

PROFESSIONAL ENGINEERING INSPECTIONS, INC.

P. O. BOX 271492
HOUSTON, TEXAS 77277
Registered Engineering Firm #1503
<http://www.profengineering.com>
(713) 664-1264

July 8, 2004

Mr. Simple Samson
2831 Octoberfest
Houston, Texas

Dear Mr. Samson:

Re: 2831 Octoberfest, Houston, Texas


As requested, we are pleased to send you the attached letter for the crawlspace inspection performed on the above property by Mr. Wooley. We understand the reason for the inspection was to obtain an unbiased opinion of the conditions of the structure observable at the crawlspace to determine if there were any structural components which were damaged or had failed prior to any further evaluation as to the current performance of the foundation. Based upon the observations made by Mr. Wooley it appears there is a need for further repair by a foundation repair contractor. As you are aware Mr. Wooley is licensed as a real estate inspector by the Texas Real Estate Commission and is not an engineer and no evaluation as to the performance of the foundation was performed. If you wish for further evaluation of the foundation's performance by a registered engineer please contact my office for scheduling.

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

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.

The information included with this introductory letter 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

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FOUNDATION INSPECTION REPORT - SAMPLE

Mr. Simple Samson
2831 Octoberfest
Houston, Texas
July 8, 2004

The report is divided into three sections: an introductory section, an opinion section, and an observations 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. The observations section is intended to provide a list of observations and/or considerations related to the foundations performance, which provide a basis for the stated opinion.

I. INTRODUCTION

A. Property Description

The property inspected is a house, having wood framing, brick veneer siding, a composition shingle roof, and a pier and beam foundation. We understand the age of the structure to be 4 to 5 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

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

The underside of the building was viewed from the crawlspace access opening at the closet below the stairs, and some portions were not accessible or visible due to obstructions, electrical wiring, piping, and/or limitations of space. Although there was no evidence of damage, possible wood rot, termite damage, and/or other deterioration could exist in some of the areas that could not be seen.

II. FOUNDATION DATA

A. FOUNDATION OPINION

There is evidence that the foundation of this building has experienced differential settlement that is considered much more than normal. As a result of differential settlement, some structural deflections have occurred in the structure of the building. Based on out-of-levelness of the foundation, repair is recommended. Due to its abnormal condition, I recommend that you consult with qualified foundation repair contractors to determine the extent and cost of repairs required.

Due to the large tree growing in the front yard and the probability it is having an effect on the performance of the building's foundation, the installation of root barriers between the tree and the building is recommended. Consideration should also be given to installation of a watering system to maintain the moisture content of the soil at the foundation at a constant level to help reduce the potential for additional differential settlement in the future.

Differential settlement 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.

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1. Drainage at the perimeter of the foundation, which can have an effect on the rate of differential settlement in a building foundation, was generally good around the foundation of this building. The grading of the soil should be maintained so that water does not stand or run alongside the foundation during or immediately after rains. The recommendations contained in the attached Foundation Care Information should be implemented to maintain the rate of differential settlement to a minimum.
2. Sheetrock cracks above doors, windows, and in the ceiling, usually associated with differential settlement in a building foundation, were slightly more than normal in number and/or degree. The more significant cracks were observed in the following locations: in the entry foyer at the entry to the living room, at the entry to the den, and at the entry to the dining room; in the dining room at the entry to the foyer and at the entry to the butler's pantry; in the butler's pantry at the ceiling; in the kitchen at the wall adjacent to the butler's pantry; in the dinette at the corners near the windows and at the ceiling over the entry to the kitchen; in the den at the sheetrock corners at the kitchen bar, at the stairs, at the fireplace, in the ceiling at the stairs, and in the wall at the entry to the foyer; in the master bathroom at the entry to the west closet; in the northeast bedroom at the closet; and in the living room at the north end of the bookshelf and at the window.
3. There was evidence of shearing between wall and ceiling or between adjacent walls, as indicated by rippling of the sheetrock paper along the corner joints, which is caused by relative movement between the adjacent surfaces. The evidence of shearing was observed in the following locations: in the utility room.
4. Out-of-levelness of door tops, window sills, built-in furniture and other horizontal surfaces was much more than normal, with the more noticeable areas being in the following locations: at the door top between the dining room and butler's pantry and at the door top at the west closet at the master bathroom.
5. The floors inside the building were determined to slope in the kitchen south of the island to the south, in the butler's pantry to the east, in the master bedroom to the south, and in the northeast bedroom to the southwest. This slope is believed to be related to differential settlement of the building foundation.
6. Some cracks were observed in the exterior brick veneer. The degree was slightly more than normally observed for structures in this age group. Locations included: along the west side of the building adjacent to the dining room at the windows; at the south side of the building at the windows of the dining room and the southwest bedroom; at the east side of the building at the exterior of the living room and at the den adjacent to the fireplace; and at the north side of the dinette at the windows and at the den windows at the porch.

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7. The widest crack observed in the brick veneer was at the den windows at the porch and at the south side of the southwest bedroom. This is indicative of differential settlement in the foundation.
8. Small cracks exist in almost all foundation concrete due to the nature of concrete curing. Although none were seen, this foundation is probably no exception.
9. 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 west side of the kitchen.
10. The corner was chipped off the concrete grade beam of the foundation at the southwest corner of the building and at the southeast corner of the building, which is usually caused by differential settlement that has caused shearing between the brick veneer and the concrete grade beam. The chipped corner(s) indicate differential settlement but do not affect the performance of the foundation.
11. Separations or differential movement of materials were observed. The degree of separation observed was more than normal. The locations included between: the brick veneer and the foundation, the concrete drive and the foundation, the picture molding and the wall and/or ceiling, the utility room cabinets and the ceilings and/or walls, the walls and adjacent walls, the dinette door facing and the wall at the exit, the fireplace mantel and the wall, the door casing and the floor at the dining room entry to the butler's pantry, the window frames and sheetrock casings, and at the joints at the corners of door and window facings.
12. Doors which dragged or stuck at the bottom or top, usually an indication of differential settlement in the building foundation, were observed, including: at the master bedroom west closet and at the entry to the master bedroom.
13. Doors which would not latch due to misalignment of striker plate and locking mechanism were observed, including: in the butler's pantry, in the master bathroom at the east closet, and at the southwest bedroom bathroom.
14. Open grout joints in the ceramic tile were observed, including: at several locations in the kitchen back splash and at the bedroom bathroom. These open joints are usually an indication of differential settlement.
15. Doors with tapered gaps between the door and door casing at the top, indicating differential settlement in the foundation of the building, were observed, including: at the butler's pantry, at the dinette exit, at the master bathroom closet, and at the southwest bedroom bathroom.

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16. 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 settlement, which can result in the need for foundation repair.
17. It was observed that some separation is occurring between the soil and the foundation of the building. This would indicate that the soil is becoming dry and shrinking, which can have a detrimental effect on the performance of the building foundation. Because of the indicated dryness of the soil around the building, soaker hoses should be used around the entire perimeter of the building, which will cause the soil to expand. Any delay in applying water to the soil around the perimeter of the building can result in additional sheetrock cracks and other evidences and consequences of foundation movement.
18. The most significant area of differential settlement was determined to be at the front of the building toward the center portion of the area of the stairs. The evidences and/or consequences of differential settlement pointed out in the report lead to this conclusion.
19. There was a significant separation between the concrete drive and the foundation. It is recommended that this joint be filled with expansion joint material to reduce the potential for excessive water entry which could affect the performance of the drive.
20. Sheetrock corner trim was separating at many locations in the house, including at the den fireplace, at the wall between the stairs and kitchen bar, and at the entry hall. This is attributed to differential settlement in the building's foundation.
21. The rear porch sloped toward the interior of the building with evidence water stands on the porch. It was not determined if this was related to differential settlement in the foundation toward the front of the building, but it could be related.
22. The brick was pulled away slightly from the frieze molding at the north side of the master bedroom. This can occur as a result of settlement toward the center of the building and is believed to be related to differential settlement.
23. Loose tiles were noted in the floor at the master bathroom adjacent to the lavatory. This is probably as a result of differential settlement in the building's foundation causing some deflections in the structure causing the tile to become loose.
24. Some of the vertical bracing to the ridge in the attic appeared to have some separation between the top of the bracing and the ridge beam. This

is common when differential settlement occurs toward the center of the building and is most often attributed to differential settlement.

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25. Soil at the crawlspace near the access opening was very dry, with large cracks. It could be observed that the soil had pulled away from some piers around the access opening. This is an indication of the expansive soils supporting the building and may indicate that the tree at the front yard may be having some effect on the moisture conditions in the soil since soil at the crawlspace is often well hydrated.

III. RECOMMENDATIONS

The following recommendations are not to be considered a specific design but guidelines related to releveling and maintaining the foundation. Specific design of a system for foundation releveling and soil grading after repair has been completed should be obtained from companies with the professional expertise in their respective fields. These professionals should be familiar with the requirements for re-leveling and drainage requirements of buildings resting on the highly expansive clay soil in this area.

- A. As with any foundation, if not properly maintained, the evidences and consequences of differential settlement can continue to appear even if repairs have been made to stabilize and return the foundation to a normal condition of levelness. The suggestions and recommendations of the enclosed Foundation Care Information should be implemented as soon as practical after releveling has been completed.
- B. Re-evaluation of the foundation should be made at any time that evidences and consequences of differential settlement become worse or if new ones develop.
- C. Because of the indicated dryness of the soil around the building, soaker hoses should be used around the entire perimeter of the building so that water can be added to the soil and perhaps soaked to the underside of the building. Any delay in applying water to the soil around the perimeter of the building can result in additional sheetrock cracks and other evidences of foundation movement.
- D. 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.
- E. 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.

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

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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:

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

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Attachment



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