Wise Engineering
3915 Old Fairground Rd.
Angier, NC 27501
(919)894-2203

April 25, 2024

Wayne Schlink

Subject: 179 Azalea Dr., Spring Lake, NC 28390

Mr. Schlink,

At your request, a representative from Wise Engineering (WE) reviewed the home located at 179 Azalea Dr, Spring Lake, NC 28390. Specifically, we reviewed the below items outlined in the home inspection report by A Pro Edge Home Inspections dated April 12, 2024. All views as if you are standing on Azalea Dr., facing the front of the home.

1. Cracking in the foundation brick work on the right side of the house was observed.
2. Open cracking was observed around the foundation rear side.
3. Front right foundation wall vertical and horizontal cracking/movement.
4. Piers are missing shims in a number of locations throughout the crawlspace area.
5. Leaning piers were observed in multiple locations in the crawlspace area.
6. Gaps between girders and above floor joists were observed in several locations.
7. Improper repairs to the floor joist under the guest bathroom tub.
8. Compression on girders where they rest on the piers.
9. Improper shimming of girder.
10. Evidence of wood destroying insects was observed.
11. Microbial growth was noted throughout the crawlspace area.

Based on our observations and analysis, WE concludes the follow respectively:

1. The foundation wall at the gable ends consists of a pier and curtain foundation system with the piers being load bearing and the brick veneer not providing structural support to the home. Therefore, the crack in the brick curtain wall should be considered cosmetic in nature and sealed to prevent water intrusion.
2. At the rear of the home, the foundation is cracked from the top of the foundation through the concrete footing. At the time of our site visit, there were no signs of excessive differential settlement. The crack should be monitored for movement and if movement is observed, contact us for a more in-depth analysis.
3. At the front right of the home, there is cracking in the foundation wall that is consistent with excessive differential settlement. During our analysis, the soils were tested in this area and they do not meet the minimum bearing requirements (2000 PSF bearing capacity). WE recommends contacting a deep foundation stabilization company to stabilize the foundation in this area to prevent further settlement.
4. There are multiple piers that require repair and/or replacement.
    - The first pier is located in the right rear of the home and has settled approximately 1” below the girder above. During our inspection, we were unable to locate a concrete footing beneath the masonry pier. WE recommends removing the existing pier and installing a new 8”x16” masonry pier centered on a 24”x24”x8” concrete footing. The footing should bear on soil that has a minimum bearing capacity of 2000PSF.

- The next two piers are located on the far left side of the home within the pier and curtain foundation wall. The piers have settled and are no longer providing support to the dropped girders. WE recommends removing and replacing the piers with a new 8”x16” masonry pier centered on a 24”x24”x8” concrete footing or installing a deep foundation stabilizer beneath the piers and shimming the gap between the piers and the dropped girder.
- There are two additional piers on the left side of the home that the upper half of the piers have been altered. WE recommends removing the damaged section of the piers and installing new masonry on top of them such that there is a maximum of 3” of wood shims between the top of the pier and the existing dropped girder.

5. At the right front of the home there is a pier that is leaning and the mortar joints have been compromised. WE recommends removing the existing pier and installing a new 8”x16” masonry pier centered on a 24”x24”x8” concrete footing.
6. The gaps are associated with the settlement of the piers outlined in item 4. However, when the new piers are installed and the shims are replaced, the girder should be raised so that it is tight with and provides support to the floor joist(s).
7. The floor joists under the guest bathroom tub should be sistered from bearing point to bearing point instead of scabbed in short sections. Additionally, any repairs to the subfloor above should have edge bearing at the midpoint of 2x blocking that is properly secured to the floor joists.
8. The girders are excessively loaded due to the settlement and improper shims. When the new piers and new shims are installed, this should no longer be an issue.
9. After the construction of the new piers, the shims should consist of pressure treated lumber that provides full bearing across the pier(s). Additionally, any of the existing shims that are not treated and/or do not provide full bearing across the pier should be removed and replaced with pressure treated lumber that provides full bearing across the pier.
10. There was one location at the rear of the home where there was evidence of wood destroying insects. At the time of our inspection, the damage associated with wood destroying insects had not compromised the structural integrity of the wood framing components. However, the wood destroying insects should be treated to prevent further damage which could compromise the wood framing components.
11. There was microbial growth throughout the crawlspace. However, at the time of our site visit, the microbial growth had not compromised the wood framing components. WE recommends treating the microbial growth to prevent further damage which could compromise the wood framing components. Additionally, there appears to be excessive moisture within the crawlspace which is creating an environment for the microbial growth to exist. Therefore, simply treating the microbial growth will not keep it away. The crawlspace needs a proper vapor barrier and to be properly maintained to keep the moisture levels down to prevent the microbial growth from returning.

All repairs should be completed in general compliance of this report and the 2018 North Carolina Residential Building Code. If you need additional information or have other questions, please let us know.

Sincerely,

Taylor Poulos

Randy K. Wise, PE