November 8, 2011

Mr. Ronnie Heyns
Praxis Construction
2902 Vallarta Lane
Austin, Texas 78733

RE: Structural Review for 79 Rainey Street

Dear Mrs. Heyns,

Upon your request, a review of the existing structure located at 79 Rainey Street was performed by this office on November 7th, 2011. The purpose of this review was to determine the adequacy of the existing structural system and to provide structural recommendations as necessary. The scope of my services consisted of visual observations of the interior and exterior of the residence only. Structural inspections and testing of materials, structural members, and connections were not performed. All opinions rendered in this report are based on a one time observation of the as-is condition of the building, information you have provided, and my experience as a structural engineer for older structures such as this. This report is intended to provide a general overview of the structural system and is not intended to be an exhaustive study of every condition observed.

General Overview

The existing building is a single level wood framed structure supported by a pier and beam type foundation. Travis County records indicate the effective date the structure was built is 1931. It appears additions to rear of the structure were added after the effective year built date with the likely enclosure of what was once a rear porch. Presently the structure is severely dilapidated, and in my opinion, not safe for occupancy. The amount of structural repair to render this residence safe for use is extensive. The following will describe in more detail the existing structural system and the repairs required.

Existing Roof Structure

As was common for roof's constructed for residences during the 1930's the roof system is constructed 2x4 rafters and ceiling joists spaced at approximately 24" on center. Ceiling joists and rafters are supported on the exterior walls and at interior load bearing walls. Presently the roof is showing signs of excessive deflections, not only at the rafters, but in the roof decking itself (see Photos 1 and 2). The long term creep deflections of the wood roof system are visual indicators that the decking and rafters are over-spanned for support of the Dead Load (permanent) weights of the system, and also insufficient to support the additional present Building Code values for superimposed Roof Live Loads.

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Photo 1: North Elevation showing excessive deflections of existing roof system.

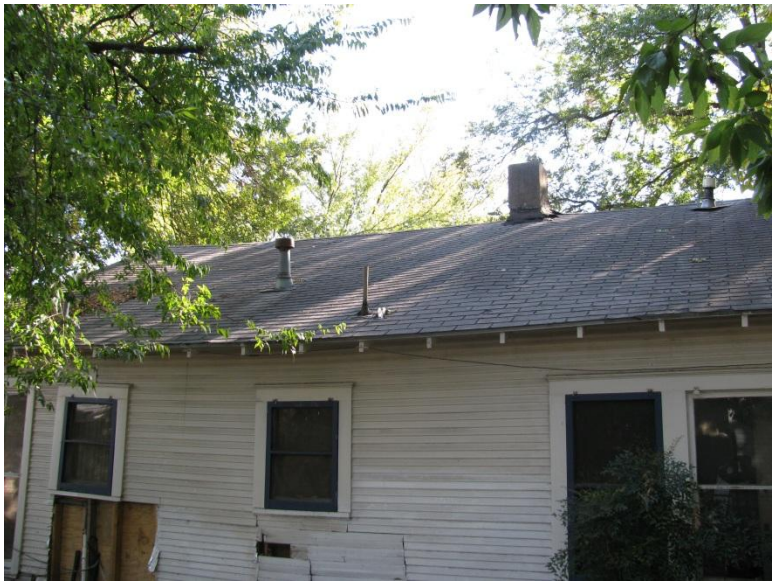
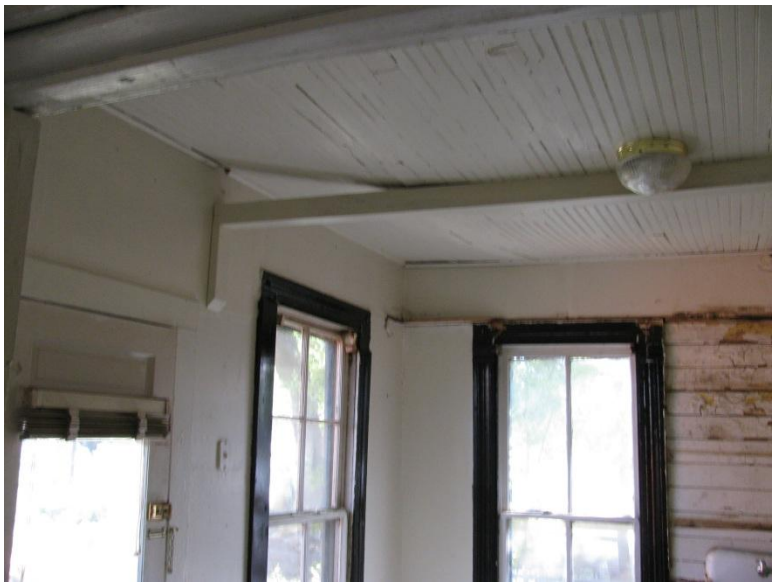


Photo 2: Interior view at rear room. Note that ceiling joists are sagging excessively. A 4x4 beam was added and is also sagging excessively indicating the ceiling system is insufficient.



Existing Wall System

The existing wall construction is comprised of 2x4 framing spaced at approximately 24" on centers. The walls as observed are in serious decay. Throughout the building at both interior and exterior walls, signs rot, termite damage, and loss of connection to the roof and foundation system was noted (See photos 3,4,5 and 6). Exterior and interior walls move excessively with a small amount of force applied (small push) to the wall. The walls are sheathed both sides with horizontal wood siding and too shows signs of decay. Although horizontal siding was common practice for wall construction at the time the residence was built, this method of construction does not lead to an adequate lateral bracing system to support modern Building Code specified lateral loads (Wind) for the Austin area.

Photo 3: East elevation of residence. Note wall is extremely dilapidated with complete structural failure.

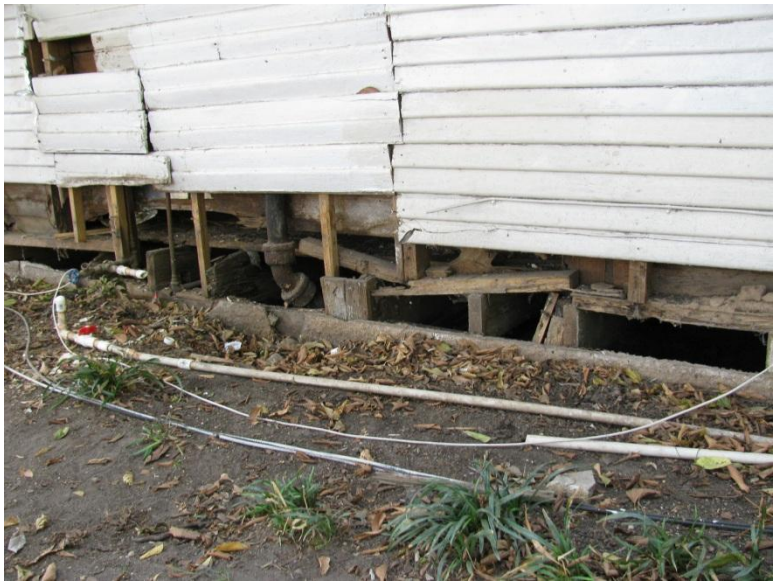


Photo 4: West elevation of residence. Again, wall system showing visible signs of decay and structural failure.

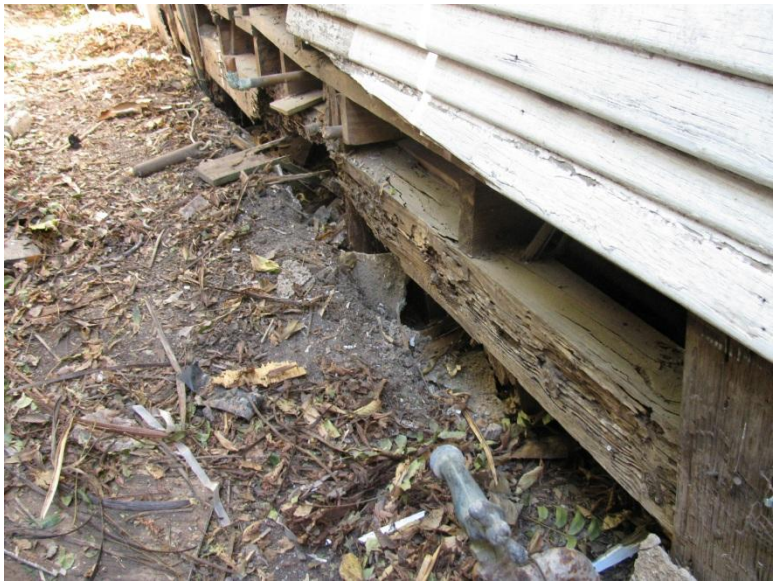
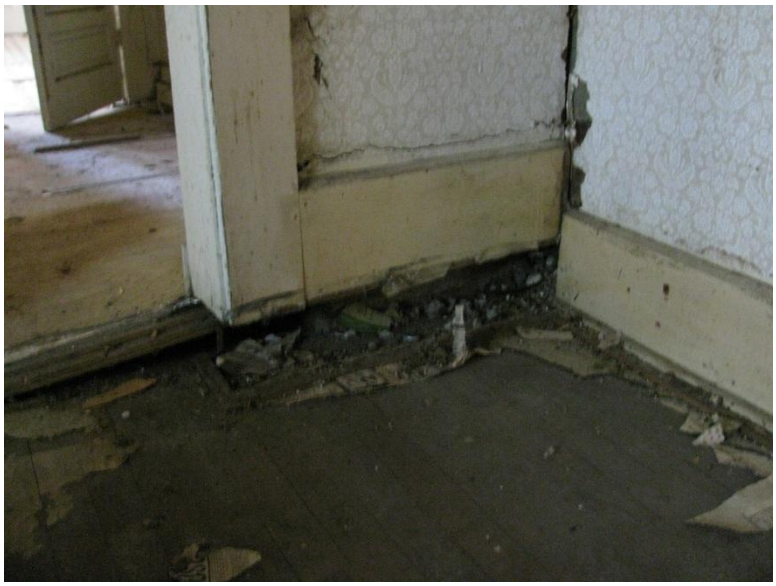


Photo 5: Typical wall condition beneath windows. Continued exposure to moisture has led to wood decay.

Photo 6: Interior wall decay. Note walls have lost most to all connection to floor framing. Intersection wall bases are now at different elevations.



Existing Foundation

The foundation system as noted previously is a pier and beam type system. The "piers" are comprised of cedar tree stumps. Although this may seem unusual, this was common practice for the residence built during that era. Over time the cedar stumps have decayed and the existing foundation system has moved/ settled extensively. The wood beam and joist system is presently at or very near to ground level. This proximity to grade has led to extensive rot and decay of the majority of the foundation system for this residence (See Photos 7, 8, 9, 10).

Photo 7: Foundation beam is bearing in dirt and is decayed. Wood joists are severely decayed. Extensive termite activity is visible in foundation and wall cavity.

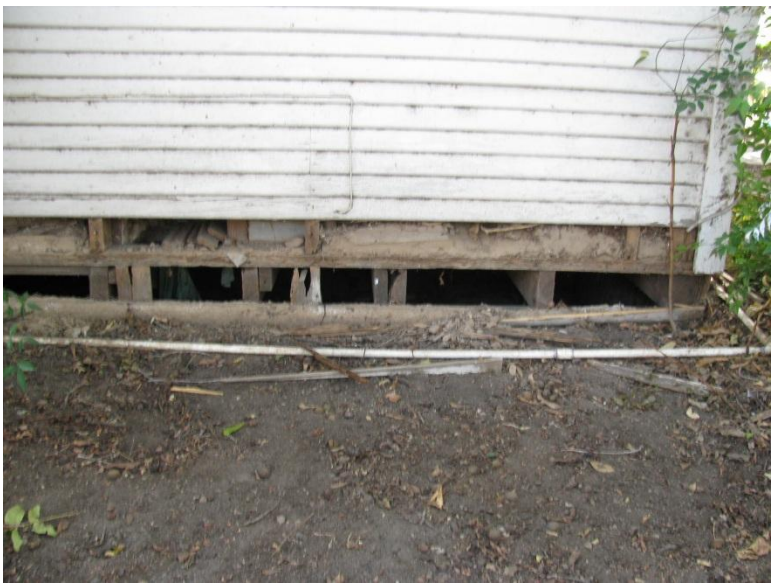


Photo 8: View at rear of residence showing excessive foundation deflections.

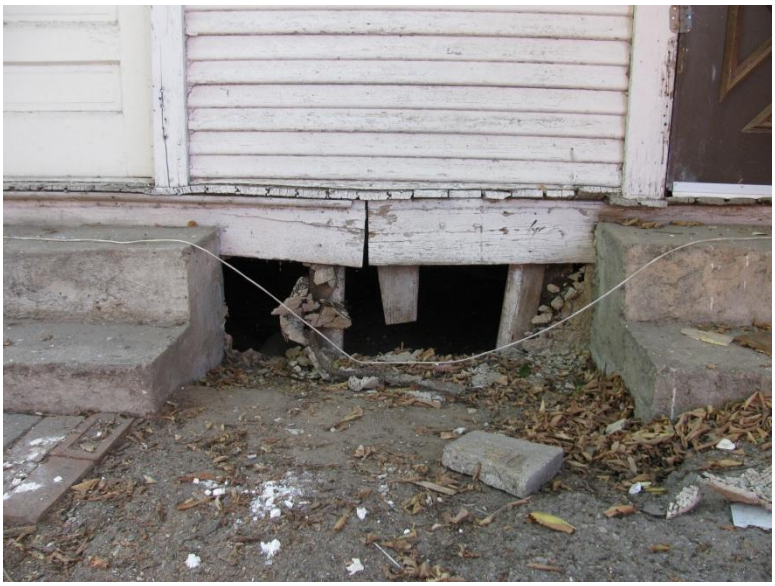


Photo 9: Foundation beam in grade. Beam, joists, and wall framing are in decay.

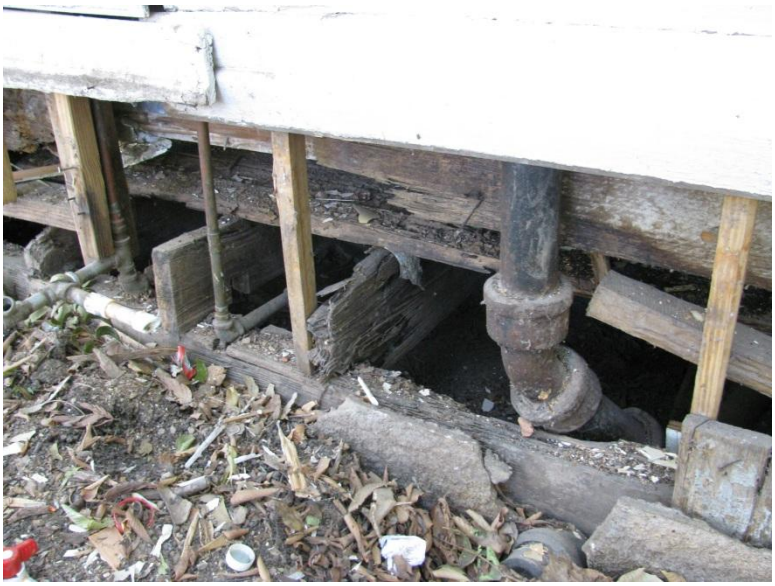


Photo 10: Decay has become so extensive that interior floor area are affected.

Structural Recommendations

Based on my observations, I find that this structure requires not only extensive repairs, but complete replacement of the majority of the structural system. It may be possible to strengthen the roof and ceiling system by adding additional framing members to the existing structure rendering them Code compliant. The roof decking should be completely removed and replaced with new decking. My primary concerns regarding this structure are in regards to the existing wall and foundation system. The amount of damage and decay noted at the sides, rear, and interior walls leads me to believe that these walls will require a complete replacement with new construction of if not all, the majority of the wall framing members. The foundation system is too close to grade and it too needs an almost complete replacement. Due to the proximity to grade of the foundation system, I recommend to either replace the pier or beam foundation with a new slab-on-grade type system, or to raise the entire structure such that the pier and beam foundation can be replaced with new wood framing members and concrete piers, and achieve a minimum 18" clearance between the ground level and bottom of grade beams.

An idea of magnitude of the amount of replacement of existing dilapidated members with new members is as follows:

Roof Decking	- 100% estimated replacement with new
Roof Rafters	- 30% estimated replacement with new with 70% - 100% requiring additional stiffening members.
Wall Framing	- 60% to 80% estimated replacement with new members or requiring removal of dilapidated areas and replaced with new.
Foundation	- 100% replacement of all wood members with new foundation system

Disclaimer

The observation and scope of involvement of this office is limited to the review of the existing residence at 79 Rainey Street in Austin, Texas. This letter and professional opinion rendered is based on a one time visual observation only. The observation, this report, or the professional opinion rendered do not cover mechanical, electrical, plumbing or architectural features or guarantee that every possible discrepancy has been cited. As stated in this report, this building is not safe for use and may be a possible threat to life safety now and during construction. This office strongly encourages that all necessary precautions are taken during construction and that additional shoring be provided now or during construction to ensure the safety of anyone who enters the building. The observation was not intended to address water issues as it relates to but not limited to site drainage, roof runoff, or water introduced by adjacent properties. Adequate waterproofing and drainage shall be provided to limit the effects of erosion and to maintain the integrity of the structural system described. Water issues and/or waterproofing are the responsibility of the owner and are beyond the scope of this observation. The review of an existing building requires that certain assumptions be made regarding existing conditions, and because some of these assumptions may not be verifiable without expending additional sums of money or destroying otherwise adequate or serviceable portions of the structure, the Client agrees, to the fullest extent permitted by law, to indemnify and hold the Design Professional harmless from any claim, liability or cost (including reasonable attorneys' fees and costs of defense) for injury or economic loss arising or allegedly

arising out of the existing structural system, excepting only those damages, liabilities or costs attributable to the negligence or willful misconduct of the Design Professional.

Furthermore, all recipients of this letter agree to limit StructuresPE, LLP's (Design Professional) liability to the recipients due to the opinion such that the total aggregate liability of each Design Professional's liability to all those named shall not exceed the Design Professional's total fee for services rendered on this project.

Please notify this office by registered letter within two weeks of this date stating objections to or questions regarding the information contained in this letter. If none are received, it is concluded that no exceptions are taken regarding the professional opinion rendered or this liability limitation statement.

I appreciate the opportunity to assist you with this matter. Contact me at the number or address provided should you have additional questions or comments regarding this letter.

Sincerely,

Dante Angelini, P.E.

Associate Principal

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