

08/20/2021

Melissa Power
3400 Hillview Road
Austin, Texas

Dear Ms. Powers,

On 18 August 2021 R. Derek Hammond on behalf of RDHammond Consulting & Engineering (RDH C&E) performed a site visit to 3400 Hillview Road to view the condition of the existing structure. The following details what was encountered, conclusions, and recommendations.

Based on the issues observed, it would likely be less expensive and safer for the building to be removed in its entirety. Thank you for the opportunity to provide these services to you. If we have erred in our understanding of the work or if you have a questions, feel free to contact me and we will be happy to adjust and resend,

Respectfully,



R. Derek Hammond, PE

Owner RDH C&E LLC

Existing Site Conditions

The existing residence was located in west Austin, east of the Colorado River. The home, according to The Travis County records indicate it was constructed in 1935.

The existing structure was composed of a structural clay tile stem walls with assumed shallow foundations below (foundations were not visible to view). The floor was an elevated floor composed of structural clay tile, stiffened by ribs spaced at 36" intervals with grout and steel mesh reinforcing. The exterior walls were similarly composed of structural clay tile. The roof was composed of wood roof framing spaced at 24" intervals with a 2x6 ridge beam supported at 12' intervals.

Multiple locations around the exterior had stair step cracking occurring. Most openings had stair step cracking to some degree. Walls were noted as bulging on the north end of the building and the south west of the structure. Large cracks and faulting was also noted in the crawl space within the ribs of the floor support system. Large cracks was also noted on the terrazzo flooring on the interior, radiating outward from interior wall corners. It was also noted that the living room floor had sunken down approximately 18" during the 80's.

Exposed rebar was noted on multiple locations on the front cantilevered portion of the second floor above the entry. Cracks had formed off the ends of several of the cantilevered beams, had opened up and

allowed moisture within the concrete beams, and some rebar had shown signs of blooming, an



Figure 1: Stair Step cracking on West wall



Figure 2: Bulging wall on north end

advanced stage of corrosion. Headers at the garage had extensive cracking, and the header appears to have lost support. A large crack was present at the north end between the transition of the two story portion and single story portion of the residence.

Conclusions & Recommendations

Damage was encountered in multiple locations within the stem walls, likely due to movement with the foundation system. Damaged cells would need to be removed in their entirety due to their brittle nature. Repair methods are not available for structural clay tile. Also, to remove, replace, and repair the damaged cells, the floor and roof would all be required to be shored and floor removed in its entirety. The clay tile material is brittle by nature, and would not be easily replaced, so a substitute may be required. Concrete or traditional CMU would be recommended in these circumstances. Caution should be taken if repairing as the weight of the floors, walls, etc. is high.

The bulging walls would also not be easily replaced as the wall would need to be torn down and replaced to repair the damage within the wall, and to get the plumb wall perpendicular.

Additional safety concerns were noted at the front entry, due to the degree of the corrosion and damage, it would be recommended that the balcony is temporarily shored to reduce the risk of injury to the owners and visitors. Repairs are possible, but are labor intensive and costly. Repairs would involve the cleaning of the existing rebar, removal of loose debris, epoxy injection into small cracks, and forming and repouring with high strength concrete after some selective demolition to the beams, to allow the repair.



Figure 3: Cracked beams and floor in crawl space.



Figure 4: Cracking in terrazzo in interior.

The soils were black in nature, and likely high in clay content and/or organic material. When wetted the soils have a high potential of heaving up, and when dried the soils settles down. Stair step cracking, consistent around the entire structure is common where settlement and heaving are issues. Typical construction methods recommend the removal and replacement of poor soils, the conditioning of the soils, or foundations that bear deep enough, and that have enough separation from the soils to prevent cracking issues created by high expansive soils.

The corrective measures necessary to repair the damage would involve the removal and replacement of the floors, walls, and ridge framing as it was over spanned in most areas. Given the extensive amount of work required, the safety hazards present to the public, home owner, and construction crews it is of the opinion of RDH C&E that the structure should be demolished in its entirety.



Figure 5: Cracked concrete at cantilevered second floor above main entry

ADDITIONAL PHOTOS



Figure 6: Large crack at interface from 1st to 2nd floor.



Figure 7: Cracking on interior garage wall, shore with steel angles and expansion anchor.

ADDITIONAL PHOTOS



Figure 8: Stair step cracking on South mesh screen room



Figure 9: Over spanned ridge beam.