

**PROFESSIONAL ENGINEERING INSPECTIONS, INC.**

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

November 31, 2002

Mr. Sam Sample  
6138 Mesa Dr.  
Houston, Texas 77072

Dear Mr. Sample:

Re: 4321 Blastoff Lane, Lazy, Texas

As requested, we are pleased to send you the attached reports for the structural, mechanical, and electrical inspections 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 inspections to be pursuant to a pre-purchase contract for the property. This property may have many positive qualities, but this report generally includes comments that relate to defects or irregularities. As pointed out in the stated purpose of the reports, 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.

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/sl  
Attachments

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STRUCTURAL INSPECTION REPORT

Mr. Sam Sample  
4321 Blastoff Lane  
Lazy, Texas  
November 31, 2002

This report is divided into two sections: an opinions section and an observations section. The opinions section is intended to provide an opinion of the building foundation performance, the condition of the roof, the structural performance, and the general status of need for maintenance as compared to other buildings of similar age. The observations section is an attachment intended to provide a list of observations and/or considerations which provide a basis for the opinions stated in section one.

I. INTRODUCTION

A. Property Description

The property inspected is a house, having wood framing, brick veneer siding, a composition shingle roof, and a post-tensioned cable reinforced concrete slab on grade foundation. It is understood that the age of the structure is 3 years.

B. Purpose

This inspection was to evaluate the condition of the foundation, roof, and structure of the building in order to provide information related to their condition and an opinion as to whether they are in need of repair. The data obtained and included in this report will provide insight into the overall condition of the property and information that will assist in maintaining it in the best possible condition during future years. Some of the comments contained in the observations attachment to 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 those portions of the foundation, roof, and structural components readily visible without moving or removing items causing visual obstruction. Observations were made at the exterior and interior of the structure, including the attic from the readily accessible interior and the roof from the surface. The items listed in the observations attachment are not claimed to be a total list of problems or defects, but rather a representative list of items on which the stated opinions are based. Estimates of repairs should be obtained from a building contractor who can determine the extent of repairs necessary. There is no warranty implied nor stated as a part of Professional Engineering Inspections, Inc. performing this inspection work. 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. If a third person chooses to use this information, caution is advised because there may be addendums that affect the information contained herein or the stated opinion.

## STRUCTURAL SAMPLE

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

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 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 taking possession of the building.

The photographs included in the photo attachment to this report and referenced by some items in the report are only intended to provide a general representation of the condition discussed in the referencing paragraph. The referenced photographs do not necessarily represent all locations where described conditions exist and such should not be assumed. Photographs are taken at the discretion of the inspector and are not provided for all irregularities observed during the inspection or included in this report.

### II. FOUNDATION OPINION

The evidences and consequences of differential settlement observed and/or detected indicate that the foundation of this building has experienced minimal differential settlement. No observations were made that would indicate that the foundation is in need of repair.

Differential settlement of building foundations is a common problem in this area because of the expansive clay soil and changing weather conditions. As a building resting on the 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.

### III. ROOF OPINION

The roof was inspected to provide information as to its general condition and an opinion as to whether or not it is serviceable. A serviceable roof may leak but it is repairable.

The composition shingle roof appeared to be in good/serviceable condition and should have normal years of useful life remaining for a roof of its type. There was a need for some maintenance as indicated in the observations attachment.

STRUCTURAL  
SAMPLE

IV. STRUCTURE OPINION

Some minor framing irregularities were observed that should have no significant effect on the performance of the building. There were no observations made that would indicate that the basic structure of the building, including load-bearing walls and other framing members, was in need of repair or was not performing adequately at the time of inspection.

V. DEFERRED MAINTENANCE

The number and/or degree of deferred maintenance observations were generally normal for a building of this age. Deferred maintenance is defined as the need for immediate maintenance related to drainage, water penetration, rotted wood, need for paint, etc.

VI. SPECIAL NOTICE

Opinions and comments contained in this report are based on observations made at the time of inspection. The observations contained in the attachment are to be considered a part of this inspection in order that the reader be aware of the items observed or considered that provided a basis for the opinions expressed above. 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. There is no guarantee or warranty as to future performance, life, and/or need for repair of any item inspected, nor should same be assumed.

PREPARED BY:

Edward Robinson  
Registered Professional Engineering Lic# 87035

ER/sl  
Attachment



*This document is for Sample purposes only. This is not an engineering document and thus has not been signed.*

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OBSERVATIONS/RECOMMENDATIONS ATTACHMENT

Mr. Sam Sample  
4321 Blastoff Lane  
Lazy, Texas  
November 31, 2002

This attachment, which provides a basis for the opinions stated in the body of the report, is to be considered a part of the inspection report. 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.

FOUNDATION

1. Drainage at the perimeter of the building foundation, which can have an effect on the rate of differential settlement of the foundation, was poor at a portion of the perimeter, where it appears that water stands or runs alongside the foundation during or immediately after rains. The more significant locations included: along the south side of the building at the dining room flowerbed. The recommendations contained in the attached foundation care information should be implemented to maintain the rate of differential settlement to a minimum.
2. The sheetrock floating material had popped off the heads of the nails at the master bathroom ceiling. This sometimes happens when there is foundation movement causing the sheetrock to shear against the wood framing of the building.
3. Sheetrock cracks above doors, windows, and in the ceiling, usually associated with differential settlement, were observed in the following locations: in the hall bathroom at the window; in the master bathroom in the ceiling over the tub and at the coffered ceiling; and in the garage in the ceiling at the attic access.
4. Out-of-levelness of door tops, window sills, built-in furniture, and other horizontal surfaces was normal and acceptable in degree.
5. Cracks in the exterior brick veneer were minimal in number and degree.
6. No significant cracks were observed in the floor concrete, but small cracks probably exist since cracks exist in almost all concrete due to its nature. Small or moderate cracks that may exist in the concrete floors below carpeting or other floor coverings would have no bearing on the inspector's opinion of the foundation performance.
7. The most significant concern related to cracks in the foundation concrete is the possibility of wood destroying insects entering the building through the cracks. Termites have been known to enter a building through floor cracks.

## STRUCTURAL OBSERVATIONS SAMPLE

8. The corner was chipped off the concrete grade beam of the foundation at the southeast corner at the garage and at the northeast corner at the north bedroom, which is usually caused by differential settlement that has caused shearing between the brick veneer and the concrete grade beam. Chipped corners indicate foundation differential settlement, but there is no need for foundation repair because of the chipped corner.
9. 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 entry door.
10. 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 entry door.
11. Small trees were observed close to the building that are having little or no effect on the performance of the building foundation at the present time; however, the trees may have an increasing, detrimental effect as they become larger. The trees should be at least their mature height from the building, or root barriers should be installed between the trees and the building.
12. Because the building is believed to be resting on expansive soil which exists in this area, it is recommended that an automatic watering system be installed to maintain a uniform moisture content in the soil. Maintaining a uniform moisture content in the soil will prevent it from shrinking and causing cracks to develop in the walls, floors, and siding.

## ROOF

1. 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. We understand the age of the composition shingle roof to be 3 years.
2. 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.
3. Nail holes could be observed through the composition shingles at some locations at the roof, including over the area of the bay windows at the dining room. Nail holes should be identified at the roof and repaired by replacing the shingles due to the young age of the roof to prevent water penetration through the roof at these locations. This appears to be a builder's defect caused during installation of the roof or surrounding finish work. Reference Photograph 1
4. Nails were driven exposed through the composition shingles at locations, including over the area of the dining room. This creates a potential for leaks to occur through the roof and should be repaired. Reference Photograph 2

## STRUCTURAL OBSERVATIONS SAMPLE

5. Edge dams had been installed along the lower edges of the roof over the condensing unit and over the rear porch. The fasteners used to secure the edge dams in place were driven exposed, creating a greater potential for leaks to occur around the fastener locations. It is generally more desirable to use gutters for this purpose than to use edge dams since debris and water can build up at the edge dams, increasing the potential for water entry. Reference Photograph 3
6. Ridge shingles were damaged at the southwest ridge, where it appeared that they were cut through, probably during installation of the roof. The damaged shingles should be replaced to reduce the potential for further damage to the ridge during high winds. Reference Photograph 4
7. Sealant was applied to the sides of the water heater roof jack. When properly laced, the sealant should not be necessary. As the sealant deteriorates, there may be a greater potential for leaks during blowing rains if not properly laced.
8. Not all areas of the composition shingle roof were directly walked due to its steep pitch and rainy conditions at the time of this inspection.

## BUILDING STRUCTURE

1. Wood-destroying insect 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 so a pest control expert should be asked to inspect the property.
2. Investigation of the building for termite infestation or damage was not the intent of this inspection. It is recommended that an inspection be performed by a licensed pest control inspector, who can determine the possibility of termite infestation and/or damage. It is possible that termite infestation and/or damage exist in the building that are not apparent and cannot be detected without removal of wall covering and/or siding.
3. Ceiling joists over the front porch were cut through for installation of the light fixture. The ceiling appeared to be performing satisfactorily; however, cut joists are normally crippled to the adjacent joist to reduce the potential for sagging. Reference Photograph 5
4. Nails used to secure the roof decking to the roof rafters missed the rafters at some locations, with the most significant areas occurring at the south roof, although this condition existed at random locations. This can reduce the roof's resistance to wind load if additional fasteners were not added during installation to properly engage the framing. Decking at the south roof over the area of the dining room appeared to be slightly loose to the rafter, indicating additional fasteners may not have been installed. This can be repaired when the roof is replaced the next time. Reference Photograph 6
5. Roof decking was slightly uneven at some locations, including over the attic access opening. Misalignment of the decking can cause ridges to occur in

## STRUCTURAL OBSERVATIONS SAMPLE

the roof and sometimes occurs due to poor spacing during installation of the deck. Reference Photograph 7

6. Hurricane clips appeared to have been installed at the joints in some of the framing members at the attic space; however, it is usually not possible to determine if hurricane strapping or other wind load reinforcement is properly installed after construction is completed.

## MAINTENANCE

1. Because the eaves that overhang the walls of the house are very small, or do not exist, it is recommended that gutters and down spouts be maintained or installed at all draining surfaces of the roof. This can prevent an undesirable rate of differential settlement of the building foundation.
2. The attic insulation was observed to be missing or out of place at the study ceiling and vertical walls at the living room, which can result in loss of energy. The insulation should be replaced. Reference Photograph 8
3. Thermopane or double pane insulated windows in the building are very prone to cloud in this area because of moisture accumulation between the panes.
4. The weather stripping was noted to be damaged or missing at the entry door, at the garage and at the living room exit, which is a source of energy loss because of air infiltration.
5. There was evidence of animal access in the attic space, where the animals may have gained access through gaps at the soffits. This was indicated by trails through the insulation. Reference Photograph 9
6. Larger than normal gaps could be observed between the soffit, fascia and roof at some locations, including at the south roof around the area of the dining room gable and at the north roof at the living room gable. Refitting of the cornice work is necessary so that it is in contact or very near contacting the roof surface so that animals cannot nest in the soffits or gain access to the attic. Reference Photograph 10
7. The threshold flashing at the entry door tips up along its outer edge. During blowing rains, this may allow water to be held against the threshold and increases the potential for water penetration.
8. The counterbalance mechanism was loose at the dining room window. Repair of the window at this location is recommended.
9. Insulation in the attic space was observed to be approximately 12 inches of blown fiberglass-type insulation.

## **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  
PROFESSIONAL ENGINEERING INSPECTIONS

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.

Edward Robinson  
Registered Professional Engineer, #87035  
PROFESSIONAL ENGINEERING INSPECTIONS, INC.  
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1. Nail holes could be observed through the composition shingles at some locations at the roof, including over the area of the bay windows at the dining room. Nail holes should be identified at the roof and repaired by replacing the shingles due to the young age of the roof to prevent water penetration through the roof at these locations.

2. Nails were driven exposed through the composition shingles at locations, including over the area of the dining room. This creates a potential for leaks to occur through the roof and should be repaired.



3. Edge dams had been installed along the lower edges of the roof over the condensing unit and over the rear porch. The fasteners used to secure the edge dams in place were driven exposed, creating a greater potential for leaks to occur around the fastener locations.

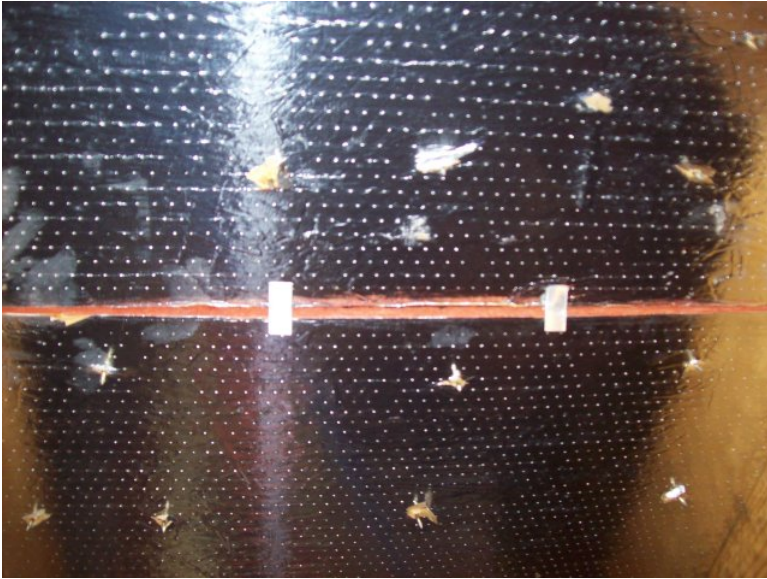


- 4. Ridge shingles were damaged at the southwest ridge, where it appeared that they were cut through, probably during installation of the roof. The damaged shingles should be replaced to reduce the potential for further damage to the ridge during high winds.

- 5. Ceiling joists over the front porch were cut through for installation of the light fixture. The ceiling appeared to be performing satisfactorily; however, cut joists are normally crippled to the adjacent joist to reduce the potential for sagging.



- 6. Nails used to secure the roof decking to the roof rafters missed the rafters at some locations, with the most significant areas occurring at the south roof, although this condition existed at random locations.



- 7. Roof decking was slightly uneven at some locations, including over the attic access opening. Misalignment of the decking can cause ridges to occur in the roof and sometimes occurs due to poor spacing during installation of the deck.

- 8. The attic insulation was observed to be missing or out of place at the study ceiling and vertical walls at the living room, which can result in loss of energy.



- 9. There was evidence of animal access in the attic space, where the animals may have gained access through gaps at the soffits. This was indicated by trails through the insulation.





10. Larger than normal gaps could be observed between the soffit, fascia and roof at some locations, including at the south roof around the area of the dining room gable and at the north roof at the living room gable. Refitting of the cornice work is necessary so that it is in contact or very near contacting the roof surface so that animals cannot nest in the soffits or gain access to the attic.

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MECHANICAL INSPECTION REPORT

Mr. Sam Sample

4321 Blastoff Lane

Lazy, Texas

November 31, 2002

I. SUMMARY OF INSPECTION

The following summary lists the specific equipment inspected (and only the equipment inspected) and indicates an opinion of the status of the equipment at the time of the inspection.

EQUIPMENT INSPECTION SUMMARY		
FUNCTIONAL	REPAIR	ITEM
(X)	( )	Dishwasher
(X)	( )	Disposal
( )	(X)	Range Vent Hood
INFORMATION		Free-Standing Oven/Range
(X)	( )	Microwave Oven
( )	(X)	Fireplace
( )	(X)	Plumbing
INFORMATION		Water Heater
INFORMATION		Air Conditioning
( )	(X)	Furnace
( )	(X)	Garage Door Opener
(X)	( )	Smoke Detector
(X)	( )	Ceiling Fans

II. INTRODUCTION

A. Description of Property Inspected

The equipment inspected included the built-in appliances, visible plumbing, air conditioning, and heating of the building located at the above address.

MECHANICAL  
SAMPLE

B. Purpose

The purpose of this inspection was to visually inspect and operate the equipment listed above to observe and provide an opinion of any deficiencies apparent at the time of the inspection.

C. Scope

The scope of this inspection included visual observations of the above listed mechanical equipment and appliances without disassembly of any unit inspected and without removing items causing visual obstruction. The functional equipment was operated in at least one mode, but not necessarily every mode, suited to demonstrate its condition. All the comments and information provided in this report are strictly opinions and may not necessarily agree with other professionals. Items which are not listed in this report were not inspected and should not be assumed to be functional or nonfunctional.

The photographs included in the photo attachment to this report and referenced by some items in the report are only intended to provide a general representation of the condition discussed in the referencing paragraph. The referenced photographs do not necessarily represent all locations where described conditions exist and such should not be assumed. Photographs are taken at the discretion of the inspector and are not provided for all irregularities observed during the inspection or included in this report.

III. OBSERVATIONS

A. RANGE VENT HOOD

1. The vent pipe was leaking or venting into the cabinet above the vent hood. Since smoke, grease, and odors will collect in the cabinet, the vent pipe should be properly routed. \$30.00
2. There was evidence of an air leak between the microwave oven range vent assembly and the underside of the cabinet, indicating that the vent flue connection to the top of the range vent was not properly made. \$50.00

B. FREE STANDING RANGE\OVEN

1. The oven temperature was measured to be 363 degrees Fahrenheit when the thermostat knob was set for 350 degrees Fahrenheit. The Texas Real Estate Commission recommends that the thermostat should be repaired and/or calibrated if the measured temperature varies more than 25 degrees Fahrenheit from the selected temperature. It is pointed out that many oven manufactures do not observe this calibration criteria, allowing up to 50 degrees Fahrenheit variation.

C. FIREPLACE

1. The fireplace draw was not checked during this inspection because there was no fire in the firebox. A qualified chimney sweep should be asked to check the fireplace for draw and proper performance. (Information)

MECHANICAL  
SAMPLE

2. A gap could be observed between the face of the fireplace and the front edge of the firebox at the interior of the fireplace. This gap should be grouted to prevent sparks from reaching the wood framing of the building. \$25.00
3. There was no evidence that the fireplace had ever been used so there was no way to judge whether or not the flue draws satisfactorily or to evaluate the performance of the fireplace. (Information)
4. There was no way to see up the fireplace flue without special equipment because of the way it was constructed. If the fireplace is to be used as a wood-burning fireplace, it would be advisable to have a chimney sweep inspect the flue; he will have tools that allow him to see up the flue to determine that it is in good operating condition. (Information)
5. The gas log lighter valve handle was observed to be missing. \$10.00

D. PLUMBING

Miscellaneous Plumbing

1. Where visible water distribution plumbing was observed to be fabricated from PEX. The drain plumbing was fabricated from PVC, and the vent plumbing was fabricated from PVC. (Information)
2. The main water service shutoff valve was located at the west wall of the garage. (Information)
3. The main gas service shutoff valve was located at the east wall of the garage. (Information)
4. The main sewer cleanout was observed to be located at the south side of the garage adjacent to the driveway. This cleanout is usually required when the main sewer line to the building becomes clogged. (Information)
5. Water inlet lines to the building should be insulated to prevent them from freezing during the winter. (Information)
6. The sprinkler anti-siphon device should be tested by a qualified plumber to ensure that it operates properly. \$60.00
7. The manifold control for the PEX water distribution system was located at the north wall of the garage. This is the location where individual fixtures can be controlled in order to turn them on and off for servicing or repair. Reference Photograph 1

Utility Room/Area

8. There was no gas outlet provided for connecting a gas-fired clothes dryer. (Information)

MECHANICAL  
SAMPLE

9. There was an access opening cover installed below the washing machine connections on the wall near the floor in the utility room. It was not determined what the cover was protecting, and further investigation would require removal of the cover. (Information) Reference Photograph 2

Kitchen Sink

10. The spray head was clogged at the kitchen sink spigot assembly. \$150.00

Bathroom (master)

11. There was no overflow drain at the lavatory basin. Lavatory basins without overflow drains can overflow to the floor if the faucets drip and the drain stoppers are closed. (Information)
12. There was no visible access to observe or service the pump and the plumbing of the whirlpool tub. Further inquiry should be made of the current owner of the property as to the method of access when inspection and servicing is necessary. (Information)
13. The drain trap area at the head of the bath tub was not inspected due to lack of ready access. (Information)
14. Due to potential health hazards associated with improperly cleaned whirlpool tubs and the difficulty in cleaning the plumbing in the whirlpool tub system, it is recommended that the whirlpool tub be cleaned by a qualified cleaning company who can ensure that all aspects of the plumbing system are sanitary. It is further recommended that a cleaning schedule be determined to prevent the possibility of future health problems with normal use. Additional information on the dangers of improperly cleaned whirlpool tubs may be obtained from Professional Engineering Inspections upon request. (Information)
15. The drainstopper for the tub could be pulled off of its mount, indicating that it is in need of repair. \$40.00
16. There was a loose screw at the escutcheon cover at the shower faucet control valve. \$15.00

Bathroom (hall)

17. There was no overflow drain at the lavatory basin. Lavatory basins without overflow drains can overflow to the floor if the faucets drip and the drain stoppers are closed. (Information)
18. The drain trap area at the head of the bath tub was not inspected due to lack of ready access. (Information)

MECHANICAL  
SAMPLE

19. Water was overflowing into the water tank standpipe when the tank top was removed, indicating a defective seat in the ballcock or a need for adjustment of the water level control mechanism. \$35.00

Water Heater

20. Hot water for the building is provided by a gas-fired water heater. (Information)
21. There was attic insulation in the catch pan. This should be removed to prevent clogging of the drain line. (Information)

E. AIR CONDITIONING

1. The electric air conditioner has a capacity of 3.5 tons and will ordinarily cool a building of approximately 1,750 sq. ft. (Information)

F. FURNACE

1. Heating for the building is provided by a gas-fired furnace. (Information)
2. The heat exchanger of the type furnace inspected could not be checked by visual examination. For a definitive condition of the heat exchanger, the furnace would have to be disassembled. If further investigation is desired, it is recommended that a qualified service company be employed to inspect the heat exchanger. \$100.00 (If a crack is found in the heat exchanger, the cost would be approximately \$800.00 - \$1,200.00.)
3. The junction box at the furnace assembly was open inside the case. The cover should be installed. \$15.00

G. GARAGE DOOR OPENER

1. The remote controls for the garage door opener were not available at the time of this inspection. The performance could not be verified. The remote controls should be obtained from the current owner, who can demonstrate that the units are functional. (Information)
2. The garage door would not stop and reverse under a four pound load, which could be hazardous to small children. \$45.00

IV. SPECIAL NOTICE

Estimates for repair are provided as a courtesy and are only approximate. These prices are based on the assumption that other services are being performed at the same time; that is, no service charges are included. They are not bids for performance of work. It is recommended that the need for repair, scope of work, and cost be confirmed by a qualified service company. Opinions and comments stated in this report are based solely on observations of apparent performance. Opinions

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related to compliance with specifications, legal and/or code requirements of any kind are specifically excluded as being covered in our agreement to perform this inspection. No guarantee or warranty as to future life, performance and/or need for repair of any item inspected is intended nor should same be assumed.

Prepared by

Edward Robinson  
Licensed Professional Engineer 87035

ER/sl  
Attachments



1. The manifold control for the PEX water distribution system was located at the north wall of the garage. This is the location where individual fixtures can be controlled in order to turn them on and off for servicing or repair.

2. There was an access opening cover installed below the washing machine connections on the wall near the floor in the utility room. It was not determined what the cover was protecting, and further investigation would require removal of the cover.



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ELECTRICAL INSPECTION REPORT

Mr. Sam Sample

4321 Blastoff Lane

Lazy, Texas

November 31, 2002

I. INSPECTION SUMMARY

The following summary lists the equipment inspected (and the only equipment inspected) and indicates the status of the equipment at the time of the inspection.

INSPECTION SUMMARY		
FUNCTIONAL	REPAIR	ITEM
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ground Check
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Light Switches
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Wall Outlets
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Light Fixtures
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Visible Wiring
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Breaker Panel Box
		INFORMATION
		Electrical Service
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other

Resistance or visual ground check was performed on the following items and their condition was as follows:

GROUND CHECK SUMMARY		
GROUNDING	NOT GROUNDING	ITEM
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ground Rod
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Outlets
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Furnace
<input checked="" type="checkbox"/>	<input type="checkbox"/>	A/C Condensing Unit
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Disposal
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Dishwasher
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Range Top

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(X)	( )	Range Vent Hood
(X)	( )	Oven
(X)	( )	Microwave Oven

II. INTRODUCTION

A. Description of Property

The property inspected consisted of the visible electrical wiring, circuit breakers, light fixtures, electrical outlets, light switches, and visible wiring connections to the appliances. Only those specific components of the electrical system listed above in the equipment status summary were inspected.

B. Purpose

The purpose of the inspection was to observe and point out visually apparent deficiencies in the electrical wiring and equipment at the time of the inspection and to determine if it is performing the function for which it was intended. A cursory evaluation was made to determine the adequacy of the capacity. There was no intent to closely examine and evaluate each of the primary or branch circuits. As a courtesy, for the purpose of planning only, a range of repair cost will be provided.

C. Scope

The scope of the inspection included visual observations of the electrical wiring, the main circuit breaker box, the visible wiring at the attic, and connections to the electrical appliances. Observations were made at the readily accessible light switches and electrical outlets. The switches were operated to determine whether or not they were mechanically functional. The readily accessible outlets were checked with a plug-in circuit analyzer to determine if they were properly wired. Only those items accessible without moving furniture, access covers, or other items were observed. It is specifically pointed out that routing of circuitry, adequacy of wiring, and/or compliance with electrical codes are not included as a part of this cursory inspection. Estimated cost of repair is provided for planning purposes only and may vary significantly, depending on the extent of the problem and the method by which repairs are made. If in-depth information is desired on the electrical system or any part thereof, it is recommended that you consult with a licensed electrician.

The photographs included in the photo attachment to this report and referenced by some items in the report are only intended to provide a general representation of the condition discussed in the referencing paragraph. The referenced photographs do not necessarily represent all locations where described conditions exist and such should not be assumed. Photographs are taken at the discretion of the inspector and are not provided for all irregularities observed during the inspection or included in this report.

III. OBSERVATIONS

The following observations are indicative of the type irregularities observed during the course of the cursory electrical inspection. There may be other irregularities that exist but were not apparent and were not pointed out because they could not be seen.

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A. Improper Grounding

Those items which are indicated as needing repair under this portion of the inspection should be provided with a positive earth ground or otherwise repaired to prevent the possibility of electrical shock to anyone who may use the equipment.

1. The earth ground was not connected or was loose from the ground rod that provides a ground for the breaker panel box. \$20.00 Reference Photograph 1

B. Outlets

Some outlets may not have been observed because of location or obstructions, such as stored items or furniture.

1. Outlet cover plate retaining screws were observed to be missing in the following locations: at the kitchen. \$1.00 per location

C. Light Fixtures

Some light fixtures may not have been observed because of location or obstructions, such as stored items or furniture.

1. Recessed light fixtures were observed to be covered or partially covered with insulation at the attic space. The space around the light fixtures should be cleared to comply with the manufacturer's recommended clearance to allow for proper cooling to reduce the risk of a fire hazard. \$15.00 per location

D. Breaker Panel Box

1. No bonding strap was observed at the breaker panel box between the main ground buss and the panel box to provide a ground for the panel box. Bonding straps are currently required, but there is no requirement for the equipment to be upgraded unless there is a major renovation of the electrical system. (Information)
2. Some of the knockouts at the bottom of the panel box were pushed out partially, leaving gaps. It is normally desirable for the knockouts to be in good conditions to help retain a fire that might start in the panel box from spreading to the wall cavity. \$20.00 Reference Photograph 2

E. Electrical Service

1. The main service to the house was observed to be 120/240 volts with a 150 amp main disconnect. (Information)
2. The main service panel was located at the east wall of the garage. (Information)
3. The main service disconnect was located at the east exterior of the garage opposite the panel box located inside the garage. (Information)

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F. Additional Comments

1. There was no GFCI located for the whirlpool bathtub at the time of this inspection. Further evaluation by a qualified electrician as to the presence and location of the GFCI breaker for the whirlpool bathtub is recommended. If no GFCI is found, one should be installed at this location. \$35.00-\$55.00
2. The bonding wire for the master bath whirlpool tub was disconnected from the grounding rod installed at the exterior of the bathroom. \$15.00  
Reference Photograph 3

IV. SPECIAL NOTICE

Opinions and comments stated in this report are based solely on observations of apparent condition and performance. Opinions related to compliance with specification, legal and/or code requirements of any kind are specifically excluded as being covered in our agreement to perform this inspection. No guarantee or warranty as to future life, performance and/or need for repair of any item inspected is intended, nor should same be assumed. The estimated repair costs do not necessarily include all repairs that are needed and are to be used for planning purposes only since method of repair and extent of repair could vary considerably.

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1. The earth ground was not connected or was loose from the ground rod that provides a ground for the breaker panel box.

2. Some of the knockouts at the bottom of the panel box were pushed out partially, leaving gaps. It is normally desirable for the knockouts to be in good conditions to help retain a fire that might start in the panel box from spreading to the wall cavity.



3. The bonding wire for the master bath whirlpool tub was disconnected from the grounding rod installed at the exterior of the bathroom.