



HUDSON VALLEY ENERGY CONSULTANTS

1052 Mamaroneck Avenue, Mamaroneck, N.Y. 10543

www.myenergyaudits.com

Report Prepared For: You

Dear HOMEOWNER:

At your request, a visual and or diagnostic inspection of the above referenced property was conducted on DATE This inspection report reflects the conditions of the property at the time of the inspection only. Hidden or concealed defects cannot be included in this report. No warranty is either expressed or implied. This report is not an insurance policy, nor a warranty service.

An earnest effort was made on your behalf to discover all visible defects, however, in the event of an oversight, maximum liability must be limited to the fee paid. The following is an opinion report, expressed as a result of the inspection. Please take time to review limitations contained in the inspection agreement.

REPORT SUMMARY

EACH OF THESE ITEMS WILL GENERALLY HAVE A VERY GOOD COST/PAYBACK RATIO OF UNDER 10 YEARS.Interior

Thermal Report

Exterior

These images clearly show the heat loss around the perimeter of the house where the floor rests on the foundation. Even if the walls are insulated, improper or lack of air sealing around the rim joist will allow for a substantial amount of heat loss and outside air infiltration. Roof connections can be areas of concern as they are "outside" of the house but have attic spaces that may be connected to the conditioned house.

Attic

Probably the largest heat loss into the attic is through the entrance hatch and especially pulldown stairs. Not only is heat radiating through the thin plywood/wallboard covering, but air is also moving freely around the cover as it is not tight.

A major source of heat loss is often hidden under the insulation. The tops of interior partition walls are filled with holes for wires and pipes that connect the interior conditioned rooms to the attic. Even though the insulation looks good, it is not an air seal. These holes need to be filled. If you can feel cold air coming out of a first floor outlet, it's probably being pulled into the house because warm air is leaving through the attic.

Crawlspace

It would be advisable to install a vapor barrier on the floor of the crawlspace to help control moisture.

Basement

Any ductwork located "outside" the house should be checked and sealed as this can be a great source of conditioned air loss.

Kitchen

A common area for air movement is through walls and floors where pipes are running. They are connected to both the basement (waste lines and water feeds) and the attic (vent pipes). Sealing around the attic vent where it passes through the floor can reduce this air flow considerably.

Blower Door Testing

Blower Door Testing

Actual Airflow

Blower Door Reading, Natural airflow is Cfm50 / N factor (in New York - 1 story is 19, 1.5 =16.8, 2=15.4, 2.5=14.4, 3=13.7), Minimum Cfm50 = required airflow X N factor, = 1790cfm.

Recommendations. Airseal in the attic and crawlspace and monitor the air tightness during the renovation.

THESE ITEMS ARE CONSIDERED GOOD INVESTMENTS WITH A PAYBACK OF USUALLY 10 -15 YEARSInterior

Thermal Report

Even if insulation has been installed, heat loss will occur if it is not in direct contact with the finished wall or floor (air barrier).

Bedrooms

Windows are typically leaky especially if they don't fully lock. The locking mechanism helps pull the two sections of window tight to help control airflow.

EACH OF THESE ITEMS ARE CONSIDERED A HIGH COST TO PAYBACK RATIO BUT MAY BE CONSIDERED AS VALUABLE FROM A COMFORT STANDPOINT.

Exterior

EXTERIOR

Windows

Type, Double hung single pane with triple track storm windows and single pane uninsulated.

Condition, Appear to be in generally acceptable condition. Unless triple track storm windows have been installed and are in good condition, it can be cost effective to rplace the single pane windows with double pane or install a storm window. The front living room window would be cost effective to replace.

Interior

Thermal Report

Living/Dining rooms

It is very common for directional changes in walls and ceilings to be poorly insulated. Reinsulating with foam or foam board may be very cost effective to help control heat movement.

Sincerely,

JOHN POLGREEN

Inspector

enclosure

General Conditions

CLIENT & SITE INFORMATION:

DATE AND TIME OF INSPECTION:

Anytime.

CLIENT NAME:

Anyone.

MAILING ADDRESS:



Anywhere.

The front of the houses faces: East.

CONDITIONS

**EXTERIOR/
Temperature/
Relative humidity**

23 degrees/18%

**INTERIOR/
Temperature/
Relative humidity**

67 degrees/41%

Exterior

An exterior inspection has been conducted for the purpose of determining areas of possible moisture intrusion. Possible mold growth as well as being a safety issue for the inhabitants, can also limit the use of a blower door during the interior audit. Any exterior gas lines have also been tested for leakage. The roof has not been walked on so any comments are based solely on a visual inspection from the ground or possibly from interior windows.

EXTERIOR

- Grading**
- Siding and trim**
- Roofing**
- Windows**

Appears acceptable.

Appears to be generally acceptable.

Appears to be in generally acceptable condition.

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Doors

Appear to be generally acceptable.

Interior

The thermal imaging report that follows and the visual walkthrough that was conducted are not intended to constitute a complete energy audit and should not be used in determining an overall work scope. Although they can be very useful and in some cases give enough information to begin work, they do not cover the very important aspect of pressure differences and airflow within the house. It would be recommended to complete the diagnostics with a blower door test and a full written report.

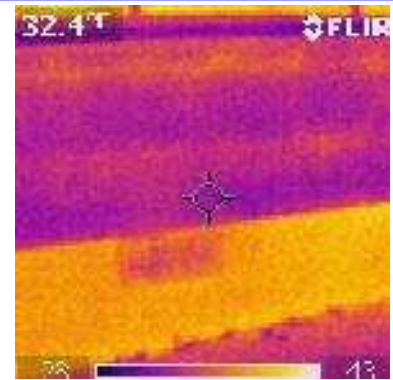
With the lighter colors being warmer and the darker colors cooler, we can see heat movement throughout the house. We are basically looking for breaks in the "thermal blanket" that are allowing heated air to leave the house in the winter and enter the house in the summer. Some air movement may also be visible and will be noted.

Ideally your house should be completely wrapped in a "thermal blanket" (insulation) and be in total contact with an "air barrier" (generally interior wallboard or other finishing materials). **MOST HOUSES ARE NOT.** Main areas of concern will be the attic, basement, crawlspace, and garage connections to the house. By reducing the connections to these areas that are "outside" we can greatly reduce fuel usage and increase the comfort level with the house. Also remember: **ENERGY CONSERVATION IS NOT SEASONAL! HEAT LOSS IN THE WINTER IS HEAT GAIN IN THE SUMMER.** For more information on these topics visit our website -www.myenergyaudits.com

Thermal Report

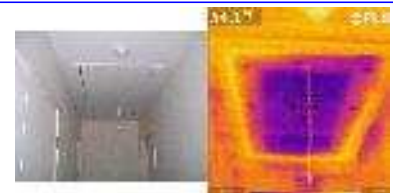
Exterior

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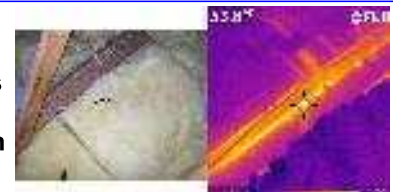


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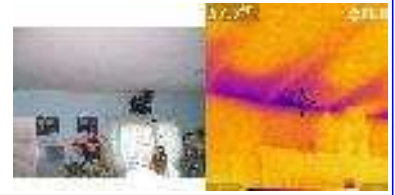


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HVEC SAMPLE

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Kitchen

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Living/Dining rooms

It is very common for directional changes in walls and ceilings to be poorly insulated. Reinsulating with foam or foam board may be very cost effective to help control heat movement.



Bathrooms

Generally acceptable.

Bedrooms

Windows are typically leaky especially if they don't fully lock. The locking mechanism helps pull the two sections of window tight to help control airflow.

Mechanicals

As part of a more comprehensive audit, a blower door and area pressure testing has been performed. The CAZ test is a measure of the air pressure in the combustion appliance zone (the area in which the heating units are located) when the house is being de pressurized by running exhaust fans, cloths dryers, and opening doors to rooms that may be particularly drafty. This will determine the likelihood of exhaust fumes being pulled into the living area during the course of normal household activities. Further analysis of heating, cooling, and general appliance efficiency may also have been done and will be recorded in separate sections of the report. In reviewing appliances it should be noted that anytime a new one is purchased, the ENERGY STAR rating should be taken into consideration and chosen whenever possible.

CAZ Pressure Test

Pa. of pressure is acceptable. -.5.

Mechanical Systems

Heating

Type of heating system. hotwater baseboard. Condition, Appears to be generally acceptable. Efficiency/82% Stack temperature/380 degrees C.O./ 6 ppm.

Cooling

Condition, Appears to be acceptable.

Domestic Water Heating

Type, Oil fired, Condition, Appears to be functioning properly.

Appliances and Lighting

Kitchen Appliances

Stove, Appears to be acceptable. Oven, Appears to be acceptable. Dishwasher, Appears to be acceptable. Microwave oven, Appears to be acceptable. Refrigerator, Appears to be acceptable.

Lighting and Household Appliances

Changing incandescent light bulbs to CFL's (compact fluorescent) or LED's (light emitting diodes) will noticeably reduce electric consumption.

Blower Door Testing

The purpose of a blower door test is to help determine areas and severity of air leakage to the outside of the house. The initial visual walkthrough will determine what areas were intended to be conditioned (inside the house) and what areas were not intended to be conditioned (outside the house). These are not always clear boundaries and can be a great source for energy savings and added comfort for the homes occupants when properly addressed and corrected. In air sealing a house we will also take into consideration that a certain amount of ventilation is required (a house does have to breathe) but controlling where the fresh air comes from is very important. Mechanical ventilation may be recommended as air sealing measures begin to "tighten up" the house.

Blower Door Testing

Ventilation Required

The BAS (building airflow standard) is the amount of recommended air exchanges (stale air out, fresh air in) needed to ventilate the home. Most houses are very much over ventilated due to leaks in the buildings shell and even with more air sealing don't need mechanical ventilation. Hopefully your house can be tightened up enough that you would benefit from a mechanical system and have better control over where your fresh air comes from and how much heat is lost getting it into the house. The higher number measured in cfm (cubic feet per minute) will be the level at which mechanical ventilation will be required. Based on cubic footage: $.35 \times \text{Vol.} / 60 = 1520 \text{ cfm}$ Based on number of occupants: $15 \times \text{occupants} = 1200 \text{ cfm}$.

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