



HEDDERMAN SERVICES

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## MECHANICAL INSPECTION

907 Blue Willow Dr  
Houston TX 77042

Steve Gordon & Cynthia Mattice

DECEMBER 29, 2020



Inspector

**Scott Gillis**

TREC#22819

281-355-9911

[office@hedderman.com](mailto:office@hedderman.com)



# PROPERTY INSPECTION REPORT

Prepared For: Steve Gordon & Cynthia Mattice

(Name of Client)

Concerning: 907 Blue Willow Dr, Houston TX 77042

(Address or Other Identification of Inspected Property)

By: Scott Gillis - TREC#22819

(Name and License Number of Inspector)

12/29/2020 9:00 am

(Date)

## PURPOSE, LIMITATIONS AND INSPECTOR / CLIENT RESPONSIBILITIES

This property inspection report may include an inspection agreement (contract), addenda, and other information related to property conditions. If any item or comment is unclear, you should ask the inspector to clarify the findings. It is important that you carefully read ALL of this information.

This inspection is subject to the rules ("Rules") of the Texas Real Estate Commission ("TREC"), which can be found at [www.trec.texas.gov](http://www.trec.texas.gov).

The TREC Standards of Practice (Sections 535.227-535.233 of the Rules) are the minimum standards for inspections by TREC-licensed inspectors. An inspection addresses only those components and conditions that are present, visible, and accessible at the time of the inspection. While there may be other parts, components or systems present, only those items specifically noted as being inspected were inspected. The inspector is NOT required to turn on decommissioned equipment, systems, utility services or apply an open flame or light a pilot to operate any appliance. The inspector is NOT required to climb over obstacles, move furnishings or stored items. The inspection report may address issues that are code-based or may refer to a particular code; however, this is NOT a code compliance inspection and does NOT verify compliance with manufacturer's installation instructions. The inspection does NOT imply insurability or warrantability of the structure or its components. Although some safety issues may be addressed in this report, this inspection is NOT a safety/code inspection, and the inspector is NOT required to identify all potential hazards.

In this report, the inspector shall indicate, by checking the appropriate boxes on the form, whether each item was inspected, not inspected, not present or deficient and explain the findings in the corresponding section in the body of the report form. The inspector must check the Deficient (D) box if a condition exists that adversely and materially affects the performance of a system or component or constitutes a hazard to life, limb or property as specified by the TREC Standards of Practice. General deficiencies include inoperability, material distress, water penetration, damage, deterioration, missing components, and unsuitable installation. Comments may be provided by the inspector whether or not an item is deemed deficient. The inspector is not required to prioritize or emphasize the importance of one deficiency over another.

Some items reported may be considered life-safety upgrades to the property. For more information, refer to Texas Real Estate Consumer Notice Concerning Recognized Hazards or Deficiencies below.

THIS PROPERTY INSPECTION IS NOT A TECHNICALLY EXHAUSTIVE INSPECTION OF THE STRUCTURE, SYSTEMS OR COMPONENTS. This inspection may not reveal all deficiencies. A real estate inspection helps to reduce some of the risk involved in purchasing a home, but it cannot eliminate these risks, nor can the inspection anticipate future events or changes in performance due to changes in use or occupancy. It is recommended that you obtain as much information as is available about this property, including seller's disclosures, previous inspection reports, engineering reports, building/remodeling permits, and reports performed for and by relocation companies, municipal inspection departments, lenders, insurers, and appraisers. You should also attempt to determine whether repairs, renovation, remodeling, additions, or other such activities have taken place at this property. It is not the inspector's responsibility to confirm that information obtained from these sources is complete or accurate or that this inspection is consistent with the opinions expressed in previous or future reports.

ITEMS IDENTIFIED IN THE REPORT DO NOT OBLIGATE ANY PARTY TO MAKE REPAIRS OR TAKE OTHER ACTIONS, NOR IS THE PURCHASER REQUIRED TO REQUEST THAT THE SELLER TAKE ANY ACTION. When a deficiency is reported, it is the client's responsibility to obtain further evaluations and/or cost estimates from qualified service professionals. Any such follow-up should take place prior to the expiration of any time limitations such as option periods.

Evaluations by qualified tradesmen may lead to the discovery of additional deficiencies which may involve additional repair costs. Failure to address deficiencies or comments noted in this report may lead to further damage of the structure or systems and add to the original repair costs. The inspector is not required to provide follow-up services to verify that proper repairs have been made.

Property conditions change with time and use. For example, mechanical devices can fail at any time, plumbing gaskets and seals may crack if the appliance or plumbing fixture is not used often, roof leaks can occur at any time regardless of the apparent condition of the roof, and the performance of the structure and the systems may change due to changes in use or occupancy, effects of weather, etc. These changes or repairs made to the structure after the inspection may render information contained herein obsolete or invalid. This report is provided for the specific benefit of the client named above and is based on observations at the time of the inspection. If you did not hire the inspector yourself, reliance on this report may provide incomplete or outdated information. Repairs, professional opinions or additional inspection reports may affect the meaning of the information in this report. It is recommended that you hire a licensed inspector to perform an inspection to meet your specific needs and to provide you with current information concerning this property.

### **TEXAS REAL ESTATE CONSUMER NOTICE CONCERNING HAZARDS OR DEFICIENCIES**

Each year, Texans sustain property damage and are injured by accidents in the home. While some accidents may not be avoidable, many other accidents, injuries, and deaths may be avoided through the identification and repair of certain hazardous conditions. Examples of such hazards include:

- malfunctioning, improperly installed, or missing ground fault circuit protection (GFCI) devices for electrical receptacles in garages, bathrooms, kitchens, and exterior areas;
- malfunctioning arc fault protection (AFCI) devices;
- ordinary glass in locations where modern construction techniques call for safety glass;
- malfunctioning or lack of fire safety features such as smoke alarms, fire-rated doors in certain locations, and functional emergency escape and rescue openings in bedrooms;
- malfunctioning carbon monoxide alarms;
- excessive spacing between balusters on stairways and porches;
- improperly installed appliances;
- improperly installed or defective safety devices;
- lack of electrical bonding and grounding; and
- lack of bonding on gas piping, including corrugated stainless steel tubing (CSST).

To ensure that consumers are informed of hazards such as these, the Texas Real Estate Commission (TREC) has adopted Standards of Practice requiring licensed inspectors to report these conditions as "Deficient" when performing an inspection for a buyer or seller, if they can be reasonably determined.

These conditions may not have violated building codes or common practices at the time of the construction of the home, or they may have been "grandfathered" because they were present prior to the adoption of codes prohibiting such conditions. While the TREC Standards of Practice do not require inspectors to perform a code compliance inspection, TREC considers the potential for injury or property loss from the hazards addressed in the Standards of Practice to be significant enough to warrant this notice.

Contract forms developed by TREC for use by its real estate license holders also inform the buyer of the right to have the home inspected and can provide an option clause permitting the buyer to terminate the contract within a specified time. Neither the Standards of Practice nor the TREC contract forms require a seller to remedy conditions revealed by an inspection. The decision to correct a hazard or any deficiency identified in an inspection report is left to the parties to the contract for the sale or purchase of the home.

INFORMATION INCLUDED UNDER "ADDITIONAL INFORMATION PROVIDED BY INSPECTOR", OR PROVIDED AS AN ATTACHMENT WITH THE STANDARD FORM, IS NOT REQUIRED BY THE COMMISSION AND MAY CONTAIN CONTRACTUAL TERMS BETWEEN THE INSPECTOR AND YOU, AS THE CLIENT. THE COMMISSION DOES NOT REGULATE CONTRACTUAL TERMS BETWEEN PARTIES. IF YOU DO NOT UNDERSTAND THE EFFECT OF ANY CONTRACTUAL TERM CONTAINED IN THIS SECTION OR ANY ATTACHMENTS, CONSULT AN ATTORNEY.

### **ADDITIONAL INFORMATION PROVIDED BY INSPECTOR**

*Hedderman Engineering Inc.:*

>It is the purpose of this report to give our client my educated and experienced opinion of the condition and function of the stated property as visually inspected by Hedderman Engineering Inc. The inspection performed on this property is of a general nature and includes the following systems: electrical, mechanical, and plumbing. This does not include any specialized inspections and/or inspections of any hazardous materials (such as done in environmental inspections) or any of the following; structural systems, mold, audio/visual components, hazardous materials and gases, rated walls, lead paint, destructive insects or pest, security items, water or air treatment systems, etc. This inspection is limited to those components which were visible and accessible at the time of the inspection. It is noted that this report contains the opinions of this inspector of the stated property as it appeared on the day of the inspection and is in no way a warranty of any component in the days and future following the inspection. All mechanical

components are judged on the basis of age, condition, and the function of those items as they appeared on the day of the inspection and are not guaranteed to continue functioning in that manner in the future. It is recommended that the our client purchase a home warranty policy to protect oneself from both unexpected and anticipated problems that may occur in the future.

>It is noted that Hedderman Engineering Inc. is not responsible for any problems found in the house during or after components are opened up, disassembled, uncovered, made visible, or made accessible by another entity after the inspection is completed.

>If a builder or service contractor examines an area of question and comes to the conclusion that there is no repair needed, have them present to you in writing that the item is in compliance with a prevailing code and is functioning properly, not in need of repair.

>It is the intent of this inspector to work in compliance with the Standards Of Practice For Real Estate Inspectors. It is not required of this company to exceed these standards. You may obtain a copy of the document referred to above by contacting the Texas Real Estate Commission. It is also noted that this inspection is not a "code inspection", but rather an inspection of the condition and function of the stated property.

>Although this report may include observations of some building code violations, total compliance with mechanical, plumbing, electrical codes, specifications, and/or legal requirements are specifically excluded. We do not perform "code" inspections, and since building codes change every few years, our inspections are not performed with the intention of bringing every item in the property into compliance with current code requirements. Rather, the standard of our inspections is a performance standard to determine if the items inspected are functioning at the time of the inspection, or are in need of repair. This is particularly applicable to Home Warranty policies, where the standards of the Home Warranty service company are often different than our stated performance standard for judging whether a piece of equipment is functional or in need of repair. If you intend to rely on a Home Warranty policy, then it is recommended that you contact the appropriate service companies for a more in-depth analysis of what may be required to meet their standards should a claim be made against the policy.

>If there are any questions or concerns please contact Hedderman Engineering, Inc. at 281-355-9911 or Office@HeddermanEngineering.com.

## I. STRUCTURAL SYSTEMS

- A. Foundation**  
*Comments:*
- B. Grading and Drainage**  
*Comments:*
- C. Roof Covering Materials**  
*Comments:*
- D. Roof Structures & Attics**  
*Comments:*
- E. Walls (Interior and Exterior)**  
*Comments:*
- F. Ceilings and Floors**  
*Comments:*
- G. Doors (Interior and Exterior)**  
*Comments:*
- H. Windows**  
*Comments:*
- I. Stairways (Interior and Exterior)**  
*Comments:*
- J. Fireplaces and Chimneys**  
*Comments:*
- K. Porches, Balconies, Decks and Carports**  
*Comments:*

The structural portions of this property were inspected by an engineer from Hedderman Engineering Inc. per the inspection agreement between this firm and our client. All comments regarding the structure and property grade are found in the structure report that is created and provided by the engineers at Hedderman Engineering Inc.

According to HAR, the house was built in 1968.

*Orientation - House Facing West:*

For the purpose of the inspection, North is considered to be the left side of the house.

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## II. ELECTRICAL SYSTEMS

**A. Service Entrance and Panels**

*Comments:*

*Electrical System Description :*

The electrical service is provided by a 120/240 volt, single-phase, 200-ampere underground service to an electric meter located at the south side of the garage.

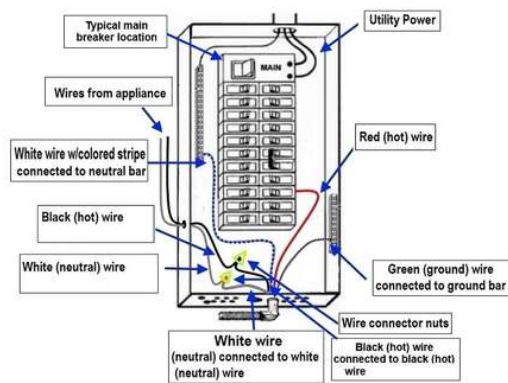
### Electrical Wiring Information

<u>Service Wires</u>	<u>Branch Circuit Wires</u>	<u>Grounded or Ungrounded System</u>
4/0 Aluminum	Copper	Grounded

### Breaker Panel Information

<u>Location</u>	<u>Manufacturer</u>	<u>Rating</u>
Garage	Eaton	200-amperes

Circuit Breaker Wiring Diagram



*Breaker Panel Equipment - Acceptable :*

The interior of the breaker panel equipment was inspected and the breakers were all properly sized for the circuits they were protecting, the grounding and bonding were properly connected, no knockout clips were missing, and the wiring appeared to be in acceptable condition at the time of the inspection.

*Breakers - Routine Check:*

It is a general recommendation that all circuit breakers be tripped off and on at least once a year to ensure that they are still physically able to trip off. Occasionally, the points on a breaker will fuse to



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the main bus in the panel, preventing the breaker from tripping off, even if there is an overload on the circuit. If this condition occurs, it can be a fire hazard.

*AFCI Breakers Not Present - Home built pre-AFCI :*

The breaker panel(s) did not contain any Arc Fault Circuit Interrupters (AFCI). This is an “as-built” condition, that does not meet current building code standards. AFCI devices are intended to protect against fires caused by electrical arcing in the wiring, by shutting off the power to the circuit when an electrical arc is detected in the circuit. Homes built prior to 2002 were not required by the National Electrical Code (NEC) to be protected by AFCI devices. Since this home was built prior to 2002, the breaker panel is not required to be retrofitted with new AFCI breakers. If adding AFCI breakers is desired, it is recommended that you contact an electrician for further information.

*Breaker panel legend :*

The circuit breakers were labeled to identify the circuits they were protecting. We did not trip off every breaker and, therefore, could not verify the accuracy of the labeling. If further investigation is desired, it is recommended that an electrician be contacted.

**1: Cover Plate - Missing screw**

Garage

The dead front cover for the breaker panel was missing one or more screws.

**Obtain Cost Estimate**



**B. Branch Circuits, Connected Devices, and Fixtures**

*Comments:*

*Type of Wiring: Copper - Non-metallic sheathed*

*GFCI Outlet - Functional :* Kitchen counter tops, Hall bathroom, Master Bathroom - Outlets that were protected by ground fault circuit interrupt (GFCI) devices were present and functioning properly at the time of the inspection. The GFCI devices were checked and the power to the outlets turned off when the test buttons were pressed. It is pointed out that GFCI devices can stop tripping and/or resetting properly at any point. The devices should be tested periodically and replaced when necessary.

*Ceiling Fans - Functional :*

No items that were in need of repair were observed for the operation of the ceiling fan(s) at the time of the inspection.

*Light Fixtures - Functional:*

The light fixtures throughout the house were operated and were observed to be functional at the time of the inspection.

**1: GFCI - Missing at outlet**

Garage, Exterior of the house, Utility room -

A GFCI device was not installed at one or more locations that are currently required to have GFCI protection. It is recommended that an electrician install GFCI devices at all of the currently required locations.

**Obtain Cost Estimate**

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**2: Outlet - Damaged**

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Attic near water heater  
An outlet was damaged and should be replaced.

**Obtain Cost Estimate**



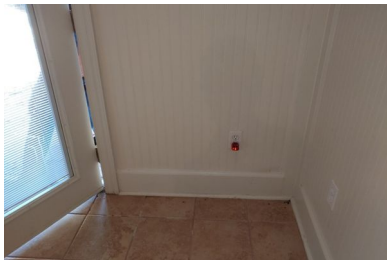
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**3: Outlet - Ungrounded**

Family room East wall

A three prong outlet that was not grounded properly and needs to be repaired. It is recommended that an electrician be contacted, and the necessary repairs made to the outlet.

**Obtain Cost Estimate**



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**4: Cover Plate - Missing screw**

Hall bathroom

A screw was missing on cover plate.

**Obtain Cost Estimate**



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**5: Light Fixture - Nonfunctional**

Study

The ceiling light fixtures were non-functional when the switch was on was observed. The problem may be a burned out bulb, defective light fixture, or defective switch.

**Further investigation is recommended.**

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**6: Light Fixture - Closet missing cover**

One or more of the closet light fixtures are missing covers. For safety purposes, it is recommended that protective covers be installed over the bare bulbs.

**Obtain Cost Estimate**

**7: Light Fixture - Loose on ceiling**

Master bedroom, south bedroom hallway

A light fixture was not properly secured to the ceiling.

**Obtain Cost Estimate**



Master Bedroom



Bedroom hallway

**8: Switch - Dimmer Knob damaged/missing**

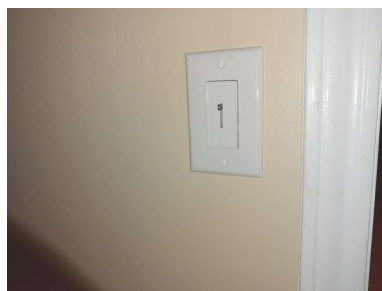
Dining room, South middle Bedroom

A dimmer switch whose knob was damaged/missing was observed.

**Obtain Cost Estimate**



South Bedroom



Dining Room

**9: Exterior Switch - No water tight cover**

All exterior outlets

An exterior rated watertight cover was not installed for an exterior light switch.

**Obtain cost estimate**

**10: Ceiling Fan - Nonfunctional**

Study



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The ceiling fan was nonfunctional.

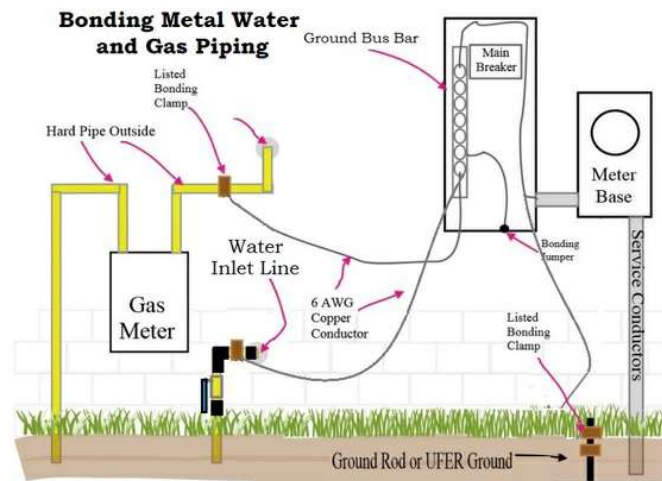
**Obtain Cost Estimate**



**11: Gas and Water Piping - Bonding Not visible**

The location(s) where the water supply piping and gas supply piping were bonded together and/or back to the electrical ground system were not visible at the time of the inspection. It is recommended that an electrician be contacted to determine if the plumbing in the house is properly bonded and to make any needed repairs.

**Obtain Cost Estimate**



**12: Smoke and Carbon Monoxide Detectors**

We could not determine if the smoke and/or carbon monoxide detectors are connected to the security alarm system as is common practice, therefore, to avoid triggering the security alarm we did not operationally check each device. Further investigation is recommended with a service company who specializes in this field to determine if the devices are interconnected as currently required and functioning properly. For safety purposes, it is recommended that smoke detectors and carbon monoxide detectors be replaced every ten years. Further investigation is recommended.

**13: Low Voltage Systems - Not inspected**

It is pointed out that low voltage systems, low voltage wiring, and low voltage connections were not included in the scope of the inspection and were not checked, including: audio/visual systems, alarm systems, data lines, and phone lines. If further investigation is desired, it is recommended that a service company be contacted.

**III. HEATING, VENTILATION & AIR CONDITIONING SYSTEMS**

**A. Heating Equipment**

*Comments:*

*Type of System: Forced Air*

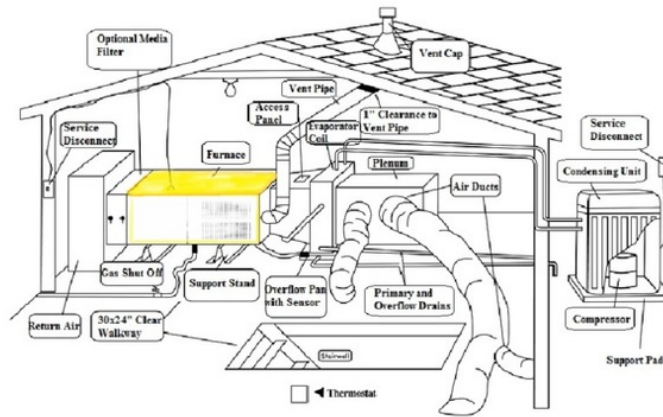
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*Energy Sources: Natural Gas*

*Gas Furnace Description :*

The heating for the property was provided the following natural gas-fired equipment:

<u>ZONE</u>	<u>BRAND</u>	<u>BTU</u>	<u>DATE</u>	<u>LOCATION</u>
House	Carrier	110K	2006	Attic



*Heating Equipment - Functional:*

The heating equipment was observed to be operating and functional at the time of the inspection. The heating equipment responded to the thermostat and the equipment appeared to be heating the air adequately.

*Heat Exchanger - Information:*

Gas furnaces are constructed in such a way that the units must be dismantled in order to view the entire heat exchanger inside. The equipment was not dismantled, and the heat exchanger was not able to be viewed for evidences of cracks. If further investigation is desired, it is recommended that a service company be contacted to dismantle the equipment. It is pointed out, for safety purposes, the heat exchanger should be inspected by an HVAC service company once a year.

*Limited visual inspection:*

It is pointed out that our inspection of the air conditioning and heating system(s) is a limited, visual inspection where we check the equipment as it has been installed to determine whether or not the system(s) is cooling and/or heating at the time of the inspection. Our inspection is necessarily a cursory inspection, as we do not determine the sizing, adequacy, or design of any component in the system, or the compatibility of the individual components, nor the installation of the system(s) to be in conformity to the latest building code requirements. If you desire an in-depth analysis of the HVAC system(s), then it is recommended that a service company be contacted to analyze the system(s). This is particularly important if the system(s) is an older system and has only a limited amount of remaining

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life due to its age and/or condition.

**1: Heat Exchanger - Limited Life**

The furnace is constructed such that the unit must be dismantled in order to view the entire heat exchanger. The unit was not dismantled, and the heat exchanger was not able to be viewed for evidences of a crack. If further investigations are desired, then it is recommended that a service company be contacted to dismantle the unit. Due to the age and/or condition of the furnace, it is recommended that a service company be contacted to dismantle the furnace and view the heat exchanger for cracks.

**Obtain Cost Estimate**

**2: Furnace - Cycling On and Off**

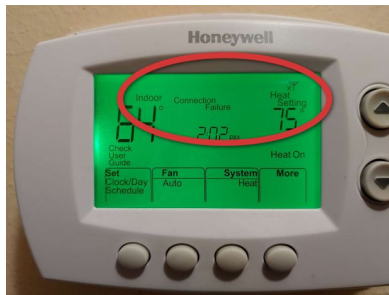
The burner for the furnace was cycling on and off indicating a problem with the equipment or the thermostat. Have a service company find the source of the problem and make any necessary repairs.

**Obtain Cost Estimate**

**3: Thermostat - Damaged**

The thermostat was damaged and needs to be repaired or replaced. The unit was flashing 'Connection Failure' during operation and the furnace would cycle off.

**Obtain Cost Estimate**



**B. Cooling Equipment**

*Comments:*

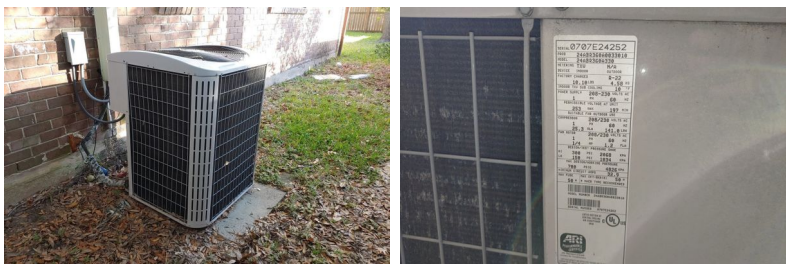
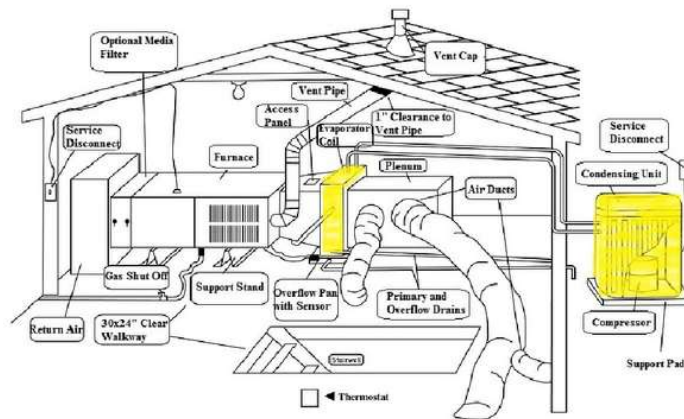
*Type of System: Split system*

*A/C Equipment Description :*

The type of air conditioning for the property is a forced air split system. The cooling equipment for the property was as follows:

Zone	Brand	Size/Age Condenser	Size/Age Coil	Temp Drop Degrees
House	Carrier	5-ton 2007	5-ton 2006	22 Degrees

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**Condensing Unit Equipment - Functional:**

The condensing unit equipment was functional at the time of the inspection. The equipment responded to the corresponding thermostat, and the compressor components and fan motor components were operating.

**Condensing Unit Equipment - Limited Life:**

Due to the age and/or condition of the equipment, it is our opinion that the equipment has only a limited amount of life remaining. It would be prudent to have the equipment thoroughly checked by a licensed air conditioning service company and further investigation is recommended.

**Coil Equipment - Functional:**

The coil equipment was operating and was providing a degree of cooling at the time of the inspection.

**Coil Equipment - Limited Life:**

Due to the age and/or condition of the equipment, it is our opinion that the equipment has only a limited amount of life remaining. It would be prudent to have the equipment thoroughly checked by a licensed air conditioning service company and further investigation is recommended.

**Cooling Performance - Acceptable :**

The cooling performance of the equipment was observed to be adequate according to industry standards. The air conditioning equipment was observed to be cooling 22 degrees across the indoor coil at the time of the inspection.

**Cooling Performance:**

We measure the temperature drop ( $\Delta T$ ) across the indoor coil(s) at the time of the inspection and our observations have been recorded in this report. It is pointed out that our measurements of the cooling performance of the equipment is only at a "point in time", and cannot reflect whether the equipment has been recently serviced, or what the future performance of the equipment will be after the day of the inspection. Further investigation with the homeowner is recommended to determine when the equipment was last serviced.

**1: R22 Refrigerant**

The condensing unit label indicate that the equipment operates with the old R-22 refrigerant, rather than the currently required R410A refrigerant. R-22 is no longer the current standard in the industry and will be more expensive to refill when servicing. It is recommended that a service company be

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contacted for further investigation.

**Further investigation is recommended**

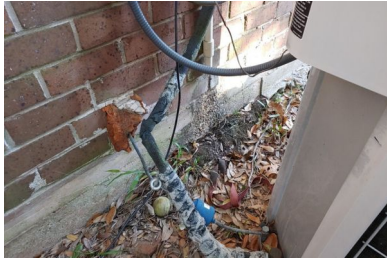
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**2: Insulation partially missing at refrigerant line**

South side of house

The insulation for the low pressure refrigerant line is partially missing and needs to be replaced to prevent condensation from dripping from the line and to promote proper refrigeration cycling.

**Obtain Cost Estimate**



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**3: Overflow Pan - Water sensor not present**

The overflow pan under the coil was not equipped with a water sensor nor was a sensor installed in the primary drain line. The sensor is intended to turn off the air conditioning system should the pan fill with water. It is recommended that you consider having an overflow pan water sensor installed.

**Obtain cost estimate**

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**4: Primary Drain Line - Terminated outside**

The primary condensate drain line terminates outside at the South side of the foundation. Over time, the constant moisture that is produced by the HVAC system and emptied onto the ground can contribute to foundation settlement. The drain line should be rerouted to an approved location.

**Obtain Cost Estimate**



**C. Duct System, Chases, and Vents**

*Comments:*

*Type: Flex Duct*

**1: Ducts - No clearance between ducts**

Attic

We observed that some of the air ducts in the attic were in contact with each other, which can cause condensation to form on the outside of the ductwork. It is recommended that the ducts that are touching be separated. Typically, this is done by inserting a piece of fiberglass batt insulation or duct board between the ducts.

**Obtain Cost Estimate**



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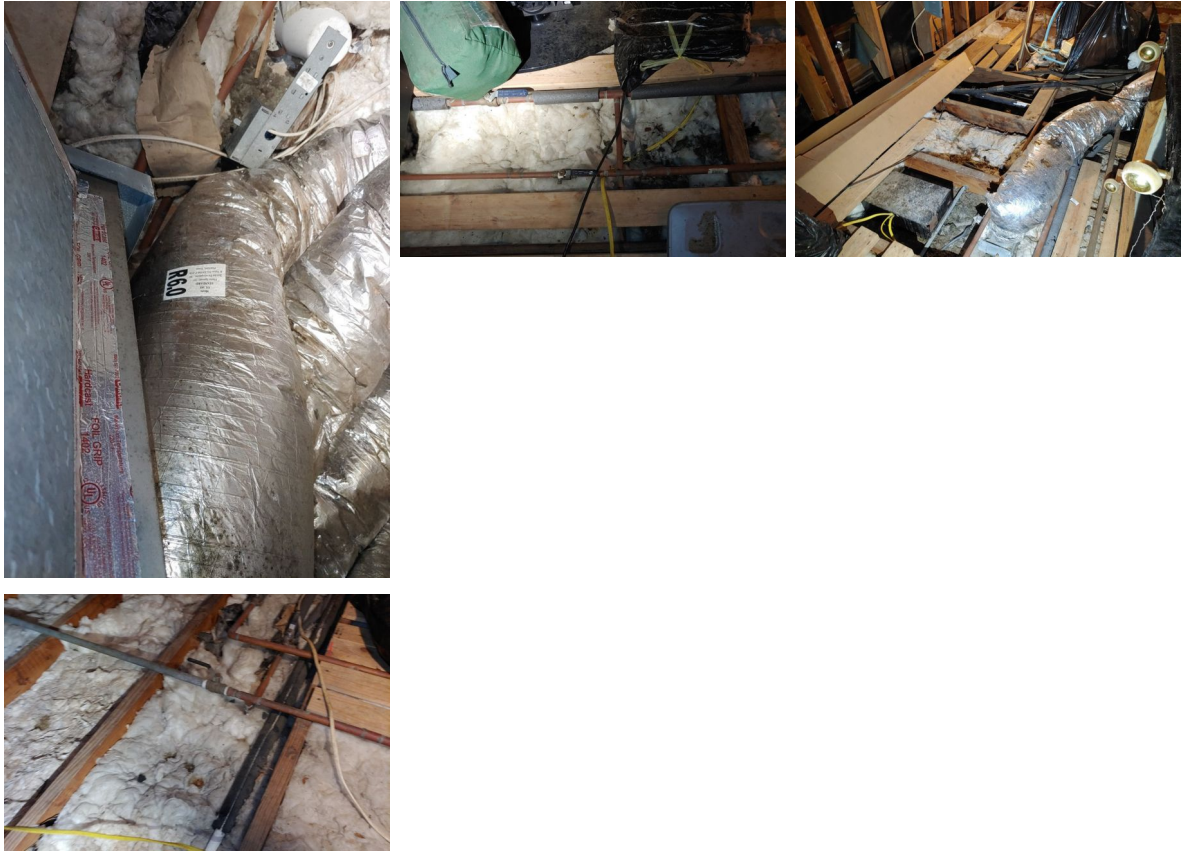


**2: Ducts - Not supported properly**

The ducts were laying on the insulation and ceiling joints and are not supported properly. The ducts should be supported in accordance with the manufacturer's installation instructions, which typically includes hanging the ducts from the rafters supported by 1 1/2 inch straps spaced approximately every four feet. Have a service company make the necessary repairs.

**Obtain Cost Estimate**



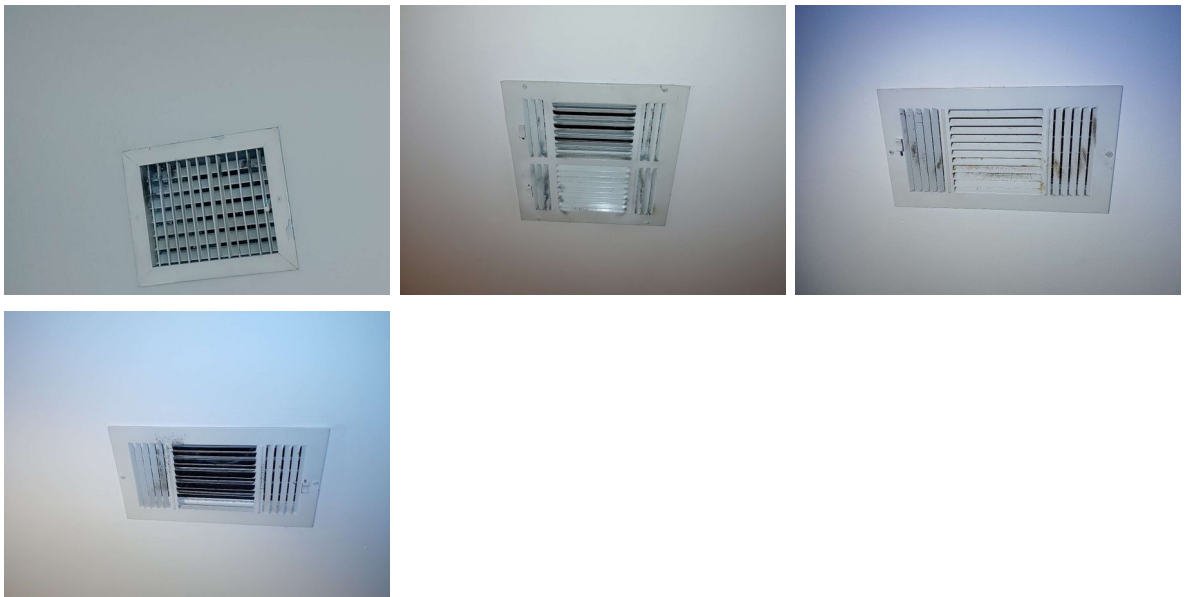


**3: Registers - Dirty**

Throughout House

The registers and adjacent ceiling areas were covered with debris that has passed through the air conditioning duct work. Have a service company check the inside of the duct work to determine if there is a build-up of debris, and to clean the ducts if necessary.

**Obtain Cost Estimate**



**4: Return Air - Minimal size**

The return air chase appeared to be minimally sized. Typically, at least one square foot of return air surface space for each ton of air conditioning capacity to allow for proper air circulation through the



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system. Further investigation with an air conditioning company is recommended, who should provide a cost estimate for repairs.

**Obtain Cost Estimate**

**5: Air Ducts - Less than R-8 insulation value**

The air ducts in the attic did not meet current standard. The R-value for the duct insulation was observed to be less than R-8, which is the most recent standard for insulated air ducts located outside of the insulated building envelope. It is recommended that an HVAC service contractor be contacted to determine if the R-6 air ducts are the proper ducts for this HVAC system and to determine if any repairs are needed.

**Obtain Cost Estimate**

**IV. PLUMBING SYSTEMS**

**A. Plumbing Supply, Distribution Systems, and Fixtures**

*Comments:*

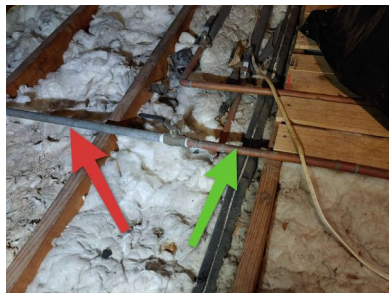
Location of water meter: The curb

Location of main water supply valve: South Side

Static water pressure reading: 54 PSI

Water Supply Material: Galvanized Steel inlet and Copper to plumbing fixtures in house

A plumbing system typically consists of three major components, including the potable water supply piping; the waste or drain piping; and the plumbing fixtures. The distribution piping brings the water from the public water main or a private well to the individual fixtures throughout the property. The water distribution system is under pressure, usually from 40 psi to 70 psi. The waste or drain piping carries the waste water and products underground to the sewer system or septic tank, and the waste piping is not under pressure, but operates by gravity flow. We typically run water down the drains from the sinks, tubs, showers, and toilets, but this cannot simulate the waste flow characteristics of full occupancy. There may be partial blockage of the underground waste lines from debris, broken pipes, or tree roots that cannot be detected by a visual inspection. If you desire a more in-depth inspection, it is recommended that you contact a qualified plumber.



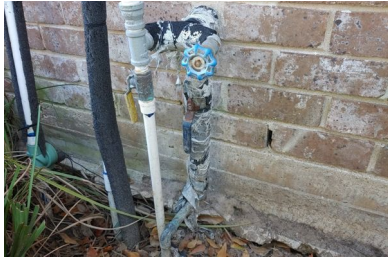
Galvanized inlet water supply connected to copper pipe.

*Shut Off Valve - Exterior location:*

The shut-off valve for the main inlet water line was located at the exterior of the house.

South Side

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*Static Water Pressure :*

The static water pressure to the house at the time of the inspection was measured with a pressure gauge at the hose bibb nearest the shut off valve, and the static pressure was observed to be 54 PSI.



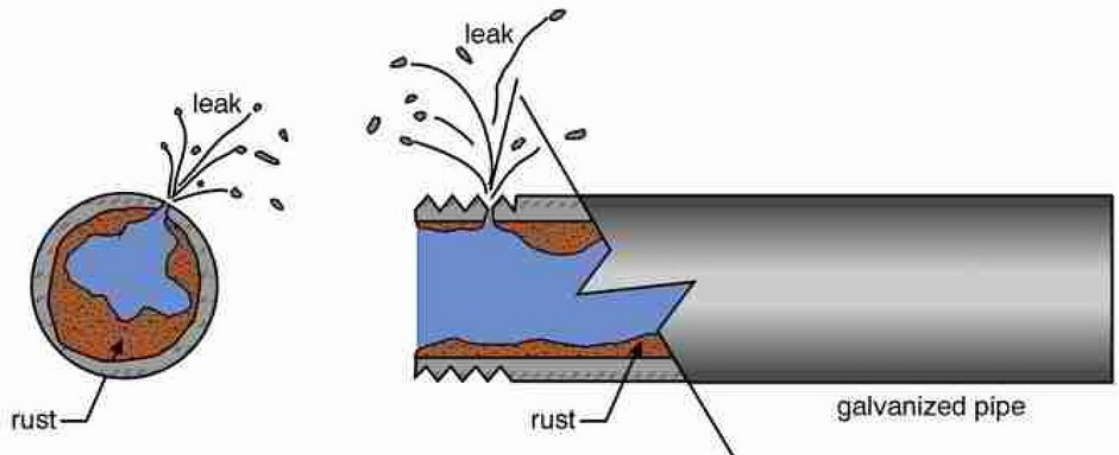
*Water Supply Piping - Galvanized Steel:*

All or portions of the water piping for the property was observed to be the original galvanized piping. It is pointed out that the galvanized piping will deteriorate with time, and will corrode on the inside of the piping, thereby reducing the inside diameter of the pipe, and restricting the flow of the water through the pipe. In addition, the piping will corrode through to the outside of the pipe and will eventually deteriorate to where the pipe will start leaking. It can be anticipated that the galvanized water piping throughout the house will need to be replaced when it is causing reduced water pressure or is corroded enough to start leaking.

### Galvanized steel pipe

rusting of galvanized pipe can greatly reduce water pressure and will eventually cause leaks as rust creates holes in the pipe walls

problems are likely to occur soonest on pipes carrying hot water, horizontal pipes and at threaded (thinner) sections



*Sinks & Lavatories - Functional:*

No items requiring repair were visible at the time of the inspection to the operation of the sinks and/or lavatories. The sinks were filled with water, and were observed to be draining properly, with no leaking piping or slow drains.

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*Toilets - Functional:*

No items requiring repair were visible at the time of the inspection to the operation of the toilets. The toilets were flushing properly, with no leaks visible in the plumbing, the wax seal, or the internal valves.

*Tub/Shower - Functional:*

No items requiring repair were visible for the tub and/or shower at each bathroom. The tubs were partially filled with water and water was run in the showers, and they were observed to be operating adequately at the time of the inspection.

*Tub Trap - No access :*

The piping at the trap area behind the tub was not visible for inspection due to a lack of access.

**1: Insulate Inlet Water Line**

The main inlet water line needs to be insulated at the house.

**Obtain Cost Estimate**

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**2: Vacuum Breaker - Missing**

The atmospheric vacuum breaker devices were missing at one or more of the hose bibbs, and it is recommended that they be installed to prevent cross connections, which can allow contaminated water to enter the potable water supply.

**Obtain Cost Estimate**



**3: Water Stains/Damage/Microbial Growth**

Kitchen Sink Cabinet

Water damage/stains were observed indicating a current or previous leak. It is pointed out that a microbial growth was observed in the affected area apparently due to an extended period of elevated moisture levels. The source of the condition was not determined, with certainty, at the time of the inspection. Further investigation is recommended with a contractor to determine the source of the condition and to make any necessary repairs to correct the moisture condition and, if present, any secondary damage.

**Obtain Cost Estimate**





#### **4: Insulate Exterior Water Piping**

South side

Exterior water piping that was not properly insulated was observed. It is recommended that the piping be properly insulated.

**Obtain Cost Estimate**



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#### **5: Inlet Water Line - Possible Underground Leak**

South Side

The ground in the vicinity of the inlet water line was muddy and/or had an unusual depression in the ground possibly indicating a plumbing leak. Further investigation is recommended with a plumber.

**Obtain Cost Estimate**



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#### **6: Dielectric unions missing**

Attic

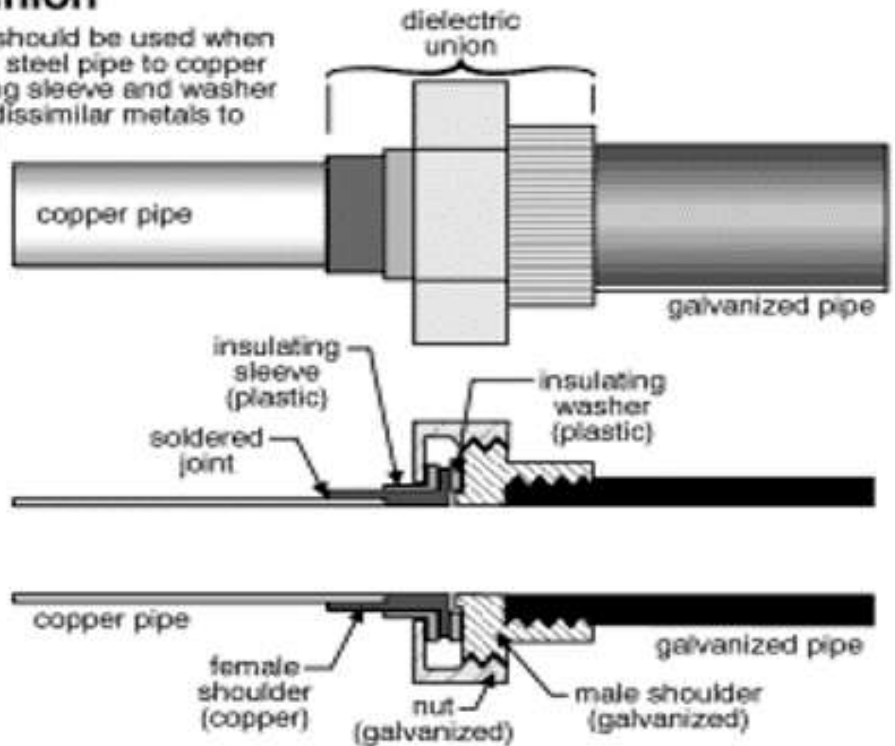
Dielectric unions were not installed at the connections between the galvanized piping and copper piping at one or more locations. Dielectric unions are intended to help deter corrosion between the dissimilar metal pipes at the connections. It is pointed out that no significant corrosion was observed at the visible joints at the time of the inspection. It is recommended that a service company be contacted for further investigation and to provide a cost estimate for the needed repairs.

**Obtain Cost Estimate**

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### Dielectric union

a dielectric union should be used when joining galvanized steel pipe to copper pipe - the insulating sleeve and washer separate the two dissimilar metals to prevent corrosion

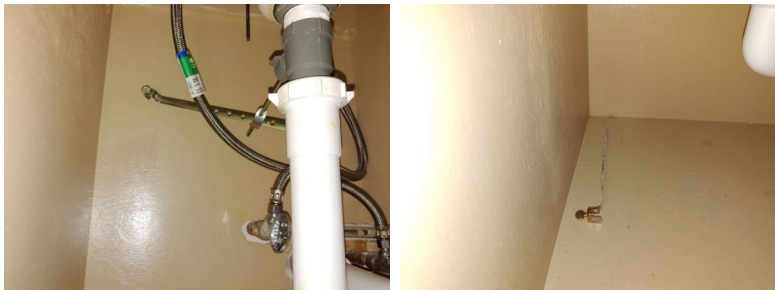


### 7: Sink Drain Stopper - Linkage disconnected

Master bathroom at both sinks

The linkage was disconnected on the drain stopper, and the stopper was nonfunctional.

**Obtain Cost Estimate**



### 8: Tub - Drain stopper missing

Both bathrooms

The drain stopper was missing at the tub.

**Obtain Cost Estimate**

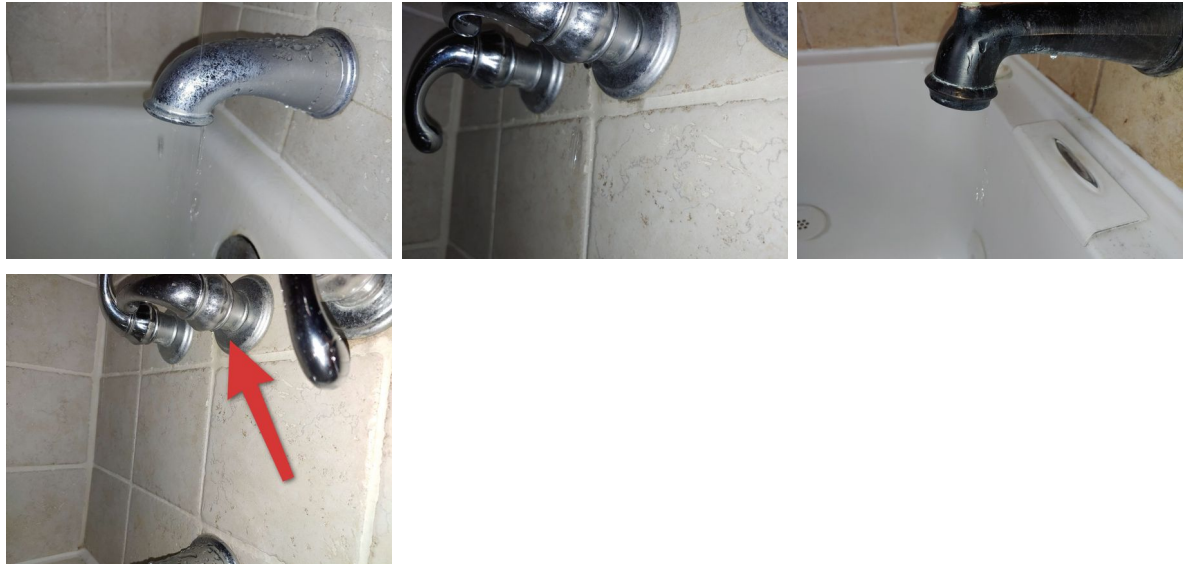
### 9: Tub/Shower - Water leaks past diverter

Master bathroom, Hall bathroom

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The diverter valve was leaking water past the valve when the valve was turned to the shower.

**Obtain Cost Estimate**



**10: Shower/Tub - Shower head leak**

Master bathroom

The shower head was leaking at the connection and needs to be repaired.

**Obtain Cost Estimate**



**B. Drains, Wastes, & Vents**

*Comments:*

*Sewer Piping Material: PVC Observed*

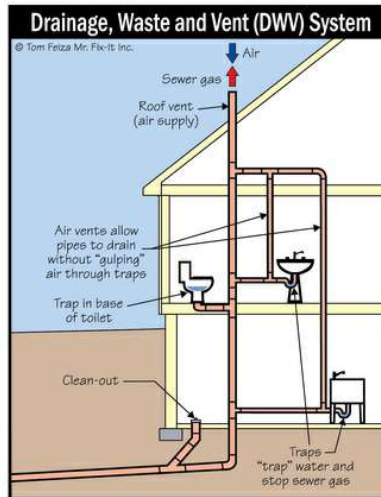
*Sewer System - Functional:*

No items requiring repair were visible for the operation of the drain system at the time of the inspection. No evidences of a system wide problem were observed when the system was operationally checked by running water through each of the plumbing fixtures during the duration of the inspection.

It is noted that most of the drain waste system in the walls, under the floors, and in the ceilings is not visible. If further investigation is desired, it is recommended that a plumber be contacted to perform an in depth survey with a camera or hydrostatic test.



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*Sewer Clean Out - Present :*

A sewer clean out was present. The clean out is needed in the event of a stoppage in the main sewer drain line, and the clean out is where a sewer snake would be utilized to remove a clog in the sewer line.

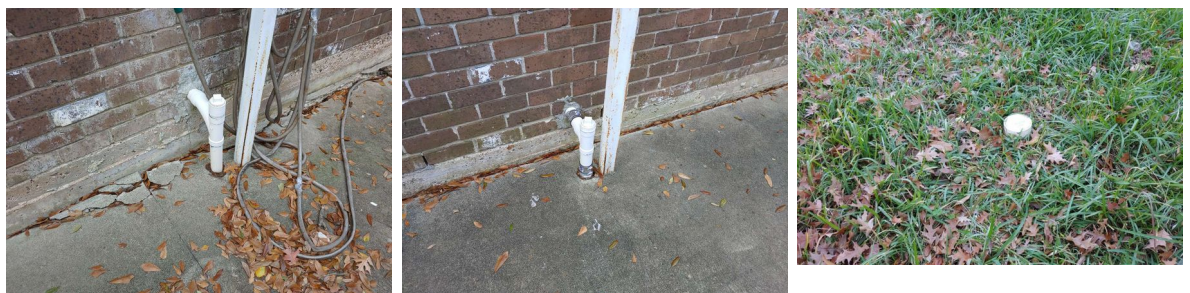
Front of house, two at south side,



*Sewer Piping - Evidence of repairs observed:* PVC clean out present, PVC drain(s) extended through wall and rerouted -

Evidences of sewer line repairs and/or replacement were observed. It is noted that we could not determine the extent of the repairs to the sewer system or if any of the original cast iron piping is still active. Further investigation is recommended with the owner and/or a service company to determine the extent of the repairs and to determine if any further repairs are needed. A sewer inspection with a plumber to verify the extent of the repairs and the condition of the sewer piping and repairs is recommended.

**Further investigation is recommended**



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South Side at each bathroom

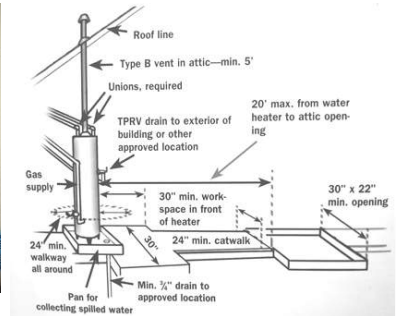
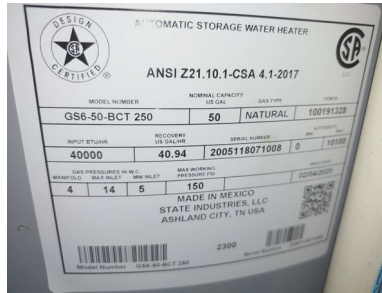
**C. Water Heating Equipment**

*Comments:*  
*Energy Source: Natural Gas*  
*Capacity: 50 gallons*

*Gas Water Heater Description:*

The hot water for the property was provided by the following natural gas fired gas water heater(s):

Location	Brand	Capacity	Age	Energy Type
Attic	AO Smith	50 Gal	2020	Gas



*Water Heater Equipment - Functional:*

The water heater equipment was functional at the time of the inspection and providing hot water to the applicable plumbing fixtures.

*Hot water - Temperature :*

The generally recommended maximum temperature setting for a hot water heater, to prevent accidental scalding, is 120-125 degrees. It is recommended that the water heater thermostat be adjusted to and maintained in this temperature range.

The temperature of the hot water at the kitchen sink was 121 degrees.



WATER TEMPERATURE	Time required for a 3rd-degree burn to occur	
	Adults (area measured at 2.5 sq. in.)	Children (area measured at .66 sq. in.)
155°F 68°C	1 second	0.5 second
148°F 62°C	2 seconds	1 second
140°F 60°C	5 seconds	1 second
133°F 56°C	15 seconds	4 seconds
127°F 52°C	1 minute	10 seconds
124°F 51°C	3 minutes	1.5 minutes
120°F 48°C	5 minutes	2.5 minutes
100°F 37°C	Safe temperature for bathing	Safe temperature for bathing

For SI: °C = [(F) - 32] x 5/9 or [(°F x 5/9) + 32] = °C  
 Figure PT06.3  
 TEMPERATURE BURN CHART

*Temp/Pressure Relief Valve - Information :*

Temperature/pressure relief valves are not operationally checked by this firm during the inspection.



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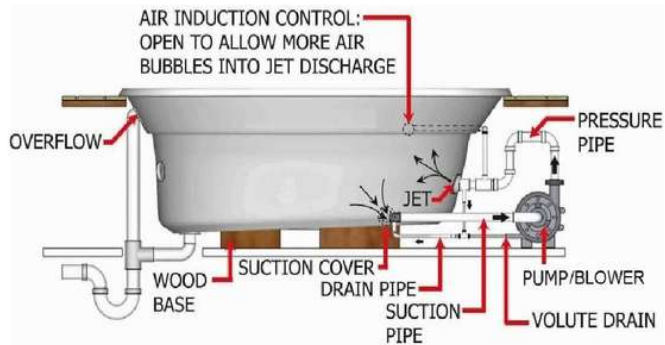
Valves typically do not reseat properly when they are operated, which causes the valves to leak. It is best to replace the temperature/pressure relief valves for water heaters every 2-3 years to prevent them from getting clogged with mineral deposits.

**D. Hydro-Massage Therapy Equipment**

*Comments:*

*Whirlpool - Functional:*

The whirlpool tub was functional, and the recirculation pump and aerators were operating properly when we engaged the controls. Also, the equipment was protected by a Ground Fault Circuit Interrupt device and the device was functioning properly at the time of the inspection.



*No access to plumbing supply and drain trap:*

Access to the plumbing supply and drain piping was not provided at the time of the inspection, therefore the plumbing under the tub was not visually checked. If further investigation is desired, it is recommended that access to the underside of the tub be made. It is pointed out, if repairs become necessary, an access opening will need to be installed.

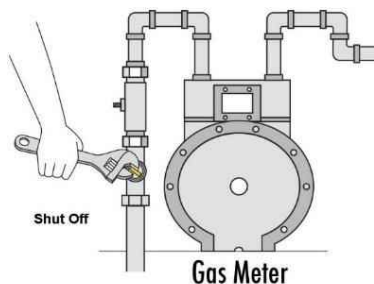
**E. Gas Supply System**

*Comments:*

*Gas Meter Location :*

The main gas shut off valve was located at the inlet side of the gas service meter.

Rear of garage



<b>I</b>	<b>NI</b>	<b>NP</b>	<b>D</b>
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*Gas System Inspection :*

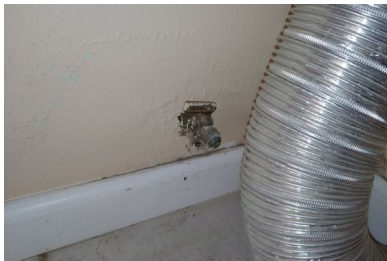
A cursory visual inspection was performed on the gas supply piping. The inspection was limited to the gas pipes that were visible and accessible at the time of the inspection. The use of specialized equipment to detect leaks is not included in the scope of this inspection, nor is determining the gas supply pressure or adequacy. If further investigation is desired, it is recommended that a plumber be contacted.

**1: Unused gas valve - Need to cap**

Utility room

An unused gas valve that was not capped was observed. The unused gas valve needs to be properly capped to prevent accidental gas leaks.

**Obtain Cost Estimate**



**2: Sediment Trap - Missing**

Sediment traps were not installed at the gas supply lines for one or more of the gas fired equipment. A sediment trap is intended to catch sediment/moisture/debris in a gas supply line before it can enter into the gas equipment.

**Obtain Cost Estimate**



**V. APPLIANCES**

**A. Dishwashers**

*Comments:*

*Functional :*

The dishwasher was functioning and responded to the controls. The unit was run through a cycle at the time of the inspection and appeared to be operating properly.

**1: No Anti-Siphon**

The drain line under the sink was not equipped with an anti-siphon device, nor was it looped up so that the top of the loop is at least six inches above the entrance of the drain line into the disposal. It is recommended at least that the drain line be looped to prevent the water from the garbage disposal from siphoning back into the dishwasher, or an anti-siphon device installed.

**Obtain Cost Estimate**

I	NI	NP	D
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**B. Food Waste Disposers**

*Comments:*

*Functional:*

The disposal was operating and responded to the controls at the time of the inspection.

**1: Foreign Material**

The disposal had foreign material in it that needs to be removed.

**Obtain Cost Estimate**

**C. Range Hood and Exhaust Systems**

*Comments:*

*Range Vent - Functional:*

No items requiring repair were visible at the time of the inspection to the operation of the range vent. The vent fan was observed to be venting properly at the time of the inspection.

**1: Light - nonfunctional**

The light was non-functional at the time of the inspection, which may be due to a burned out bulb, defective wiring or possibly a defective switch.

**Obtain Cost Estimate**

**D. Ranges, Cooktops, and Ovens**

*Comments:*

*Gas Cooktop - Functional:*

The gas cooktop was functioning and responded to the controls when they were operated. All of the burners and controls were operating properly at the time of the inspection.



Gas shut off valve in cabinet below cooktop

<b>I</b>	<b>NI</b>	<b>NP</b>	<b>D</b>
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*Electric Oven - Functional:*

The electric oven was observed to be functioning and no items requiring repair were visible at the time of the inspection.

*Oven - Calibrated properly:*

No repair was needed to the calibration of the oven thermostat. The thermostat was set at 350 degrees, and the oven heated to within the allowable  $\pm 25$  degrees. The oven was checked with an oven thermometer and found to heat to 350 degrees.

**E. Microwave Ovens**

*Comments:*

*Not Present :*

A microwave was not present at the time of the inspection.

**F. Mechanical Exhaust Vents and Bathroom Heaters**

*Comments:*

*Mechanical Vents - Functional:*

The mechanical vent fans were functional at the time of the inspection. The bath vent fans responded to the switches and were functional at all the bathrooms.

**1: Vents - Not terminated outside**

Attic

We observed one or more bath vent fans that were not terminated outside. The most current building code requires the vent fan to be vented to the outside of the house, and it is recommended that the vent be extended to the outside of the house.

**Obtain Cost Estimate**



No vent pipe installed

**2: Exhaust Fan- Cover missing**

All bathroom exhaust at light cover

The light cover for the exhaust fan was missing.

Locations included: Hall bathroom

**Obtain Cost Estimate**



**G. Garage Door Operators**

*Comments:*



<b>I</b>	<b>NI</b>	<b>NP</b>	<b>D</b>
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*Functional - Autoreverse and sensors:*

The garage door opener equipment was functional at the time of the inspection and opened/closed when the controls were operated. The auto-reverse mechanism was operational, and the sensitivity setting on the mechanism was adequate. Also, the infrared auto reverse mechanism was functional.

**H. Dryer Exhaust Systems**

*Comments:*

*Dryer Vent :*

The dryer vent appeared to be properly installed at the time of the inspection. It is pointed out that a portion of the dryer pipe was not visible where it entered the wall/ceiling. Also, dryer vents need to be cleaned periodically for safety reasons and to allow the dryer to operate properly.

**I. Other**

*Comments:*

*Non Built-in Equipment - Not inspected :*

It is pointed out that non built-in refrigerators, wine coolers, small refrigerators, clothes washers, and clothes dryers are not included in the scope of this inspection and were not checked. If further investigation is desired, it is recommended that a service company be contacted.

**Further investigation is recommended**

*Dryer Connections - Electric 3 Prong and Gas:*

The 240-volt outlet for the electric dryer connections was observed to be the older style 3-prong outlet rather than the newer 4-prong outlet. You may want to check your clothes dryer to determine if you have the correct power cord for this outlet. A gas connection was installed. It is pointed out that the gas valve was not operationally checked.

### INFORMATION FROM HEDDERMAN ENGINEERING INC.

*Closing Comments :*

Opinions and comments stated in this report are based on the apparent performance of the items included within the scope of the inspection, at the time of the inspection. Performance standards are based on the knowledge gained through the experience and professional studies of the inspector. There is no warranty or guarantee, either expressed or implied, regarding the habitability, future performance, life, merchantability, and/or need for repair of any item inspected. It is recommended that a Home Warranty Policy be provided to protect the appliances and mechanical equipment against unforeseen breakdowns during the first year. Check with your agent for details.

Items identified in the report as Deficient and our Recommendations are provided in the above report. Many, but not all, recommendations are highlighted in bold red text. It is our intention, and your responsibility, that you follow up on these deficiencies and recommendations as part of your due diligence by contacting the appropriate service contractor for **Further Investigation, Obtain cost estimate, and/or Contact the builder.** It is pointed out that other related and/or underlying conditions may be present, and which may not be apparent without further investigation.

As an additional service, we strongly recommend using a new tool we have on our website that can quickly turn your inspection report into an easy-to-read estimate of repairs for a nominal fee. These pricing reports from a third party company called Repair Pricer not only make the inspection report easy to understand in terms of dollars and cents, but they are also useful negotiation tools. Just visit the page below on our website and upload your report into Repair Pricer. If you have any questions when you receive your report, you can contact them at [info@repairpricer.com](mailto:info@repairpricer.com) <http://www.heddermanengineering.com/repair-cost-estimates>