HMHendrick Enterprises, Inc.

Heath M. Hendrick, PE

July 28, 2024

Mr. Pryor Tatum

Re: 319 Park Avenue, Sanford NC - Structural observation and assessment re: existing foundation and proposed remediation

Mr. Tatum,

As requested, I visited the property in question on the afternoon of July 28, to observe the general structural integrity of the home, with specific emphasis on the floor support piers/ foundations as visible from the crawlspace/ basement area. It is understood that there was a previous structural assessment performed on the property by an engineer contracted by the prospective buyer of the property in question, and that possible confusion may exist regarding the terms used in that report, and consequently the materials used for both the existing framing and the remediation performed along the front wall of the property, (the foundation wall closest to Park Avenue).

With that said, it is to be noted that my assessment as summarized here pertains to the as-built foundation and pier/ column support framing as visible at the time of my observation only, and does not intend to challenge, nor support the original report issued by the previous engineer or extend into any other areas of the property, not specifically referenced in this report.

The home in question was built in 1949, and consequently does not fully adhere to the requirements of modern building codes, as the home itself was built prior to these codes being in place. With that said, it was observed that the primary floor joists bear directly on the multi-wythe brick foundation walls along the front and rear of the home, as opposed to a pressure treated sill plate/ sill gasket, as would be standard framing practice by modern standards. While this is not a structural problem in and of itself, the direct contact between the non-treated joist framing and the porous brick will lead to decay/ deterioration of the wood framing over time, as is the case along the front wall of the property in this case.

To remedy this issue, a new support line, consisting of a double 2x10 girder w/ 4x4 support posts had been installed approximately 12" off of the wall, to provide a new line of primary support to the joists in question, and reduce/ remove the bearing load along the foundation wall. The new posts were supported by masonry pavers to spread the load to the compacted soil below, similar to the other/ existing intermediate supports constructed under the house.

Upon my observations, this construction/ configuration is structurally sound, and provides adequate permanent support for the primary floor of the home, and is in adherence with the requirements of the current North Carolina Residential Building Code, for foundations and foundation support. With that said, while the existing wood support posts are sound in their current condition, discoloration was noted at their base which signifies direct exposure to moisture/ moisture transfer through the foundation below. The wood was probed and did not

display signs of decomposition at the time of observation, however prevention/ mitigation of the localized moisture in the area is recommended.

Recommendation: It is to be noted that all wood framing is subject to damage and decomposition through continued exposure to moisture, insects, and UV. Given the location of the framing in question, UV is not a concern in this case, but the damp nature of a crawlspace is. It is highly recommended that a continuous vapor barrier be installed to limit ground driven moisture from driving up high humidity in the crawl space, which both encourages decomposition of the wood fibers, as well as creates an environment for wood destroying pests/ insects. Once a vapor barrier is installed, it is also recommended that the native humidity be monitored and if it remains high, additional dehumidification measures be taken as appropriate. With these recommendation in place, it is to be noted that the existing structure as observed, is sound with no apparent cause for structural concern in its current condition, however the recommended measures outlined above will ensure that this remains the case in the long-term.

Outside of the observations noted above, it was requested that I elaborate on the materials used in the intermediate support framing and foundations, with respect to their "permanence" and compliance with building codes and practices:

Foundations/ Footings: By definition, a FOOTING is a fixed support that transfers loads from above into the soils below, by providing a bearing area adequate to spread the concentrated building load into a spread/ uniform load that the native soils can support without settlement. In most cases/ in new construction this consists of poured/ cast-in-place concrete footings, however in certain applications, like the ones in question, where access would be difficult/ impossible for excavation equipment and concrete materials, the building code allows the use of concrete, masonry, treated wood, and compacted/ crushed stone to serve this purpose, (Ref. NCBC R403.1). With that said, the use of masonry pavers/ bearing pads in this application is a structurally sound, code accepted practice, and is somewhat common where access is limited.

Columns: Similar to the above, a COLUMN is a structural support that is designed to collect a line load from a beam/ girder above and collect and transfer that load into a foundation or other framing at its base. Again, in new construction, where the foundation would be built before the rest of the home is constructed above, thereby eliminating access issues, this is commonly done w/ CMU piers to allow these supports to be spread out much further, due to the inherent strength of that material. With that said, in retrofit situations where access is limited, the use of both pressure-treated wood posts and/or steel columns in the crawlspace, (which would require to be spaced closer together than CMU piers given their relative capacities), are permitted by code, (Ref. NCBC R407). The use of PT wood columns in this case is permitted provided that the top and bottom are restrained to prevent lateral displacement, which in this case is provided via the screws and kickers used in the construction in question.

LIMITATIONS:

Please note that this report should not be considered a warranty or guarantee, expressed or implied, of the property in general, the building superstructure, or the foundation system. Structures and foundation systems may be severely impacted by changes in climate, land-use, etc, and any conclusions presented in this report are based on conditions noted at the time of the observation. The scope of this report is limited to the visual observation of the areas specifically referenced and does not include any other structural elements or adjacent systems. Due to the very limited scope of this investigation, we cannot attest to the existing structure's compliance with building codes or as-built construction techniques. This report has been prepared for the sole benefit of Mr. Tatum, at his request. Unauthorized use without permission shall result in no legal liability or legal exposure to HMHendrick Enterprises, Inc, or to Heath M. Hendrick, PE.

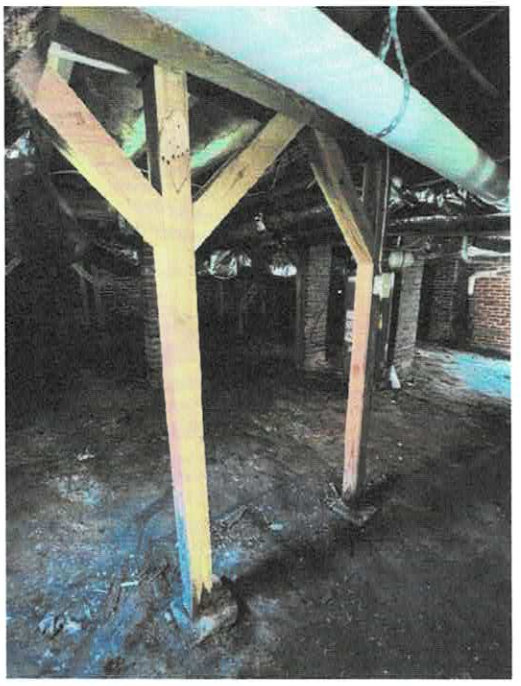
Thank you for allowing me to be of service in this investigation. Please feel free to contact me anytime if I may provide any additional clarification or documentation.

Sincerely,

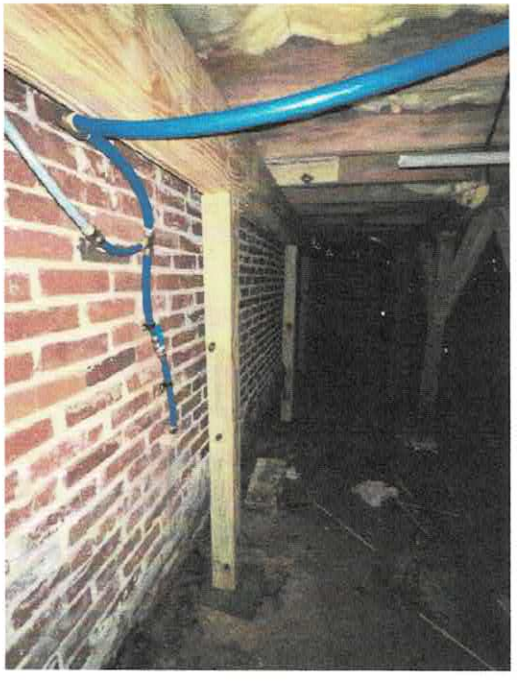
Heath M. Hendrick, PE

Attached: Site Photos (3)

HMHendrick Enterprises, Inc.
Heath M. Hendrick, PE 612 Valley Rd, Sanford, NC 27330 (919) 427-0501



Site Photo 1: "Existing/ original" intermediate joist support.



Site Photo 2: "New" joist support girder line at joist bearing end closes to Park Ave.

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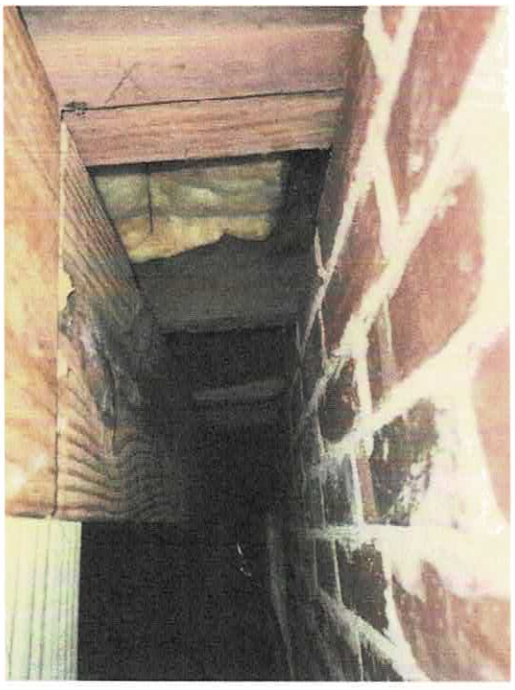

Site Photo 3: "New" joist support girder line at joist bearing end closes to Park Ave.