



Luchini Trujillo Structural Engineers, Inc.

May 07, 2025

Rebecca Wood
DNCA Architects
924-A Shoofly Street
Santa Fe, NM 87505

Re: Residence @ 515 Paseo Del Peralta, Santa Fe, New Mexico 87505

Dear Rebecca,

This letter is to acknowledge that I conducted a site visit on April 16, 2025. The purpose of the site visit was to observe the existing condition of the residence and provide an overall opinion regarding its structural integrity. The attached floor plan has been provided by DNCA Architects and is used to identify locations of structural damage herein. The floor plan includes identification of floor framing information and observed structural deficiencies/concerns throughout the property.





Analysis and Recommendations

Overall, the main residence is in good condition with a few noted structural deficiencies outlined herein that will need to be corrected.

- The southwest corner of the residence exhibited a large crack propagating from the exterior facade to the interior plaster finish. Upon further investigation it was noted that water intrusion had occurred and compromised the masonry and mortar joints in this area. The damaged portion of the wall should be reconstructed with standard masonry techniques to reestablish structural integrity.
- Temporary wood supports founded on timbers posts were installed in an apparent attempt to control floor joist deflections and correct floor framing alterations. The timber supports are at random locations throughout the residence. This condition will need to be corrected with a new wood post and wood beam system with concrete spot footings at the new posts.
- Floor joists that have been cut to accommodate out of service floor heaters were noted to occur in two locations in the main structure. The alterations should be corrected with adequately sized floor joist girders and headers.
- Tunneling through stone masonry stem walls to accommodate HVAC & plumbing chases were noted to occur in numerous locations throughout the main residence. This alteration will need to be corrected as it has caused localized failures of the wood bearing plates for the floor system.

The auxiliary structure's structural deficiencies outlined herein make the structures impossible to meet code compliance.

- The shed walls are dependent on unreinforced adobe and random masonry walls. The transition from adobe & masonry walls to concrete stem wall/footing was not observed. The northwest and northeast walls are retaining anywhere from 1 to 6 feet of soil. Moisture intrusion has caused some debonding of the adobe blocks and deterioration of the block itself. This condition can cause a potential hazard and is susceptible to movement and overturning during extreme loading conditions. The unreinforced wall cannot properly resist lateral earth pressures and cannot sufficiently transfer loading.
- The garage walls are dependent on an assortment of unreinforced brick, stone and clay-block (pentile) masonry walls. The northwest and northeast walls are retaining up to 6 feet of soil. A waterproofing and drainage system was not observed and could lead to hydrostatic pressure building up behind the retaining portion. Moisture intrusion has caused some debonding of the masonry and deterioration of the wall itself. This condition can potentially cause a hazard and could be susceptible to



collapse under extreme loading scenarios. The unreinforced wall cannot properly resist lateral earth pressures and cannot sufficiently transfer loading.

- The far north-east unreinforced stone masonry retaining site wall is dependent on an assortment of various sized stones with mortar joints. The northeast wall is integrated into the existing garage wall and is retaining up to 5 feet of soil. A waterproofing and drainage system was not observed and could lead to hydrostatic pressure building up behind the retaining wall. This condition can potentially cause rotational movement and sliding under typical loading scenarios. The unreinforced wall cannot properly resist lateral earth pressures and cannot sufficiently retain the earth behind the wall.

Code Analysis

This structure is under the jurisdiction of the City of Santa Fe Land Use Department. Currently the department utilizes the 2021 New Mexico Administrative Building Code. A review of the 2021 International Residential Building Code (IRC, as amended) and the 2021 International Existing Building Code (IEBC, as amended) was completed.

In the IRC, Section J501.4 outlines requirements that that structural elements found to be unsound or dangerous be made to comply with the applicable requirements of the code. New installations shall not create a dangerous condition. Replacement of all the roof and floor framing would define the work as an 'extensive alteration', in accordance to Section AJ501.3. The alteration would then have to meet the reconstruction requirements of the code.

In the IEBC, Chapter 5 of the code indicates that replacing walls and roof framing would be considered a 'substantial structural alteration' because the total affected area constitutes more than 30% of the total floor and roof areas of the building. In this level of alteration, Section 907.4.2 would require that the lateral load-resisting system comply with the 2021 International Building Code (IBC) requirements (though some reductions to horizontal forces are allowed in this alteration section).

Feasibility of Executing Code Requirements

Correcting the structural deficiencies in the main residence will not trigger the major alteration requirements outlined by the IEBC. Localized repairs can be made to the isolated deficiencies of the main residence to reestablish structural integrity.

Based on the deterioration of the rubble masonry and adobe retaining walls in the garage and shed respectively, the ability to correct the structural issues with the structures retaining walls would not be possible. The existing walls are unreinforced adobe, & stone/rubble masonry: these types of walls are not permitted for retaining conditions.

Summary and Conclusion

It is my opinion that an effort to restore or repair the shed and garage auxiliary structures is not feasible. Replacement of all retaining and vertical load bearing walls, and the installation of a foundation system would require so much removal of the existing structure that the undertaking can no longer be considered a restoration, but a replacement. That is,



no portions of the existing shed and existing garage structure can remain in place if this building is to meet building code requirements.

The conclusions and opinions stated are based on our understanding of the facts and evidence stated herein. No warranties, expressed or implied, are intended to be made. Should additional facts or evidence become available pertaining to this project, we reserve the right to review that information and revise opinions when appropriate. Recommendations provided herein are conceptual in scope and are for use in planning and estimating costs only. The services of a licensed professional experienced in this industry should be acquired to engineer and design the exact structural requirements. Other methods for these repairs may also be available and appropriate.

Please note that Luchini Trujillo Structural Engineers, Inc. has provided structural consultation for only those items described in this letter and assumes no responsibility for the structural adequacy of any other members or systems in this project.

Please contact me if you have any questions or require additional information.

Sincerely,

Jeremy J. Starr, P.E.