

Robert E. Quick, P.E.

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August 8, 2016

RE: Structural Review
415 SW Jefferson
Lee's Summit, MO

Per the request of the owner, per written agreement, I completed a visual review and report on the foundation at 415 SW Jefferson, Lee's Summit, MO, to evaluate its structural condition and give opinions on deficiencies, and to recommend necessary improvements or maintenance.

The building is a single family residential home which faces generally south. The foundation of the house is constructed of concrete foundation walls that form a basement under the living area of the home.

The foundation walls of the house have experienced some lateral movement and some settlement in the past. The lateral movement appears to have been created by pressures from excessive moisture in the soil near the foundation walls, generally created by poor grading around the foundation. The settlement appears to be the result of extreme dry weather effects on the soil near the foundation walls.

The movement of the foundation walls has created cracking in the walls. The walls show lateral movement which appears to be excessive at this time and will require some bracing and patching. The settlement which has occurred has been limited and has not created any significant damage which requires piercing.

I would recommend the owner complete the following improvements at this time:

- Install 4 I-beam strong-back braces on the west foundation wall
- Install 4 I-beam strong-back braces on the rear foundation wall
- Epoxy patch all cracks in the foundation walls per the attached specifications

I would recommend the owner maintain the following items in the future:

- Maintain grading around the foundation of the house per the attached specifications
- Epoxy patch all cracks in the foundation walls per the attached specifications as they appear
- Keep soil near the foundation walls moist during dry weather

The proposed maintenance is designed to retain strength of the foundation walls. The maintenance is not designed to, nor guaranteed to stop water seepage in the future. The owner of the property should be aware that the foundation will continue to age and the foundation walls are susceptible to pressures in the future which could create movements and require structural improvements at that time. The owner should be aware that in the area foundation walls commonly require bracing, piercing, or waterproofing as they age.

The owner should continue to monitor the foundation walls, and maintain the walls properly. Recent extreme dry weather has allowed several foundations in the area to settle. The owner should be certain to apply water near the foundation walls during dry weather to stop further settlement.

The grading around the house must be monitored in the future and the owner must provide for a positive slope away from the foundation. The owner must continue to keep the

grade away from the foundation and thus reduce future pressures on the walls. The owner should also begin a water maintenance program during the Spring and Summer to keep moisture content levels around the foundation consistent and avoid extreme dry or wet conditions.

It should be noted that this inspection did not attempt to examine for possible termite damage, water damage, or for structural components which are concealed from view by finish materials.

When making visual observations of a building, it is required that certain assumptions be made regarding the existing conditions. Because these assumptions may not be verifiable without expending added sums of money, or destroying adequate or serviceable portions of the building, the owner or recipient of this report agrees that, except for negligence on the part of the engineer, we will be held harmless, indemnified and defended from and against all claims arising out of the services provided by this report.

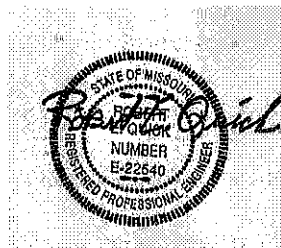
The structural soundness of the home is not a guarantee against water or future damage to the home. As with any foundation changing conditions in the soil, drainage patterns, extreme weather conditions, or other factors can create damage. The owner of the home must continue to monitor the foundation throughout its life and provide for preventative and general maintenance as it is needed. If any questions arise about the condition of the foundation the owner should have it re-inspected as soon as possible.

A copy of the agreement has been attached to the report. The agreement must be properly initialed and signed for the report to be valid. The agreement must be initialed to reject the exhaustive inspection, agree to limits of liability, and agree to an arbitration clause. The contract must also be signed and dated.

Without exception, this report will expire 180 days from the date of issuance. Any reliance by the named client or any third-party after the expiration date of the report will be done at their own risk.

If you have any specific questions concerning the foundation, please give me a call.

Very truly yours,



Robert E. Quick, P.E.
President

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Crack Repair

Crack repair methods to add strength and water proofing using an epoxy.

Preparation:

Mechanically open cracks to a depth that allows removal of weakened concrete due to movement of the wall, leaving strong clean dry concrete surface that will allow penetration of the epoxy in an existing wall. Torch dry as needed air blow cracks to clean epoxy.

Application:

The epoxy application shall use only 100% solids. Heat cure of two part epoxy. Any patch material using water will not add strength to the wall. Brush all crack surfaces with epoxy liquid and allow five minutes for absorption. Trowel epoxy mortar using crushed and sieved flint with liquid epoxy to make the mortar full depth leaving a smooth surface. Use Sinmast epoxy mortar or equivalent to provide a cure strength equal to 5 times that of 3000 psi concrete.

Grading Improvements

Final grading around the foundation of the house should provide a minimum of 6" of slope in the first 6' directly away from the foundation. The grade should provide for a easy flow of surface water away from the foundation and off the property. When necessary the owner should use french drains or other mechanical means to remove excess water.

The final grade within 3' of the foundation walls should be covered with rubberoid or another impervious material to stop water penetration and direct water away from the foundation. All downspouts and splash blocks must extend away from the foundation and be kept operational by the owner.