



September 30, 2022

Mr. Stan Davis
409 Falling Leaf Dr.
Friendswood, Texas 77546

Dear Mr. Davis:

Re: 409 Falling Leaf Dr., Friendswood, Texas

As requested, we are pleased to send you the attached report for the foundation inspection performed on the above property. We understand the reason for the inspection was to obtain an unbiased opinion of the foundation performance of the building and provide information related to its condition.

As pointed out in the stated purpose of the report, all of the comments and observations are strictly my opinions, and they may not necessarily agree with other professionals.

This report concludes all obligations related to inspection work provided for the above property for the fee paid. Thank you for asking PROFESSIONAL ENGINEERING INSPECTIONS, INC. to perform this inspection work. If you have further questions, please feel free to call on us.

Sincerely yours,

Edward Robinson, P.E.
President

EGR/sl
Attachments

PROFESSIONAL ENGINEERING INSPECTIONS, INC.

P. O. BOX 859
FRIENDSWOOD, TEXAS 77549
<http://www.profengineering.com>
Firm Registration #1503
(713) 664-1264

FOUNDATION INSPECTION REPORT

Mr. Stan Davis
409 Falling Leaf Dr.
Friendswood, Texas
September 30, 2022

The report is divided into three sections: an introductory section, an opinion section, and a recommendations section. The introductory section defines the property inspected, the purpose of the inspection, and the scope. The opinion section is intended to provide an opinion of the foundation performance along with observations and/or considerations related to the foundation's performance, which provide a basis for the stated opinion. The recommendations section is intended to provide recommendations to aid in maintaining the building's foundation.

I. INTRODUCTION

A. Property Description

The property inspected is a house, having wood framing, brick veneer and wood siding, a composition shingle roof, and concrete slab on grade foundation. We understand the age of the structure to be 51 years.

B. Purpose

This inspection was to evaluate the condition of the foundation in order to provide information related to its condition and provide an opinion as to whether or not it is in need of repair. The data obtained and included in this report will provide insight into the overall condition of the foundation and information that will assist in maintaining it in the best possible condition during future years. Some of the comments contained in the observations portion of this report are related to need for preventative maintenance and may not indicate need for immediate repair.

C. Scope

The scope of this inspection included visual observations of only those portions of the foundation and structural components readily visible without moving or removing items causing visual obstruction. Observations were made at the exterior and interior of the structure, and the attic was viewed from the readily accessible interior. This information is provided for the use of the person to whom this report is addressed and is in no way intended to be used by a third party, who may have different requirements.

No special testing was performed to determine if leaks existed in the plumbing system below this building's foundation. Below the foundation plumbing leaks which were not detectable as part of a cursory inspection have been attributed to differential movement in the foundation of some buildings in the past. In some cases, the effects of plumbing leaks below a foundation can result in a need for repair of the foundation. If it is determined by the client that they wish to have the plumbing systems tested, then testing should be performed by

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a qualified plumber who can provide cost estimates for repair if it is found to be necessary.

II. FOUNDATION DATA

A. OPINION

It is understood that the foundation of the building has been releveled. Some of the indications of differential movement exist as a result of movement prior to the repair or were caused during repair activities and have no bearing on the condition of the repaired foundation. The evidences and/or consequences of differential movement observed in this building remain at a level that is consistent with its age, and the degree is considered normal for this area and the age of the building. In accordance with the stated purpose of this inspection, no observations were made that would indicate that the foundation is in need of additional repair or not performing its intended function.

Differential movement of building foundations is a common problem in this area because of the highly expansive clay soil and changing weather conditions. As a building resting on the highly expansive soil ages, it is probable the foundation will continue to experience differential movement, regardless of how well it was constructed or its present condition. Most buildings, with average owner foundation maintenance, may require foundation repair in a period of 35 to 40 years. If the building is to be left unoccupied for an extended period of time, provision should be made to have the yard watered frequently during dry periods. Constant care and/or maintenance is necessary to maintain movement to a minimum. See the attached Foundation Care Information for recommendations.

B. OBSERVATIONS

The following observations are indicative of the conditions considered or existing at the time of the inspection and should not be considered a total list of irregularities but a representative list of items considered.

1. Drainage at the perimeter of the foundation, which can have an effect on the rate of differential movement in a building foundation, was poor at a portion of the perimeter of the building foundation, where it appears that water stands or runs alongside the foundation during or immediately after rains. The more significant locations included: at the northeast side of the building at the dining room; at the northwest side of the building at the living room and master bathroom; and along the southeast side of the building at the utility closet, at the dinette, at the kitchen, and at the dining room. The recommendations contained in the attached Foundation Care Information should be implemented to maintain the rate of differential movement to a minimum.
2. Sheetrock cracks above doors, windows, and in the ceiling, usually associated with differential movement, were observed in the following locations: in the living room at the entry from the foyer and adjacent to the stairwell and in the master bedroom at the entry to the master bathroom.

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3. **Out-of-levelness of door tops, window sills, built-in furniture and other horizontal surfaces was more than the norm or average, with the more noticeable areas being at the utility room entry.**
4. **The floors inside the building were determined to slope in the master bedroom toward the northeast. This slope is believed to be related to differential movement of the building foundation.**
5. **Some cracks were observed in the exterior brick veneer. The degree was acceptable for structures in this age group. Locations included: at the northwest exterior of the building adjacent to the living room; at the southwest exterior of the building at the utility room; and at the southeast exterior of the building at the dinette.**
6. **Cracks were observed in the foundation concrete. These cracks were hairline in size with little, if any, serious detrimental effect on the function of the foundation at this time. Locations included: at the northeast side of the building at the windows of the living room; at the northwest exterior of the building at numerous locations adjacent to the hall bathroom, master bathroom, and master bedroom; at the southwest exterior of the building at the utility room; and at the southeast exterior of the building at the dinette.**
7. **Separations or differential movement of materials were observed. The degree of separation observed was slightly more than normal. The locations included between: the walls and the adjacent walls and the ridge bracing and the ridge adjacent to the access opening.**
8. **Some of the pocket doors had tapered gaps along the front edge of the door when in the closed position, at the point where the door joins the casing, which may indicate differential movement in the building foundation. The more significant location was at the master bathroom.**
9. **Doors with tapered gaps between the door and door casing at the top, indicating differential movement in the foundation of the building, were observed, including at the master bathroom.**
10. **It is understood that the foundation of the house was releveled approximately 20 years ago. Other than information provided by the owner or repair company, there is no way to determine how the foundation was releveled and where piers were installed.**
11. **Construction research has indicated that large trees, such as those observed during the inspection, which grow closer than their mature height to a building with a foundation resting on highly expansive soil, can cause rapid and severe differential movement, which can result in the need for foundation repair.**
12. **Some of the foundation reinforcing bar was exposed at locations along the exterior grade beam of the building. The bar should be painted or**

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coated with a rust preventative to prevent corrosion that leads to spalling of the surface concrete.

13. The gutter downspouts lacked splash blocks at some areas, including at the west corner of the master bedroom. Downspouts without proper splash blocks can result in differential movement in the building foundation.
14. The most significant area of differential movement was determined to be toward the interior of the building in the area of the master bathroom closet. The evidences and/or consequences of differential movement pointed out in the report lead to this conclusion.
15. There was no significant damage to the structure of the building related to evidences of differential movement in the foundation observed at the time of this inspection.
16. The front porch appeared to slope back toward the interior of the building but did not appear to be monolithic to the foundation of the building, as indicated by an evident cold joint between the porch and the foundation at its southeast end.
17. The hall bathroom door drags the jamb at the side of the door, which is not believed to be related to differential settlement in the foundation.
18. Vertical bracing supporting the ridge was separated from the ridge near the attic access opening. This is not uncommon when buildings settle toward the interior of the building, allowing the structure to move down with the foundation relative to the roof structure. This commonly occurs when piers are placed around the perimeter of the building with large trees near the building using moisture from the soil at the center and can often be improved through the implementation of root barriers and adequate maintenance.

III. RECOMMENDATIONS

The following recommendations are not to be considered a specific design but guidelines related to maintaining the foundation. Specific design of soil grading should be obtained from professional landscaping companies, who are familiar with the drainage requirements of buildings resting on the highly expansive clay soil in this area.

- A. As with any foundation, if not properly maintained, the need for foundation repair can become necessary. Differential movement of foundations in this area will normally continue because of the highly expansive clay soil. The suggestions contained in the attached Foundation Care Information should be implemented to maintain the rate of differential movement to a minimum.
- B. Gutter downspout splash blocks should be properly installed at each of the gutter downspouts to prevent soil erosion adjacent to the foundation. To eliminate the effect of water running against the side of the foundation, the

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gutter downspout splash blocks should carry water runoff at least 2 to 3 feet from the edge of the foundation.

- C. Consideration should be given to cutting and capping the roots between the trees and the building; if capping is not practical, trees should be removed if they grow closer to the building than their mature height. If the roots are to be cut and capped, then a qualified tree expert should be employed to determine where the roots should be cut, since cutting too much may be hazardous to the health of the tree.**
- D. Because the building is believed to be resting on highly expansive soil which exists in this area, it is recommended that an automatic watering system be installed to maintain uniform moisture content in the soil.**
- E. Drainage should be improved at portions of the building's foundation where water may run or stand alongside the building during or after rains. Water should drain away from the foundation as soon as possible to reduce the potential for it to adversely affect the performance of the foundation.**

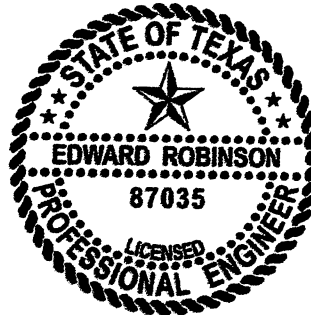
IV. SPECIAL NOTICE

Opinions and comments contained in this report are based on observations of apparent performance of the foundation of the building inspected. Performance standards are based on knowledge gained through experience and professional studies of the inspector. Opinions related to compliance with specifications, legal, and/or code requirements are specifically excluded as being a part of our agreement to perform this inspection since the method of foundation fabrication could not be viewed. There is no guarantee or warranty as to future performance, life, and/or need for repair of the building or its foundation, nor should same be assumed as a result of Professional Engineering Inspections, Inc. performing this inspection.

PREPARED BY:



The seal appearing on this document was authorized by Edward Robinson, P.E. 87035 on 10/3/2022. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act. The digital seal is found on the cover page.



**Edward Robinson, P. E.
Registered Professional Engineer, #87035**

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Attachment**

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