



**HAYES STRUCTURAL**  
Consulting & Design, PLLC

NC FIRM LICENSE NO.: P-2854  
1991 EDDIE HOWARD ROAD | WILLOW SPRING, NC 27592  
ZACH@HAYESSTRUCTURAL.COM | (919) 210-3480

**Date:** February 12, 2024

**To:** Tyler Appel  
Drees Homes  
8521 Six Forks Road, Suite 500  
Raleigh, NC 27615

**Re:** 24-FND-002  
Foundation Inspection  
Lot 16 Tobacco Road  
161 Golden Leaf Farms Road  
Angier, NC 27501  
Permit No.: SFD2401-0071

Mr. Appel:

At your request, a site visit was made to the above referenced single family residence under construction to inspect two foundation issues.

**Observations:**

1. You indicated the footings and foundation walls for the left garage wall, right front porch wall, and left front porch bump-out wall were constructed 12" to the right of their intended location.
2. The exterior front porch foundation walls were constructed up to 8'-8" in height (13 courses) from the top of the footing to the top of the wall. The walls were constructed with 8" solid-grouted CMU and brick with no rebar reinforcement.

**Analysis and Recommendations:**

1. A minimum 12" wide trench is to be excavated to the bottom of the footing at the left side of the left garage foundation wall, right front porch foundation wall, and left front porch bump-out foundation wall. #4x12" long rebar dowels spaced 16" o.c. are to be embedded into the side of the footing 4" with structural epoxy. New concrete footings are to be placed and new foundation walls are to be constructed per the approved plans and in accordance with Chapters 4 and 6 of the 2018 North Carolina Residential Code. Soil bearing capacity and rebar installation is to be verified by a qualified engineer or municipal inspector prior to concrete placement.
2. Analysis revealed the front porch foundation as currently constructed is not suitable for washed stone backfill. In lieu of washed stone backfill, place the 4" thick (total) concrete slab on 1.5" 20 gauge corrugated metal decking. The concrete slab shall have a minimum compressive strength of 3,000 psi at 28 days and shall be reinforced with polypropylene fibers or 6x6 welded-wire fabric. At the exterior front porch foundation walls, the decking is to bear on the existing brick

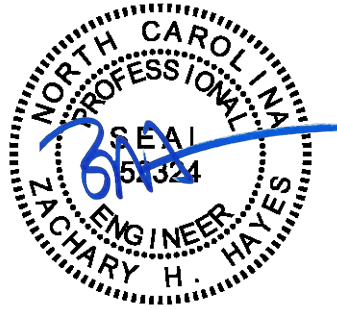
“sawtooth” ledge. At the walls common to the crawl space, install an inverted L4x4x1/4 steel angle to support the decking. Fasten the steel angle to the rim board with (1) row of 5/8” diameter hot-dipped galvanized through bolts with nuts and washers spaced 16” o.c. Reinforce the rim board per the manufacturer’s specifications. At front of the bump-out, install a W8x10 steel beam above the +/- 5’ opening to support the decking at the approximate midspan. Cut 4” beam pockets into the foundation walls to support each end of the beam. Secure the steel decking to all supports per the manufacturer’s specifications.

This prescribed configuration will provide the required support for all imposed loads.

Please call me if you have any questions.

Respectfully submitted,

Zachary H. Hayes, PE  
Owner/Structural Engineer  
Hayes Structural Consulting & Design, PLLC



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by Zachary H.  
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