## Neal Smith Engineering, Inc.

139 Pinehurst Avenue - Suite C  
Southern Pines, NC 28387  
Phone: (910) 695-8825  
Fax: (910) 695-8832  
www.nseengineering.com  
License No. C-1425



August 2, 2021

Gary Robinson Homes, LLC  
6200 Ramsey Street  
Fayetteville, NC 28311

Attn: Rhonda Newsome

Telephone: 919-901-9832  
Email: rhonda.grhomes@gmail.com

Subject: **Structural Inspection**  
**81 Hazelwood Rd**  
**Lillington, North Carolina**  
**NSE Job # 2100617**

Dear Ms. Newsome:

On July 31<sup>th</sup>, 2021, Neal Smith Engineering, Inc. (NSE) performed a structural inspection at the above subject location. The purpose of the inspection was to evaluate a load bearing wall on a slab with no footing below the slab.

This report summarizes the findings and recommendations based upon the site visit and subsequent engineering evaluation.

### **Scope of Investigation**

The scope of the investigation included the following:

- Observation of the property by a Professional Engineer
- Visual structural investigation with minimal destructive testing
- Determine the adequacy of existing construction
- Preparation of report and findings

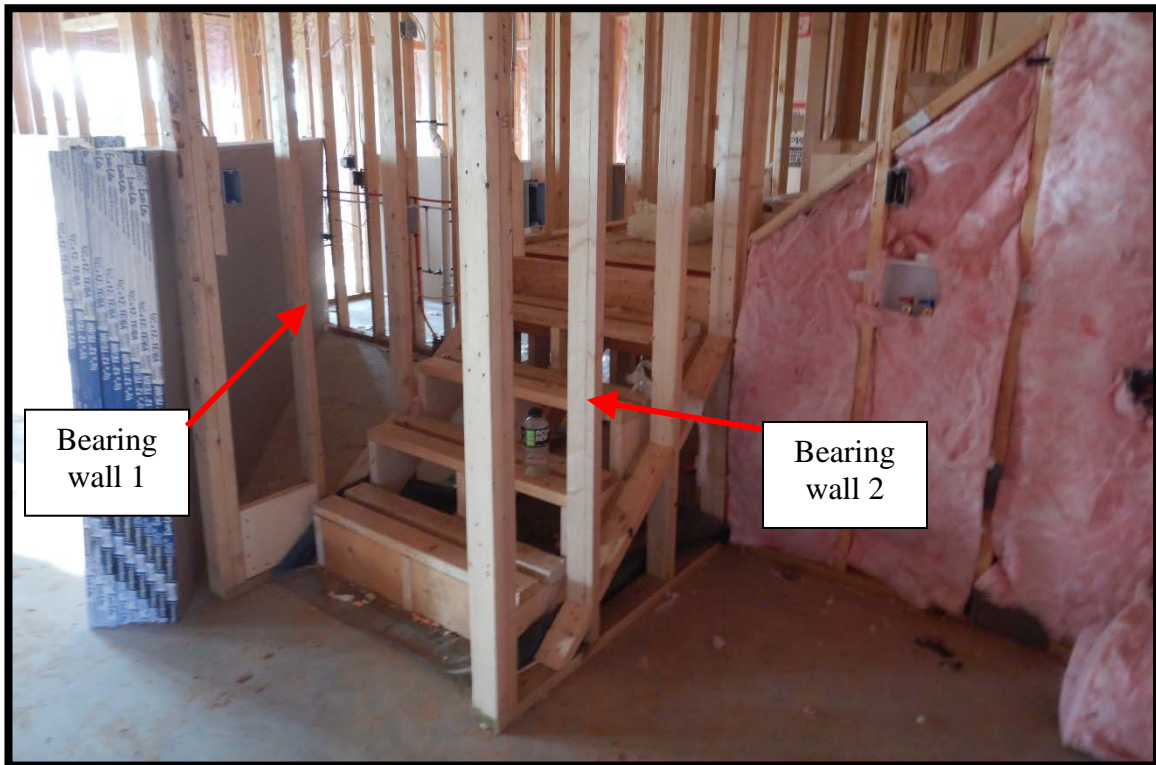
### **Description**

A total of 4 trusses bear on one wall and 2 short trusses bear on another wall. The walls bear directly on a slab with no additional footing.

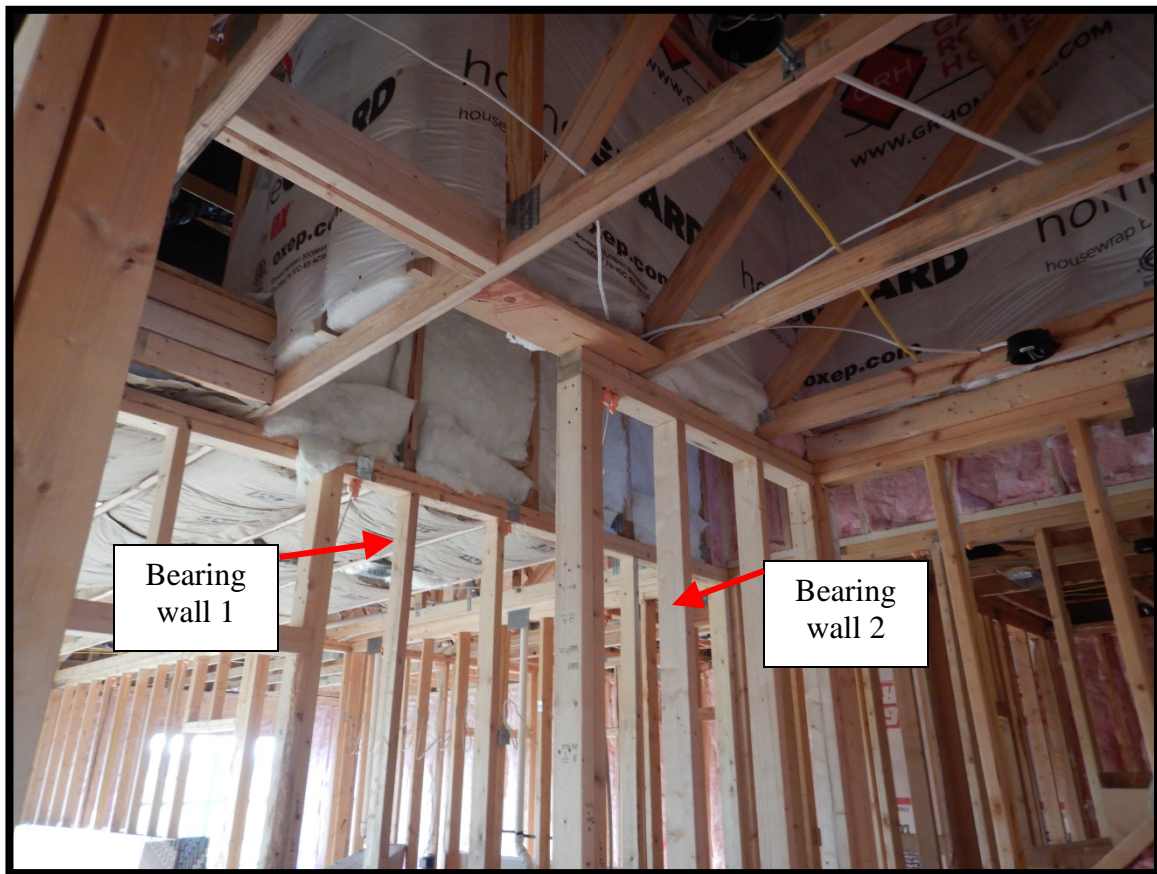
## **Observations and Findings**



**Photo #1** - This is the front of 112 Wertz Dr.



**Photo #2** – This photo shows the bottom of the two bearing walls.



**Photo #3** – This photo shows the top of the two bearing walls.

## **Conclusions and Recommendations**

NSE used a Schmidt Hammer to verify the strength of the concrete. 5 readings were taken with an average of 38, this equates to a compressive strength of between 3710 and 4550 psi. Using a safety factor of 2.5 the allowable load was calculated at 1138 plf, the actual maximum load is 966 plf.

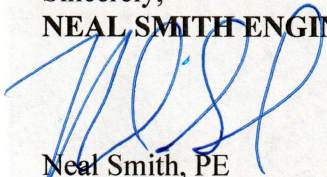
*The slab is acceptable to support the load from the trusses.*

Neal Smith Engineering, Inc., uses the generally accepted practices and principles used within the profession, and expresses its opinion based on visual observation of the current condition of the structure relative to its condition as generally constructed. NSE does not assume any legal responsibilities of the original designers, developers, architects, engineers, or contractors for the property. If other conditions than those assumed by this report are discovered during repairs, recommendations contained in this report will not be considered valid unless the changes are reviewed, and conclusions modified or verified in writing.

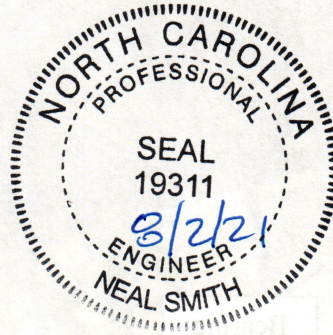


If you have any questions or if we can be of additional assistance, please, contact us.

Sincerely,  
**NEAL SMITH ENGINEERING, INC.**



Neal Smith, PE  
President



Bearing  
wall 2

Wall 1

# Thicken Slab Design

Job Name: 81 Hazelwood Rd

Floor Slab Thickness ( $t_1$ ): 4 in  
 Thicken Slab thickness ( $t_2$ ): 0 in  
 Safety Factor (SF): 2.5  
 Concrete Strength ( $f'$ ): 3710 psi  
 Subgrade Modulus (k): 200 pci  
 (100, 200, 300)

Total Thickness of slab (t): 4 in  
 Allowable Bending (f): 219 psi  
 Section Modulus (SM): 32 in<sup>3</sup>/ft  
 Modulus of Elasticity ( $E_c$ ): 3471857 psi  
 Moment of Inertia (I): 64 in<sup>4</sup>  
 L: 0.041

Allowable Wall Load (p): 1138 lbs/ft

Roof Load: 911 psf  
 Trib. Width: 1.00 ft (Half the total span)  
 Total Roof Load: 911.00 lb/ft

Floor Load: 0 psf  
 Trib. Width: 1.00 ft (Half the total span)  
 Total Floor Load: 0.0 lb/ft

Masonry or Stud Load: 10 psf  
 Height of wall: 8 ft  
 Total Wall Load: 55 lb/ft

Total Loads: 966 lb/ft

