



December 12, 2025

Gibson Custom Construction
c/o Jeremy Gibson

Re: Limited Structural Inspection
9503 Kennebec Road
Willow Spring, NC

Dear Jeremy Gibson:

At your request, a limited structural inspection of the above property was performed on December 9, 2025. The report that follows has been prepared based on that inspection. The inspection was performed by Brett Overvold, EI of Giles Flythe Engineers.

The scope of this project was limited to the inspection and evaluation of general structural concerns in the crawl space framing/foundation components. The report is intended to cover only those premises that may be examined visually without excavation, removing surface materials, and disassembling components.

No tests, measurements, or calculations have been made except as described in this report. We have not investigated for toxic materials/wastes or examined public records regarding this property. The scope of the inspection does not assure that the property conforms to any regulations, restrictions, or building codes that may be in effect at its location.

DESCRIPTION

The single-story, wood-framed home (with a crawl space) is constructed on a masonry pier and perimeter curtain wall foundation. The house was built in 1950 according to Wake County Real Estate Tax Records. For purposes of this report, all directions (left, right, rear, etc.) are taken from the viewpoint of an observer standing outside and facing the front door of the home.

Upon our arrival, access to the interior was gained through the provided lockbox code. The items detailed above in the scope were subsequently inspected.

Note that the original builder was not interviewed and no plans for the construction of this home were provided. The information presented in this report is gathered from the conditions visible at the site, as they existed at the time of the inspection. A limited photo log is included with this report.

OBSERVATIONS

Interior:

1. Minor variable floor slope was noted throughout the home.

Exterior:

2. Cracks/separations were observed in the perimeter walls in the following locations:
 - a. A separation (up to 1/4" wide) was observed at the rear exterior wall located approximately 6'-9" from the left exterior wall.
 - b. Multiple additional minor cracks (less than 1/16" wide) were observed at the exterior walls.
3. No gutters were noted installed on the home. Grade was noted with a relatively positive slope away from the rear perimeter walls and a relatively neutral slope along the remaining perimeter walls of the home.

Crawl Space:

4. The floor framing was noted to consist of 2x8 floor joists spaced at 24" on-center generally spanning left to right supported by 6x8 flush girders bearing on masonry piers.
5. An unsupported splice was noted in the front perimeter girder of the home located approximately 9'-0" from the right exterior wall of the home.
6. The front perimeter girder of the home was noted to be damaged beginning approximately 6'-0" from the right perimeter wall and extending approximately 3'-0" towards the left of the home.
7. The right girder was noted to be cut approximately 10'-0" from the rear exterior wall and 4'-0" from the rightmost exterior wall. The front side of the cut section was noted to be bearing on a dry stacked CMU pier.
8. The two floor joists spanning front to rear in the rear-right bump-out of the home were noted to be damaged.
9. Evidence of wood destroying insect activity was present on the wood framing throughout the crawlspace.
10. A 4x4 drop girder bearing on screw jack posts with above grade concrete block footings was noted in the rear-left of the crawlspace approximately 7'-6" from the left perimeter wall.
11. Supplemental screw jack posts and framing supports were noted in the rear-right corner of the crawlspace.
12. A section of floor joists in the left bay of the crawlspace was noted to be previously sistered. The section begins approximately 21'-6" from the rear perimeter wall and extends approximately 8'-0" towards the front of the home. The sisters begin at the left perimeter girder and extend to a new drop girder approximately 6'-6" from the left perimeter wall.
 - a. No damage was observed in the visible portions of the original floor joists.
13. No vapor barrier was observed in the crawl space resulting in exposed soil. Evidence of moisture intrusion in the form of efflorescence was noted on the perimeter walls. Water staining and what appeared to be organic substances were also noted on the wood framing. Multiple moisture content readings (up to 19.5%) were taken in the floor framing with a General MMD4E moisture meter.

DISCUSSION

The minor variable floor slope noted above (Observation #1) is likely the result of a combination of the supporting members contracting/deflecting and the floor framing concerns noted above. Finish carpentry movements are typically associated with changes in weather, temperature and humidity causing wood to shrink and swell with the seasons. When moisture is taken away from wood it has a tendency to contract thus resulting in deflection (or sagging). Any walls, windows or doors bearing on the deflected members will also move. We do not consider the floor slope to be a structural concern; however, we have provided recommendations below for the floor framing concerns noted above.

The separation in the perimeter curtain walls noted above (Observation #2) are likely due to limited differential settlement. The clay soils in this area are considered “expansive” type soils and will typically expand and contract with fluctuations in the moisture content. This expansion and contraction of load bearing soil materials can lead to soil consolidation and cracking/separations. If conditions around the perimeter walls remain relatively dry, the likelihood of future significant settlement will be reduced, but we cannot predict the extent of future settlement. Improving exterior drainage and monitoring separations for additional settlement is an acceptable approach at this time. It should be noted that the curtain walls are not a load-bearing item in relation to providing support to the structure. The curtain walls are an exterior finish cladding material that protects the structural framing from environmental elements. However, movement of the curtain walls can be indicative of movement in the structural foundation elements.

Positive grade away from the foundation should be created to reduce moisture infiltration under the foundation. Additional soil consolidation and foundation movement or settlement can occur due to water infiltration into soils and subsequent drought conditions which dry out the soils below foundations. Maintaining positive drainage away from the perimeter foundation wall(s) is vital to the long term structural integrity of the foundation.

The unsupported and inadequately supported splices noted above (Observations #5 & #7) are considered structural concerns. If left in the existing condition, additional vertical displacement resulting in interior floor slope and interior finish material damages may occur. We have provided recommendations below to address the issues.

The damaged floor framing noted above (Observations #6, #8, & #9) is likely the result of prolonged exposure to wood destroying insects and elevated moisture levels in the crawl space. Wood destroying insects and excess water intrusion in the building envelope over time can deteriorate the integrity of the wood framing members and cause rot. In addition, the insects and moisture intrusion can further penetrate other components causing significant damage to neighboring framing members. The damaged floor framing noted above is considered a structural concern. We have provided a recommendation below to address the issue.

We do not consider the adjustable steel screw-jack posts and drop girders noted above (Observations #10-#12) to be permanent supports. These were likely installed to alleviate minor deflection or “bounce” in the floor and are not required for the structural integrity of the home. No structural repairs are required; however, the supplemental supports may be replaced with permanent drop girder systems if additional rigidity to the floor framing is desired. An optional recommendation is below.



The moisture content of the floor framing noted in the crawl space at the time of the inspection is considered high (greater than 19.0%). Moisture levels of the framing can fluctuate based on weather conditions and seasonal changes in humidity. Prolonged elevated moisture content of the framing can lead to excessive deflection and structural damage. We have provided a recommendation below to help further dry out the crawl space. Note, additional deflection or movement of the framing may occur as moisture is removed from the wood resulting in finish material cracks above.

The framing observed is predominately of original construction (1950). The spans and spacing of many of the original framing components do not meet current building code requirements for 40 PSF live loads. Under heavy loading conditions (large gatherings, heavy furniture), excessive deflections are likely. We have provided recommendations below to address immediate structural deficiencies in the areas of concern, but these should not be construed as to increase the structural capacity to that which would meet current live load requirements. Further structural repairs may be required in the future if the moisture and insect infestation concerns are not addressed and/or if a significant remodel is planned. If further damage is discovered during repairs that are not noted explicitly in this report, the engineer should be contacted to determine a solution.

The recommendations presented in this report are based on our experience and understanding of the concerns to provide a reasonable solution based on the conditions that were visible and/or known to us on the date of inspection. As this report is based on the circumstances at one point in time, conditions may change which may alter our opinions or result in additional repair recommendations. Further, the recommendations are the opinion of the Engineer to address structural-related concerns and may not rectify cosmetic issues.

RECOMMENDATIONS

The contractor should verify all dimensions prior to ordering materials. If there are any questions or concerns regarding location or method of repair contact the engineer prior to construction.

1. We recommend fully sistering (bearing point to bearing point) the damaged floor joists noted above (Observation #8) with new equivalently sized members, attached with (3) 10d common nails at 16" on-center. Ensure a snug condition against the subfloor/damaged member(s) and proper bearing at the ends.
2. We recommend installing new piers under the unsupported or inadequately supported splices noted above (Observations #5 & #7) with a new mortared and fully grouted 16x16 CMU block piers bearing on minimum 24"x24"x12"-thick concrete footings. Install flat pressure-treated blocking (min. 3/4" thick) and/or flat metal shims as required to provide full-width, uniform bearing for the floor framing onto the piers. Care should be taken to not excessively jack the framing during the installation process. Attention should be given to the framing bearing conditions at the nearby piers; adjust as necessary to provide full-width, uniform bearing for the floor framing onto the piers.
 - a) NOTE: Removal of the existing adjacent pier (Observation #5) or dry stacked CMU pier (Observation #7) will be required for installation of this repair. Removal of the adjacent support pier at Observation #7 is **NOT** permitted.
3. We recommend removing and replacing the damaged floor girder span noted above (Observation #6) for the full length (support pier to support pier). The new girder should consist of a 3-2x8 pressure treated member and bear above the new/existing support piers in the

crawlspace (See Recommendation #2). Install flat, pressure-treated blocking (min. 3/4"-thick) and/or flat metal shims to provide full-width, uniform bearing of the girder onto the piers below.

- a) The entire span of the damaged member should be replaced (approximately 9'-0"). The CMU curtain wall may not be used as a bearing point of the new girder.
 - b) Note, the new girder should span fully to the new pier in recommendation #2. Additional cutting back of the front perimeter girder may be required. Ensure a minimum 3" of bearing from both girders onto the new pier.
4. If additional stiffness in the floor system is desired, we recommend the installation of an auxiliary 3-2x8 drop girder at the midspan of the existing floor joists below the areas of desired stiffness. The new drop girder shall have a maximum clear span of 6'-0" and be supported using new minimum 8x16 mortared and fully grouted CMU block piers bearing on minimum 24"x24"x12"-thick concrete footings. Provide flat pressure-treated blocking (min. 3/4" thick) and/or flat metal shims as required to provide full-width, uniform bearing of the new drop girder onto the new piers.
 5. We recommend consulting with a qualified professional to address the wood destroying insect presence in the crawlspace.
 6. To help further reduce and regulate moisture levels in the crawl space, we recommend installing a vapor barrier throughout the crawl space to cover 100% of the exposed soil. We recommend adjusting the foundation vents as needed. We recommend ensuring the foundation vents are clear of debris to allow air circulation. If moisture levels remain high (greater than 15%), an appropriately sized dehumidification system may be required.
 7. Monitor the cracks in the separations curtain walls noted above. If the separations widen significantly (expand by an additional 1/8") or additional significant cracks (greater than 1/4" wide) propagate, then further evaluation by a structural engineer is recommended.
 8. We recommend ensuring that stormwater drains positively away from the home to minimize the risk of future water infiltration. This can be accomplished by installing gutters, downspouts with pipe boots, and leaders on downspouts. Discharge the leaders a minimum of 10-feet away from the footings/foundation and ensure gutters, downspouts, and leaders remain clear of debris and properly functioning. Also, creating a positive grade, where possible, away from the perimeter of the home will aid in the stormwater evacuation.

General Notes:

- Flat blocking supporting girder or joists at a foundation wall or pier should be pressure treated wood or metal. Wood blocking should be no less than 3/4" thick or utilize flat metal shims instead. Angled shims are not acceptable.
- All new lumber should be SPF No.2 or equivalent. All lumber exposed to concrete/masonry or weather must be pressure treated.
- All new concrete is to have a minimum 28-day strength of 3000 psi.
- New concrete footings are to be installed a minimum 12" below grade (to the bottom of the footing) and in no case less than frost depth.
- Soils below new foundation components to be contractor verified to be a minimum 2000 psf bearing capacity.
- All new metal hangers/ties/clips to be installed per manufacturer specifications.
- All repairs should be installed in accordance with the 2018 NC Building Code: Residential Code.



- With any structural changes, finish material cracks and minor movements are typical and expected. These are associated with settlement and allowable deflection generally observed after construction of an addition or significant remodel/repair.
- All hollow masonry piers to be capped with 4" solid masonry or concrete for 1-story and 8" solid masonry or concrete for greater than 1-story.
- Masonry pier unsupported height must be no greater than 4 times the least dimension. If all cells are fully grouted, the unsupported height may be increased to 10 times the least dimension.

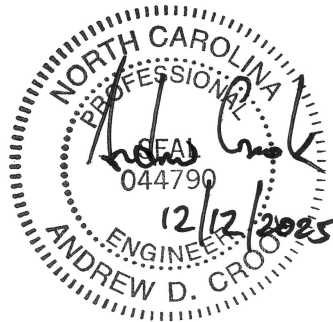
CONCLUSION

We trust that this report provides the information you require. Please contact us at 919-465-3801 if you have any questions. Thank you for the opportunity to be of assistance to you.

Sincerely,



Brett T. Overvold, EI
Project Engineer
Giles Flythe Engineers Inc.
NC Lic. No. C-2871



Andrew Crook, PE
Project Manager
Giles Flythe Engineers Inc.
NC Lic. No. C-2871

Enclosed: Location Sketch
 Limited Photo Log

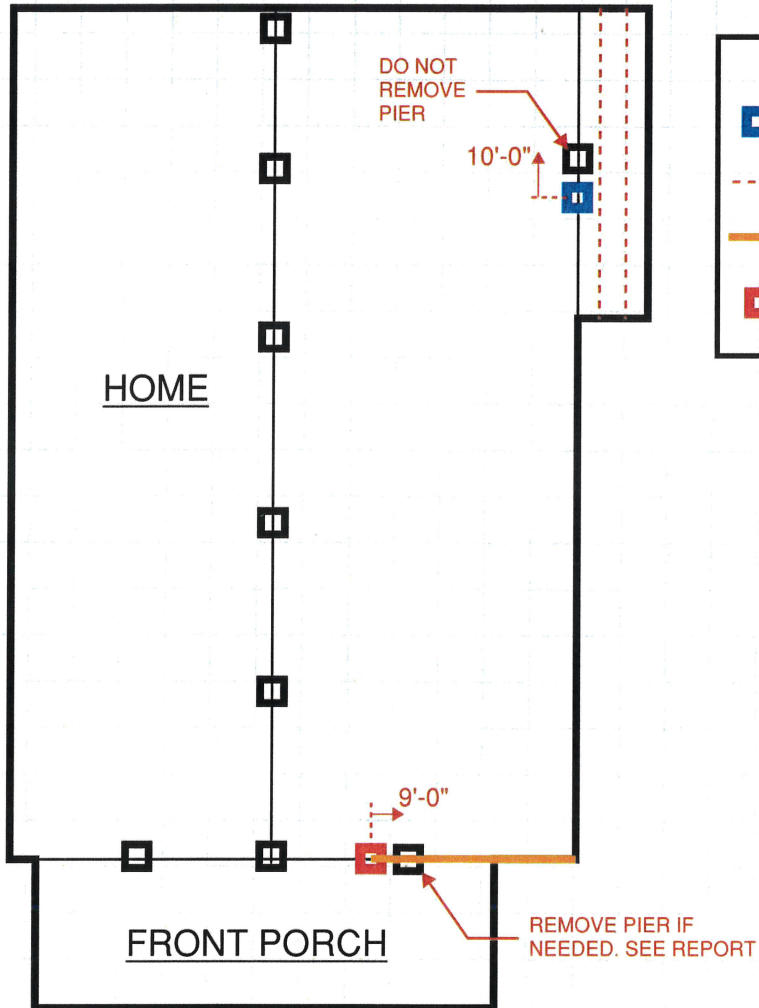


GILES & FLYTHE
ENGINEERS

Main Office:
5001 Weston Parkway
Suite 100
Cary, NC 27513
919.465.3801

Charlotte Office:
10400 Mallard Creek Road
Suite 320
Charlotte, NC 28262
704.810.1808

LOCATION SKETCH (N.T.S.): 9503 KENNEBEC ROAD, WILLOW SPRING, NC

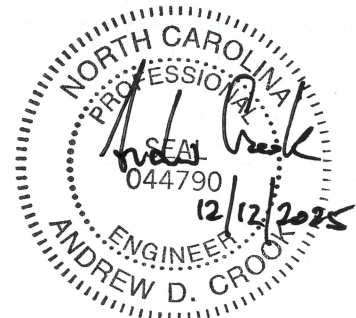


*SKETCHES INTENDED TO
BE VIEWED IN COLOR

*REPAIRS TO BE INSTALLED
PER ATTACHED REPORT

*ALL DIMENSIONS ARE
APPROXIMATE

DRAWN BY: BTO
REVIEWED BY: ADC



Description

General view of the front of the home (for reference).



Photo No.
1

Description

View of separation in curtain wall.



Photo No.
2

Description

Typical view of drop girder bearing on screw jack post.

Photo No.
3



Description

Typical view of previously sistered joists.

Photo No.
4



Description

View of unsupported splice at front perimeter girder.

Photo No.
5



Description

View of damaged perimeter girder at front of home.

Photo No.
6



Description

Evidence of wood destroying insect activity.

Photo No.
7



Description

View of exposed soils in crawlspace.

Photo No.
8



Description

View of girder end bearing on dry-stacked CMU.

Photo No.
9



Description

View of damaged floor joists below rear-right bump-out.

Photo No.
10



Description

View of home with no gutters installed.

Photo No.
11

