Energy Audit Report

Homeowner(s): Ken Schmidt

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We conducted an energy assessment of your home on 6/26/2024. This report will tell you what we did, what we found, and what we suggest for your home. These suggestions include information on incentives and financing to make improvements more affordable.



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## 1 Summary of your Audit

### 1.1 Visual Inspection and Measurements

We started with a tour and visual inspection of the inside and outside of the home. We identified any visible damage to the building, moisture control strategies, major appliances, and insulation. We measured square footage and volume of the home, as well as the area of all exterior windows and doors. We used a kill-a-watt meter to measure the electricity use of some appliances. During your audit, we used a carbon monoxide meter to measure the ambient carbon monoxide levels throughout the home.

### 1.2 Attic

We entered the attic to check for insulation, air sealing, ventilation, and potential hazards such as mold. Additionally, we visually inspected the attic ventilation and any duct and pipework passing through the attic.

### 1.3 Basement

We visually inspected any appliances in the basement and noted insulation levels, moisture, rodents, and any other concerns.

### 1.4 Blower Door / Air Leakage Test

We used a large fan in an exterior door to depressurize your house. This allows us to determine the volume of air leakage into the house and to locate bigger air leaks. To find leaks, we used an infrared camera to check for unusually hot and cold spots. We also checked the pressure differences of the rooms to help determine major air leak locations.

### 1.5 Combustion Appliance Safety

We assessed combustion appliances that burn fossil fuels such as propane, heating oil, or kerosene. These include furnaces, boilers, water heaters, and gas ovens. We visually inspected the combustion appliance(s) in your home, as well as conducted combustion safety tests. This included measuring for carbon monoxide and testing that flue gases are properly exhausting from the home. We also performed gas leak detection tests on your propane appliance(s).

## 2 Summary of Recommendations

We recommend the following upgrades for your home. Detailed information about these recommendations and financial resources can be found later in this report.

| Recommendation | Description |
| --- | --- |
| LEDs | Switch your light bulbs to LED light bulbs. LEDs use 80% less energy than incandescent light bulbs which can significantly reduce your electricity bill. We provide free LED light bulbs, contact us for some if we did not give you any during the audit. |
| Window Dressers | Getting insulating window inserts that help air-seal windows and reduce heat loss and gain. There will be a Window Dresser build on Great Cranberry Island September 28th-October 2nd. Sign up at https://windowdressers.org/sign-up-for-inserts/ There will be a Window Dressers build in Eastport November 18 to 25. Contact Pete to sign up: 207-214-4751 or EastportMEEnergy@gmail.com |
| Attic Insulation | Air seal the attic and insulate it to at least R-60 (18” of loose-fill cellulose insulation). |
| Vapor Barrier | Install a vapor barrier on the basement floor to stop moisture from entering the basement and house. |
| Induction Stove | Induction stoves are more efficient and safer than electric or gas stoves. There is no risk of carbon monoxide or other harmful combustion gases |
| Bathroom exhaust fan(s) | Bathroom exhaust fans should be rated for at least 50 cubic feet per minute (CFM). We recommend Panasonic WhisperQuiet or similar fans that don’t create excess noise. |
| Kitchen exhaust fan | We recommend a kitchen exhaust fan to remove harmful combustion gases from your home. A fan can also help with moisture concerns. |
| Gutters | Install gutters and downspouts that divert water at least six feet away from the foundation and to where the ground slopes away from the house. |
| Spray Foam Basement Walls | Install spray foam on the basement walls. |
| Blow-in cellulose wall insulation | Insulate the wall stud cavities with dense packed, blown-in cellulose insulation. This can often be done from the attic. |

## 3 What We Found

### 3.1 Basics

|  |  |
| --- | --- |
| Date Built | 1917 |
| Attic | Loose Fiberglass , 12 inches |
| Number of floors | 2 |
| Square footage of conditioned space | 2012 |
| Volume of conditioned space (cubic feet) | 16096 |

### 3.2 Exterior

|  |  |
| --- | --- |
| Roof age: | 10 |
| Orientation: | East/West |
| Roof type: | Asphalt Shinglesin faircondition. The roof has many dormers and elevation changes. |
| Moisture control: | Current moisture control strategies: sump pump; the homeowner is currently installing a positive drainage system.. These were in fair condition .NA |
| Siding: | wood shingles in fair condition. NA |

### 3.3 Interior/Living space

|  |  |
| --- | --- |
| Walls: | Walls framing is Balloon type. There is Uninsulated insulation NA inches thick in NA condition. There is no wall insulation in the home. |
| Living room: | There is a bay window in the living room next to the front door. |
| Bathroom(s): | There is no bathroom vent fan. |
| Kitchen: | Refrigerator used 0.05 kWh in 75 minutes. NA used NA kWh in NA minutes. There is a large air leak in the column to the right of the kitchen. There is also no vent fan. |

### 3.4 Blower Door / Air Leakage Test

A blower door test simulates a 20mph wind hitting your house from all sides.

To run the test, we used a large fan in an exterior door to depressurize your house. As air is pulled out through the fan, an equal volume of air is pulled in through all of the gaps, cracks, and air leaks throughout the house. This allows us to determine the volume of air leakage into the house and to locate bigger air leaks.

To find leaks, we used an infrared camera to check for unusually hot and cold spots. We also checked the pressure differences of the rooms to help determine major air leak locations.

Air leaks are a big source of heat gain in warm weather and heat loss in cold weather. They also allow moisture to get into the home. Below are some numbers, pictures, and descriptions explaining what we found.

|  |  |  |
| --- | --- | --- |
| CFM50: | 4700 | CFM50 describes how many cubic feet per minute of air are leaving the house at 50 pascals of pressure difference (while the blower door is running). For every cubic foot of air that leaves the house, a cubic foot of air enters the house as well. The higher the number, the leakier the house. |
| ACH50: | 17.5 | ACH50 tells us how many air changes per hour are taking place in the house at 50 pascals of pressure difference. This value is normalized for the volume of the house and thus allows for comparison between different houses. The higher the number, the leakier the house. |
| Equivalent leakage area: | 470 under natural conditions. | This is the area (in square inches) equivalent to all of the air leaks in the house combined. |
| ACHnatural: | 1.2 | Accounting for the volume of the home, this means that the house exchanges –% of its air every hour. Over one day, the house goes through – complete air changes. |

Using a thermal imaging camera, we looked for major air leakage locations and thermal bridging, where heat is bypassing the insulation. There was evidence of ….

### 3.5 Attic

|  |  |
| --- | --- |
| Area (sq ft): | 1006 |
| Insulation type: | Loose Fiberglass |
| Insulation condition: | Poor |
| Air sealing: | There is Noair sealing. There is a gap next to the chimney that connects down from the attic to the lower level of the home. |
| Other observations: | The attic is only insulated in certain sections. One side of the attic is not insulated at all, while the section with loose fiberglass is missing insulation. No NA |
| Ventilation: | There are no bathroom and kitchen exhaust fans. |
| Ducts: | No |

### 3.6 Basement

|  |  |
| --- | --- |
| Area (sq ft): | 1006 |
| Inuslation type: | Uninsulated |
| Insulation condition: | NANA |
| Insulation of appliances: | Ducts/pipes insulated, Ducts/pipes not insulated, The cold water pipes are not insulated and other pipes are missing insulation in some sections. |
| Moisture Control: | sump pumpin NAcondition. NA |
| Ducts: | NoNA |
| Other observations: | There is moistureThere are cracks in the foundation walls and floor due to excess flooding and moisture problems. |

### 3.7 Electrical and Mechanical Systems

|  |  |
| --- | --- |
| Electrical panel: | The electrical panel has and amperage of 100. There are 3 unused breaker spaces. NA |

### 3.8 Energy Bills

| Type | kWh/gallons/cords/tonns | Cost (USD) |
| --- | --- | --- |
| Propane | NA | 320 |
| Electricity | NA | 1016 |
| Firewood | NA | 500 |

## 4 Recommendations

### 4.1 LEDs

*Problem*

*Recommendation*

*Estimated Cost*

### 4.2 Window Dressers

*Problem*

*Recommendation*

*Estimated Cost*

### 4.3 Induction Stove

*Problem*

*Recommendation*

*Estimated Cost*

### 4.4 Gutters

*Problem*

*Recommendation*

*Estimated Cost*

### 4.5 Bathroom exhaust fan(s)

*Problem*

*Recommendation*

*Estimated Cost*

### 4.6 Kitchen exhaust fan(s)

*Problem*

*Recommendation*

*Estimated Cost*

### 4.7 Vapor Barrier

*Problem*

*Recommendation*

*Estimated Cost*

### 4.8 Spray foam basement walls

*Problem*

*Recommendation*

*Estimated Cost*

### 4.9 Attic air sealing and insulation

*Problem*

*Recommendation*

*Estimated Cost*

### 4.10 Wall stud insulation

*Problem*

*Recommendation*

*Estimated Cost*