

PROFESSIONAL ENGINEERING INSPECTIONS, INC.

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

June 11, 2004

Mrs. Selma Alabama
24 Running Water
Houston, Texas 77017

Dear Mrs. Alabama:

Re: 2094 Huntsville Lane, Houston, Texas

As requested, we are pleased to send you the attached report for the quality of workmanship inspection performed on the above property. The inspection includes: the structure, foundation, roof, load-bearing walls, ceilings, floors, potential and/or existing water penetration, plumbing system (excluding water wells, septic tanks, yard sprinkler systems, or foundation watering systems), electrical power system, heating and cooling equipment, and where applicable, the fireplace, built-in range, ovens, dishwasher, disposal, oven/range exhaust fans, and trash compactor. This inspection specifically excludes any hazardous gases or materials, such as asbestos, radon, etc. A leak test of the gas lines, if desired, should be made by a qualified plumber who has the equipment and time to install a pressure gauge and pressurize the system.

We understand the reason for the inspection was to view and evaluate the quality of workmanship indicated in construction of the house prior to purchase. 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.

Professional Engineering Inspections, Inc. does not warrant or guarantee the continued performance of any property inspected beyond the day of inspection. If an extended warranty is desired, it is available through American Home Shield at 1-800-735-4663.

If the building were to be left unoccupied for an extended period of time, provision should be made to have the yard watered frequently during dry periods.

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
President

EGR/tc
Attachments

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QUALITY INSPECTION REPORT

Mrs. Selma Alabama
2094 Huntsville Lane
Houston, Texas
June 11, 2004

I. INTRODUCTION

A. Property Description

The property inspected is a house, having wood framing, brick veneer and fibrous cement siding, composition shingle roof, and a post-tensioned cable reinforced concrete slab on grade foundation. The structure is new.

B. Purpose

The purpose of this inspection was to make visual on-site observations of the workmanship evident in the construction of the building, which would provide information as to the overall quality of workmanship utilized in the fabrication of the building, with the most significant irregularities being pointed out for your consideration. A list of these observed irregularities and suspected defects is provided. These observations are made to provide a basis for the opinions which will be stated in the body of this report. Most of the observed irregularities will be in need of repair or correction to some extent, but it is suggested that the extent and need for repair be discussed with the general contractor responsible for the construction of the property. This list of anomalies is not claimed to be the complete list of irregularities that exist, but a representative list used to form an opinion as to the quality of workmanship utilized in the building fabrication.

C. Scope

On-site visual observations of evidences of workmanship utilized in fabrication of the building included, but were not necessarily limited to, the following: the building structure, evidences and consequences of differential movement in the building foundation, the roof, finish work at the interior and exterior of the building, site work, mechanical and electrical equipment installation (including the built-in appliances), the insulation, and other aspects of the building fabrication process which have a bearing on the overall quality of the building fabrication. Mechanical and electrical equipment were not operated since they are new and under warranty for an extended period of time. The plumbing was checked and operated where possible. 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.

Inspection for hazardous gases or materials, such as radon or asbestos, or for latent defects in the roof, foundation, or structure, is considered beyond the

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scope of this inspection. This inspector has not been trained to detect such materials, and no tests were performed to discover any latent defects in the foundation, structure, roof, or maintenance of the building that may become evident after the owner takes possession of the building.

II. OPINION

A. Quality of Workmanship

It is my opinion that the quality of workmanship indicated in the fabrication of the building structure, roof, and foundation appears to be equal to the workmanship found in most comparable quality buildings of this area. The workmanship related to the finish work in the building is not considered up to normal standards. This should have no effect on the performance of the building but only on the appearance. The number and degree of observations related to incomplete, improper, or defective workmanship, which are listed in this report, are a basis for this opinion.

B. Significant Exceptions

The following exceptions are some of the more significant of the anomalies noted that have a bearing on my opinion of the quality of workmanship indicated in the building:

1. The column at the rear porch was installed at the wrong location, preventing proper installation of the cornice work around the top of the column. It is recommended that this column be torn down and relocated.
2. The brick veneer installed over the roof of the garage at the front of the building was not installed in accordance with current requirements. This results in the brick resting directly on the surface of the roof and will make reflashing of the roof when future replacement is required more difficult. It is pointed out that this is not an uncommon method of installation of brick by many builders.
3. Nail holes could be observed through the surface of the roof over the front of the garage, and there is a need for replacement of these shingles to prevent leaks in the future.
4. There were no head flashings at the eyebrow sections of roof at the front gables; and at some locations, roof decking was exposed, which can allow water penetration into the building.
5. The tile at the shower enclosure at the master bathroom was uneven and irregular in color. Removal and replacement of the tile at the shower enclosure is recommended to improve its installation and appearance.
6. There was some general unevenness in the concrete floors at the interior of the building, causing some floor slopes. This did not appear to be

affecting the performance of the structure and is an indication of the quality of workmanship in finishing the foundation concrete.

III. OBSERVATIONS

The following observations are not claimed to be all the irregularities that existed during the inspection, but a representative list of observations made that form a basis for the quality of workmanship opinion:

A. FOUNDATION

The foundation has had very little time to demonstrate its performance, but any indications of differential movement will be pointed out below. The method of construction for the foundation cannot be determined through a visual inspection of the type performed.

1. The foundation exhibits some evidence of differential settlement, which is not unusual for even new buildings in this area, due to the highly expansive clay soil on which the foundation rests. Even though there appears to have been some differential settlement, there is no indication of failure at this time. Since the performance of the foundation depends on support from the soil on which it rests, maintenance of the foundation should be in accordance with the guidelines contained in the enclosed Foundation Care information sheet, as this may reduce the rate of differential settlement to a minimum.
2. Several cracks were observed in the concrete floor of the garage. Cracks such as these are not unusual in flat concrete work and can be found in most concrete floors.
3. Sheetrock cracks, usually associated with differential settlement, were observed at the following locations: at the bay window at the master bedroom.
4. The gutter downspouts lacked splashblocks at the southwest side of the garage, at the southeast corner of the house and at the northeast corner of the house. Downspouts without proper splashblocks can result in differential settlement in the building foundation.
5. Differential settlement of building foundations is a common problem in the greater Houston area because of soil and weather conditions. As a building ages, no matter how well it was constructed or what its present condition is, the foundation will probably continue to experience differential movement. Constant care should be taken to help maintain that movement to a minimum. 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. See attached Foundation Care Information sheet for suggestions.

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6. Honeycombing could be observed at the edge of the foundation at the front walk to the porch along the north side of the garage. It is normally desirable to fill honeycomb areas with a non-shrink grout in order to ensure adequate protection for the anchor points of the cable ends. This is generally recommended by the post-tension institute.
7. Tapered gaps could be observed over some doors, including the dinette exit door and the door to the master bathroom water closet. Tapered gaps at the tops of doors are often an indication of differential settlement in the building's foundation; however, due to the age of the structure and the lack of other indications of differential settlement, it is probable that these tapered gaps were built in due to poor workmanship in hanging the doors.
8. The floors at the interior of the building were uneven in some rooms, with noticeable floor slopes. The most noticeable slopes occurred near the outer walls of the building toward the outer walls, with significant areas occurring at the southwest bedroom toward the south wall and at the master bedroom at the bay window toward the outer wall. This appeared to be related to the quality of workmanship in finishing the concrete and was not having an effect on the performance on the structure.

B. STRUCTURE

1. The structural framing of the building was average and similar to other buildings of the same type and size that have been inspected in the area by Professional Engineering Inspections.
2. Miter joints at the roof rafters to the ridge beam joint were not properly cut to rest squarely on the ridge beam sides, with only a small surface bearing on the ridge beam. The rafters tend to split down their length under roof or wind loads
3. Termite vulnerability was observed to be minimal due to the nature of construction of the building; however, infestation is possible in any building in this area.
4. Hurricane straps were not observed in the structural framing at the attic. Hurricane straps are normally required inside the city of Houston and are generally recommended within 80 miles of the coast; however, they are not normally required outside the city in this general area and are not installed by some builders.

C. ROOF

1. The roof surface appeared to be satisfactorily installed with the exception of nail holes through the roof over the garage. Irregularities associated with the roof installation are repairable, and if properly repaired, the roof

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should perform in a normal manner throughout its normal life expectancy if there are no hidden defects in installation or material manufacturing.

2. Most composition shingle roofs have a normal life expectancy of 9 to 18 years in this area, with an average life of 15 years. The life of the roof depends on pitch, color, exposure to chemical fallout, and exposure to the sun. The more reflective colors last longer, and dark roofs usually last from 4 to 6 years less.
3. Roof fasteners had been driven exposed in the skirts of some of the roof jacks. Where the fasteners are exposed, they should be covered with a high quality caulking material to prevent water penetration around the shanks of the fasteners.
4. There were large unrepaired or improperly repaired nail holes left in the roof surface including nail holes through the roof over the garage. All holes should be located and repaired in a permanent manner by a qualified roofer.
5. It appears that the valleys of the roof, formed at points where the various planes meet, were not made of sheet metal. Valleys formed by lacing the shingles tend to wear through faster than the field of the roof. If it is felt that the appearance of the roof is more desirable without the sheet metal valleys, a metal liner below the shingles is suggested.
6. Evidences of current or previous roof leaks were not observed from the interior; however, this does not rule out the possibility of current or previous roof leaks.
7. Brick veneer was resting directly on the surface of the roof over the garage. This makes replacement of the roof more difficult and will make reflashing of the roof more difficult at this location in the future. If the brick were installed in accordance with current code requirements, replacement of the roof in the future, when necessary, would be more easily performed.
8. It appeared roof decking had been cut away at the west ridge for installation of a ridge vent and had been cut too far beyond the ridge vent, allowing a section of the ridge to be flat. This increases the potential for water penetration during blowing rains at this location due the flat surface at the ridge.
9. There was a neoprene seal at a plumbing vent roof jack at the south roof over the area of the utility room that was pushed down around the plumbing vent and will hold water. This is likely to allow water penetration into the building and is in need of repair.

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10. There was a ridge in the roof at the south roof above the area of the water heater flue. This may correspond to a location where there was an irregularity or warping of the roof decking. This did not appear to be affecting the performance of the roof.
11. There were no head flashings installed at the eyebrow roofs installed at the front gables. In at least one location adjacent to the dining room, the roof decking was exposed and is likely to take on water and cause deterioration of the roof decking and structure. Due to the method of installation of the brick over the roof at these locations, the head flashings would normally be expected to be installed under the brick extending over the top surface of the shingles to reduce the potential for water penetration through the roof.

D. APPLIANCES

1. The garage door opener had not been installed at the time of this inspection. Comments concerning its installation could not be included in this report.

E. PLUMBING

1. There was no ready access opening to the heads of the bathtubs, so the drain traps and the plumbing behind the tubs could not be viewed.
2. The fixture finish was chipped at the hall bath tub. It is possible to effectively repair finish damage if expert repairmen are employed to make the repair.
3. There were no overflow drains at the hall bath and the master bath lavatory basins. There is a need for basin overflow drains to prevent water spills if a faucet is left dripping with the basin drain stopper closed. Overflow drains are recommended, even if the code allows the use of basins without them.
4. The hot and cold polarity of the water supplies to the fixtures were not checked because there was no hot water to the fixtures at the time of this inspection.
5. The main sewer drain cleanout was observed to be located at the southwest corner of the building. This cleanout is usually required when the main sewer line to the building becomes clogged.
6. The main sewer drain cleanout was excessively high above the finish grade of the soil. The cleanout should be cut off so that the top is approximately even with the soil surface.

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7. The capacity of the water heating equipment was indicated to have a storage capacity of 40 gallons with a recovery rate of 38 gallons per hour. The size of the water heating equipment appears to be adequate.
8. The draft diverter was loose on the top of the water heater and had been pushed over. This condition will allow combustion gases to be discharged into the garage. The draft diverter should be properly repositioned and secured in place using mechanical fasteners if necessary.
9. The gas meter was located at the southwest corner of the house.
10. The water heater flue escutcheon was loose at the ceiling. The escutcheon should be properly secured in place.
11. There was insulation applied to the water pipe at the top of the water heater near the draft diverter. This insulation should be removed at this location since no flammable materials are to be installed in proximity of the draft diverter.
12. The drain grate installed in the bottom of the shower enclosure at the master bath shower was scarred. This may make it more difficult to clean.
13. The water closets did not appear to be grouted to the floor. Normally, water closets are grouted to the floor to provide a more stable base and to improve their appearance.
14. There appeared to be a seeping leak between the water closet and floor at the master bathroom, as indicated by wetness on the floor around the perimeter of the water closet after it was flushed. This should be further investigated since this may indicate damage to the wax seal between the water closet and floor.
15. There was no drain provided for the catch pan of the water heater to the exterior of the building. It is required that a drain be installed that extends from the catch pan to the exterior of the building to meet current code requirements.
16. There was no full-size vent observed in the surface of the roof. It is normally required that a full-size vent be installed through the roof surface that does not diminish in size from the building drain.

F. AIR CONDITIONING

1. The air conditioning equipment furnace, evaporator coil, and condensing unit should be a matched set to achieve the SEER advertised by the manufacturer. It may very well be that the air conditioning equipment installed is a matched set, but since some contractors install less

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expensive evaporator coils and furnaces than those provided by the condensing unit manufacturer, it is recommended that the match of the equipment be verified. It could not be determined that the equipment was matched from information available at the time of this inspection.

2. The air conditioning equipment consisted of 1 unit/s, having a total capacity of 3.5 tons, which by rule of thumb is sufficient for cooling 1,750 sq. ft. in the Houston area. With some houses having better than average insulation, some installers calculate the most severe heat load on the house and size the equipment to fit the load. The heat load calculations should be obtained from the installer if the air conditioning capacity is less than one ton for each 500 square feet of conditioned air space.
3. The air conditioning is an electrically powered system that will provide cooling controlled by a thermostat located in the house
4. The house is heated by 1 warm air furnace/s, having a total capacity of 88,000 BTU/hr. This is sufficient for heating a house of 1,950 sq. ft. in the Houston area under the most severe weather conditions normally incurred. When some builders use insulation with high R values (values over 30), some installers calculate the maximum heat leak from the house and size the equipment to match the heat loss. If the heating capacity is less than 45 BTU per square foot for the house, the installer should be asked to provide the calculations made to size the equipment.
5. Heating for the building is provided by a gas-fired furnace that also provides air flow for the air conditioning system.
6. The riser on the primary condensate drain line vent was missing. This condition will allow water to run onto the ceiling if a clog occurs in the primary condensate drain. The missing riser should be installed at the drain line to ensure that water will overflow into the emergency catch pan and not onto the ceiling.
7. The condensing unit was not installed level. Leveling of the condensing unit is generally recommended since continued settlement could affect its performance in the future if it were to lean more.

G. ELECTRICAL

1. The capacity of the main circuit breaker was noted to be 125 amps, and the box was noted to not be rated, which is considered adequate for the normal load expected in a building of this size and price.
2. The function of the various circuits was not identified on the circuit breaker box panel. It is necessary that the circuit functions be properly identified.

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3. The electrical service was underground and could not be observed. The service is contained in conduit that protects the wiring from damage.
4. Light fixtures were observed to be missing at the following locations: at the back porch.
5. Electrical outlets were loose in the wall at the following locations: at the hall bathroom. The loose outlets should be firmly secured to the wood framing of the wall.
6. There was no conduit on the electrical power wire located between the wall of the building and the condensing unit. This is considered hazardous since the power wire conducts power at 240 volts.
7. Open junction boxes were observed at the utility room ceiling. All junction boxes should be covered to reduce the possibility of an electrical fire caused by heat generated at a bad junction.
8. The fixture glass was missing at the front porch light. The missing glass pane should be replaced.
9. The light cover was broken at the kitchen and should be replaced.
10. The wrong light fixture had been installed over the master bath tub. A covered-type fixture should be installed at this location in the interest of safety.
11. There was a construction service pole left in the rear yard. This service pole should be removed.

H. FINISH WORK

1. A clothes hangar rod was missing at most closets.
2. The edges of the entry/exit door were not painted or otherwise finished at the closet at the entry to the master bedroom, at the master bedroom bath and at the hall bath closet. The absence of a surface seal can result in premature deterioration of the door finish or of the door itself.
3. Door open stops were missing at several locations including: at the living room. The door knobs may push holes in the sheetrock walls where the stops are missing.
4. Screws were missing at door hinges at the utility room exit to the garage.
5. The finish on walls, cabinets, exterior siding, floors, and other surfaces should be closely observed for defects that are not necessarily included in this report. The cosmetic finish on various parts of the house should conform to the normal industry standard for this area.

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6. The wall finish was rough and scarred at the east wall of the dining room to the kitchen, at the living room exit door adjacent to the casing, at the south wall at the master bedroom, in the ceiling at the water closet at the master bathroom and at the master bathroom adjacent to the tub. Touchup and/or refinishing of the wall may be required.
7. There were non matching patches at the garage wall, at the kitchen pantry, in the ceiling at the kitchen, adjacent to the fireplace at the entertainment center location, and at the magazine rack at the master bathroom water closet. Further inquiry is recommended to determine why the patches exist and the patches should be repaired for improved appearance.
8. The fireplace flue at the living room could not be viewed along its length without special tools. It is recommended that a qualified chimney sweep be employed to check the fireplace system before using it.
9. The fireplace draw was not checked during this inspection because it is outside the scope of the inspection. A qualified chimney sweep should be asked to check the fireplace for draw and proper performance.
10. There was a gap between the top of the fireplace firebox and the face of the fireplace that should be filled with a high temperature grout to prevent sparks from reaching the wood framing of the building.
11. The caulk between the window frames and the brick veneer was missing, pulling apart, or had never been applied around the perimeter of the windows. The joints should be re-caulked.
12. Paint overspray or paint overlap was observed at the kitchen cabinet. Touchup is suggested to obtain a satisfactory appearance.
13. Some of the expansion joints in the brick veneer had not been caulked to limit air infiltration and water penetration. The joints should be caulked with a mastic caulk material that will allow relative movement between the edges of the expansion joints.
14. Flat ledges that extend beyond doors at the same elevation as the floor inside the building create a high potential for water penetration when it rains. Flat ledges were observed in the following locations: at the living room exit.
15. There was no evidence of sheet metal flashings installed above aluminum framed windows mounted in exposed flat siding. Windows installed without the flashings are prone to leak during rains.
16. Scratches were observed at the east window adjacent to the living room exit. The windows at these locations should be replaced. The remainder

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of the windows should be cleaned and examined closely for scratches if they had not been cleaned prior to this inspection.

17. Thermopane or double paned windows were observed. In the past, double paned windows have been a constant problem because of moisture seeping between the panes and causing them to become clouded. This problem may or may not have been overcome.
18. Base molding installed at the hall bathroom extended to the tub rather than allowing the mud cap at the edge of the tile to extend to the floor. This creates a greater potential for wood rot at the base molding at this location.
19. Brick veneer had been installed over the surface of the roof at the garage directly on the surface of the shingles. It did not appear that the brick was installed in accordance with current code requirements since there was no steel angle observed to support the brick off the surface of the roof, and it did not appear that the brick was flashed with a through flashing and weep holes to divert water to the outer surface of the brick. It was not determined if bolt fasteners required at the rafters supporting the brick had been installed since they are not visible after construction. Many builders install brick in this manner, even though it is not the specified method of installation in accordance with code requirements.
20. Cabinet doors were missing at the master bath lavatory cabinetry and should be installed.
21. Fasteners from the door facings extended into the door casing at the southeast bedroom and should be corrected.
22. It appeared that the entry door may not be a solid core door. This was indicated by slight flexing at the surface of the door when it was pressed against and by a hollow ring to the door when rapped on. It is normally expected that a solid core door, such as the one used at the garage, be used at this location for security purposes.
23. Many of the interior door facings were poorly filled prior to painting, creating irregularities and scars in their surfaces, which could be corrected to improve their appearance. Locations included: at the kitchen pantry, at the entry to the master bedroom, at the master bathroom, at the hall bathroom and at the bedrooms.
24. One of the upper cabinet doors dragged the face of the cabinet at the west side of the kitchen and needed to be adjusted to prevent scarring at the cabinet face.
25. Paint could be observed on many of the switch and outlet cover plates. Cleaning of the cover plates is recommended to improve their appearance.

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26. Paint was not observed behind most of the interior door hinges. This occurs because the doors are painted in place, shading the facings behind the door hinges and creating an unsightly appearance.
27. Screws were loose at the bottom of the upper cabinetry in the kitchen adjacent to the range/oven. The screws should be installed in accordance with the manufacturer's requirements to ensure that the cabinetry is secured to the wall.
28. Some of the wood windowsills were not smooth and should be sanded and refinished. The most significant locations included at the dinette and living room, where ridges existed in the sills.
29. Steel lintels had not been painted prior to installation where they exist over door and window openings, including at the overhead garage door. It is desirable for the steel lintels to be painted prior to installation to prevent corrosion from occurring, which can cause discoloration and scaling, possibly causing damage to the brick in the future. At a minimum, the lintels should be painted at this time to improve their appearance and to reduce the potential for corrosion at the exposed areas.
30. The base molding around the perimeter of the rooms was set below the carpeting and tile floors. At the tile floor locations, this created a depression that was holding debris between the tile and the base molding. Typically, the base molding is installed above the surface of the tile floors to prevent this from occurring.
31. The brick veneer was discolored at some locations around the perimeter of the building, where it did not appear that it was uniformly washed. Rewashing of the brick is recommended to achieve a uniform appearance.
32. The column at the rear porch was constructed at the wrong location, leaving a gap between the brick veneer column and the cornice work at the northeast corner of the porch. It is recommended that the column be torn down and replaced.
33. The door casing was scarred at the living room exit to the porch, creating an unsightly appearance. Replacement of the casing is recommended if it cannot be patched satisfactorily.
34. The door facing installation was poor at the entry to the master bathroom, creating irregular and separated joints at the facings. There is a need for repair of this installation to improve the appearance.
35. The door to the back porch was a Masonite-type door. It was indicated by the client that this is understood to have been a fiberglass door, and further inquiry of the builder as to the type of door to be used at this location is recommended.

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36. The downspout at the southeast corner of the building was damaged and was in need of replacement.
37. The fasteners used to secure door casings in place at most of the interior doors were visible in the casings, where they had not been sanded prior to finishing. There is a need to improve the smoothness of the casings in order to improve the appearance.
38. The fit of the door at the kitchen pantry area adjacent to the dinette was poor, where there was an irregular gap around the door in the closed position. This is an indication of quality of workmanship in installing the door.
39. The fit of the striker plate at the entry to the master bathroom was poor, and refitting is recommended.
40. The flashing at the threshold at the main entry door was bent, creating an unsightly appearance.
41. The floors at the interior of the building were noted to be very dirty at the time of this inspection, which prevented a thorough visual inspection in some areas.
42. The kick boards at the base of the cabinetry at the lavatory cabinets and kitchen cabinets stuck out beyond the end of the cabinetry. Normally, these kick boards are considered packing material and are removed prior to installing the decorative facing and corner trim. The cabinet manufacturer should be consulted regarding whether the kick boards are removable or if they are intended to remain in place since this may vary by manufacturer.
43. The living room exit door would not engage the top of the casing properly when closing and should be rehung to prevent energy loss at this location.
44. The main entry door casing bulged out at the center of the casing at the latch. This created an unsightly appearance and made the door latch poorly. This is an indication of the quality of workmanship in fitting the door and casing.
45. The paint surfaces at some of the interior doors, including the master bathroom door, were irregular in appearance and required refinishing.
46. The striker at the main entry door dragged the side of the door, making it difficult to close. Repair of the door is recommended.
47. The texture finish was rough on the opening between the living room and dinette. Retexturing and refinishing at this location is recommended.

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48. The tile floors at the interior of the building had been covered at most locations, preventing a thorough visual inspection as to the condition of the tile flooring.
49. There was a chip in the outer edge of the cultured marble surface between the tub and shower enclosure at the master bathroom that will require patching or replacement.
50. There was a chipped edge at the granite counter at a corner joint that required excessive filling and created an unsightly appearance at the dinette area edge. This should be reviewed by the client to determine if it is acceptable.
51. There was a damaged tile at the kitchen pantry light switch. The tile needed to be replaced because the light switch had to be relocated, requiring modification of the tile.
52. There was a drawer that was not properly fitted flush with the face of the cabinet when closed at the kitchen. The drawer should be adjusted or repaired.
53. There was a hole in the sheetrock ceiling at the air conditioning register in the living room that should be corrected to improve its appearance.
54. There was a large gap at the mantel of the fireplace that should be covered to prevent items placed on the mantel from falling into the hole behind it.
55. There was a nail protruding into the casing at the east living room window that should be repaired to prevent an unsightly appearance or hazard.
56. There was a split picket at the south fence near the entry gate that was in need of replacement.
57. There was no expansion joint at the interface between the brick veneer resting on the roof and the brick veneer resting on the foundation over the garage roof. An expansion joint is normally required at this location.
58. There was no paint at the beveled cut at the bottom of the garage door facing. It is recommended these door facings be six-side primed and painted prior to installation to prevent them from rotting away prematurely.
59. There were gaps and irregularities at the bullnose edge trim used on the corners of the sheetrock, including: at the entry to the dining room from the foyer, at the entry to the dinette from the entry foyer area, at the entry to the living room and at the bay window at the master bedroom.

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Refloating and repainting at these areas is recommended to improve their appearance.

60. There were gaps at the soffit interface to the eyebrow section of roof at the gables at the front of the building where animals can gain access to the attic space. There is a need for repair of the cornice work at these locations to eliminate the openings.
61. There were gaps between the door facings and the foundation at the overhead door at the garage, apparently because the brick extended out further than the stem wall of the foundation.
62. There were holes and scars in the sheetrock above the mirror at the master bath lavatory that should be corrected to improve the appearance of the installation.
63. There were inclusions in the paint finish at the overhead door facing at the entry to the garage. Painting and refinishing of the facings is recommended to improve their appearance.
64. There were large gaps below the rear fence of the building at the north yard. Gaps below the fence could allow animals to leave the yard.
65. There were large gaps between the granite countertop and the tops of the cabinetry at the kitchen and kitchen bar. This created an unsightly appearance when looking at the edge of the cabinetry, which might occur if persons are sitting in chairs in the dining room or dinette.
66. There were non matching tiles used at the shower enclosure at the master bathroom, and tiles were not set at a uniform height, creating a visible irregularity at the back wall of the shower. Removal and replacement of the irregularly installed tiles is recommended.
67. There were numerous open joints in the trim components around the tub and between the sheetrock and tub at the master bathroom that should be corrected to improve the appearance of the installation.
68. Wall paint was incomplete and non matching at many locations throughout the house. It was understood that the finish work was not considered to be complete at the time of this inspection and that the interior of the building was to be repainted to allow for improvement of the paint finishes.

IV. SPECIAL NOTICE

Opinions and comments contained in this report are based on observations of evidences of workmanship employed in construction of the building inspected. Quality standards are based on knowledge gained through experience and professional studies of the inspector. Opinions related to compliance with

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PREPARED BY:

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ER/sl
Attachment



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FOUNDATION CARE INFORMATION

Maintenance Recommendations For Foundations On Expansive Clay Soil

INTRODUCTION

Differential movement of building foundations is a common problem in this area, because of the highly expansive clay soil and changing weather conditions, and costs owners thousands of dollars a year in repair bills. As the building ages, it is probable the foundation will continue to experience differential movement, regardless of how well it was constructed or its present condition. This differential movement does not stop as buildings become older; older structures with a history of minimal differential movement have been known to develop foundation problems in a very short time due to changing conditions at the perimeter of the building foundation.

REASON FOR FOUNDATION PROBLEMS

The primary reason for foundation problems is the highly expansive nature of the clay soil on which the building rests. The clay expands or contracts as its moisture content changes with the weather. Depending on the area, the amount of contraction or shrinkage ranges from minimal to upwards of 65% of the total wet volume. The average amount of shrinkage that can be expected in this region is approximately 35%, with wide variation depending on the location. For example, a sample of water-saturated clay will shrink up to an average of 35% when dried completely. This shrinkage accounts for the large cracks that form in the soil after an extended dry period. The more expansive the clay, the larger the cracks.

EFFECT OF PLANTS ON FOUNDATION PERFORMANCE

Because of the highly expansive nature of the soil, trees and other large plants can significantly contribute to differential settlement of a foundation. The roots of trees and large plants consume the moisture from the soil, causing the soil to shrink much faster than other soil areas exposed to the weather. The soil where the moisture is lost more rapidly will sink lower than the surrounding soil, causing evidences and consequences of differential settlement in building structures. Research studies indicate that a tree should be at least as far away from a building as the mature height of the tree to minimize the effect of drying caused by the tree.

EFFECT OF WET SPOTS AT THE SIDE OF A FOUNDATION

Wet spots caused by dripping faucets, leaking drains, air conditioning condensate drains, leaking water pipes, etc., can cause differential settlement at the location where the soil has been kept wet. The foundation may sink into the soil at a wet area while the soil dries and shrinks at other locations because the drying soil allows the foundation to move downward and overload the wet area.

EFFECT OF POOR DRAINAGE AT THE PERIMETER OF A FOUNDATION

Water standing or running alongside a foundation after rains may cause differential settlement of a foundation. If soil grading is such that water runs alongside a foundation during rains, the water will run under the edge of the foundation and carry away soil supporting the foundation. The effect is much more pronounced if the soil was very dry prior to the beginning of the rain. In addition, if water is allowed to stand alongside a foundation, it will flow below the foundation and dissolve the clay supporting the foundation, carrying it into the cracks that develop in the yard outside the foundation area during extended dry periods. This problem is more severe if the soil in the general area has been very dry, but it is less severe if the soil has been maintained moist.

FOUNDATION CARE
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FOUNDATION MAINTENANCE RECOMMENDATIONS

An owner can significantly reduce the rate of differential settlement by observing the following recommendations:

1. Try to maintain a constant moisture content in the soil around the foundation. Water the soil evenly and around the entire foundation during extended dry periods. This should prevent a gap from opening between the soil and foundation edge. However, if a gap does appear, water frequently (at least daily) around the entire foundation during extended dry periods (6 to 7 days in the summer). Do not apply water directly into the gap. Instead, water 1 to 2 feet away from the foundation edge. Some homeowners choose to install a fully automated foundation watering system to eliminate the need to remember to water. It is best to add water about three times per day to insure that the applied water has time to soak into the soil.
2. Cut and cap the roots of any large trees growing closer to the foundation than the mature height of the trees. The roots from a large tree or several medium size trees can consume more water from the soil than can be added with a watering system. This will limit the consumption of water from the soil below the foundation and may prevent excessive differential settlement and cracks in the structure. It is recommended that a professional tree expert be used to prevent damage to the trees. When a tree grows too close to a building to allow cutting and capping of the roots, it is advisable to remove the tree or make special provision for watering the soil below the foundation.
3. Properly grade the soil by filling in low spots and leveling off high spots adjacent to the foundation so that the surface of the soil slopes gradually away from the building. A recommended slope is 1 inch per foot for a distance of 3 to 4 feet from the foundation.
4. Control roof water runoff and help prevent soil erosion by using a gutter and downspout system. This is especially important if a building has no eaves which overhang the walls or if the eaves are less than 1 foot wide.
5. Water trees and shrubs growing near a building during extended dry periods as they cause shrinking of the soil due to their high water consumption. Keep in mind that moderate to large trees consume 50 to 75 gallons of water from the soil every day.

SUMMARY

Remember: the intent of foundation maintenance is to maintain a constant moisture content in the soil around and below the entire foundation and to prevent soil erosion that can result from water flowing off the roof or other large flat surfaces near the building.

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1. There was no head flashing at the eyebrow section of roof at the front gables, including at the front of the garage. Additionally there were large gaps in the cornice work, which can allow animals access to the building.

2. Brick siding was resting directly on the surface of the roof over the garage. This can make replacement and reflashing of the roof more difficult.



3. Floor tiles were installed above the surface of the base molding. This created a depression with the tile around the perimeter of the rooms, which held dirt.



- 4. There was an unsightly gap between the granite counter and the cabinet at the kitchen.

- 5. There was an unsightly gap between the granite counter and the cabinet at the dinette.



- 6. The column at the northeast corner of the rear porch was improperly located and needs to be removed and replaced in the correct position.





7. There was a neoprene seal that was improperly positioned over the utility room. This seal will hold water and leak in the future.

8. Roof decking was visible over the eyebrow roof at the front of the dining room due to the lack of a properly installed head flashing and roofing felt.



9. Nail holes existed in the roof over the north side of the garage, which will leak. These shingles should be replaced.