



January 14, 2019

Mr. Drew Randall
Element 5 Architecture
2124 E. 6th Suite 106
Austin, Texas 78702

RE: 508 E. Mary

Mr. Randall,

A structural review of the existing residence located at 508 E. Mary in Austin, Texas was performed to determine the general condition of the existing structural system. The following are noted deficiencies based on a visual observation only:

- Roof Framing
 - Roof rafters are comprised of 2x4 framing spaced at 24 inches on center. The rafters are over spanned and structurally deficient to support Code required superimposed loads. The rafters are visually deflecting under the self-weight of the structure with noted sags in the roof.
 - Solution – due to existing sag in the roof, adding new structural members to the existing will strengthen the roof, but will not eliminate the noticeable deflections without considerable difficulty. Therefore, I recommend to remove the existing roof framing and replace with new.
- Ceiling Framing
 - The ceiling framing is comprised of 2x4 joists spaced at approximately 24 inches on center. The joists are over-spanned and insufficient to support Code required superimposed loads.
 - Solution – add new joist framing onto or between the existing ceiling framing or remove the existing and replace with new.
- Wall Framing
 - Wall studs are 2x4 members spaced approximately at 24 inches on center. Wall studs appear to be structural sufficient; however, some studs appear to have suffered rot and damage to wood boring insects. These studs should be replaced.
- Lateral Bracing
 - The walls are sheathed with horizontal wood siding with no noted signs of let-in diagonal bracing. I find it is common of historical homes constructed in this manner that diagonal bracing is not used. Although the house appears to have performed well, the addition of proper lateral bracing systems should be considered.
- Pier and Beam Foundation
 - The pier and beam foundation is comprised of 2x8 floor joists supported by several different beam sizes. The beams are supported by original cedar stumps and later reinforced at interior beams with hollow cmu and miscellaneous brick. Several foundation beams are insufficient. The cedar posts and miscellaneous cmu and brick plinths are also insufficient.
 - Solution – new footings and plinths to replace all cedar stumps is recommended. Areas

- where existing beams are insufficient should be replaced with new or strengthened by the addition of new wood framing.
- Additional Noted Deficiencies
 - The front gable over the entry foyer has an unequal roof pitch on either side. The east side rafter tails extend to less than 6'-0" above the front porch. I recommend to re-frame the front gable so the rafter tails can be framed at a higher elevation to allow for better clearance.
 - The front concrete steps have experienced differential foundation movement and are now tilting. The front steps should be replaced with new.
 - There is no water resistive barrier in place over the existing stud framing.
 - Areas of the existing wood siding and the wood water table are showing signs of extensive rot and need replacement.
 - Guard railing is required at the front porch since its elevation exceeds 30 inches above adjacent grade.
 - The wood window sills and frames are dilapidated throughout the residence and should be replaced with new.

The above deficiencies list is based on my one-time observation performed on January 11, 2019. My recommendations are general requirements only and shall not be considered as complete structural engineering directives.

Sincerely,



Dante Angelini, P.E.
Principal

