

Architecture
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ROCKY MOUNTAIN GROUP
EMPLOYEE OWNED

Job No. 170699

May 30, 2019

Saint Aubyn Homes
212 North Wahsatch Avenue, Suite 201
Colorado Springs, CO 80903

Attn: Luke

Re: Structural Observation

Fountain, Colorado

Ref: Framing Plans by Saint Aubyn Homes last dated June 24, 2010

Dear Luke,

As requested, personnel of RMG - Rocky Mountain Group have visually observed the structure at the above referenced address. The purpose of our visit was to assess the condition of the structure with regards to the foundation system, soil conditions and drainage conditions. This letter represents the documentation of our site observations, provides an evaluation of the present condition of the structure, and lists, if necessary, conceptual recommendations for the repair of past damage or to reduce the probability of future damage. It should be noted the documentation of items such as drywall cracks does not automatically imply structural damage has occurred. It is important the reader reviews our entire evaluation before drawing conclusions regarding the present structural condition.

Based on our observations of the structure and its age, it is our opinion that the foundation is structurally stable and adequately supporting the structure. Additional comments will be contained in the body of this report.

The site visit was performed on May 15, 2019. The house was observed to be a two-story structure with a basement. The house was reportedly built in 2015. For the purpose of this report, the front of the house will be considered west.

OBSERVATIONS:

Basement

The basement is currently unfinished and generally in good condition. The basement slab is generally level. The slab surface was observed to have approximately 1/16" wide cracks in a grid

pattern that resembles control joints. The main level floor framing was visually accessible from the basement. The main level floor framing consists of engineered lumber floor joists extending in the east-west direction. There are a few steel beams that provide support to the engineered lumber floor joists. These beams span between the basement wall and interior adjustable steel columns. The columns are supported by concrete pads below the floor slab, according to the referenced plans. The columns were found to be generally plumb. The column bases were observed to be attached at the floor surface. A hairline crack in the shape of a circle was noted on the floor around the bases of the columns in some locations. The steel beam near the northeast corner of the basement has an approximate downward slope of 1/4" in 48" towards the north. The main level framing was observed to be generally level. The main level floor frame was noted to have a downward slope of 1/8" to 1/4" in 48" towards the northwest around the northeast corner of the basement. There is a sump pit at the west side of the basement near the stair case. The pit was filled with a few inches of water at the time of our observation. A representative of Saint Aubyn Homes attempted to activate the sump pump. However, the pump appeared to trip the breaker switch and could not be successfully activated during the observation.

Main Level:

The main level was observed to be generally in good condition. There are diagonal cracks on the dining room wall openings that lead to the kitchen and living room. The cracks are approximately 1/16" wide. The ceiling at the southwest corner of the dining room was noted to slope down approximately 1/4" in 48" towards the east and 1/4" in 48" towards the north. The walls were found to be generally plumb.

Upper Level:

The upper level was observed to be generally in good condition. No significant distress was noted on finished surfaces. The walls were found to be generally plumb.

Garage

The garage is partially finished and observed to be generally in good condition. There are a few 1/16" wide cracks on the slab surface. No significant cracks were noted on the top of the foundation walls. No significant cracks were noted on the finished surfaces.

Exterior

The grade around the house is generally sloped away from the foundation. The gutter downspouts are connected to five foot outlet extensions. The outlet extensions at the northeast and northwest corners of the house are currently missing. No significant cracks were noted on the top of the foundation walls where visually accessible. The driveway and porch slabs were observed to be generally in good condition. No significant cracks were observed on the driveway surface. The sidewalk along the front of the house appears to have experienced some minor differential vertical movement, which has created an approximate 1/2" vertical offset along the control joint between two panels.

CONCLUSIONS:

Based on our observations of the structure and its age, it is our opinion that the foundation is structurally stable and adequately supporting the structure.

Foundation movement is typically characterized by cracking of exterior walls as well as out-of-level floors on the main level of the house. The levelness of the main level floors and lack of significant cracks on the main level indicate that no significant foundation movement has taken place.

Although no signs of significant foundation movement were observed, it is critical to keep water away from the foundation since movement is typically a result of changes in the moisture conditions of the subgrade soils. The missing outlet extensions at the northeast and northwest corners of the house can allow significant amounts of water to pond and seep through the soil adjacent to the foundation. Downspout outlet extensions at least five feet long should be provided for the downspouts at the northeast and northwest corners of the house.

The sump pump could not be activated to confirm it is currently functional. The sump pump and perimeter drain are crucial to the performance of the foundation since its main function is to collect water around the foundation and remove it at the sump pit. The sump pump should be confirmed to function and operate adequately. The perimeter drain should be video scoped to determine if any clogs exist within the drain pipe.

The concrete pad support near the northeast corner of the basement appears to have experienced minor vertical movement. This was evidenced by the slope measured on the steel beam that is supported by a steel column bearing on the concrete pad. The movement of the concrete pad has transferred through the steel frame, main level floor frame, and dining room walls, ultimately resulting in the cracks on the drywall. This movement was further evidenced by the sloping conditions of the dining room ceiling. However, the movement appears to be minor at this time. This concrete pad appears to be lightly loaded compared to the other support pads and can more sensitive to soil movement. Providing extensions for northeast and northwest downspouts and verifying that the sump pump and perimeter drain are adequately functioning will be crucial to the future performance of the house foundation and concrete support pads. Once these items are addressed, the drywall cracks should be monitored to determine if movement progresses. As the moisture in the subgrade soil returns to its original conditions the concrete pad may shift back to its original position. This movement could distress the drywall finish if patching is provided. Therefore, it is recommended that cosmetic patching of the drywall finish be provided after monitoring.

RECOMMENDATIONS:

The following is a list of recommendations that should be performed in order to enhance the performance of the structure in the future:

1. Provide a downspout outlet extension at the northeast and northwest corners of the house. The extensions should be a minimum of five feet in length and drain to an area adequately graded away from the foundation.

1. The sump pump should be confirmed to function and operate adequately. The perimeter drain should be video scoped to determine if any clogs exist within the drain pipe.
2. Once the outlet extensions are installed, the sump pump confirmed to function properly and the drain pipe scoped, the drywall cracks should be monitored to determine if movement of the concrete pad progresses. As the moisture in the subgrade soil returns to its original conditions the concrete pad may shift back to its original position. This movement could distress the drywall finish if patching is provided. Therefore, it is recommended that cosmetic patching of the drywall finish be provided after monitoring. RMG may provide additional observations in the future for an additional fee.

LIMITATIONS:

This report does not express nor does it imply any warranty of the future performance of the structure or drainage condition. The opinions and recommendations presented in this report are based solely on conditions available for viewing at the time of the site visit, information provided by the client to RMG, the pertinent experience with similar conditions of personnel performing the observations and accepted local engineering practice. No additional subsurface testing, material testing, calculations, nor monitoring over time of the conditions presented in the report were performed by RMG unless noted. These additional investigations can be performed upon request for an additional charge, which may or may not provide information to better address the observed structural or drainage conditions that presently exist. It is the responsibility of the client to provide adequate access to any areas not physically accessible, whether or not RMG is aware of the existence of such areas. Not included is a review of structural, architectural, mechanical, electrical, plumbing, mold or cosmetic conditions, nor a comprehensive review of compliance with applicable building codes. **Also, excluded from the scope of this report are evaluations of geologic, natural and environmental hazards such as landslides, unstable slopes, seismicity, underground mines, avalanches, flooding, corrosive soils, erosion, radon, wild fire dangers and hazardous waste.**

I hope this provides the information you requested. Should you have any questions, please do not hesitate to call.

Cordially,

RMG – Rocky Mountain Group

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Forensic Project Engineer

