



HEDDERMAN SERVICES

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## MECHANICAL INSPECTION

10726 Tupper Lake Dr  
Houston TX 77042



Inspector

**Daniel Koteles**

TREC #21157

281-355-9911

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



# PROPERTY INSPECTION REPORT

**Prepared For:** Charles Lusk & Leticia Lusk  
(Name of Clients)

**Concerning:** 10726 Tupper Lake Dr, Houston TX 77042  
(Address or Other Identification of Inspected Property)

**By:** Daniel Koteles - TREC #21157 07/02/2021 12:00  
(Name and License Number of Inspector) pm (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 South:*

For the purpose of the inspection, North is considered to be the rear 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 service to an electric meter located at the rear of the converted garage.

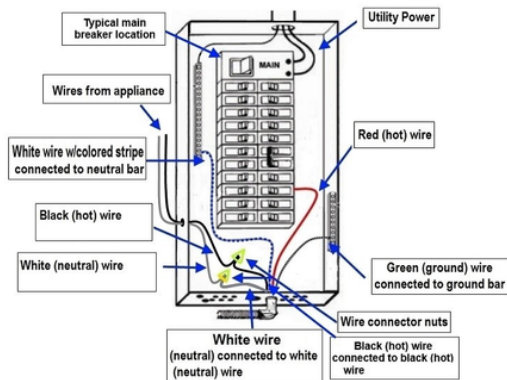
### Electrical Wiring Information

<u>Service Wires</u>	<u>Branch Circuit Wires</u>	<u>Grounded or Ungrounded System</u>
4/0 aluminum	Copper with one 240-volt aluminum circuit	Grounded

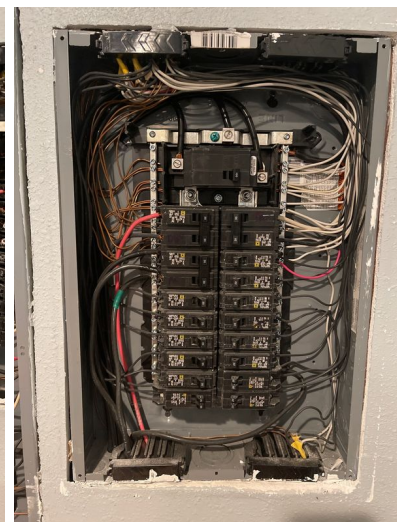
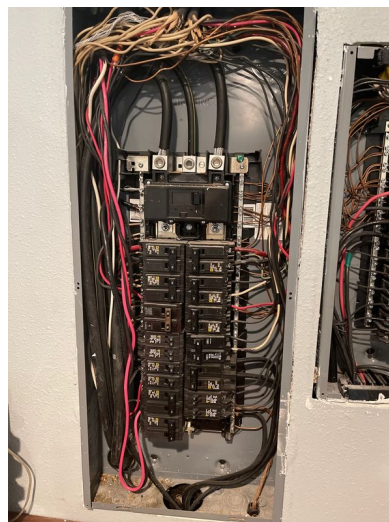
### Breaker Panel Information

<u>Location</u>	<u>Manufacturer</u>	<u>Rating - Amps</u>
Converted Garage	Square-D	200 amps
Converted Garage	Square-D	125 amps

Circuit Breaker Wiring Diagram



<b>I</b>	<b>NI</b>	<b>NP</b>	<b>D</b>
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*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 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.

*Wiring - 240-volt aluminum circuits:*

The electrical wiring for the property was a combination of copper and aluminum. The 120-volt outlet and lighting circuits were observed to be copper and the 240-volt appliance and large equipment circuits were aluminum. It is pointed out that, while the use of aluminum branch circuit wiring is no longer practiced, aluminum 240-volt circuits are not considered a problematic condition.

**1: Power Wire - White insulation**

We observed one or more white wires that were used as a power wires, and were connected to a circuit breaker. Typically, the white wires are the grounded/neutral conductors, and if they are used as a power conductor, they must be permanently marked or wrapped with black or red tape to identify them as a “hot” ungrounded conductor.

**Obtain Cost Estimate**  
**E3407.3**

**2: Breakers - Not Labeled**

All of the breakers were not labeled to identify the circuits they were protecting. It is recommended that an electrician be contacted to specifically identify each circuit.

**Obtain Cost Estimate**

**3: Neutral & Ground Wires - Connected in sub panel**

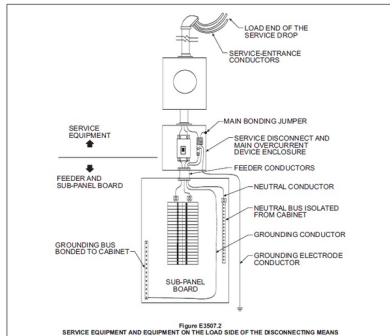
The grounded conductors (white wires) and the equipment grounding conductors (bare copper wires) were improperly connected inside the sub panel. The two sets of wires should be connected to separate

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I	NI	NP	D
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buses, which are then connected with separate wires to the main grounding bus in the main panel.

**Obtain Cost Estimate**



**4: No Antioxidation Solution**

The aluminum conductors were not coated with an anti-oxidation solution. Per the standards set forth by The Texas Real Estate Commission, we are compelled to recommend that the wires should be coated with an anti-oxidation solution, however this is not required by the current building codes.

**Obtain cost estimate**

**5: Neutral wires double lugged**

The neutral wires were improperly double lugged in the grounding buses inside the breaker panel. Each wire should be connected to its own lug.

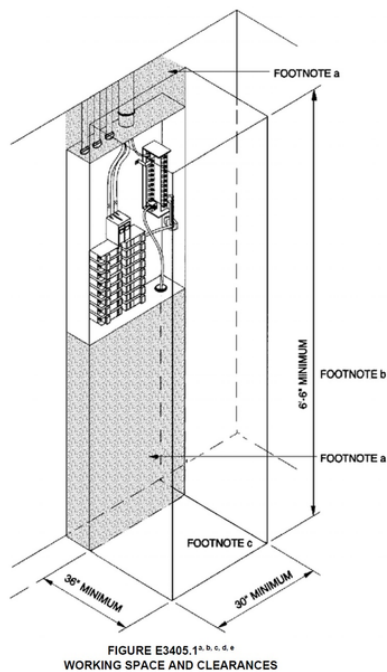
**Obtain Cost Estimate**

**6: Breaker Panel - Inadequate Clearance**

The breaker panel did not have the required three foot clearance at the front and it is recommended that the minimum required clearance be made or that the panel be relocated.

**Obtain Cost Estimate**

*E3405.1*



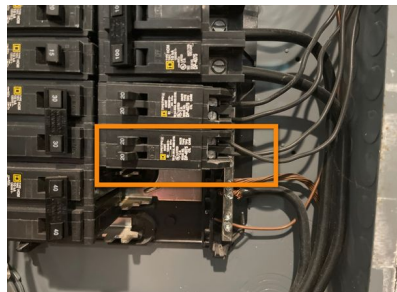
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### 7: Breaker - Oversized

A circuit breaker was observed that was rated higher than the wire that it was protecting. This condition can be a fire hazard, and the oversized breaker should be replaced with a breaker that is sized in accordance with the allowable ampacity of the wire.

**Obtain Cost Estimate**



### 8: Breakers - Not original manufacturer

We observed breakers in the panel that were not the same brand as the manufacturer of the panel, and therefore, they may not be listed for use in this panel. Further investigation by an electrician is recommended to determine the serviceability of the breakers/panel, and to obtain a cost estimate for all needed repairs.

**Obtain Cost Estimate**

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

*Comments:*

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

*Outlets - Some inaccessible:*

Some of the receptacle outlets in the home were inaccessible and could not be reached for inspection due to furniture, heavy storage items, personal effects, or conditions outside the control of the inspector.

#### 1: Outlet - Spaced too far apart

Kitchen, dry bar, master bathroom right sink

More than 4' apart at counter top, More than 3' away from bathroom sink -

The outlets were spaced more than the maximum distance required by current standards. If this condition concerns you, it is recommended that an electrician be contacted to make any needed repairs.

**Obtain cost estimate**

#### 2: GFCI - Missing at outlet

Kitchen counter tops -

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**

#### 3: GFCI - Not tripping off

Front exterior

The electrical power to one or more ground fault circuit interrupt (GFCI) devices did not shut off when the "test" buttons were depressed, or when the devices were tested with a GFCI testing device. Have an electrician make any necessary repairs to the devices, and then check the appropriate outlets that should be protected by a GFCI device, to verify that they are protected.

**Obtain Cost Estimate**



<b>I</b>	<b>NI</b>	<b>NP</b>	<b>D</b>
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**4: Outlet - Exterior cover plate damaged**

Front

The cover plate for the exterior outlet was damaged, and needs to be replaced with a weather-tight cover plate.

**Obtain Cost Estimate**



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**5: 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**

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**6: Light Fixture - Missing cover at ceiling fan**

2nd Floor middle bedroom

A light fixture with a missing cover was observed on the ceiling fan.

**Obtain Cost Estimate**

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**7: Switch - Function unknown**

Kitchen

A switch whose function we could not determine was observed. Further investigation with the homeowner and/or a service company is recommended.

**Obtain Cost Estimate**



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**8: 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.

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

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<b>I   NI   NP   D</b>
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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.

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

**A. Heating Equipment**

*Comments:*

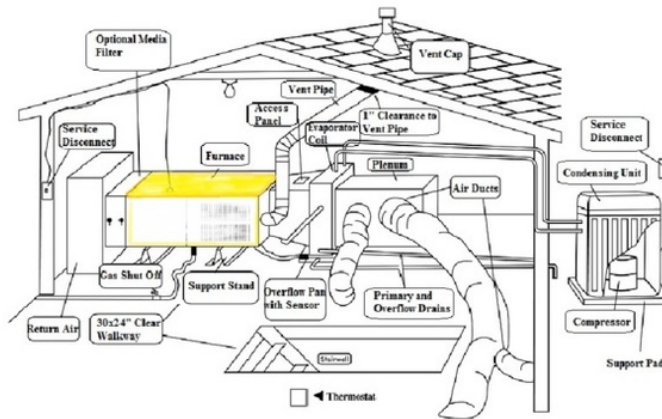
*Type of System: Forced Air*

*Energy Sources: natural gas and electric*

*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>
1st Floor	Arcoaire	120,000	1992	Attic



*Electric Air Handler Description :*

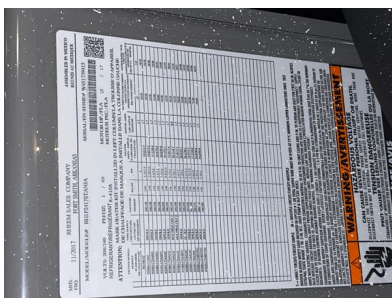
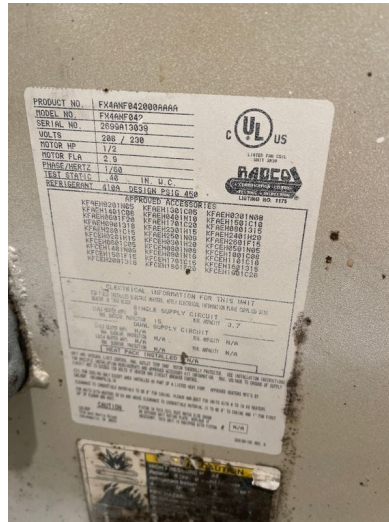
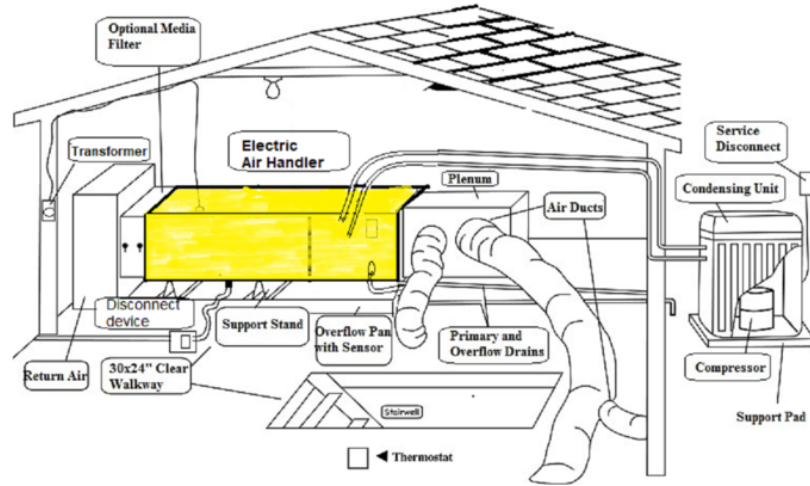
The heating for the property was provided by the following electric heating equipment:

<u>ZONE</u>	<u>BRAND</u>	<u>DATE</u>	<u>LOCATION</u>
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2nd Floor	Carrier	1999	Upstairs bathroom
Converted Garage	Rheem	2017	Garage 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.

**Electric Heat - Functional:**

The electric heating equipment was observed to be operating and functional at the time of the inspection. The electric heating equipment was heating the air 25+ degrees, which is adequate.

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*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 remaining life.

1st Floor, 2nd Floor

*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 life due to its age and/or condition.

**B. Cooling Equipment**

*Comments:*

*Type of System: Split system*

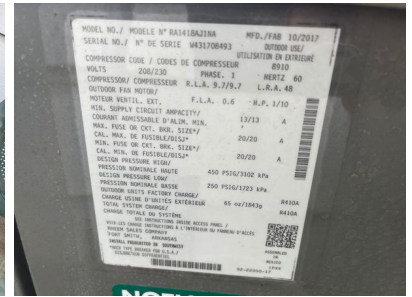
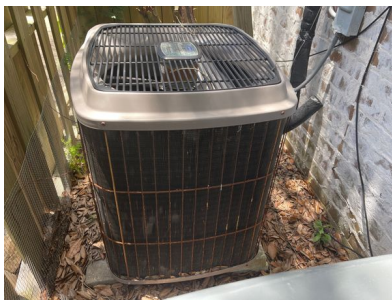
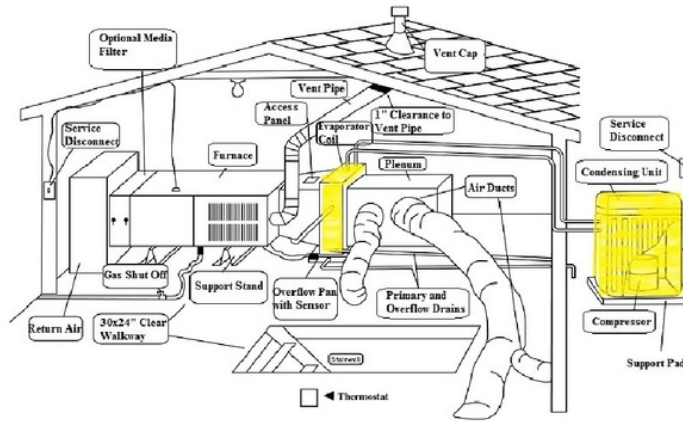
*A/C Equipment Description :*

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

<b>Zone</b>	<b>Brand</b>	<b>Size/Age Condenser</b>	<b>Size/Age Coil</b>	<b>Temp Drop Degrees</b>
1st Floor	Goodman	4-ton 2016	4-ton 2016	13
2nd Floor		3-ton 1998	3-ton 1999	5
Converted Garage	Rheem	1-1/2 ton 2017	2-ton 2017	12

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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.

**Coil Equipment - Functional:**

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

**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 a prudent to have the equipment thoroughly checked by a licensed air conditioning service company and further investigation is recommended.

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<b>I</b> <b>NI</b> <b>NP</b> <b>D</b>
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2nd floor

*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: Low temperature drop**

The system had a less than normal temperature differential across the evaporator coils (less than 16 degrees). Have a service company find the source of the problem and provide a cost estimate to make any necessary repairs.

**Obtain Cost Estimate**

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**2: Condensing Unit - Fins damaged**

The fins on the coils were damaged and in need of repair in order to dissipate heat properly.

**Obtain Cost Estimate**

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**3: Condensing Unit - Foliage too close**

The foliage surrounding the condensing unit was located too close to allow for proper air flow around the coils. A one foot clearance should be maintained around the unit.

**Obtain Cost Estimate**

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**4: Condensing Unit - Debris inside housing**

Debris was observed to be inside of the housing and needs to be removed and the inside of the unit thoroughly cleaned by a service company.

**Obtain Cost Estimate**

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**5: Coil - Missing overflow pan**

2nd Floor

An overflow pan was not installed under the coil. The overflow pan is intended to catch leaking water from the coil should a problem occur. It is recommended that an overflow pan with a drain line to the outside be installed under the coil in an approved manner. Water and damage were observed under the unit in the return air area due to the lack of an overflow pan. Have a service company make any necessary repairs due to the water damage.

**Obtain Cost Estimate**



**6: Overflow Pan - Standing water**

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<b>I</b>	<b>NI</b>	<b>NP</b>	<b>D</b>
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Standing water was observed in the overflow pan under the coil. This can indicate a clogged primary drain line, or some other problem with the coil. Have a service company find the source of the water in the pan, and make any necessary repairs.

**Obtain Cost Estimate**



**7: Primary Drain Line - Terminated in plumbing trap in attic**

The primary condensate drain line terminates into an plumbing trap in the attic. This condition can allow sewer gases to back up into the house and HVAC system. The drain line should be rerouted to an approved location.

**Obtain Cost Estimate**



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

*Comments:*

*Ductwork - Original rigid ducts:*

We observed ductwork that appeared to be the original installation ductwork. It is recommended that further investigation be done with the homeowner and/or a service company to determine if the ductwork has been cleaned recently, and if not, then it is recommended that you have the air ducts cleaned and serviced.

**Further investigation is recommended**

**1: Registers - Microbial growth observed**

Some of the registers were covered with mildew/debris. It is recommended that a service company be contacted to check the inside a of the duct work to determine if there is a build-up of debris/mold/mildew inside, and make any needed repairs. Further investigation is recommended.

**Obtain Cost Estimate**



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<b>I   NI   NP   D</b>
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I	NI	NP	D
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### IV. PLUMBING SYSTEMS

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

*Comments:*

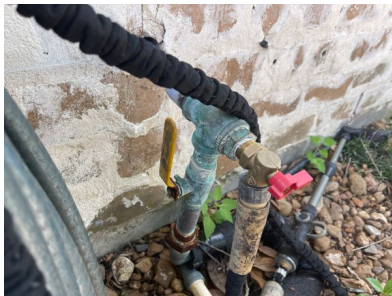
Location of water meter: The street curb  
Location of main water supply valve: west  
Static water pressure reading: 59 PSI  
Water Supply Material: PEX

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.

*Shut Off Valve - Exterior location:*

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

West



*Static Water Pressure :*

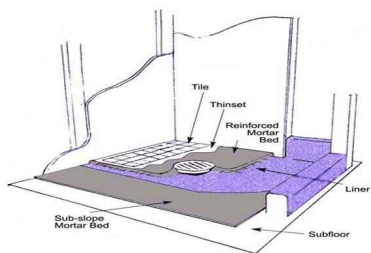
The static water pressure to the house at the time of the inspection was measured with a pressure gauge at the hose bibb nearest the shut off valve, and the static pressure was observed to be 59 psi.



*Shower - No evidence of shower pan leak:*

No evidence of a current shower pan leak were visible at the time of the inspection for the shower(s). It is pointed out, our shower inspection is limited to a visual inspection and we did not perform a shower pan leak test. It is recommended that a plumber be contacted to perform a shower pan leak test to determine if any water is leaking past the shower pan.

<b>I</b>	<b>NI</b>	<b>NP</b>	<b>D</b>
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**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**

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**3: Main Inlet Water line - Rusted/Corroded**

The main inlet water line was observed to be galvanized steel piping and was severely rusted. It is recommended that the rusted/corroded piping be replaced. It is pointed out that the pipe was not leaking at the time of the inspection, however repairs will become necessary in the future.

**Obtain Cost Estimate**

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**4: Water Treatment System - Not inspected**

The water treatment system was not checked at the time of the inspection and is omitted from the scope of this inspection. If it is desirable to you to determine if the unit is operational and is softening the water, then it is recommended that water samples be taken and analyzed by a testing laboratory.



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I	NI	NP	D
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**5: Hose Bibb - Nonfunctional**

East

A hose bibb was observed to be nonfunctional at the time of the inspection.

**Obtain cost estimate**



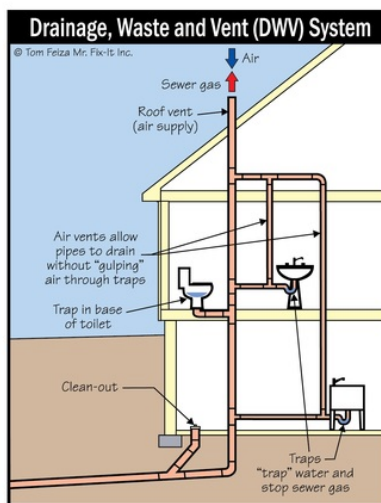
**B. Drains, Wastes, & Vents**

*Comments:*

*Sewer Piping Material: PVC and possibly Cast Iron*

*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.



*Sewer Piping - Some new PVC:*

We observed new PVC drain line and sewer piping at the west side of the house at the kitchen and the utility room area. Apparently, the original cast iron sewer piping has been replaced at these areas. It is recommended that further investigation be done with the homeowner and a plumber to determine if any of the original underground cast iron sewer piping is still active. If portions of the original cast iron piping are still present, it can be anticipated that the cast iron will rust out at some time, and will then need to be replaced with PVC sewer piping. Consideration should be given to having the underground sewer piping checked by a plumber to determine if all of the cast iron has been replaced, to determine the quality any repairs that were made, and to determine if any additional repairs are needed.

**Further investigation is recommended with a plumber**

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Rear



**C. Water Heating Equipment**

*Comments:*

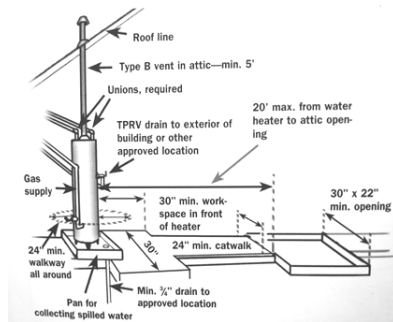
*Energy Source: natural gas*

*Capacity: 50 gallon*

*Gas Water Heater Description:*

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

<u>Location</u>	<u>Brand</u>	<u>Capacity</u>	<u>Age</u>	<u>Energy Type</u>
Attic	Rheem	50	2018	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 134 degrees.

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WATER TEMPERATURE	TIME AND TEMPERATURE RELATIONSHIP TO SERIOUS BURNS	
	Adults (skin thickness of 2.5 mm)	Children (skin thickness of .55 mm)
150°F 66°C	Time required for a third-degree burn to occur	
148°F 64°C	1 second	0.5 second
147°F 63°C	2 seconds	1 second
145°F 63°C	5 seconds	1 second
137°F 59°C	15 seconds	4 seconds
127°F 52°C	1 minute	10 seconds
124°F 51°C	3 minutes	1.5 minute
120°F 49°C	5 minutes	2.5 minutes
100°F 37°C	Safe temperature for bathing	Safe temperature for bathing

For SI: °C = (°F) - 32 / 1.8 or (°F - 32) / 1.8 = °C  
Figure P2761.3  
TEMPERATURE BURN CHART

**Temp/Pressure Relief Valve - Information :**

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

**1: Vent Pipe - Horizontal run too long**

The vent pipe had a long horizontal run, and very little vertical rise. The vent pipe is not installed properly and can allow hazardous combustion gases to vent into the attic. Have a service company provide a cost estimate to make the needed repairs.

**Obtain Cost Estimate**



**D. Hydro-Massage Therapy Equipment**

*Comments:*

*Hydro - therapy equipment was not present at the time of the inspection. :*

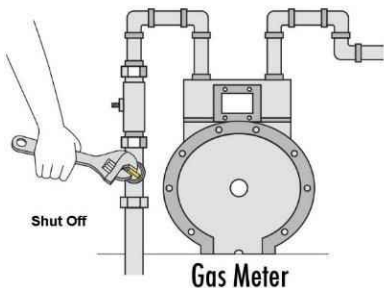
**E. Gas Supply System**

*Comments:*

*Gas Meter Location :*

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

Rear



**Gas Light - Functional:**

The gas light was observed to be functional at the time of the inspection.

<b>I   NI   NP   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: Gas Piping - Rusted**

Front, at meter

A section of the gas piping was observed to be significantly rusted and repair is needed. Repairs may include removing the rust and repainting the gas line or replacement of the rusted section of piping.

Contact a plumber to determine the entire extent of the rusted pipe and provide a cost estimate for the needed repairs.

**Obtain cost estimate**



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## V. APPLIANCES

**A. Dishwashers**

*Comments:*

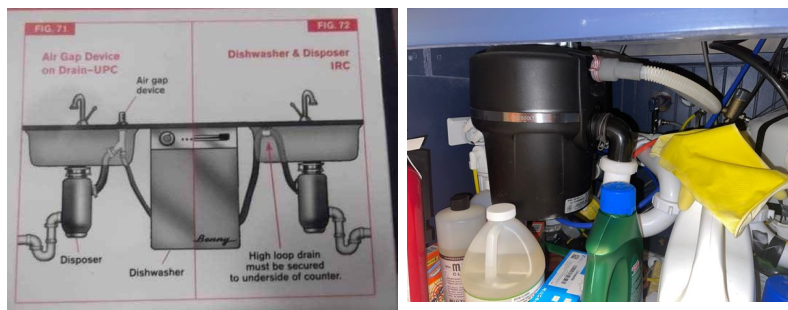
*Functional :*

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**



**B. Food Waste Disposers**

*Comments:*

*Functional:*

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

**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.

**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.



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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.

*Ovens - Left/Right calibrated properly:*

Both oven thermostats were checked and were properly calibrated. The thermostats were set at 350 degrees, and the ovens heated to within the allowable  $\pm 25$  degrees. The ovens were checked with an oven thermometer and found to heat to 350 degrees for the left oven, and 350 degrees for the right oven.

**E. Microwave Ovens**

*Comments:*

*Functional:*

No items requiring repair were visible at the time of the inspection for the heating operation of the microwave. A cup of water was placed in the unit, and the microwave heated the water adequately. It is pointed out that the unit was not checked for microwave leakage.

**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.

**G. Garage Door Operators**

*Comments:*

*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 - Dryer present :*

The vent was connected to the dryer but was not tested. It is recommended that the vent be checked for an excess of lint and that it be cleaned if necessary. (Information)

**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

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investigation is desired, it is recommended that a service company be contacted.

**Further investigation is recommended**

*Ice Maker - Functional:*

The automatic ice maker was apparently functional at the time of the inspection and the ice drawer contained ice. Ice makers normally take several hours to produce ice and the unit was not able to be observed making ice during the time of the inspection.



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## VI. OPTIONAL SYSTEMS

**A. Landscape Irrigation (Sprinkler) Systems**

*Comments:*

*Sprinkler System:* Rachio, Located at the rear of the garage, 10 zones -

An automatic sprinkler system was installed. The system included a control panel, one or more solenoid valves, underground water lines and with sprinkler heads.



*Backflow Prevention Device - present:*

A backflow prevention device was present and was equipped with the two water shut off valves on the water supply line to the sprinkler system.

Front yard



**1: Spraying - House**

Zone 2, 3, 4, 8, 9

The sprinkler system was spraying the house and needs to be adjusted.

**Obtain Cost Estimate**

I	NI	NP	D
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## 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 before your option period expires. 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>