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ENERGY AUDIT REPORT

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NOVEMBER 19, 2018



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ENERGY AUDIT REPORT

SUMMARY



ITEMS INSPECTED



LOW PRIORITY ENERGY
RECOMMENDATION



MODERATE PRIORITY
ENERGY
RECOMMENDATION

ENERGY AUDIT REPORT SUMMARY



2.1.1 Blower Door Air Infiltration Testing - Blower Door Testing Air Leakage Rate: Energy Audit Blower Door Results - Improvement Needed



3.1.1 Air Sealing - Attic Air Sealing: Seal Attic Hatch



3.1.2 Air Sealing - Attic Air Sealing: Whole house fan cover



3.2.1 Air Sealing - Basement-Crawlspace Air Sealing: Rim Joist sealing



3.3.1 Air Sealing - Interior-Exterior Air Sealing: Can lights seal



3.3.2 Air Sealing - Interior-Exterior Air Sealing: Outlet/switch gaskets



3.3.3 Air Sealing - Interior-Exterior Air Sealing: Seal at bath fan



3.4.1 Air Sealing - Window and Door Air Sealing: Door weather stripping



4.1.1 Insulation and Ventilation - Attic Insulation: Attic insulation poor



4.1.2 Insulation and Ventilation - Attic Insulation: Insulation trampled



4.3.1 Insulation and Ventilation - Basement Insulation: Basement walls uninsulated



4.4.1 Insulation and Ventilation - Crawlspace Insulation: Condition the crawlspace



5.2.1 Windows and Doors - Doors: Door replacement for efficiency



7.1.1 Cooling System - Cooling and Air Handler Equipment: Clean and service outdoor unit



8.1.1 Hot Water and Plumbing System - Hot Water Systems: Replacement options



8.1.2 Hot Water and Plumbing System - Hot Water Systems: Add insulating blanket



8.2.1 Hot Water and Plumbing System - Water Supply and Distribution Systems: Insulating pipes



8.3.1 Hot Water and Plumbing System - Temperature of Hot Water: Temperature setting



9.1.1 Lighting and Electrical System - Energy Efficient Lighting: Continue adding LED/CFL Bulbs

 9.2.1 Lighting and Electrical System - Fixtures, Switches, and Connected Devices: Smart strip

 11.1.1 Renewable Energy Options - Photo-Voltaic Solar Information: PV Solar options

1: INSPECTION DETAILS

Information

Information/Overview

ENERGY AUDIT REPORT:

The Energy Audit performed is a limited inspection to identify energy efficient improvements that would be beneficial. Included in this audit is a Blower door test to measure infiltration levels and air sealing recommendations, a review of Insulation levels, Window and door performance, Heating-Cooling system efficiency, Water-Heating efficiency, and Lighting-Appliance recommendations. The recommendations included will help to improve the long-term performance of the home. The audit is not intended to be technically exhaustive. This written report is a summary of observations and unbiased opinions and is based on the experience of the inspector.

This Energy Audit outlines and defines the areas of the home that were inspected, as well as indicating any items that were not inspected, and the reason they were not inspected. This written Inspection Report, together with a home inspection agreement, and any reports for additional services ordered, represent the final statement on the condition of the home when inspected and the final statement on what was included and/or excluded in the inspection.

INSPECTION CATEGORIES:

- 1) **Low Priority Energy Recommendation** - These are items that should be considered for upgrade, but in the opinion of the inspector are not needed immediately or will not result in significant energy efficiency improvement in relationship to cost.
- 2) **Moderate Priority Energy Recommendation** - These are items that can result in considerable energy savings, and in the opinion of the inspector will result in a moderate energy efficiency improvement in relationship to cost.
- 3) **High Priority Energy Recommendation** - These are the top items that should be addressed to improve efficiency, and in the opinion of the inspector will result in a significant energy efficiency improvement in relationship to cost.

SCOPE AND TERMS OF INSPECTION:

This confidential report is furnished for the use of the client only. It is not intended to be relied upon for any purpose by any other party not named on the report and Inspection Agreement. This inspection was performed in accordance with and under the terms of a Home Inspection Agreement. The agreement was signed and agreed upon before the preparation of this report and a signed copy of the agreement is available upon request. Scott Home Inspection conducts all inspections according to the American Society of Home Inspectors (ASHI) Standards of Practice and Code of Ethics. The complete standards can be reviewed at the following location;

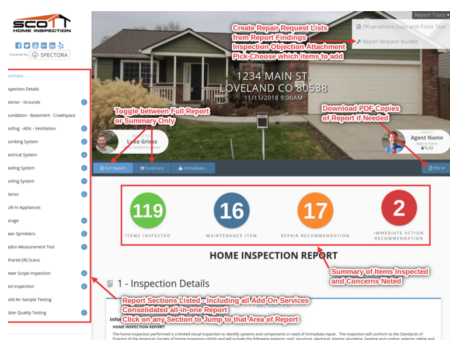
www.scotthomeinspection.com/ASHI_standards-ethics.pdf

LIMITATIONS:

Limitations exist in any home inspection. The inspector cannot see behind walls or behind hidden areas in the home. The belongings of the current occupant of the home are not moved to view areas underneath or behind such belongings.

READING YOUR INSPECTION REPORT

The inspection report from Scott Home Inspection is cloud based allowing for sharing of the report and easy navigation through sections. Click to expand the image below to give you tips and help on reading and navigating through this report.



Report Navigation Tips

In Attendance

Client

Style of Home

Single Family Home

Age of Home

35 Years

| | | |
|------------------------------------|--------------------------------|--|
| Weather Conditions Clear | Temperature Below 60 | Ground/Soil Surface Condition Damp, Partially Snow Covered |
|------------------------------------|--------------------------------|--|

2: BLOWER DOOR AIR INFILTRATION TESTING

Information

Blower Door Testing Air Leakage Rate: Overview of Blower Door Testing:

How a Blower Door Test Works:

A blower door can be used for air leakage testing or building thermal envelope testing. Blower door test equipment consists of a fan, an adjustable doorway block, a manometer, and hoses. The fan is set up in a doorway and sealed around the opening. All the windows, doors, flues, and vents (where applicable) are closed or sealed off during the test. The fan is run for a short period of time up to a certain pressure rating. At that pressure, the manometer will measure the amount of air moving through the fan in cubic feet per minute. A simple calculation with this number and the square footage of the home will give you the Air Changes Per Hour (ACH). The results of blower door testing will help determine whether air sealing of the home is recommended to help improve comfort and improve the energy efficiency of the home.

Recommendations

2.1.1 Blower Door
Testing Air Leakage Rate

 Moderate Priority Energy Recommendation

ENERGY AUDIT BLOWER DOOR RESULTS - IMPROVEMENT NEEDED

The air sealing in the home can be improved. The blower door test measured 2983 CFM at 50 PA, which calculates to 5.4 Air Changes per Hour at 50 PA, or .36 NACH (Natural Air Changes per Hour). A NACH over 0.30 indicates leakage rates where air sealing efforts would be beneficial. The following areas noted in the Air Sealing section were discovered and need to be improved.

Recommendation

Contact a qualified professional.



3: AIR SEALING

Information

General Info on Air Sealing

The following areas of leakage were discovered and need to be improved. For further information on ways you can improve efficiency by air sealing your home, visit [this useful resource](#).

Recommendations

3.1.1 Attic Air Sealing

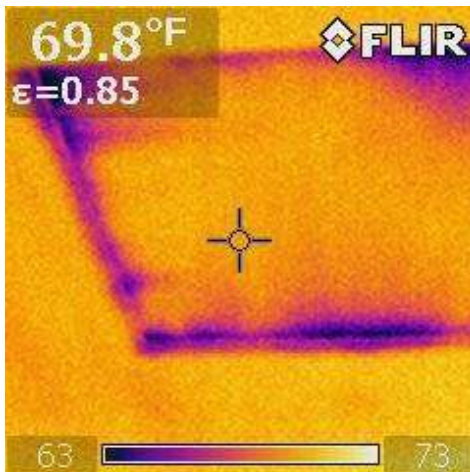
SEAL ATTIC HATCH

 Moderate Priority Energy Recommendation

Attic Hatch - Weather-strip the attic hatch edges, so that when the hatch drops, it rests on the weather stripping. Also, ensure the upper part of the hatch cover is insulated to at least R-30. If possible, have tightening cam latches installed to keep hatch securely closed.

Recommendation

Contact a qualified handyman.



3.1.2 Attic Air Sealing

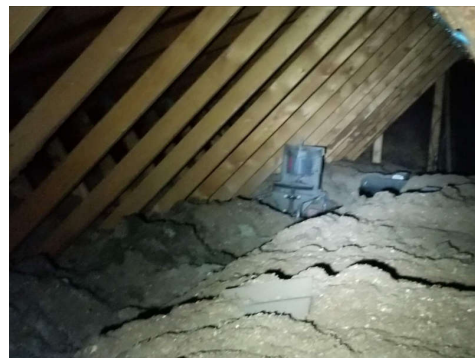
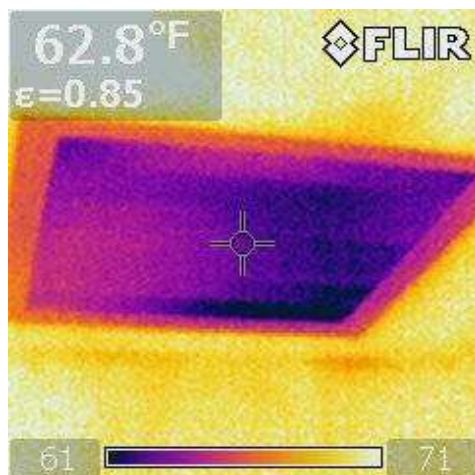
WHOLE HOUSE FAN COVER

 Moderate Priority Energy Recommendation

An insulating cover is needed for the attic side of the fan unit, to be installed over this fan during cold months. This will prevent heat losses into the attic from the fan area.

Recommendation

Contact a qualified handyman.



3.2.1 Basement-Crawlspace Air Sealing

RIM JOIST SEALING

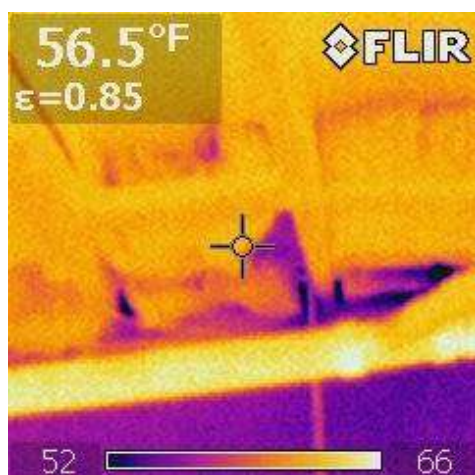


Moderate Priority Energy Recommendation

Seal all the rim joist areas in the basement, where cold air leakage is occurring. This will involve removing the insulation in these areas, if present, sealing all edges, and replacing the insulation.

Recommendation

Contact a qualified handyman.



3.3.1 Interior-Exterior Air Sealing

CAN LIGHTS SEAL

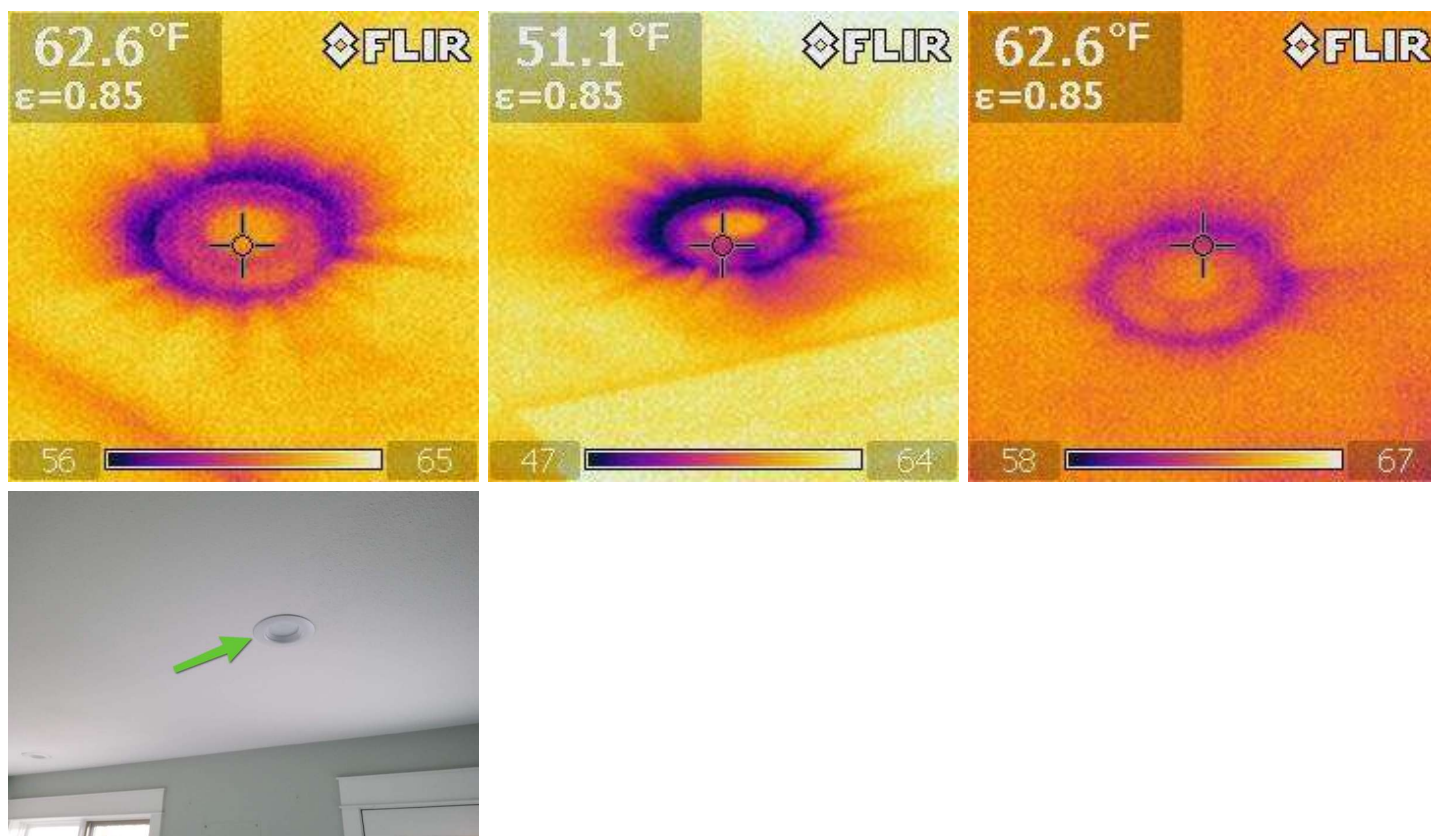


Moderate Priority Energy Recommendation

Seal the recessed light fixtures in the home. The majority of the leakage present is occurring around the edge of the light, in the space between the drywall and the edge of the light can. This gap needs to be sealed. Seal around the edges with the trim and bulb are removed from inside the home, with an appropriate fire rated caulking. The better alternative is to seal all these light fixtures in the attic, around the edges of the cans, adjacent to the drywall, where access is available in the attic.

Recommendation

Contact a qualified handyman.



3.3.2 Interior-Exterior Air Sealing

OUTLET/SWITCH GASKETS

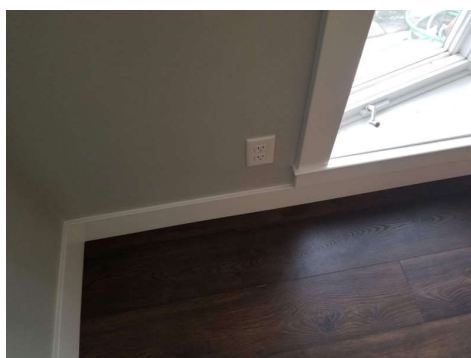
Install foam sealing gaskets behind exterior wall electric outlet and switch covers. Plug unused electrical outlets on exterior walls with child-safety plugs. These items can be purchased at any hardware store. It is recommended that power be removed to the outlets and switches when installing gaskets for safety.

Recommendation

Contact a qualified handyman.



Moderate Priority Energy Recommendation



3.3.3 Interior-Exterior Air Sealing

SEAL AT BATH FAN

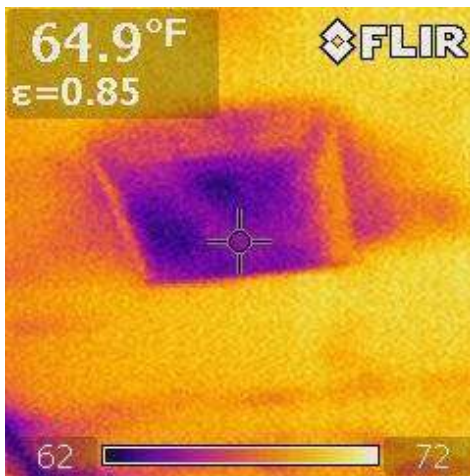


Moderate Priority Energy Recommendation

The bathroom vent fan has air leakage around the edges of the fan assembly. From within the attic, if possible, or around the edges with the trim/cover removed, seal around the edges adjacent to the drywall, to stop the air leakage from occurring.

Recommendation

Contact a qualified handyman.



3.4.1 Window and Door Air Sealing

DOOR WEATHER STRIPPING

ENTRY

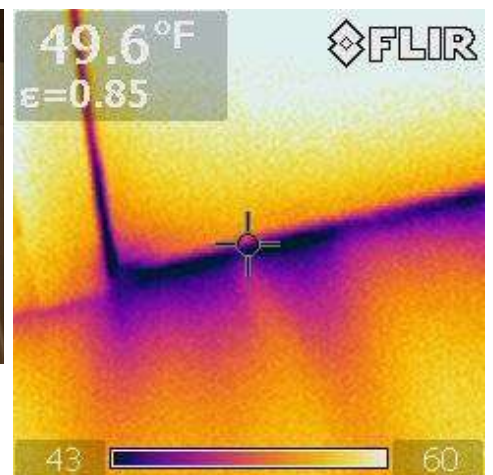
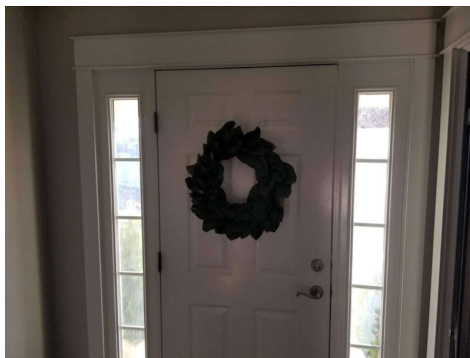
The door needs to have the weather-stripping replaced around the edges, to prevent air leakage and heat loss from occurring. Replacement pieces of weather-stripping can usually be purchased at most hardware stores and installed where needed to seal off gaps. Follow [this link](#) for more information on weather-stripping doors.

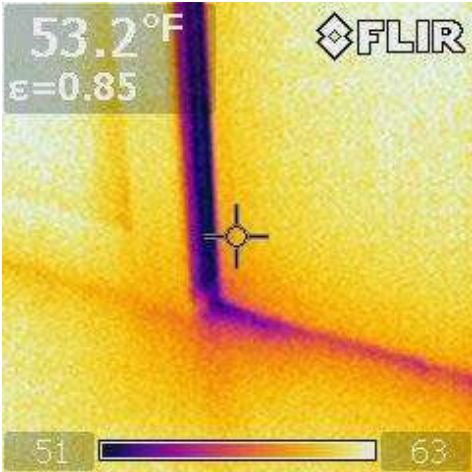
Recommendation

Contact a qualified handyman.



Moderate Priority Energy Recommendation





4: INSULATION AND VENTILATION

Information

DESCRIPTIONS:

The materials, styles and components present and observable are described as follows:

| | | |
|--|--|--|
| Attic Insulation Levels R-49, Blown Cellulose, Blown Rockwool | Walls to Exterior Insulation Levels R-19 | Basement Insulation Levels No Insulation Observed Crawlspace Insulation Levels No Insulation Observed |
|--|--|--|

OBSERVATIONS AND RECOMMENDATIONS:

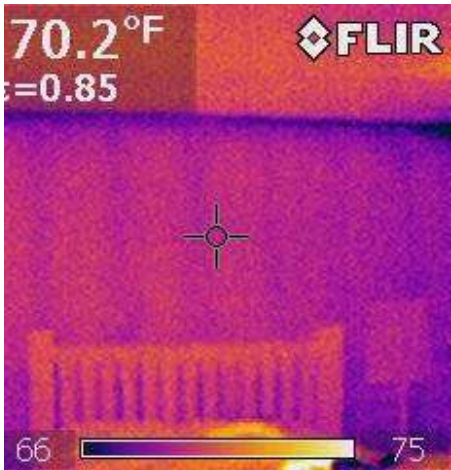
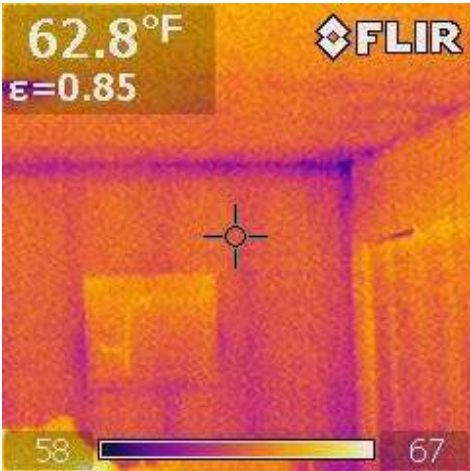
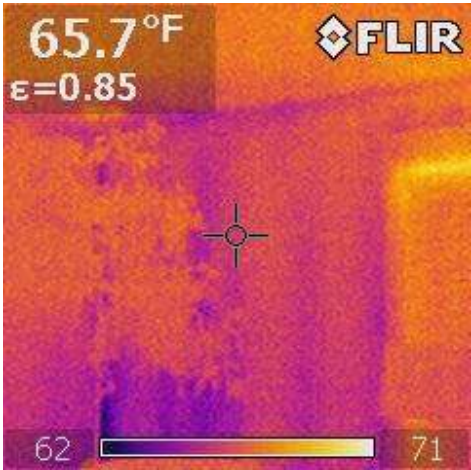
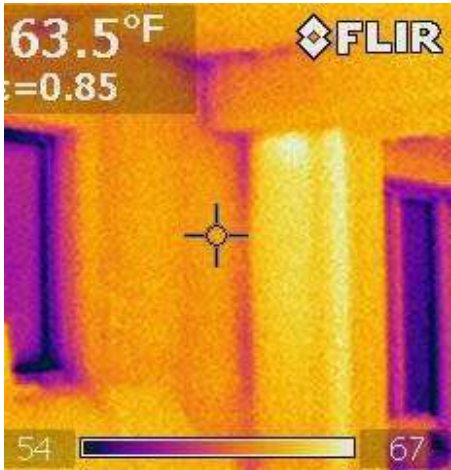
The following items were Inspected and Observed, with any Recommended Actions noted:

Insulation and Ventilation Overview

The insulation is inspected where visible at basements, crawlspaces, attics, vaulted or finished ceilings, and at any wall or floor assemblies adjacent to the outside or garage spaces. When not visible, some probing may be done, to try to determine cavity depth and whether or not insulation is present. Infrared scans are also conducted, to ensure no significant voids or un-insulated areas are present.

Wall Insulation: No Concerns Noted

A basic inspection of the wall insulation was done using infra-red scans, and observing insulation levels behind outlet plates, where possible. This limited inspection showed that the walls appear to be insulated well at this time. No gaps, voids or missing areas were noted.



Garage Ceiling Insulation: No Concerns

The floors over the garage were viewed with Infrared and appear to be adequately insulated, with no significant voids or gaps noted.



Recommendations

4.1.1 Attic Insulation

ATTIC INSULATION POOR



Moderate Priority Energy Recommendation

The attic system is not insulated well enough. Heat loss can occur more on this home than one that is properly insulated. I recommend adding additional insulation at this time. The recommended R-value by today's standards is R-50.

Recommendation

Contact a qualified insulation contractor.

4.1.2 Attic Insulation

INSULATION TRAMPLED



Moderate Priority Energy Recommendation

The insulation has been trampled, spread thin, or pulled away in areas of the attic space. Increased heat loss can occur in these areas. An insulation professional should repair, or add more insulation as needed.

Recommendation

Contact a qualified insulation contractor.



4.3.1 Basement Insulation

BASEMENT WALLS UNINSULATED



Moderate Priority Energy Recommendation

The concrete foundation walls are not insulated where visible. This is causing the basement to be colder than the rest of the home. I recommend adding fiberglass batt insulation, or vinyl faced fiberglass sheet insulation to the concrete walls where accessible.

Recommendation
Contact a qualified insulation contractor.



4.4.1 Crawlspace Insulation

Moderate Priority Energy Recommendation

CONDITION THE CRAWLSPACE

Considerable air leakage is occurring at the crawlspace, and the floors above are noted to be colder than the floors in the rest of the home. It is recommended that you consider converting this to become a conditioned crawlspace, which will improve energy efficiency and prevent moisture concerns. To accomplish this, typically the following steps are taken: The vapor barrier should be installed to cover all of the soil, and the vapor barrier should be attached and sealed to the foundation walls along the perimeter, as well as sealed at all seams throughout the crawlspace. Insulation should be installed at the rim joists and on the foundation walls to drape over the sealed edges of the vapor barrier. Seal off the crawlspace vents to the exterior, and consider sealing at the exterior sill plates on the foundation where accessible to minimize air leakage. An HVAC professional should also investigate installing a heat supply into the crawlspace, which will provide drying and air exchange. This will result in a somewhat conditioned crawlspace that will be less prone to air leakage and condensation occurring on the underside of the floor system from cold air entering in the wintertime. Consult with an insulation or HVAC specialist to verify these recommendations and to determine other repair options.

Recommendation
Contact a qualified insulation contractor.



5: WINDOWS AND DOORS

Information

DESCRIPTIONS:

The materials, styles and components present and observable are described as follows:

Window Glazing Types

Double Pane

OBSERVATIONS AND RECOMMENDATIONS:

The following items were Inspected and Observed, with any Recommended Actions noted:

Windows and Doors Overview

The windows and doors to the exterior are visually inspected for efficiency quality, and for any operational or sealing concerns that can affect air leakage.

Windows: No Immediate Concerns Noted

The windows in the home are currently double-pane type windows, with no performance or air-sealing concerns noted. No action is recommended from an energy efficiency standpoint at this time.



Recommendations

5.2.1 Doors

DOOR REPLACEMENT FOR EFFICIENCY

BASEMENT

Consider replacing the door from the basement to the garage stairwell with a steel, insulated core door. The door is of poor insulating quality, and is likely allowing cold air to conduct into the home.

Recommendation

Contact a qualified door repair/installation contractor.

 Moderate Priority Energy Recommendation



6: HEATING SYSTEM

Information

DESCRIPTIONS:

The materials, styles and components present and observable are described as follows:

| | | |
|---|---|--|
| Primary Heating System FORCED AIR | Heat System Brand GOODMAN | Energy Source NATURAL GAS |
| Approximate Age 10 YEARS OLD | Number Of Heat Systems (Excluding Wood) ONE | Types Of Fireplaces SOLID FUEL |

OBSERVATIONS AND RECOMMENDATIONS:

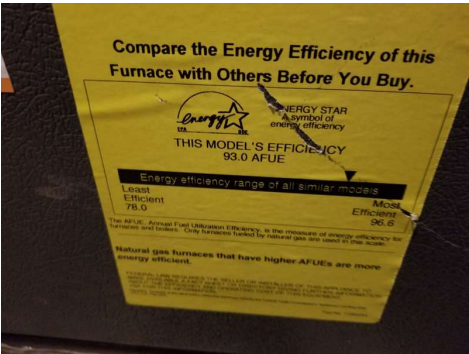
The following items were Inspected and Observed, with any Recommended Actions noted:

Heating System Overview

The primary heating equipment, thermostats, ducts or distribution systems, and fireplaces or wood stoves are inspected for operational or efficiency concerns.

Heating Equipment: Furnace - No Immediate Concerns Noted

The existing furnace is a high-efficiency, condensing unit and is in good operating condition at this time. No actions are recommended from an energy efficiency standpoint.



7: COOLING SYSTEM

Information

DESCRIPTIONS:

The materials, styles and components present and observable are described as follows:

| | | |
|--------------------------|-----------------|--------------------------|
| Central Air Manufacturer | Approximate Age | Number Of A/C Only Units |
| GOODMAN | 10 YEARS OLD | ONE |
| Equipment Type | Energy Source | |
| AIR CONDITIONER UNIT | ELECTRICITY | |

OBSERVATIONS AND RECOMMENDATIONS:

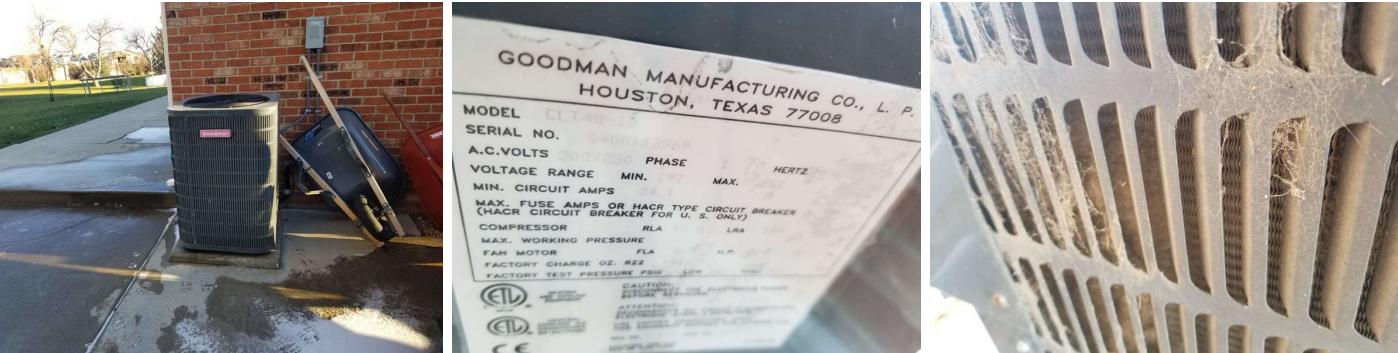
The following items were Inspected and Observed, with any Recommended Actions noted:

Cooling System Overview

The primary cooling equipment, thermostats, and ducts or distribution systems are inspected for operational or efficiency concerns.

Cooling and Air Handler Equipment: AC - No Immediate Concerns Noted

The existing AC unit is a high-efficiency model and is in good operating condition at this time. No actions are recommended from an energy efficiency standpoint.



Recommendations

7.1.1 Cooling and Air Handler Equipment

Low Priority Energy Recommendation

CLEAN AND SERVICE OUTDOOR UNIT

The condensing unit outside has a buildup of debris. This can reduce the efficiency of the unit considerably. Cleaning is needed at this time. An HVAC professional should clean and service as needed.

Recommendation

Contact a qualified HVAC professional.



8: HOT WATER AND PLUMBING SYSTEM

Information

DESCRIPTIONS:

The materials, styles and components present and observable are described as follows:

| | | |
|---------------------------|-----------------------|--------------|
| Water Heater Power Source | Water Heater Capacity | Manufacturer |
| NATURAL GAS | 50 GALLON | RHEEM |
| Approximate Age | | |
| 15 YEARS OLD | | |

OBSERVATIONS AND RECOMMENDATIONS:

The following items were Inspected and Observed, with any Recommended Actions noted:

Hot Water and Plumbing System Overview

The water heating equipment, water supply and distribution systems, and plumbing fixtures are inspected for operational or efficiency concerns. The temperature of the hot water is also measured to ensure that the water heater is set at the best setting for efficiency.

Recommendations

8.1.1 Hot Water Systems

REPLACEMENT OPTIONS

 Moderate Priority Energy Recommendation

Your water heater is older and is approaching the end of its useful life. I would recommend that you consider a high efficiency or tank-less system when replacing. These systems are much more efficient. The other option is to consider solar-hot-water systems. For more information, refer to [this link](#).

Recommendation

Contact a qualified plumbing contractor.



8.1.2 Hot Water Systems

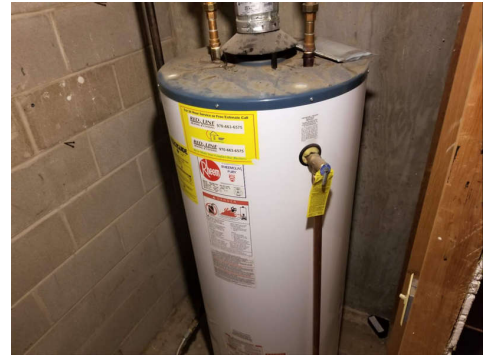
ADD INSULATING BLANKET

 Low Priority Energy Recommendation

Consider installing an insulating blanket on the hot water heater, which will help reduce energy use and ambient losses.

Recommendation

Contact a handyman or DIY project



8.2.1 Water Supply and Distribution Systems

INSULATING PIPES

BASEMENT

Insulate accessible hot water piping coming from the water heater with low cost foam wrap insulating material. This should be done for the first 6 feet of both hot and cold piping off the water heater, and wherever possible on the hot line.

Recommendation

Contact a handyman or DIY project



Low Priority Energy Recommendation



8.3.1 Temperature of Hot Water

TEMPERATURE SETTING

The water heater temperature setting is too high, and the water temperature was measured at >135F. This will cause excessive energy use from the water heater. I recommend reducing the set-point to help reduce costs and save energy. The Department of Energy recommends 120F as the optimum setting for efficiency. See [here](#) for more details.

Recommendation

Recommended DIY Project



Low Priority Energy Recommendation



9: LIGHTING AND ELECTRICAL SYSTEM

Information

Lighting and Electrical System Inspection Overview:

The lighting in the home is assessed for opportunities to reduce energy consumption with different style bulbs and fixtures. The overall fixtures and connected devices are also inspected and reviewed.

Recommendations

9.1.1 Energy Efficient Lighting

CONTINUE ADDING LED/CFL BULBS



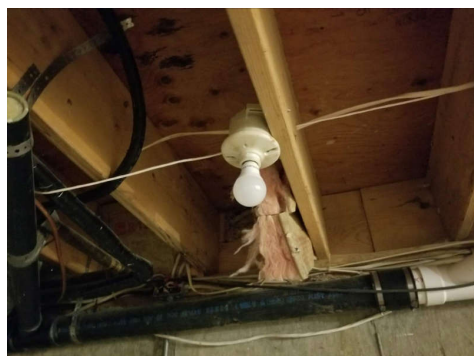
Low Priority Energy Recommendation

Currently, there are many LED or CFL bulbs in use in the home. Continue to install LED's or CFL's in as many non-dimmed light fixtures as possible. LED and CFL bulbs consume 1/4 the power of incandescent lights, and often last up to 10 times longer. This will help to reduce your overall electric energy consumption. For more information visit [here](#).

For information on a bulb that I recommend, visit [here](#).

Recommendation

Contact a handyman or DIY project



9.2.1 Fixtures, Switches, and Connected Devices

SMART STRIP



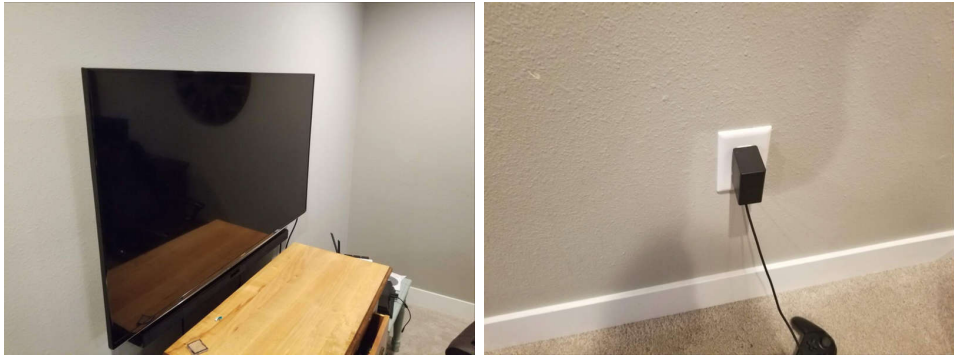
Low Priority Energy Recommendation

For entertainment center areas and computer system areas, I recommend that you consider using "smart-strip" power strips. These devices use one device as the primary device, and completely remove power to all the secondary devices plugged into the power strip, when the primary or control device is turned off.

This removes the phantom or ghost loads that some devices have, where they continue to consume power even when turned off. Smart-strips are sold at local hardware stores and through on-line retailers. An on-line resource for these products is www.tricklestar.com

Recommendation

Recommended DIY Project



10: APPLIANCE REVIEW

Information

Appliance Inspection Overview:

The appliances in the home are inspected to review their age and likely energy efficiency and performance. General energy related recommendations are made to consider when replacing one of the appliances.

Refrigerator/Freezer: No Immediate Concerns

The refrigerator installed in the home is a newer style unit, and likely has acceptable power consumption. No energy efficiency action is recommended at this time.



Clothes Washer/Dryer: No Immediate Concerns

The washer and dryer installed in the home are newer, front-load units and are in good condition. No improvement action is recommended.



11: RENEWABLE ENERGY OPTIONS

Information

Solar and Renewable Energy Options:

Opportunities exist with every home to add renewable energy products to help offset overall consumption. We believe that the significant insulation, air sealing and equipment efficiency options to improve should be considered first. After high priority concerns are addressed, options exist for installing renewable energy items, with specific recommendations below.

Recommendations

11.1.1 Photo-Voltaic Solar Information

 Moderate Priority Energy Recommendation

PV SOLAR OPTIONS

Once the high priority energy efficiency improvements noted in this report are implemented, you should consider the installation of Photo-Voltaic Solar Panels. There are rebates and tax credits available to help reduce the up-front costs. PV systems represent the best opportunity to offset your electric use and consumption, and are an excellent means of reducing your net energy use. For additional information on this technology visit [this useful resource](#).

Recommendation

Contact a qualified professional.

