



May 20, 2026

David Foster

Re: Limited Structural Inspection
5808 Caledonia Street
Raleigh, NC

Dear Mr. Foster:

At your request, a limited structural inspection of the above property was performed on May 18, 2026. 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 a previous wall removal in the home, floor slope in the kitchen and second living room, drywall cracking, and 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 2-story, wood-framed home (with a crawl space) is constructed on perimeter masonry foundation walls with masonry piers supporting floor girders. The house was built in 1971 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 a 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. Cracks/separations were observed in the wall/ceiling finish materials in the following locations:
 - a. A crack (up to 1/16" wide) was observed in the second level wall located approximately 8'-0" from the rear exterior wall and 19'-0" from the right exterior wall.
 - b. Multiple additional minor cracks/separations (less than 1/16" wide) were observed in the wall/ceiling finish materials throughout the home.
2. Floor slope (up to 7/8" vertical over 4'-0" horizontal) was measured sloping front to rear in the left living room located approximately 7'-6" from the left exterior wall and 12'-0" from the front exterior wall.
3. A crown (high spot) in the floor was noted running from left to right approximately 13'-0" from the front exterior wall between the kitchen and living room. Floor slope (up to 1-1/2" vertical over 4'-0" horizontal) was measured sloping to the rear of the crown approximately 11'-0" from the right exterior wall.
4. An approximately 2" drop was noted in the ceiling running left-to-right located approximately 13'-0" from the front exterior wall. Columns were noted in line with the drop in the ceiling approximately 9'-0" and 18'-0" from the right exterior wall.
 - a. The second level floor framing was measured to be comprised of 2x8 joists spanning front to rear through the floor framing access at the left of the home.
 - b. The homeowner reported desires to move the right column approximately 2'-0" towards the right of the home.

Attic:

5. The attic framing was noted to be comprised of open-web roof trusses spanning front to rear generally spaced at 24" on-center.
6. Cut roof truss bottom chords were noted at the attic access located approximately 13'-6" and 15'-6" from the right perimeter wall. At least 20" of the original bottom chord remains on each side of the cut/removed section.

Exterior:

7. Separations (up to 1/4" wide) were noted between the base of the chimney and left exterior wall of the home. Larger separations were noted near the top of the chimney.
 - a. The chimney was measured to be leaning (approximately 1/2" horizontal over 4'-0" vertical).
8. Three (3) foundation vents along the right side of the home were noted to be close to grade with no vent wells installed.
9. Gutters and downspouts (with leaders) were noted installed on the home. Grade was noted with a relatively neutral slope along the rear and left perimeter walls and a relatively negative slope towards the front and right perimeter walls of the home.

Crawl Space:

10. The floor framing was noted to consist of 2x8 floor joists spaced at 16" on-center generally spanning front to rear supported by 2-ply 2x10 flush split girders bearing on masonry piers.
11. A damaged pier was noted below the central split girder located approximately 12'-0" from the front foundation wall and 11'-0" from the right foundation wall.

12. Two (2) 6x6 wood support posts (with compression blocking above) were noted below the central girder approximately 8'-6" and 15'-6" from the right foundation wall. A CMU pier was noted in the general vicinity of the column located approximately 18'-6" from the right foundation wall.
 - a. The wood posts were noted to be embedded into concrete footings. We could not verify the size of the footings.
13. Boxout framing was noted above an HVAC exchange approximately 17'-0" from the front foundation wall and 9'-0" from the left foundation wall. The trimmer joists and headers of the boxout framing were noted to be single-ply members.
 - a. Note, a left-to-right spanning wall was located above the general vicinity of the boxout framing.
14. Multiple supplemental drop girders bearing on steel screw jack supports with limited bearing were noted throughout the crawlspace.
15. Multiple instances of blocking installed against the face of the perimeter band were noted along the front and rear foundation walls. No evidence of damage was noted in the framing adjacent to the blocking.
16. A full vapor barrier was installed throughout the crawl space. Evidence of moisture intrusion in the form of efflorescence was noted on the perimeter foundation walls. Multiple moisture content readings (up to 17.5%) were taken in the floor framing with a pin-type moisture meter.

DISCUSSION

The minor interior wall/ceiling finish material cracks/separations and floor slope noted above (Observations #1-#3) are likely the result of a combination of the supporting members contracting/deflecting and the floor framing/foundation concerns noted above. Minor drywall cracking and finish carpentry separations are typically associated with changes in weather, temperature and humidity causing wood to shrink and swell with the seasons. Repeated seasonal cycles can also cause drywall tape to lose its adhesive properties. 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 interior wall/ceiling finish material cracks/separations to be a structural concern; however, we have provided recommendations below for the floor framing/foundation concerns noted above. Note, we do not anticipate these repairs to fully rectify cosmetic conditions such as floor slope.

The crown in the floor and associated floor slope noted above (Observation #3) is likely the result of limited deflection in the framing below exacerbated by the damaged pier noted above (Observation #11). Deflection of supporting members can occur with sustained loads. The crown occurs at the location of a girder, which are often composed of built-up members with short spans. This combination of a rigid member with a short span length greatly reduces the imposed deflection on the member. Alternatively, deflection of the adjacent floor framing will be greater due to the longer spans and reduced cross-sectional area. This framing configuration naturally creates crowns (high spots) in the floor system. While crowns are typical in most floor framing systems, the floor slope noted is indicative of excessive deflection due to the unsupported girder condition. We have provided a recommendation below to address the damaged pier and support the girder.

Trusses are an engineered system, and as such, any damage or modification to the trusses must have a repair sufficient for supporting the design loads incurred on the trusses. The truss conditions noted above (Observation #6) are considered structural concerns and we have provided recommendations below to address these issues.

The boxout framing noted above (Observation #13) is at the location of the floor slope noted above (Observation #2). The single-ply trimmer joists are likely inadequate to support the additional loading from the wall above and the boxout headers. The framing configuration is considered a structural concern. If left in the existing condition, additional vertical displacement resulting in interior floor slope and interior finish material damages may occur. We have provided a recommendation below to address the issue.

We could not determine the size of the existing beam installed for the reported previous wall removal noted above (Observation #4). We have assumed the second level floor framing to be comprised of floor joists spanning front-to-rear and bearing at a beam located at the drop in the ceiling at the front and rear of the home. Additionally, the wood supports appeared to have been installed in the crawlspace to accommodate the new load path. No significant deflections were noted in the assumed beam or significant floor sloping related to the columns. We have provided recommendations to verify the beam sizing below.

The foundation vents close to grade with no vent wells noted above (Observation #8) are considered a moisture intrusion concern. Current code standard requires vent wells where the foundation vent is within 4" of finished grade. The current state of the foundation vent may allow for stormwater runoff and drainage to flow into the crawlspace. This moisture intrusion could lead to framing damages or fluctuations in the floor framing resulting in interior finish material cracks/separations.

The separations and lean in the chimney noted above (Observation #7) are likely due to limited differential foundation 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 below foundations can lead to soil consolidation and settlement. If conditions around the foundation 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 the chimney for additional settlement is an acceptable approach at this time. Note, additional movement will result in the need for underpinning of the chimney foundation.

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.

We do not consider the supplemental drop girders and adjustable steel screw-jack posts noted above (Observation #14) 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. We have provided an optional repair below to replace the temporary supports with permanent supports to enhance the structural performance.

The previous blocking repairs noted above (Observation #15) may be the result of previous damage to the perimeter bands. Alternatively, the blocking may have been installed for reasons we cannot determine. We did not observe evidence of significant structural distress in these areas and no concerns exist with the blocking at the time of this inspection. No structural repairs are required.

The moisture content of the floor framing noted in the crawl space at the time of the inspection is considered elevated (greater than 15.0%); however, observations in the crawl space indicate possibly elevated moisture levels at different times of the year. 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.

As noted in the report, the Engineer has identified numerous structural-related concerns throughout the home. The structural components have redundancies that help to provide rigidity and safety for the occupants. Over time, settlement and deflections may cause loads to be transferred to other components which are not readily apparent to the Engineer. While we have identified what are believed to be the primary structural deficiencies, the homeowner should monitor the structure for additional concerns after the initial repairs are made. As the loads are redistributed to the newly installed repairs, cracking of drywall and other finish materials are likely. Monitoring over a long period of time is recommended as seasonal movement is expected. Contact the Engineer for further evaluation should additional concerns appear.

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 removing and replacing the damaged pier noted above (Observation #11) with a new mortared and fully grouted 16x16 CMU block pier bearing on a minimum 24"x24"x12"-thick concrete footing. 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. Re-shimming of piers throughout the crawl space will likely be required in the future.
2. We recommend removing the attic access and infilling the cut bottom chords noted above (Observation #6). The bottom chords should be sistered for the full length (node to node) with new 2x4 members on both sides. The original and infilled truss bottom chord shall be re-positioned to align flush with the truss profile. Attach the sistering 2x4s to the truss members with (2) 3/8" beads of Loctite PL Premium polyurethane adhesive and (2) rows of 4" Simpson SDS screws alternating sides staggered at 4" on-center.
 - a) Note, relocation/resizing of the attic access will likely be required for proper installation of this repair.
3. We recommend fully sistering (bearing point to bearing point) the boxout trimmer joists noted above (Observation #13) 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.

- a) If installation of a full-length sister is not feasible due to the presence of utility obstructions, installing a discontinuous sister is permitted. If the sister member is discontinuous, install a 4x4 post bearing on a minimum 12"x12"x8"-thick footing centered below the splice in the sister member.
4. We recommend verifying the presence of a minimum 2-ply 1.75"x9.25" LVL beam at the location of the reported wall removal noted above (Observation #4). The beam should be supported on a minimum of (3) 2x4 jack studs at each bearing point. If it is discovered the existing beam is smaller than prescribed above, we recommend replacing the beam with an adequately sized member.
 - a) We recommend verifying the second level floor framing at the front and rear of the beam is spanning front-to rear and bears onto the beam.
 - b) If it is desired to move the column as reported above (Observation #4b), the maximum span of a 2-ply 1.75"x9.25" LVL beam based on the assumptions above is 10'-6". We recommend ensuring there are no splices at the existing column locations before relocation of the columns. The new column should be supported by a pier matching the provisions outlined in Recommendation #1. Ensure vertical compression blocking is installed in the floor cavity between the pier and the subfloor directly below the column.
5. We recommend adjusting the supplemental screw jack posts noted above (Observation #14) to restore bearing of the drop girders to the framing above.
 - a) As an optional repair to improve the structural performance, the drop girders and supports may be replaced with new 3-2x8 drop girders supported by fully mortared and fully grouted 8x16 masonry piers on 20" x 20" footings. The piers should be spaced at up to 6' on center. Any floor jacking should be performed slowly over several days, and care should be taken not to over-lift the framing. We do not expect fully level floors, and re-shimming of all piers may be required in the future. Note, this is not required for the structural integrity of the home.
6. We recommend consulting with a qualified contractor to install foundation vent wells at all locations where the vent well is located within 4" of the finished grade elevation of the site topography.
7. We recommend monitoring the moisture content of the crawl space framing throughout the seasons and adjusting the foundation vents as needed (open during humid months, closed during dry months). We recommend ensuring the foundation vents are clear of debris to allow air circulation. If moisture levels remain consistently elevated (greater than 15%), an appropriately sized dehumidification system may be required. Note, additional deflection or movement of the framing may occur as moisture is removed from the wood resulting in finish material cracks above.
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 ensuring 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 LVL members are to be E2.0, Fb=3100 PSI (or equivalent) and plies are to be attached per manufacturer specifications. LVL members exposed to weather should be wrapped per manufacturer specifications.
- 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 2024 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



Christopher A Flythe
2026.05.20 14:18:30-04'00'

Christopher A. Flythe, PE
Principal Engineer
Giles Flythe Engineers Inc.
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Enclosed: Limited Photo Log

Description

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

Photo No.
1



Description

View of where previous wall was removed.

Photo No.
2



Description

View of floor slope front to rear in the left living room of the home.

Photo No.
3



Description

Crown in the finish flooring located next to the rightmost column and kitchen counter.

Photo No.
4



Description

View of the cut roof
truss bottom chords.

Photo No.
5



Description

View of crawlspace
vents close to grade.

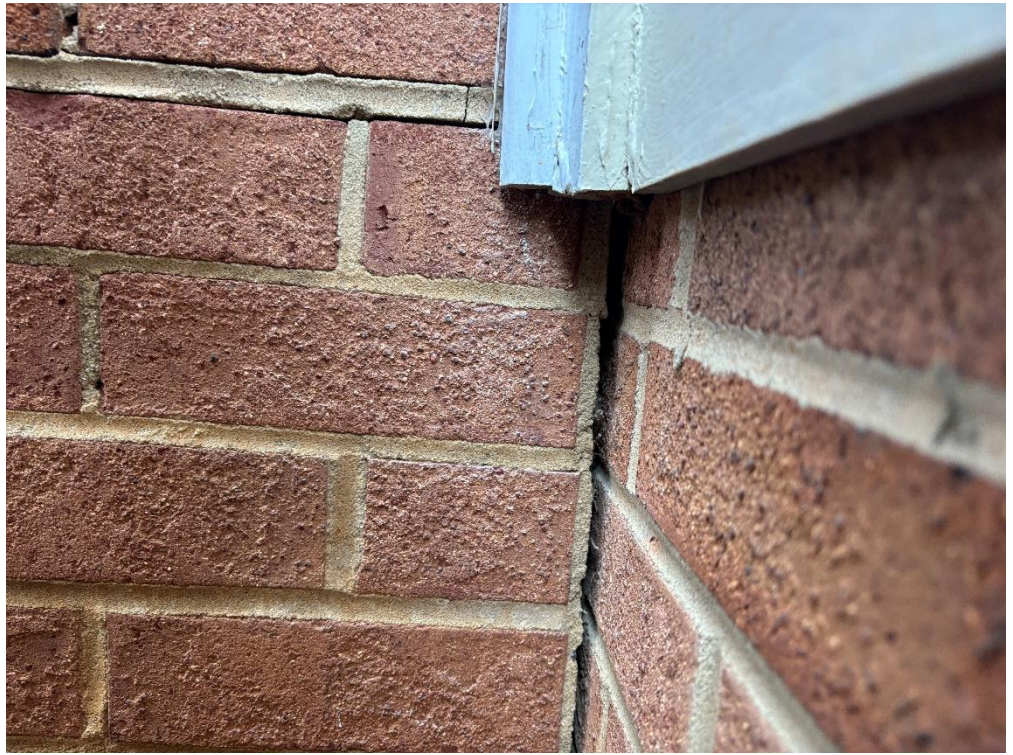
Photo No.
6



Description

View of a minor separation at the base of the chimney

Photo No.
7



Description

View of damaged pier.

Photo No.
8



Description

View of inadequate
boxout framing.

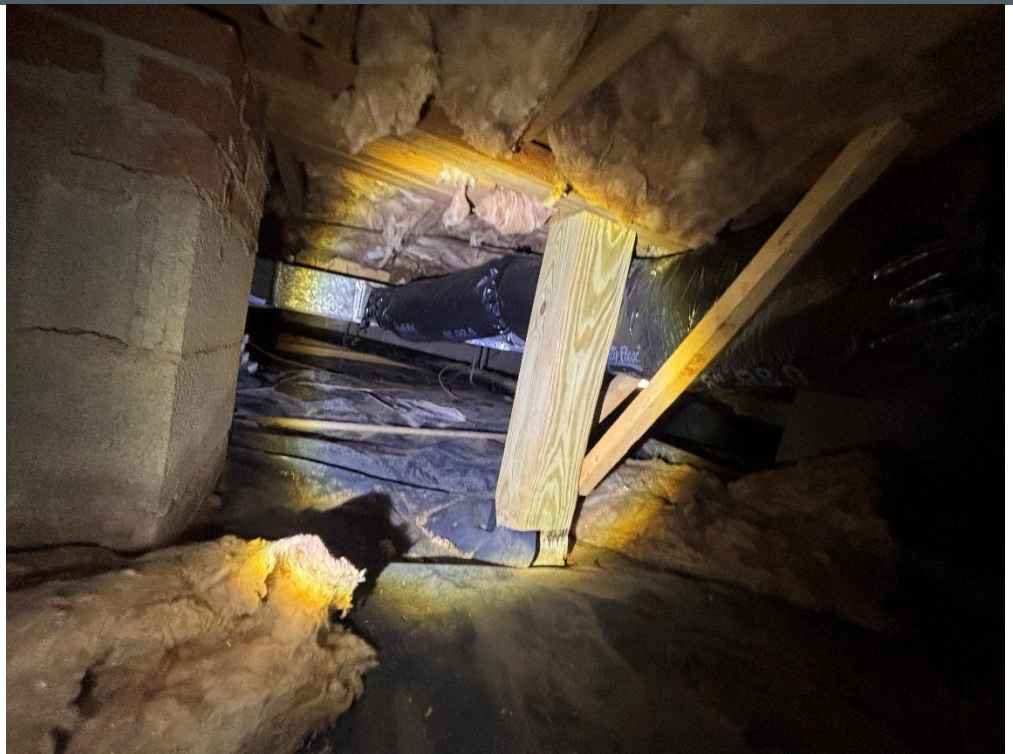
Photo No.
9



Description

Typical view of 6x6
support post in
crawlspace.

Photo No.
10



Description

Typical view of supplemental drop girder with steel screw jack supports.

Photo No.
11



Description

Typical view of perimeter band blocking.

Photo No.
12

