energy conservation solutions

Earthcents Home Energy Audit

Mr. John Doe

Property Address:
123 Easy Street
Atlanta GA 30316

123 Easy Street

Energy Conservation Solutions

Paul Bazen BPI #5054662
840 Dekalb Ave Ste C
Atlanta, GA 30307
404 308-0711

Date: 6/12/2015	**Time:** 09:00 AM	**Report ID:** Fake Customer 1
Property: 123 Easy Street Atlanta GA 30316	**Customer:** Mr. John Doe	

This is a 1940's vintage one story home with a conditioned basement and 2007 addition built on to . The homeowner intends to own the home long term. He is concerned about high seasonal utility bills and poor air conditioning throughout.

The detailed audit will help identify what improvements can be made to increase temperature consistency in the home and lower the power and gas bills. The homeowners plans to take advantage of the GA Power rebate program to assist with the cost of implementing the efficiency improvements.

In Attendance:	**Type of building:**	**Level(s) above grade:**
home owner	Single Family (1 story)	1
Approximate age of building:	**Building faces:**	**Temperature:**
Over 50 Years	East	Over 65
Weather:	**Ground/Soil surface condition:**	**Rain in last 3 days:**
Clear	Damp	Yes

I. Energy Conservation Measures ECM

About Home Performance with ENERGY STAR ®

Many homeowners pay high energy bills only to suffer from hot or cold spots, drafts, mold, and excessive dust. These issues are common signs of a house that is not properly insulated, has too many small holes and cracks that allow air leaks, has a heating and cooling system that is improperly sealed, or lacks effective moisture control.

Home Performance with ENERGY STAR developed by the Environmental Protection Agency and U.S. Department of Energy is a program specifically designed to address these issues. It is a voluntary program for home improvement contractors who want to use a whole-house, integrated approach for diagnosing and solving a home's problems. Home Performance with ENERGY STAR standards help ensures comprehensive, unbiased recommendations.

Inspection items:

1.0 Color coded key

Items in this portion of the report have been divided into priority levels:

A.High Priority: Items in the category will yield the highest return on investment or are deficient to the point that immediate attention is required.

B.Medium Priority: These are worth while improvements that will pay for themselves over time.

C.Low Priority: Implementing these improvements will help achieve maximum efficiency.

S.Safety: These items should be addressed immediately for personal health and safety.

1.1 Air Changes per Hour

Priority Level C

ACH - Air changes per hour is a measure of how many times the air within a house is replaced by the outside air.

Here are the three most important rules to remember as it relates to **ACH**:

1. Warmer air will always move to colder air.

2. For every 1 CFM (cubic foot per minute) of air that leaves the home 1 CFM of air must re-enter.

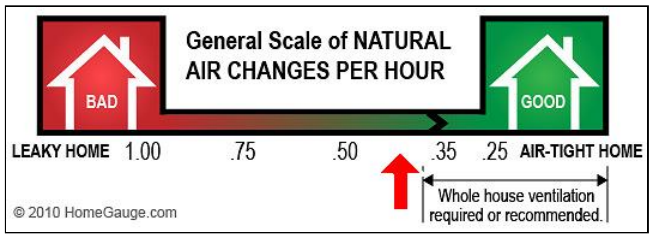
3. Air always travels through paths of least resistance.

For Example: In the winter, the interior of the home is heated. Your attic is unconditioned and is as cold as the outside. The interior heat will enter the ceiling through paths of least resistance toward the cool attic air and eventually will escape outside through bypasses in the thermal envelope. Since the air has been displaced, it will re-enter the home through paths of least resistance (foundation vents, under baseboards, floor boards). This is called a **Stack Effect** (Picture 1) and it is through this method in which your home exchanges air with the outside. This process is reversed in the summer months resulting in heat gain.

If your heating and cooling systems are working harder than usual to condition the inside air and if you are colder or warmer in certain parts of the home than in others, this is often attributed to air exchange.

Your home tested at .41 ACH which is just 17% higher than an optimal reading. (Picture 2) **Your home is in the rare situation we encounter where your house is already fairly tight. The ACH reading does still indicate that some heating and AC is being lost through leaks in the building thermal envelope. Addressing the deficiencies identified in Items 1.2 through 1.10 will improve temperature consistency in the home and decrease heating and cooling costs.**

1.1 Picture 1 Stack Effect



1.1 Picture 2 The ACH of your home

1.2 Exterior Doors

Priority Level A, Priority Level S

(1) **The front door weatherstripping is in poor shape and the door fins are old/worn out.**(Picture 1) (Picture 2)

The kitchen and double door weatherstripping is compressed. The door fins are old/worn out and the deadbolt is loose due to no strikeplate. Each of these deficiencies all contributing to a poor air seal. (Picture 3) (Picture 4) (Picture 5) (Picture 6)

The master bedroom double doors have chewed up weatherstripping allowing for easy air infiltrations.(Picture 7)

The basement door has no air sealing measures in place easily allowing unconditioned crawlspace air into the conditioned basement.(Picture 8)

The door fins on the basement door to the exterior have reached the end of their lifespan.(Picture 9)

Leaky doors allow easy air exchange between living space and outside air. This is a source of energy loss and a source of uncomfortable drafts. It is also a point of entry for pests.

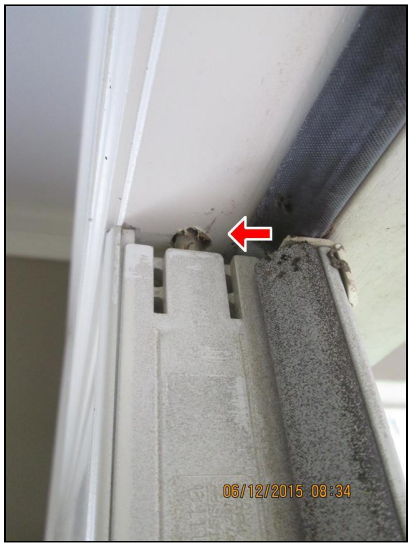
We recommend replacing all damaged/compressed weatherstripping in conjunction with U-channels or door sweeps at the bottom of each of the doors. We also recommend adjusting the strikeplates (and installing strikeplates, where missing) to ensure a tight door seal.

Additionally, we recommend sealing interior door trim with clear silicone caulk.

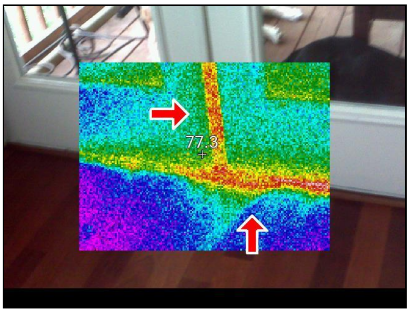
1.2 Picture 1 Worn out door fins on front door

1.2 Picture 2 Front door weatherstripping is in very poor shape

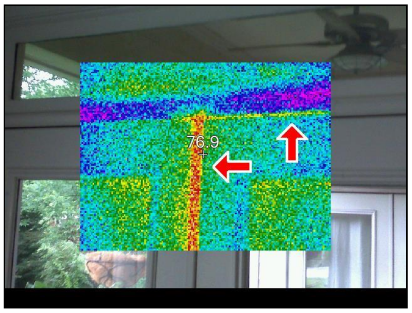
1.2 Picture 3 Kitchen double doors have compressed weatherstripping



1.2 Picture 4 No strikeplate for double door deadbolt

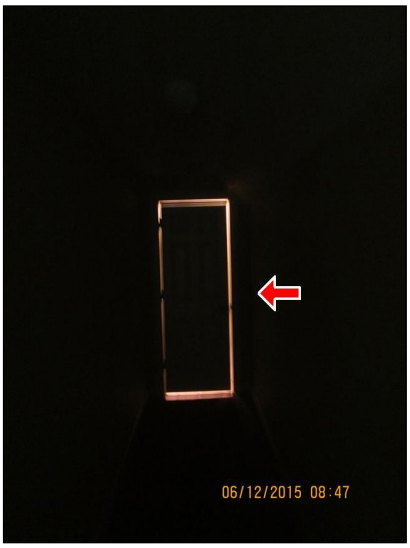


1.2 Picture 5 Failing door fins and weatherstripping on kitchen double doors

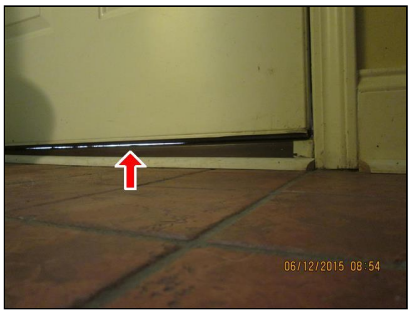


1.2 Picture 6 T-bar weatherstripping and top of double doors showing significant air leakage

1.2 Picture 7 Chewed up weatherstripping on master bedroom double doors



1.2 Picture 8 Portal to another dimension, or unsealed basement door to mechanical room



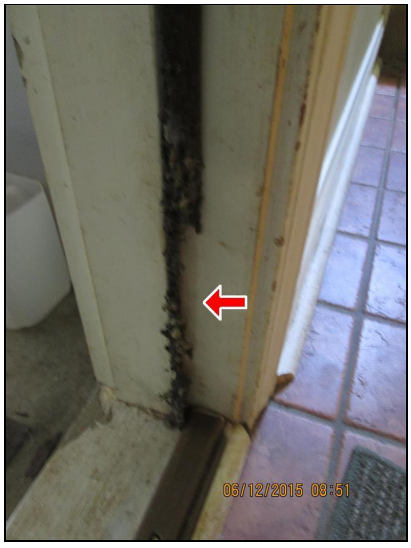
1.2 Picture 9 Daylight visible under basement exterior door

(2) **The door to the garage is leaky due to chewed up weatherstripping and unsealed interior trim.**(Picture 10) (Picture 11) (Picture 12)

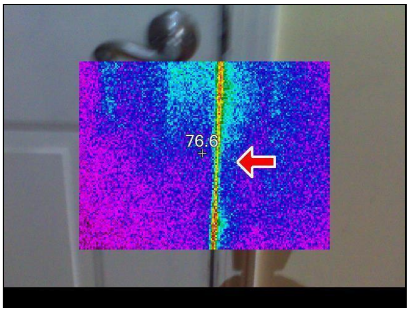
Garages are a source of hazardous gases such as Carbon Monoxide (CO). Air exchange between the conditioned living space and the garage is therefore considered a health and safety issue. Additional safety item relating to air exchange with the garage is covered in section 1.4(2) and 1.14.

We highly recommend replacing all damaged/compressed weatherstripping, installing a U-channel or door sweep at the bottom of the door and adjusting the strikeplate to ensure a tight door seal.

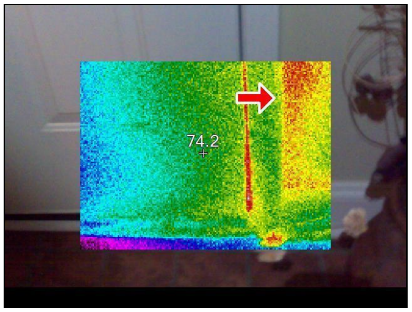
We also highly recommend installing a CO monitor near to this door.



1.2 Picture 10 Garage door weatherstripping in very poor condition



1.2 Picture 11 Leaky door to garage



1.2 Picture 12 Significant air exchange between garage and conditioned living space via interior door trim

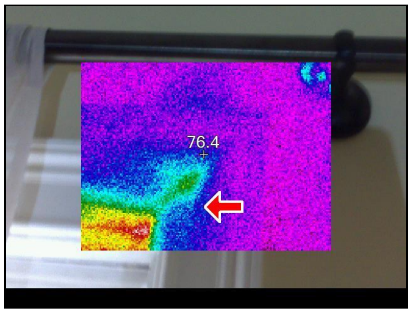
1.3 Windows

Priority Level B

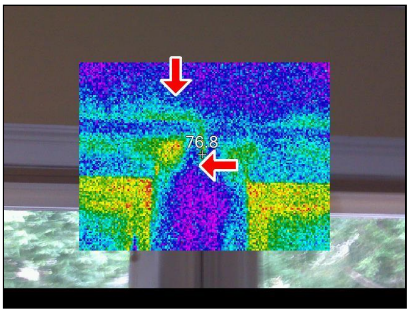
There are double-pane windows throughout the home, all in good shape. Very nice!

However, interior trim around the 1st floor bedroom windows are a source of air exchange throughout the home, allowing valuable conditioned air to escape from the building envelope and in turn increasing heating and cooling costs.(Picture 1) (Picture 2) (Picture 3)

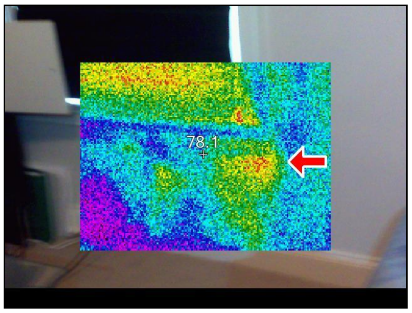
We recommend air sealing all interior window trim in the 1st floor bedrooms with clear silicone caulk.



1.3 Picture 1 Interior window trim air leakage



1.3 Picture 2 Interior window trim air leakage in master bedroom



1.3 Picture 3 Interior trim air leakage from bedroom window

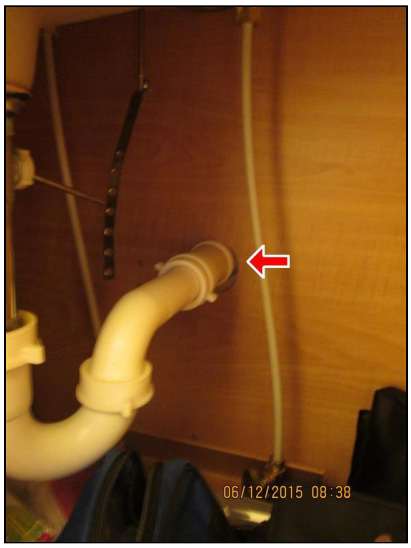
1.4 Seal pumbing penetrations

Priority Level A, Priority Level S

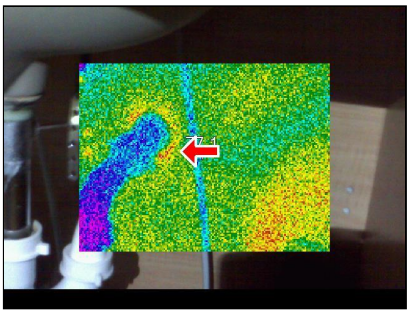
(1) **Plumbing penetrations throughout the home were not sealed and thermal imaging revealed them to be leaky.**(Picture 1) (Picture 2)

Unsealed plumbing penetrations allow unwanted air exchange between wall cavities and conditioned living space and are an easy, low cost fix.

We recommend sealing all plumbing penetrations with either expanding foam or clear silicone caulk.



1.4 Picture 1 Unsealed plumbing penetration in the master bathroom



1.4 Picture 2 Air exchange through unsealed plumbing penetration

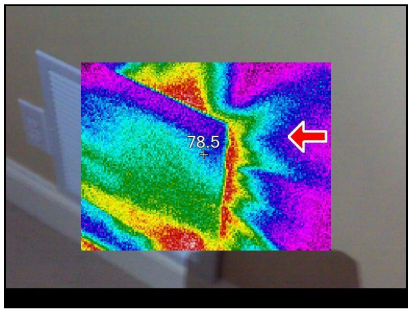
(2) **The plumbing access panel in the master bedroom is allowing significant air exchange.** (Picture 3) **The floor of the bath and master bedroom is shared with the garage.**

Garages are a source of hazardous gases such as Carbon Monoxide (CO). Air exchange between the conditioned living space and the garage is therefore considered a health and safety issue.

The best option is to seal and insulate the subfloor by installing 2" of closed cell sprayfoam (see section 1.14 for more information).

A lower cost option is to air seal the access panel by installing rigid foam board in the plumbing access aperture and air sealing the perimeter with silicone caulk or expanding foam.

We highly recommend installing a CO monitor near to this area.



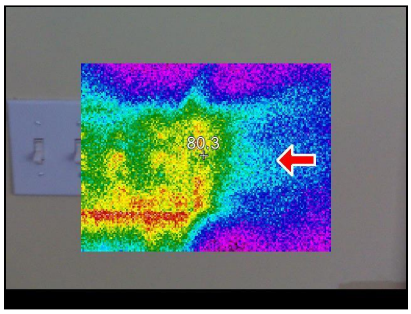
1.4 Picture 3 Significant air exchange via plumbing access panel

1.5 Seal and insulate wall switch and outlet boxes

Priority Level C

Leakage was detected from many of the electrical outlet and light switch penetrations throughout the home. (Picture 1) **This is mainly attributed to the air exchange through the exterior wall cavities that is entering the home from around the electrical boxes.**

We recommend installing insulating gaskets behind all outlet and switchplate covers along the exterior walls to help mitigate air exchange. This is inexpensive and easy to do. These gaskets can be purchased at most hardware stores, such as Lowes or Home Depot.



1.5 Picture 1 Air leakage via wall switches and outlet boxes

1.6 Seal Crown Molding/Baseboards

Priority Level B

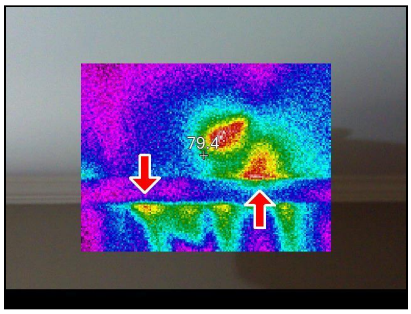
(1) **The master bedroom crown molding and baseboards are poorly sealed.**(Picture 1) (Picture 2) (Picture 3)

The baseboard trim beneath the mast bathroom cabinets is also leaky.(Picture 4)

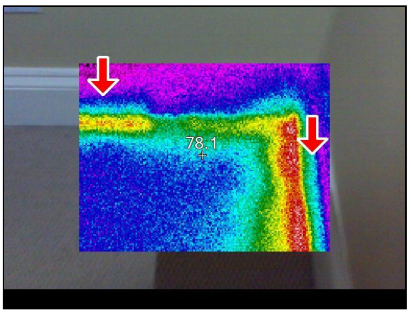
Leaky baseboards/crown molding is indicative of a gap behind the molding where the floors/ceilings and walls meet, allowing air exchange between living space and unconditioned space.

We recommend that the crown molding in the master bedroom be sealed with clear silicone caulk.

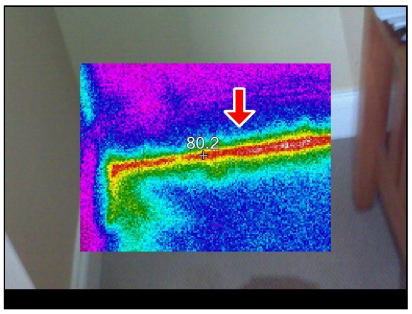
This improvement will not be necessary if if you elect to encapsulate the attic in sprayfoam.



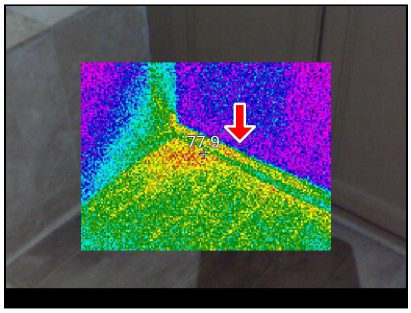
1.6 Picture 1 Significant air leakage through crown molding



1.6 Picture 2 Leaky baseboards in the master bedroom



1.6 Picture 3 Significant air leakage from baseboards



1.6 Picture 4 Air exchange from underneath master bathroom cabinets

(2) **The master bedroom and bathroom are both located directly above the garage.**

Garages are a source of hazardous gases such as Carbon Monoxide (CO). Air exchange between the conditioned living space and the garage is therefore considered a health and safety issue. Additional safety items relating to air exchange with the garage are covered in Sections 1.2, 1.4 and 1.14.

The best option is to seal and insulate the Master bath/bedroom subfloor by installing 2" of closed cell spray-foam (see section 1.14 for more information). This would create an air seal between the garage and conditioned living space above, meaning air sealing the master bedroom baseboards would not be necessary.

A lower cost option would be to pull back all carpeting and seal the baseboards in the master bedroom, as well as the baseboards beneath the bathroom cabinets, with clear silicone caulk.

We highly recommend installing a CO monitor in these areas.

1.7 Recessed lights (regarding safely insulating, air sealing or replacing with IC Rated)

Priority Level B, Priority Level S

We counted 18 recessed lights in the ceiling of the main floor in your home. Thermal imaging revealed significant leakage through the hole surrounding the lights leading to the attic. (Picture 1)

Additionally, safety measures were not taken when installing cellulose insulation in the attic - Cellulose insulation is in direct contact with non-IC Rated can lights, which is a fire hazard. Insulation has already melted to the exterior of the can lights.(Picture 2) (Picture 3)

One solution for this particular situation is to install fire retardant can light covers over the backsides of each of the lights sealed to the floor of the attic with expanding foam. However, this is costly to do this for so many can lights.

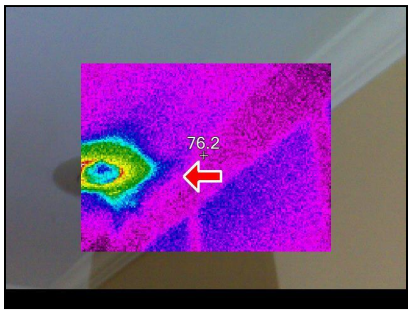
For your home, we recommend installing LED can light retrofit kits that come with a gasket to seal off the attic air from entering the home. This effectively kills 3 birds with one stone:

1. These kits come with a gasket that seals off the gap around the light to prevent air exchange.

2. LED's are high-efficiency, long-lasting lights that will reduce your power consumption.

3. LED's produce very little heat eliminating the fire hazard of having the backsides of the lights in contact with insulation.

If you elect to encapsulate the attic, the air sealing measures would not be necessary, however the fire safety aspect would still be an issue. We would recommend installing LED can light retrofits in this case also, as points 2 and 3 would still be valid solutions.



1.7 Picture 1 Significant air leakage from recessed lighting

1.7 Picture 2 Insulation touching non-IC Rated can lights is a fire hazard

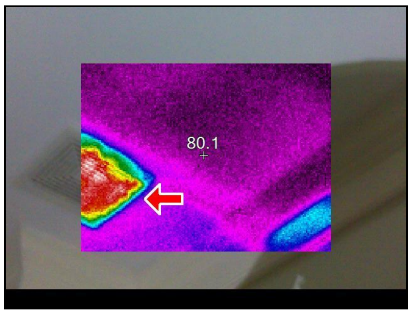
1.7 Picture 3 Cellulose attic insulation has melted to the can light

1.8 Bathroom ventilation fan

Priority Level A

The bathroom ventilation fans on the 1st floor only vent near to the soffit and not to the exterior of the home. This allows an easy pathway for attic air to enter the home. Item 1(Picture) **This also means that bathroom humidity is being vented into the attic space which can cause mold and/or insulation breakdown.**

We recommend venting both bath fans to the exterior via running bath fan ductwork to the soffit and installing exhaust dampers in the soffit that will close when the fan is not being used.



1.8 Picture 1 Free air exchange with the unconditioned attic via bath fan with no damper

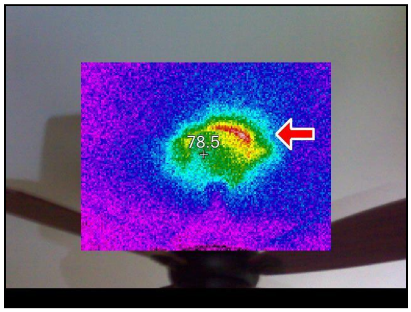
1.9 Attic floor penetrations

Priority Level A

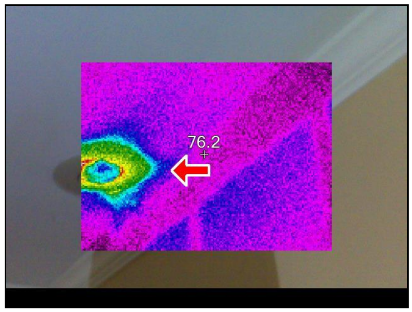
Unsealed penetrations along the attic floor are pathways for attic air to impact the interior temperature of the home. There are multiple ceiling fans and lighting fixtures that are allowing air exchange with the attic. (Picture 1) (Picture 2)

We recommend sealing all attic floor penetrations with caulk, backer board, or expanding foam and/or fire rated sealant.

If you elect to encapsulate the attic with closed cell sprayfoam, these measures will not be necessary.



1.9 Picture 1 ceiling fan attic penetration



1.9 Picture 2 Recessed lighting allowing air exchange between attic and conditioned living space

1.10 Attic entry door(s)

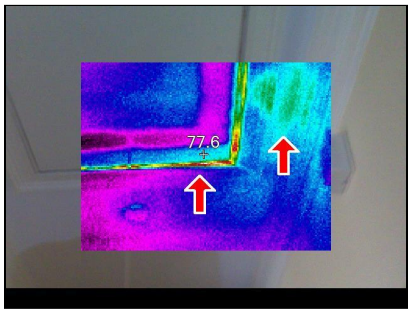
Priority Level A

The attic access door tested as being very leaky. The trim around the attic access also has significant air exchange (Picture 1) (Picture 2) (Picture 3)

This allows the hot or cold attic air from the attic to come into the home resulting in wasted energy and uneven temperatures in the home. Radiant heat gain through the uninsulated door is also a problem in the hot summer and cold winter months.

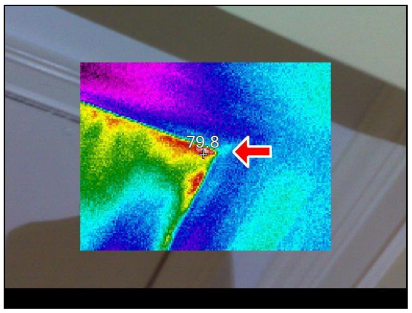
We recommend installing a zip-up attic tent that is air sealed to the floor of that attic around the perimeter with expanding foam or caulk. We also recommend sealing the surrounding attic access trim with clear silicone caulk.

If you elect to encapsulate the attic with closed cell sprayfoam, this improvement will not be necessary.



1.10 Picture 1 Significant air leakage from both unsealed attic access door and surrounding trim

1.10 Picture 2 No air sealing measures present on attic access



1.10 Picture 3 Air leakage from unsealed attic access

1.11 Attic systems and insulation value

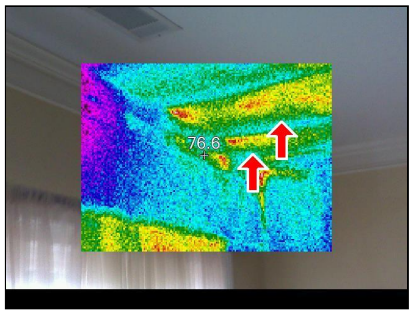
Priority Level A

Attic insulation is extremely important in the north Georgia climate. Your attic has an average of only 3" of loose fill cellulose insulation (Picture 1) **which is inconsistent and patchy throughout the attic which was very evident by thermal imaging.** (Picture 2) (Picture 3) **This equates to a resistance value of R-11. Current building code is R-30 and Southface Energy Institute recommends R-38 for our climate. This is a major deficiency and source of significant energy loss in your home.**

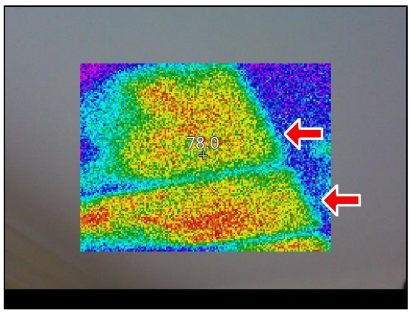
The best solution is to encapsulate the attic in 5.5" of open cell sprayfoam. This makes the attic a semi-conditioned space. This means the attic will no longer get extremely hot or cold. Sprayfoam is extremely effective insulation, does not deteriorate over time, and creates an air barrier between the living space in the house and the outside air. Encapsulating the attic with sprayfoam makes many of the air sealing measures addressed in this report unnecessary. Your 1st floor HVAC and ductwork system is located in the attic; encapsulating the attic will increase the efficiency and lifespan of this critical systems so that the HVAC unit doesn't have to work so hard to heat or cool your main floor.

Another option is to seal up all ceiling penetrations, insulate and air seal the kneewalls (see section 1.12) and install an additional R-30 blown cellulose or fiberglass insulation in the attic to increase resistance value to R-40+ throughout the attic floor.

1.11 Picture 1 Substandard levels of insulation in the attic



1.11 Picture 2 Attic insulation is patchy and completely missing in parts



1.11 Picture 3 Area of missing attic insulation

1.12 Attic Kneewalls

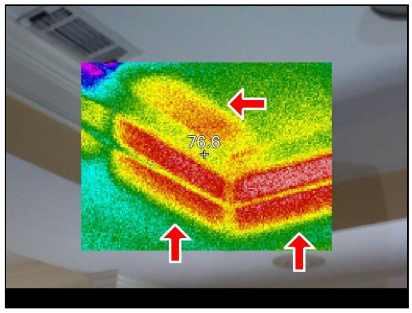
Priority Level A

The chased ceiling in the master bedroom means that there are kneewalls in the attic floor. The walls have no insulation(Picture 1) **so radiant heat gain through these walls is a significant source of heat gain in the hot summer months**(Picture 2). **This is a big contributing factor to your hot master BR which is a major problem per our conversation.**

The best solution is to install fiberglass batt insulation over the vertical walls and sheath over them with poly-ISO insulation board with radiant barrier facing. All contact points should be sealed with expanding foam and foil tape to create a continuous air barrier between the conditioned space in the home and the unconditioned attic space.

If you elect to install encapsulate the attic in sprayfoam, this improvement will not be necessary.

1.12 Picture 1 Zero insulation on attic kneewall above master bedroom

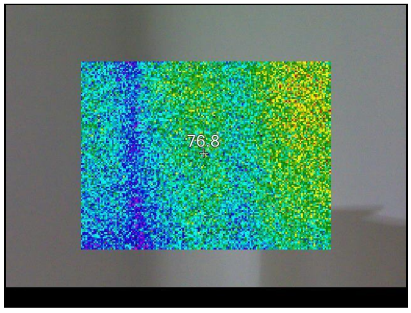


1.12 Picture 2 A substandard thermal barrier is a major cause of uncomfortable temperatures within the home

1.13 Insulation in walls

Thermal scans of the walls showed adequate wall insulation for north Georgia's climate. (Picture 1)

No improvement necessary.



1.13 Picture 1 Adequate wall insulation

1.14 Subfloor insulation value

Priority Level A, Priority Level S

(1) **The unconditioned crawlspace has no subfloor insulation.**

Poor or missing subfloor insulation is not a problem in the summer when the area stays relatively cool. However, in the cold winter months, this deficiency results in cold air, odors, and pests coming up into the conditioned areas of your home from the unconditioned crawlspace.

The best solution is to insulate the crawlspace with 2" of closed cell sprayfoam.

A lower cost option is to install R-13 fiberglass, suspended with sprung-metal rods, however batt insulation along the subfloor often fails by falling down with the effects of moisture and gravity over time.

1.14 Picture 1 Zero subfloor insulation in unconditioned crawlspace

(2) **The cantilever garage ceiling is suspected to have R-13 insulation. We cannot be sure since the area is covered with drywall. The insulation in this area, however, is not an air barrier and so is allowing air exchange between the unconditioned garage and conditioned master bedroom and bathroom.**

Garages are a source of hazardous gases such as Carbon Monoxide (CO). Air exchange between the conditioned living space and the garage is therefore considered a health and safety issue.

The best option is to seal and insulate the subfloor by installing 2" of closed cell sprayfoam. Sprayfoam is extremely effective insulation, does not deteriorate over time, and closed cell foam doubles as both an air and vapor barrier.

1.15 Rim Joist insulation and air sealing perimeter of floor system

Priority Level A

The rim joist in the crawlspace and conditioned basement storage room is not insulated.(Picture 1) (Picture 2)

This allows cool basement air into the wall cavities in winter months where it then finds its way into the home through baseboards and electrical penetrations.

The best solution is to install 2" of closed cell sprayfoam insulation along the top of the rim joist to seal off the wall cavities from below.

1.15 Picture 1 Zero rim joist insulation

1.15 Picture 2 No insulation of rim joist

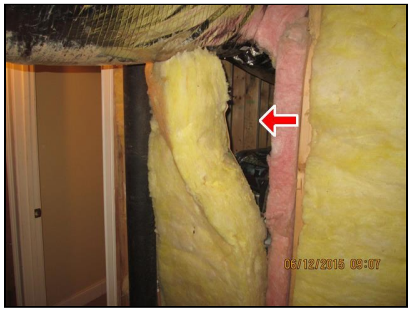
1.16 Basement kneewall

Priority Level A

The basement kneewall area separates the conditioned basement from the unconditioned crawlspace. A large section of this kneewall is comprised of studs and batt insulation only. This is a thermal barrier,

however it is not an air barrier (Picture 1)(Picture 2) **and effectively makes the unconditioned crawlspace unintentionally a semi-conditioned space. You mentioned that the previous homeowner left basement renovation incomplete including this area. You were right and this incomplete work is contributing to your high heating and cooling costs.**

We highly recommend completing the installation of this wall by installing drywall and baseboards. This would separate the 2 areas and stop the costly heating and cooling of the unconditioned crawlspace.



1.16 Picture 1 No air barrier present, meaning air can freely pass between unconditioned crawlspace and conditioned basement

1.16 Picture 2 Batt insulation is an ineffective air barrier

1.17 10 mil ground vapor control layer in crawlspace

Priority Level B

The unconditioned crawlspace has a 10mil vapor barrier installed. (Picture 1) **Great work!**

However, the perimeter of the vapor barrier is poorly sealed and unsealed entirely in some parts, allowing moisture to enter the crawlspace.(Picture 2)

We recommend sealing the perimeter of the vapor barrier with 2" closed cell sprayfoam. This will ensure there is a firm, moisture-resistant seal between the barrier and all surfaces that will not degrade.

1.17 Picture 1 Vapor barrier present. Great work!

1.17 Picture 2 Poorly sealed vapor barrier, allowing moisture in crawlspace

1.18 Heating and cooling systems

Priority Level A

The home is heated and cooled by two 2005 standard efficiency (8 HSPF*) heat pumps, with respective 2005 standard efficiency (13 SEER*) cooling systems. (Picture 1) (Picture 2) (Picture 3)

The basement unit has a poorly fitting filter door. (Picture 4)

Also, you expressed concern at a lack of returns and uncomfortable temperatures in the basement bedroom.

The 1st floor system has condensation issues and poor air seals where the plenum met the air handler and excessive ductwork. We understand since the time of the audit, that you have replaced the 1st floor system. That should be a bid improvement. Great work!

We recommend installing a return vent in the basement bedroom to mitigate AC temperature inconsistencies.

A lower cost option is to cut a louvered vent access in the wall that connects the basement bedroom to the hallway, where the main return is located, allowing air exchange between the bedroom and the return vent.

The best solution for the leaky filter door is to install higher quality, air-sealing filter door.

An alternate option would be to seal the filter door area with HVAC foil tape and replace this seal when changing the filter.

We also recommend having the systems serviced on an annual basis by a licensed HVAC technician.

HSPF

HSPF (Heating Seasonal Performance Factor) is a term used to measure the efficiency of air source heat pumps. The higher the HSPF rating of a unit, the more energy efficient it is. HSPF is a ratio of BTU heat output over the heating season to watt-hours of electricity used. It has units of BTU/watt-hr. Depending on the system, an HSPF ≥ 8 can be considered high efficiency system.

SEER

The SEER rating of a unit is the cooling output during a typical cooling-season divided by the total electric energy input during the same period. The higher the unit's SEER rating the more energy efficient it is. Today, it is rare to see systems rated below SEER 9 in the United States because aging, existing units are being replaced with new, higher efficiency units. The United States now requires that residential systems manufactured after 2005 have a minimum SEER rating of 13. Substantial energy savings can be obtained from more efficient systems. For example by upgrading from SEER 9 to SEER 13, the power consumption is reduced by 30%. This may result in an energy savings valued at up to $300 per year, depending on the usage rate and the cost of electricity.

1.18 Picture 1 Basement heating system

1.18 Picture 2 Attic heating system

1.18 Picture 3 13 SEER cooling systems

1.18 Picture 4 A poor fit for the basement system filter door

1.19 Duct leaks (repair and seal)

Priority Level A

The 1st floor ductwork is excessive and reminds us of Spaghetti Junction. Item 1(Picture) **The plenum connection to the air handler (including insulation jacket) is poorly sealed and the plenum duct connections are not air sealed.** (Picture 1) (Picture 2) (Picture 3) (Picture 4) **We understand that since the time of the audit, you have had a Manual-D assessment performed for your ductwork, with necessary alterations to the ducts made, along with a full replacement of the 1st floor system. Like a soothsayer, you did exactly what we were going to recommend before we even said it!**

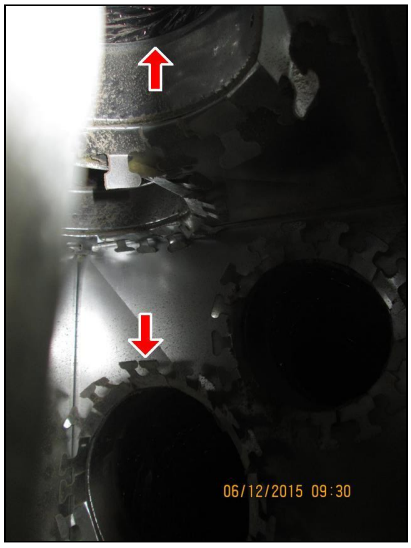
The registers throughout the home tested as leaky at the time of the audit. (Picture 5)

We recommend sealing all register transitions in the home with foil tape and mastic.

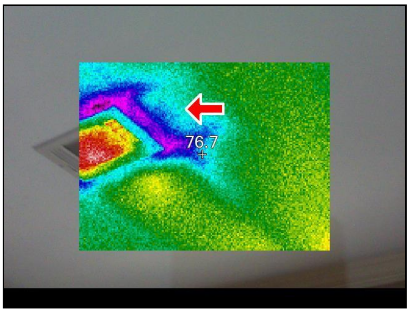
1.19 Picture 1 Excessive attic ductwork

1.19 Picture 2 More excessive ductwork in the attic

1.19 Picture 3 Insulation poorly attached to attic system plenum/ air handler



1.19 Picture 4 A view inside the attic system plenum shows no mastic was used to seal the collars



1.19 Picture 5 Registers throughout the home are leaky

1.20 Install an Energy Star Programmable Thermostat

Priority Level B

The 1st floor system has a programmable thermostat.

The basement thermostat, however, is not programmable.

If you use the basement often and your schedule of doing so is consistent, we recommend installing a programmable thermostat for this floor.

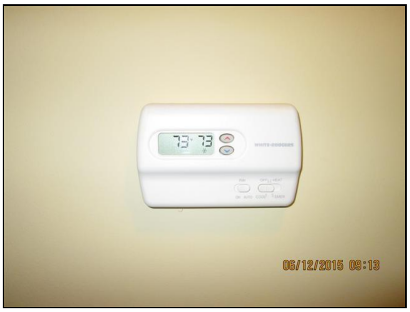
Also, if you are not already doing so we encourage you to take advantage of the programming features for the T-stat on the 1st floor in order to maximize the efficiency of your home.

You can easily save energy in the winter by setting the thermostat to 68°F while you're awake and setting it lower while you're asleep or away from home. By turning your thermostat back 10° to 15° for 8 hours, you can save 5% to 15% a year on your heating bill -- a savings of as much as 1% for each degree if the setback period is eight hours long. The percentage of savings from setback is greater for buildings in milder climates than for those in more severe climates.

In the summer, you can follow the same strategy with central air conditioning by keeping your house warmer than normal when you are away, and setting the thermostat to 78°F (26°C) only when you are at home and need cooling. Although thermostats can be adjusted manually, programmable thermostats will avoid any discomfort by returning temperatures to normal before you wake or return home.

A common misconception associated with thermostats is that a furnace works harder than normal to warm the space back to a comfortable temperature after the thermostat has been set back, resulting in little or no savings. In fact, as soon as your house drops below its normal temperature, it will lose energy to the surrounding environment more slowly. The lower the interior temperature, the slower the heat loss. So the longer your house remains at the lower temperature, the more energy you save, because your house has lost less energy than it would have at the higher temperature. The same concept applies to raising your thermostat setting in the summer -- a higher interior temperature will slow the flow of heat into your house, saving energy on air conditioning.

1.20 Picture 1 Programmable thermostat present for the main floor system. Great work!



1.20 Picture 2 Basement system thermostat is not programmable

1.21 Water heating

Priority Level B

There are two water heaters supplying heated water to the home, both located int he unconditioned crawlspace. Both are standard efficiency electric water tanks, circa 2005 and in good operating condition. (Picture 1)

We recommend insulating each of the water tanks with a 3" insulation blanket and insulating all accessible hot water lines to increase the efficiency of your hot water delivery system.

The GA Power $50 rebate makes this improvement a no-brainer.

1.21 Picture 1 Water heaters in the unconditioned basement are uninsulated

1.22 Water Conservation Measures

Priority Level B

There are 3 bathrooms in the home, with 2.2gpm (gallons per minute) faucet aerators. ((Picture 1)

Compared to a traditional faucet with 2.2gpm flow rate, a high-efficiency bathroom sink faucet flowing at 1.5 gpm can reduce flow rate by 32 percent.

As both hot water heaters in the home are electric, reducing hot water consumption will have a positive impact on electricity usage.

We recommend upgrading all faucet aerators in the home to high-efficiency 1.5gpm aerators.

1.22 Picture 1 2.2gpm aerators throughout the home consume more hot water than low-flow aerators

1.23 Change out of Lighting from Incandescent to CFL/LED

Priority Level A

We counted a total 57 high wattage bulbs in the home. (Picture 1) **This is a lot of inefficient lighting. Upon examination of your power consumption data, your electric baseload is extremely high. Electric baseload is the cost to run your home excluding heating and cooling. Upgrading lighting is one of the easiest and least expensive ways to reduce your power consumption.**

Lighting is an important component of energy consumption in the home. Just one incandescent 60 watt bulb in use for 8 hours/day costs an average of $20/year. A comparable 13 watt CFL uses 78% less power.

Additionally, heat gain from incandescent lighting drives up air conditioning bills during the summer. LED bulbs are the most efficient type of bulb but they are also the most expensive. LED's and CFL's come in various light shades and now includes 3 way dimmers. Remember, if you are not using it, turn it off.

We recommend upgrading all high usage bulbs to CFL's or LED's to significantly reduce electric baseload in the home.

1.23 Picture 1 Lighting is an important component of energy consumption in the home.

1.24 Exterior Concerns

Priority Level B

There is minor water damage to one area of the soffit on the South side of the home. (Picture 1)

The attic HVAC system condensation drain line is draining water onto the home. (Picture 2)

We recommend ensuring your gutters are clean, free of debris and draining water away from the home correctly.

We also recommend diverting the condensation drain line drainage away from the home.

1.24 Picture 1 Minor water damage to soffit

1.24 Picture 2 HVAC condensation drain line is draining water onto the home

Energy Conservation Solutions is an Earthcents approved contractor. We will be happy to put a proposal together for you! You are also welcome to visit the Earthcents contractor page to view a list of other approved contractors.